ICFE 2022 International Conference on FINANCE AND ECONOMICS

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ICFE 2022 International Conference on FINANCE AND ECONOMICS

THE 7TH INTERNATIONAL CONFERENCE ON FINANCE AND ECONOMICS

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ICFE 2022 International Conference on FINANCE AND ECONOMICS

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PREFACE

The International Conference on Finance and Economics (ICFE) hosted by the Faculty of Business Administration, Ton Duc Thang University (TDTU) has been a hub for discussing, sharing, and exchanging discoveries, knowledge, and insights into the economics, business, and management fields. Notably, ICFE focuses on how to bridge the gap between theory and practice by selecting papers whose findings benefit the business. Papers that are accepted for presentation at the Conference and publication in the Conference Proceedings must comply with research ethics and best practices of scholarship.

This year's Conference (ICFE 2022) has been heavily impacted by COVID-19 compared to the pre-COVID era. In this hard time, ICFE 2022 looks into the future by featuring the theme: "Doing Business in the New Normal". With this topical focus, we choose to look on the bright side of uncertainties that would bring along both challenges and opportunities. The positivity of the theme also reflects the vision of TDTU during its 25 years of establishment and development that entities with a great adaptation ability would survive and thrive.

It is our honor to receive a large number of submissions to ICFE 2022. After multiple rounds of review and consideration, our scientific committee decided to select only papers that are qualified for inclusion in this Proceedings which will be published in Thomson Reuters Conference Proceeding ISI Index Database.

Our acknowledgment goes to SMEI – Sales & Marketing Executives International (USA), Prague University of Economics and Business (Czech Republic), Emlyon Business School (France), Dongguk University (South Korea), and Tomas Bata University in Zlín (Czech Republic) for their contributions and supports during this difficult time.

To authors who participated in the Conference, we hope that you have gained new insights and discoveries from the research of our fellow international scholars.

Thank you for your interest in ICFE 2022.

MESSAGE FROM THE HOST UNIVERSITY

Dear Conference Participants!

Continuing the tradition of the previous International Conferences on Finance and Economics (ICFE), this year's Conference (ICFE 2022) hosted by the Faculty of Business Administration, Ton Duc Thang University (TDTU) is organized to promote the exchange of knowledge and research ideas among fellow scholars, practitioners, and students, despite prolonged effects of COVID-19. This event reminds us of how fortunate we are to have the tremendous support of our distinguished scientific committee members, reviewers, guest speakers, and participants in the success of ICFE 2022.

September 2022 marks TDTU's 25 years of development to become a visionary, pioneering, and fast-growing university in Vietnam. TDTU has demonstrated excellence in academic performance and was listed in the TOP 100 best young universities in the world (Times Higher Education). As a comprehensive university, we acknowledge our role in contributing to the continuous and sustainable development of society and local communities through education, training, research, and collaboration. Accordingly, ICFE is an annual activity to bridge the gap between academic research and industrial practices.

On behalf of TDTU, I would like to send my sincere thanks to co-organizers and partners: SMEI – Sales & Marketing Executives International (USA), Prague University of Economics and Business (Czech Republic), Emlyon Business School (France), Dongguk University (South Korea), and Tomas Bata University in Zlín (Czech Republic) for your great contributions to the success of ICFE 2022. Finally, I would like to express my sincere appreciation to all of you for being a part of ICFE 2022 and TDTU.

I wish health and safety for you, your colleagues, and your family.

Conference Chair

Assoc. Prof. Pham Thi Minh Ly, PhD.

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TABLE OF CONTENTS

ECONOMICS

ANALYSIS OF DEPENDENCE ON CIGARETTE CONSUMPTION EUROPEAN UNION

Eva Kolářová

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ABSTRACT

The main goal of the article is to analyse and determine the dependence of cigarette consumption and mortality due to smoking addiction in the countries of the European Union. The current study focuses on the duty on tobacco in European countries between 2012 and 2021. Each country has a different specific and Ad Valorem ratio, but a tax per 1000 cigarettes was used. Changes to consumption tax in individual countries of the European Union and their development were described. The countries with the greatest reduction in cigarette consumption were analysed and the reasons for the reduction in consumption were described. Furthermore, the research was mainly focused on cigarette consumption in individual countries and their dependence on the percentage of mortality due to smoking. The initial assumption was a strong dependence on the number of cigarettes smoked and the mortality of smokers. The result was a weak indirect linear relationship. This means that the higher the reduction in the number of cigarettes smoked, the percentage of deaths will decrease slightly, but this percentage is minimal. Furthermore, research has shown that a very high increase in consumption tax does not have such an effect on reducing cigarette consumption, but this dependence turned out to be strong.

Keywords: Tax policy, Consumption Tax, Tobacco, Excise duty

JEL Classification: H27

1. INTRODUCTION

Excise taxes are indirect taxes and are applied to certain products. Accordingly, the excise taxes would be applied entirely to the country. Besides, to ensure the synchronous policy for implementing, the European Union (EU) released the excise rules covers the certain products and requires all the countries must to comply with Among the covered-excise tax products such as alcohol, energy products, electricity, Tobacco is paid a lot of attention due to its negative effect to human health and social impact (Excise duties, 2022). Even though the increased amount of tax and widely discouraged not only by social activist but also policy makers, Tobacco consumption is still high and significantly affect to household's income. More specifically, tobacco is proved as the critical factor increasing nicotine addiction of young generation. According to rules of excise duties released by EU, the manufactured tobacco is identified as the firms with main categories products are cigarettes and other relevant tobacco products. Although the significant impact of tobacco to the EU economy and society impact, both negative and positive influences are considered, but very few studies discuss these interrelations in details.

2. LITERATURE REVIEW

As per Shang et al. (2014), the specific uniform taxations, such as valorem uniform taxation are great variability contribution to the products price. Particularly, uniform taxations commonly comprise a wide range of types such as mixed tax system using ad valorem-other tax structures, tired tax structures of specific. The evidence shows that the valorem and tiered taxes cause the variability of products price in the countries with greater adaption rather than the others. Furthermore, the countries with greater ad valorem taxes have the highest products price variability. Sang and Ce (2014) indicate tired tax systems are the reasons leading the higher cigarette prices than countries under uniform tax systems.

Based on human behavior, Mankiw (2020) indicate that the people commonly react with the external factors through two function as incentives and punishment. Whereas the people positively respond with the incentives, their responses are negative with the punishment driving their decrease in common actions. Since tobacco taxes are mentioned as the negative factor affecting to customer behavior, it is the appropriate method to decrease the tobacco usage and improve human health. Specifically, since the increased tobacco taxes significantly affect to people's income, it increases the cigarette prices, then the young customers, especially low-income people have to considering purchasing this kind of product. However, the lower tobacco consumption may decrease the revenue of the countries with excise taxes utilization. Previous studies indicate that the 10% higher in tobacco price may decrease tobacco usage at 4% in developed countries and 5% in the rest such as developing markets.

Tax avoidance and tax evasion undermine the effectiveness of tobacco control policies, particularly higher tobacco taxes. The tobacco industry and others often argue that high tobacco product taxes lead to tax evasion. However, experience from many countries demonstrate that illicit trade can be successfully addressed even when tobacco taxes and prices are raised.

Tobacco kills more than 8 million people each year. More than 7 million of those deaths are the result of direct tobacco use while around 1.2 million are the result of non-smokers being exposed to second-hand smoke. Over 80% of the world's 1.3 billion tobacco users live in low- and middle-income countries. In 2020, 22.3% of the global population used tobacco, 36.7% of all men and 7.8% of the world's women. To address the tobacco epidemic, WHO Member States adopted the WHO Framework Convention on Tobacco Control (WHO FCTC) in 2003. Currently 182 countries have ratified this treaty. (WHO, 2022)

In recent years, a growing body of literature investigated how complicated tax structures—ad valorem, tiered and mixed—are associated with price distribution (Shang 2014, Chalouka 2014, Shang 2016, Chaloupka 2010, Liber 2015). A series of studies provided descriptive evidence, showing that price variability tends to be greater when tax structures deviate from a specific uniform one (Shang 2014, Chaloupka 2014). One study further employed regression analyses to estimate that a 10% increase in the share of specific taxes among total excises is associated with 2.8%–4.3% lower price variability, whereas a tiered tax structure is associated with a 61%–147% increase in price variability (Shang 2014). Another study employed data from European Union (EU) countries to demonstrate that more reliance on ad valorem taxes in a mixed tax structure is associated with a lower average price and greater price variability (Chaloupka 2010).

An analysis of consumption tax on tobacco products in the Czech Republic, published by the Department of Economic and Social Policy of the Faculty of Economics of the University of Economics in 2022, showed that while the tax rate increased by a third from 2018, the state's income from it did not increase by a single crown. Cheaper tobacco products have grown in popularity. According to the author of the analysis, the price difference compared to Poland is extreme. The cheapest legal cigarettes in Poland cost half of what they cost in the Czech Republic and the Czechs who use and buy cigarettes in Poland. This is a big problem that should be addressed in the amendment of the European directive on the taxation of tobacco claims.

In the context of Czech Republic, Scémy et al. (2020) indicate that tobacco and alcohol consumption is the critical reason of morbidity and mortality. More specifically, there were about 20% and nearly 6% of total mortality that are reported by smoking and alcohol respectively. Thus, Lim et al. (2012), Steel et al. (2018); Whiteford et al. (2013) propose that reduced these kinds of product are the positive ways to increase human health and decrease the death rate.

3. METHODOLOGY

This research was conducted in 2022 and used data from the Taxes Europe online database and the Eurostat database. The research did not focus on the number of smokers, but on the number of cigarettes smoked. This was due to the fact that there are smokers who smoke 1 cigarette per day and there are heavy smokers who smoke 40 cigarettes per day. Therefore, the data on the number of cigarettes was converted to the number of inhabitants of the individual states of the European Union, and we calculate what a smoker in a given country smokes per year. Data on the number of deaths due to smoking was also examined. Although the total tobacco tax consists of two components, I focused on the development of the excise tax on 1000 cigarettes in the individual states of the European Union. Based on these analyses, the research was focused on the interdependence of the number of cigarettes smoked and the amount of consumption tax and the number of deaths due to smoking.

Research method

This paper applies the SPSS to test the dependencies of the relationship between smoking behaviour and excise taxes on tobacco products. The final results get through the robustness test by several methods including the Shapiro–Wilk test, The Pearson correlation and paired t-test. Thus, the final results are soldiered and confident.

Hypotheses

The empirical results indicate that the EU countries may reduce the cigarette consumption by implementing the higher excise taxes. Specifically, the higher cigarette price tend the customers consider purchasing, thus reducing their behaviour in smoking and negative affect to their future consumption.

Besides, our studies also confirm the strong connection between the high rate of smoking behaviour and death rate. Thus, the policies to against the tobacco consumption should be announced in future to reduce the human health consequences, driving the lower death rate due to smoking.

4. DATA

The data were collected from EU countries which includes two main variables as smoking rate (tobacco consumption) and tobacco prices (including excise taxes). Graph No. 1 shows that in half of the countries of the European Union there is a decrease in the number of cigarettes smoked during the period 2012-2020. In some countries there is stagnation and in some countries there is an increase in the number of cigarettes smoked. The research does not deal with the price of cigarettes, but only with the number of cigarettes smoked. According to graph no. 1, cigarette consumption in 2012 and 2020 was compared and a reduction was detected. There was a big reduction compared to 2012 in Cyprus – 43.09% , Ireland – 38.86%, Greece – 37.66%, Hungary – 32.73%, Slovenia – 32.33%, Malta – 31.05%, Denmark – 28.16%, Luxembourg – 27.03%, Czech republic – 27.23%, Spain – 25.94%, Belgium – 23.59%, Sweden – 22.35%, Croatia – 20.80, Latvia – 17.05%, France – 14.09%, Germany – 13.21%, Austria – 11.24%. There was an increase in the number of cigarettes smoked in Bulgaria. For the other countries Finland, the Netherlands, Portugal, Poland, Romania and the Slovak Republic, we cannot talk about a reduction, there was both a reduction and an increase in the number of cigarettes smoked during the years 2012-2020

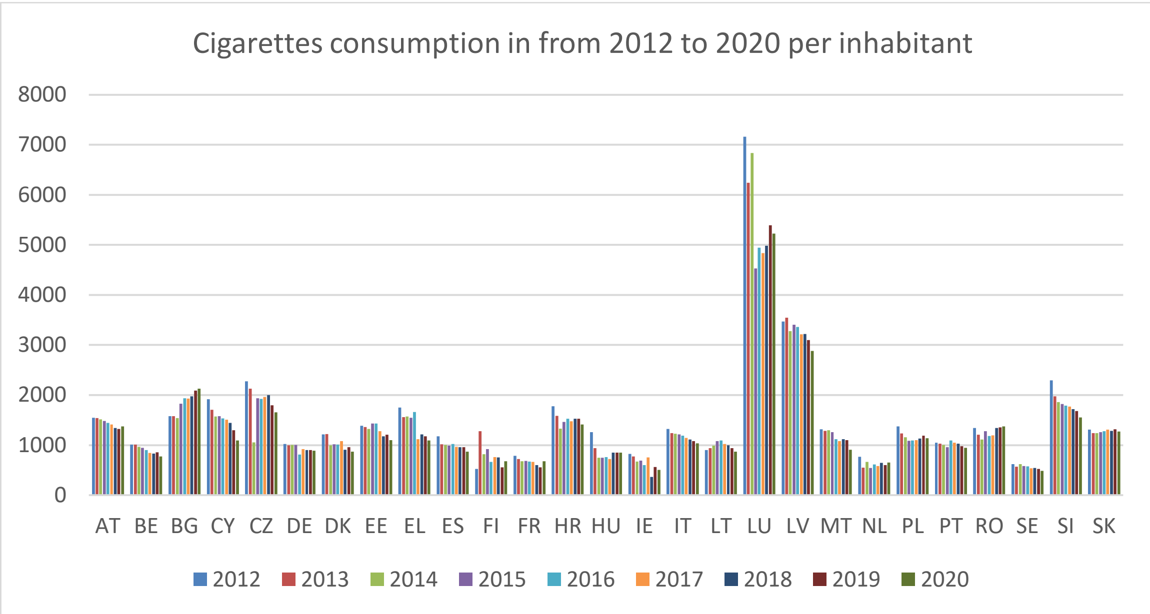

Figure 1 The number of cigarettes smoked in the years 2012 - 2020 per inhabitant. Source: KPMG study

Excise duty on cigarettes consists of two components, Specific and Ad Valorem, and is set at the cigarettes overall minimum Excise duty. In the research, we are dealing with Specific excise per 1000 cigarettes from 2012 to 2020. From graph number 2, it can be seen that most states have increased this item since 2012. Among the countries that increased this item the most are Belgium, Slovenia, Ireland, Italy, France, Latvia, Spain. This increase was gradual or occurred in leaps and bounds.

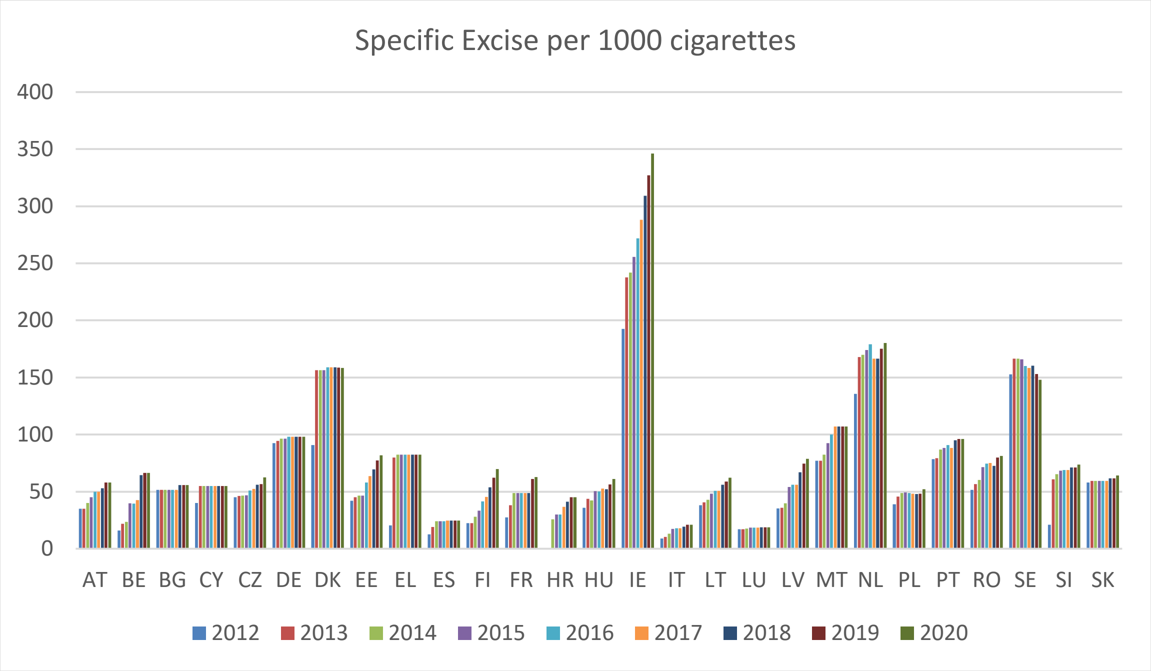

Figure 2 Specific Excise per 1000 cigarettes.
Source: [excise_duties-part_iii_tobacco_en.pdf (europa.eu)]

According to graph 3, which deals with the number of deaths due to smoking, we see that there is a decrease in the number of deaths in all countries, except Slovenia. The number of deaths due to smoking is high, but there is a slight reduction in the years under review. The biggest reduction of 10.57% was in Denmark and 10.43% in Ireland. The countries Cyprus, Croatia, Austria, Finland, Greece, Estonia, Poland, Latvia and Lithuania range from 0.12 - 2.95%. Other countries move up to 6.96%.

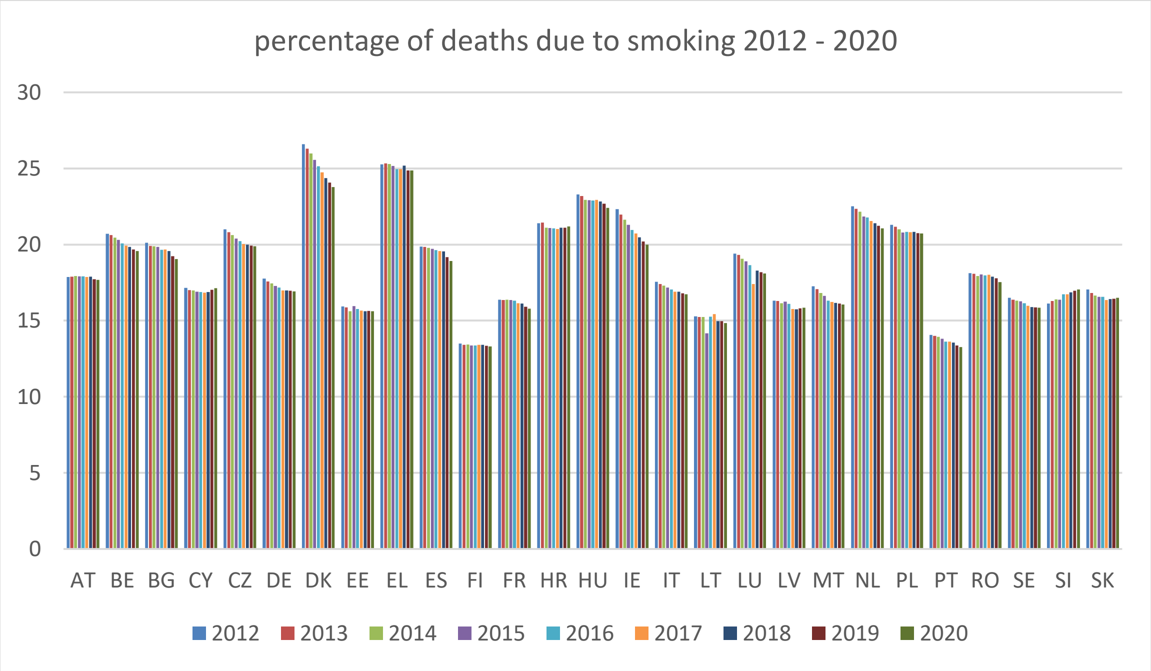

Figure 3 Percentage of deaths due to smoking 2012 – 2020.
Source: IHME, Global Burgen of Disease Our World in Data.org/Smoking.CCBY

5. RESULTS AND DISCUSSIONS

The consumption of cigarettes was examined between 2012 and 2020. The country of Cyprus had a large decrease in 2020, but this decrease could also be caused by the Covid 19 pandemic, as the number of tourists decreased. And by 2017, according to the EU directive, EU countries had to adjust their minimum excise duties on cigarettes. Cigarette consumption in Ireland decreased as a result, increased the following year, but gradually decreased. Even in Greece, there was a large reduction in the number of cigarettes in 2017, followed by a slight increase in the following year and a humiliating decrease in the following years. For Hungary, there was a reduction during the first three years under review. In Slovenia, Malta, Denmark and Luxembourg, consumption decreased gradually in all years. In the Czech Republic, the consumption tax increased by more than 30% in the last three years under review, the consumption of cigarettes decreased, but cigarettes from Poland and Slovakia began to be purchased, which were cheaper and are not captured in the statistics of the Czech Republic. In other countries, cigarette consumption decreased gradually.

Although the consumption of cigarettes is decreasing, the reduction in the number of deaths due to smoking is low. The largest reduction was 10.57% in Denmark, which had a high percentage of reduction in the number of cigarettes smoked, and 10.43% in Ireland, which also had a high percentage of reduction in the number of cigarettes smoked. cigarettes. The countries Cyprus, Croatia, Austria, Finland, Greece, Estonia, Poland, Latvia and Lithuania range from 0.12 - 2.95%. In Cyprus, the death rate has hardly changed, in 9 years only by 0.12%, although the reduction was by almost 43%. Other countries move up to 6.96%.

The aim of the research was to find out whether there is a relationship between a reduction in the number of cigarettes per inhabitant of a European Union state and an increase in the excise tax on tobacco per 1000 pieces.

Another goal was to find out if there is a relationship between the number of cigarettes smoked and the number of deaths due to smoking. This means that the greater the reduction in the number of cigarettes smoked, the percentage of deaths due to smoking will also slightly decrease. Therefore, we reject Hypothesis H_{02} and confirm Hypothesis H_{12}.

6. CONCLUSIONS

In the Czech Republic, the consumption tax on tobacco has increased by more than 30% in the last three years. Until 2018, the yield grew linearly up to the level of 58.81 billion crowns, but since 2018, the collection has fluctuated and trended down with an annual average of 57.21 billion crowns. At the same time, domestic consumption of tobacco products did not fall, but shifted to less taxed categories and to purchases of Polish and Slovak products, says Czech economist Štěpán Křeček. Based on these findings, it would be appropriate to amend the European directive on the taxation of tobacco claims. Thus, the EU should continue implementing the excise taxes to tobacco and relevant products to ensure the human health and sustain the economic growth in future.

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YOUTH AND URBAN AGRICULTURE A PERCEPTION STUDY FOR JAIPUR DISTRICT OF INDIA

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ABSTRACT

Agriculture is the backbone of the Indian Economy. It directly or indirectly employs almost 60% of the population in formal and informal sectors. This sector is Predominantly dependent on its people, capabilities, and productivity. Therefore, youth is crucial in advancing this sector as they are considered the most productive group of the population. Over the last decade, India has witnessed an increase in urbanisation from 30.93% to 34.93% and continues to grow with a rising trend. However, Urban Agriculture has never remained on priority at both domestic and institutional levels. This study attempts to propose a model for studying youth's perception of urban agriculture. This will help in a better understanding of their attitude and will support the design of involvement strategies. This work will use a survey method to collect data based on "The Theory of Planned Behaviour". This will measure youth's behavioural intention towards urban agriculture, focusing on their attitude, perceived behaviour, and some other pre-defined norms. The survey will be randomly administered to the people of Jaipur District, Rajasthan, India. This will test the hypothesis supporting the role of their perceived behaviour, attitude and norms over their behavioural intention. This research will provide a detailed exploration of the direct and mediating effects of youth's involvement in Urban Agriculture.

Keywords: Attitude; Behavioural Intention; Perception; Random Sampling; Urbanisation

1. INTRODUCTION

The foundation of many emerging countries is agriculture. India has an agricultural economy since this sector employs around 65% of the country's workers directly and indirectly. Agriculture, especially in emerging nations, depends on its population, their ability, and the amount of labour it can contribute (Raymond et al., 2004). Young people are therefore essential for improving the agricultural industry, especially in emerging nations, as they represent the population's most productive segment. By involving young people and encouraging them to work in this field, this may be further tapped into (Food and Agriculture Organization of the United Nations et al., 2014).

India has the highest proportion of adolescents and young people ever and will continue to have one of the youngest populations in the world through 2030, according to UNFPA forecasts. India is witnessing a "youth bulge" that will endure until 2025, a demographic window of opportunity. Young people have the power to change the social and economic fortunes of the nation if investments are made in their participation and leadership.

Urbanisation is expanding at a rapid rate around the planet. According to Statista (2022), this growth rate in India increased from 30.93% in 2010 to 34.93% in 2020 and is still increasing quickly. Migration from rural to urban regions, when individuals move to metropolitan areas in search of better employment opportunities and living conditions, is the cause of this rise

(*Migration: Making the Move from Rural to Urban by Choice | International Organization for Migration*, n.d.). The availability of agricultural land is restricted by urbanisation, which might result in increased pressure on global food security (Satterthwaite et al., 2010). This makes, urban agriculture significant, especially for the countries, which are under transition and experiencing higher economic growth. Initially, UA was defined as the production of products which are perishable like fruits, vegetables, animal products, and horticulture produce in urban areas and its periphery (Satterthwaite et al., 2010). However, with the evolution, UA now has distinct tangents in the form of functions, types, management and integration of all. Various studies (Langemeyer et al., 2021; Krikser et al.,2016; Pearson et al., 2010) explain UA as a form of modern agriculture with multiple functions and not just ensuring food security in the country. Besides contributing to biodiversity protection and ecosystem services provision, policymakers and planners increasingly consider urban gardening and farming viable strategies to achieve higher urban food security (Carzedda et al., 2021). Urban agriculture has multiple benefits and is being identified as a key approach to achieving urban sustainability. Food security and sustainable agriculture, healthy lives and well-being and the Development of sustainable cities and communities are one of the SDGs (Sustainable development Goals) (SDG 2,3,12) recognised by the United Nations (UN) (*THE 17 GOALS | Sustainable Development*, n.d.). This gives the need for urban food policies, based on social and cultural analysis. This will also ensure the cultural acceptability of alternative and sustainable food production and consumption strategies.

This study suggests a model to understand youths' attitudes toward urban agriculture better and to help develop participation measures to assure involvement and cultural acceptability of urban food policy. This study, in various ways, can significantly address these issues. Shortening the distance and time from farm to fork may deliver fresh produce to city people without requiring resource-intensive transportation, refrigeration, and storage facilities (Food and Agriculture Organization of the United Nations, 2017). By examining the applicability of The Theory of Planned Behavior with a focus on measuring the attitude on the relationship between subjective norms and intention toward urban agricultural practices, this study proposes a theoretical method that imposes the relationship between latent construct in consumer behaviour using survey data. A structured questionnaire was created and randomly administered to Jaipur residents to test the Theory of Planned Behavior's components—attitude, behavioural intention, subjective norms, and perceived behaviour control. Regression modelling was then used to assess the validity of the hypothesis and the model's fit. This paper will test the hypothesis supporting the role of attitude in the relationship between subjective norms and intention to participate in urban agriculture. Most research in this field ignores youngsters' individual preferences for urban agriculture in India. This study offers a thorough investigation of the direct and indirect implications of young people's perceptions of urban agriculture**.**

2. LITERATURE REVIEW

In today's times, people residing in the urban centre of developing countries face numerous challenges related to sustainable development. They are confronted by issues ranging from food security to human health, wellbeing, social equality, and sustainable economic growth. (UN Habitat, 2016). The developing economies are moving beyond the fundamentals of commercial farming practices in open green spaces on the rural-urban fringes. In these countries, the multi-urban sustainability and resilience objectives are now recognised through agriculture and gardening in urban densified residential areas (Orsini et al., 2013; Krikser et al., 2016).

Urban agriculture in India has a ballooning growth in recent times and is been rapidly adopted by the urban population. With the increase in urbanisation, an upward surge in research on urban agriculture is being observed which focuses not only on the food supply or food security but also on the multi-disciplinary aspect of Urban agriculture (Yan et al., 2022). Even though the world noticed the importance of urban agriculture, it has not received considerable attention in an academic circle (Yan et al., 2022).

2.1 Urban Agriculture

Many studies define urban agriculture from different perspectives, along with its importance and related dimensions. Some of the existing studies are discussed below.

Langemeyer et al. (2021) in their work made an estimated about the global population to grow by around 11 billion by the end of the 21st century. They claimed that, for urban agriculture and global sustainability, urban agriculture deserves a much stronger consideration. It improves the resilience, sustainability, and multifunctionality of cities as their social and ecological vulnerabilities are underappreciated. Accounting for multifunctionality still necessitates greater effort. Yan et al. (2022) in their bibliometric analysis state the number of urban agricultural publications has expanded significantly yearly, demonstrating that the sector is gaining some traction. Urban agriculture research focuses not only on food production and diverse styles but also on how to carry out the numerous roles of urban agriculture. Urban agriculture does not always imply a resource-efficient and ecologically beneficial food system. A transformation based on technical innovation is required to ensure sustainable development. The major focus of future study will be on increasing the food system's sustainable development level while fully recognising the resilience, sustainability, and adaptability of urban agriculture. Horst et al. (2017) in their review, define food justice and mention how one possible tactic to promote food justice in urban agriculture. The variety of urban agriculture activities such as producing fish (aquaculture), bees, and animals in addition to cultivating vegetables, fruit, herbs, and grains (e.g., chickens, goats, pigs, rabbits) and forms are then discussed, while our primary focus in this study is food production. They summarise the key social advantages of urban agriculture while highlighting its potential limits and contributions. They then analyse the typical methods planners employ to support urban agriculture and their potential for improvement before turning their attention to the function of planning. Pearson et al. (2010) in their article analyse studies on urban agriculture that are relevant to the social, economic, and environmental facets of sustainability. They suggest that urban agriculture has three components: urban agriculture on its own, its interaction with the local inhabitants and environment, and its influence on the built environment. they also take into account its three different scales: micro, meso, and macro. According to the Research centre for Urban Agriculture and Food security (RAUF, 2015), Urban Agriculture can be grouped into two genres i.e., Commercial and Non-commercial activity, where commercial activity is considered to be market oriented and non-commercial is non-profit activity practiced by the residents in the form of home gardening for their self-consumption. Specht et al. (2014) in their research demonstrate that ZFarming (Which includes rooftop gardens, rooftop greenhouses, indoor farms, and other building-related forms) performs a variety of tasks and generates a wide range of non-food and non-market items that could have a positive influence on the urban environment. It guarantees environmental advantages as a consequence of resource conservation, recycling, and a decrease in food miles. The provision of educational facilities, connecting customers to food production, enhancing community food security, and providing inspiration for design are examples of social benefits. It offers prospective public advantages and commodities outputs in terms of economics. Calvet-Mir et al. (2012) pointed out that home gardens are one form of agroecosystem that has not been well studied in terms of ecosystem services. By evaluating the ecosystem services provided by home gardens, the authors wanted to improve their understanding of the importance of these green spaces. They list and describe the most significant ecological services offered by home gardens and assess the value of those services from a societal perspective. In the Global North, unused urban land is frequently transformed into "community gardens," driven by concerns like distrust of the modern food system, desire to become self-reliant, interest in reclaiming and re-greening the city, and creating public space and community. Morgan (2015) traces the development of new urban foodscapes related to urban farming and public health in the Global North. Poulsen et al. (2014) investigate the perceived advantages of communal gardening. Gardens, according to the community gardeners, give advantages on numerous levels, providing an "urban oasis" that provides respite from urban deterioration while rejuvenating city areas. Individual gardeners emphasised psychological rewards such as pride and a connection with nature. Gardeners in their area formed trustworthy ties with their neighbours and exchanged learning experiences. Gardeners felt that gardens restore city space by cleaning up deteriorated areas, providing gathering spots, and enhancing the food environment at the community level. Taylor & Lovell (2014) argued: “While community gardens have sprouted across the landscape, home food gardens-arguably an ever-present, more durable form of urban agriculture-have been overlooked, understudied, and unsupported by non-governmental organizations, and academics.” This study tries to build a multi-scalar and interdisciplinary research paradigm that recognises the home garden's social, ecological, and material elements, in part as a response to their invisibility.

2.2 Urban Agriculture and youth

Most of the research on youth and UA conducted so far is qualitative and focuses on creating case knowledge and analytic descriptions. A few collections of work have been essential for highlighting the many UA strategies and their applicability to tackling significant problems like food security (Tiraieyari & Krauss, 2018). Additionally, there is a need to broaden the scope of the research to incorporate more quantitative studies, particularly those that examine the drivers of youth engagement and their relationships across a broader range of young demographics.

Tiraieyari & Krauss (2018) in their study investigate the variables influencing Malaysian youth's choice to join a volunteer urban agricultural program. They polled 890 students from a public university in Malaysia on their intentions to participate in a new urban agricultural initiative, drawing on theories of planned behaviour and the functional approach to volunteer motivation. According to the results of hierarchical regression analysis, students' attitudes about urban agriculture were the best predictors of involvement, followed by subjective norms, professional goals, and perceived barriers to participation. The results of this study may help establish strategies for future students' involvement in the program for Malaysian university program planners. There is less related research on youth motivation outside of the US and Europe. The top motivating factors for volunteering in Africa, according to a study of young people in Tanzania, were to help communities, a sense of responsibility to make a difference, to gain knowledge and skills for a future job, personally wanting to volunteer, to be recognised and respected by the community, and to boost one's self-confidence, according to Wijeyesekera, (2011). Ghose & Kassam (2014) in India discovered that a variety of factors, including parents, friends, and the Internet, were linked to youth participation in a sample of 596 college students. According to Russ & Gaus (2021) Urba,n agriculture is a "multifunctional activity," it has embraced youth education for several reasons. They discovered instances of youth urban agriculture initiatives that encouraged group action by assisting participants in "become change agents in their own community." Additionally, they found that participating in local civic activities led to changes in eating and cooking habits.

To better understand their attitudes and determine the most effective measures for ensuring their engagement and cultural acceptability of urban food policy, the research intends to explore the interaction between youth and urban agriculture.

3. METHODOLOGY

The most extensively studied model for forecasting behavioural intentions (Ajzen, 1991), (Armitage & Conner, 2001; Fielding et al., 2008) is the “Theory of Planned Behaviour” (TPB), an extended model of the “Theory of Reasoned Action” (Ajzen, 1985; Uhlmann et al., 2018). Many studies (ex. Norman et al., 2007; Bamberg, 2003) have used the TPB to understand whether consumers want to engage in environmentally friendly behaviour in the domain of pro-environmental behavioural intentions. In several of these investigations, the TPB was integrated with or expanded on by including other determining variables (Chen & Tung, 2010).

The Theory of Planned Behaviour given by Ajzen (Ajzen, 1985) claims that individuals' behaviour is directed by behavioural intention, which is influenced by individual-controlled beliefs, behavioural beliefs, and normative beliefs. Armitage & Conner (2001) extended this theory and integrated six additional variables for understanding the relationship between attitudes and behaviour.

In this study the conventional “Theory of Planned Behavour” and “Extended Theory of Planned Behavoiur” will be used analytically to examine, how youth perceive their engagement in Urban Agriculture. We will be using factors: Attitude, Subjective Norms, Perceived Behavioral control to study their behavioural intentions toward urban agriculture practice.

Attitude

It explains a person's overall assessment of a behaviour. People often asses potential outcomes when deciding whether to engage in a behaviour, measure the risks and advantages that may follow, and then develop their own positive and negative attitudes regarding the behaviour in question. (Chen & Tung, 2014; Carzedda et al., 2021)

Subjective Norms

It indicates social pressure to do, or not perform, and a given behaviour; hence, the views of neighbours, close friends, and those deemed essential are taken into account when balancing a decision against the alternatives (Chen & Tung, 2014).

Previous studies (Eagly & Chaiken, 1993; Han et al., 2010) that looked at the connection between people's subjective norms and behavioural intentions asserts that subjective norms had a positive impact on behavioural intention (Chen & Tung, 2010)

Perceived Behavioral Control

It represents an individual's perception of the availability of opportunities and resources needed to carry out the behaviour. It assesses the availability of essential resources, the individual's assessment of external barriers and limits, and self-confidence in their capacity to complete the behaviour (Chen & Tung, 2014).

Behavioural Intention

An individual's intention to carry out a certain behavior is predicted by behavioral intention, which is the interaction between an individual's attitude toward a particular behavior, subjective norms, and perceived behavioral control. (Azen 1991). This component has modified a validated assessment scale from the literature on gardening, food habits, and pro-environment behavior. (Carzedda et al., 2021)

The model was built to demonstrate the link and interaction between all of the aforementioned components in accordance with the Theory of Planned Behavior. The postulated causal link between attitude (AT), subjective norms (SB), perceived behavioral control (PBC), and behavioral intention (BI) is presented in Fig. 1, which summarizes the theoretical framework.

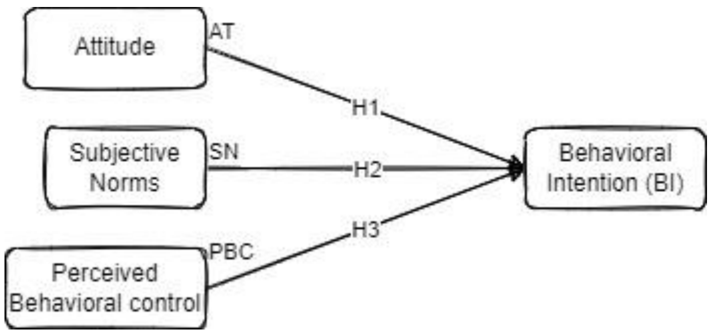

Figure 1

- Hypothesis 1 (H_{01}): Attitude toward urban farming (AT) does not affect the Behavioural Intention (BI) to practice urban agriculture;
- Hypothesis 2 (H_{02}): Subjective Norms (SB) do not have a significant impact on Behavioural Intentions (BI) to practice urban agriculture;
- Hypothesis 3 (H_{03}): Perceived Behavioural Control (PBC) does not have a positive impact on Behavioural Intention (BI) to practice urban agriculture.

In March 2021, a questionnaire survey was given to youngsters in the Jaipur District of Rajasthan, India. Five sections of the questionnaire were used to collect data on each section's content and extra sociodemographic information. To test respondents' agreement with each suggested item, 5-point Likert-like scales were used to measure each aspect. The literature on environmentalist behaviour served as the inspiration for this verified measure (Kumar et al., 2017). All 115 of the returned surveys were full and usable.

The data analysis process was split into two steps: first, we examine the measurement scales using confirmatory factor analysis (CFA), which enables us to test the claim that there is a link between the observed variables and their underlying latent construct(s). The association pattern is postulated a priori using theoretical knowledge, empirical study, or both, and then the hypothesis is statistically tested. The reliability of each concept was evaluated favourably using the AVE (Average Variance Extracted) for components that revealed convergent validity and Chronbach's α coefficients. Then, using SPSS, a simple regression model (SRM) was used to test the suggested models' hypotheses.

4. RESULTS AND DISCUSSIONS

Table 1 provides a summary of the main socioeconomic characteristics of the sample. About three-fourths of the respondents were female, and half were younger than 26 years of age. Some 60% of the participants were PG degree holders when the survey was administered, and around two-thirds were employed. The sample was closely representative of the youth population in terms of sex, education and employment.

Table 1. Characteristics of the sample (n=115)

Characteristics	Class	%
Gender	Male	26.3
	Female	73.7
Age	<18	0
	18-21	12.42
	22-26	36.80
	27-30	22.68
	>30	28.10
Education qualification	Secondary	0
	Senior Secondary	0
	Graduation	15.8
	Post-Graduation	59.6
	Above and others	24.6
Currently Employed	YES	61.42
	NO	38.58

Source: Own computation based on resources mentioned above

First, using Confirmatory Factor Analysis (CFA) to test the measurement scales, CFA allows us to test the hypothesis that a relationship between the observed variables and their underlying latent construct(s) exists. The reliability of each construct was positively analysed by Chronbach's α coefficients, which showed a good level of internal consistency as each component was more significant than 0.70, and the AVE (Average Variance Extracted) for components suggested convergent validity as all of them are above 0.50 level, as proposed in Table 2. This first step indicates that the measurement scales well describe the four latent constructs.

Table 2. Measurement scale of components

Constructs and items	Λ	α	AVE
(AT) Attitude towards urban farming		0.85	**0.62**
Homegrown food has lower chemical residues than conventional food	0.62		
Homegrown food is safer to eat than conventional food	0.82		
Homegrown food is healthier to eat than conventional food	0.89		
Homegrown food tastes better than conventional foods	0.68		
Homegrown foods have superior quality to conventional foods	0.79		
I believe homegrown food has superior quality	0.87		
(SB) Subjective norms		0.86	**0.51**
My family thinks I should grow my own food	0.53		
My friends think I should grow my own food	0.67		
People who are important to me would approve of me growing my own food	0.90		
People who are important to me encourage me to grow my own food	0.71		
(PBC) Perceived behavioural control		0.88	**0.51**
I believe I have the ability to grow my own food	0.71		
If it were up to me, I am confident that I will grow my own food	0.74		
I see myself as capable of growing fruits/vegetables/herbs	0.72		
I have the resources, time and willingness to grow my own food	0.68		
(Bl) Behavioural intention		0.89	**0.50**
I will try to grow my own food in the forthcoming months	0.55		
I intend to engage in urban farming initiatives in the next months	0.65		
I plan to learn more about planting a garden	0.79		
I plan to learn more about planting fruits/vegetables/herbs	0.76		
I would li ke to grow my own food	0.65		
I would participate in urban farming if I happen to get the chance	0.73		
I would patronize and recommend urban farming initiatives	**0.78**		

The model's hypotheses were tested through a simple regression model (SRM), using SPSS. In line with these results, Table 3 shows the proposed model strongly supported the alternate hypothesis H_1 (t-value = 2.78), H_2 (t-value = 5.60) and H_3 (t value = 9.48), depicting that all the interdependent variables significantly affect the dependent variable. So, we will accept our alternative hypothesis.

Table 3. Direct effects among components

Hypothesis	Estimate	s.e.	t-value
(H_{01}) ATT - BI	0.63	0.23	**2.78**
(H_{02}) SN - BI	0.58	0.103	**5.60**
(H_{03}) PBC - BI	**0.72**	**0.076**	**9.48**

The study demonstrates that although personal attitudes regarding urban agriculture have a somewhat less impact on behavioural intention than other dimensions, they are still substantial. Views on product quality or environmental effect are thus sufficient motivation to engage in this practice. The prior findings, which showed that there was no clear association between these two notions, do not support this, though.

Surprisingly, social pressure and norms seem to be the primary predictors of behavioural intention; this indicates that family, friends, and the larger group of individuals the respondents felt to be important tend to support and promote the respondents' ultimate goal of self-production of food. This is consistent with past research indicating that young people link urban food production to social incentive for urban agriculture and sustainability.

PBC has the most and most advantageous effect. To put it another way, perceptions of internal or external impediments to action have a significant impact on young people's propensity to engage in urban farming, as per recent research by Carzedda et al. 2020.

5. CONCLUSIONS

In conclusion, the findings show that perceived behavioural control is the main factor influencing participants' behavioural intention to engage in urban agricultural initiatives. The participants rated the perception of what other people would think about their plan to produce their own food as less relevant than the impression of internal and external constraints and the availability of resources. Promoters of urban agriculture projects may give them the resources needed for self-production if they take into account the impact of perceived behavioural control on the behavioural intention to engage in urban agriculture. Additionally, using recommendations that are socially and emotionally relevant to the target audience might make communication more alluring and powerful. Evidence from earlier studies suggests that working with advocates is essential to raising youth's understanding of sustainability.

There are some drawbacks to this study, mostly in the form of sample size and representativeness issues. Since every single responder is from the surrounding areas of Jaipur, it is difficult to generalise the findings. Additionally, because of the emphasis on youth, only a certain subset of educated youngsters may benefit from the findings. In fact, the approach that is being provided here is adaptable and effective, not just for young people, and it can be easily extended to many population groups. Furthermore, research is needed to support sensible, adaptable, and sustainable food policy for the future. This study should focus on the practical possibilities of urban farming as well as its sustainability on a wide scale.

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INTERNATIONAL BUSINESS

RESHORING AND AUTOMATION: APPLICATION OF GAME THEORY MODEL IN A CASE OF SPEEDFACTORIES

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ABSTRACT

The incentives of advanced economies to automation are currently the most significant as it supports the multinational manufacturing firms to reshore their production back to the home economy as a consequence of relative cost reduction of domestic output and lower demand for offshored production. However, it comes at the offshoring countries' expense as it has the potential to reduce the employment of low-skilled labor and increase wage inequality. In this study, we introduce the fundamentals of automation-induced reshoring and its effects on labor outcomes based on relevant studies and investigate a case of Adidas' Speedfactories through the game theory model. This phenomenon is significantly important, especially for the governments of developing offshoring countries to take into account appropriate measures as it has major implications on their employment and the economy as a whole.

1. INTRODUCTION

The development of offshored production has been unparalleled since the 1990s as a consequence of improvements in communication technologies. Mainly the low-wage countries in Southeast Asia have reported a significant poverty reduction of more than a billion of people as these countries have become highly integrated into global supply chains up till now. However, a growing trend has received much attention among policymakers and researchers. Recent advances in technology and robotics have been associated with growing concern and debates about the consequences of emerging AI and labor-replacing industrial robots, especially in manufacturing industries. The main advantage of automation for the advanced economies is a growing possibility to relocate their currently offshored manufacturing production in the low-income countries back to home markets and maintain their competitiveness as robotic technologies reduce production costs independent of location. Therefore, automation is likely to increase the relative attractiveness of reshoring and home production in comparison with offshored activities. This trend, however, is more related to tasks previously performed by workers being automated rather than creating jobs, leading to reconcentration of activities and deglobalisation. Thus, the automation-driven reshoring in developed countries may have a significant impact on trade patterns and employment in offshoring countries. This research has some major implications, yet there is still no sufficient comprehension of whether the effects of technological advances on global supply chains, trade and labor markets are significant. In theory, it shows that automation-driven reshoring effects on social welfare of both high- and low-income countries may be different. Recent studies (for instance, Krenz et al., 2020; Kinkel, Maloca, 2009; Fratocchi et al., 2016; Foerstl et al., 2016; Dachs, 2017) indicate the existence of robot-induced reshoring effects in high and low-income countries. However, the effects of robot density on employment in both home and host countries are ambiguous.

2. THEORETICAL BACKGROUND

Since the 1970s and the information revolution, there has been a major wave of high-income countries offshoring manufacturing production to lower-income countries (e.g., China, Bangladesh, Cambodia, Vietnam, Indonesia) due to lower costs of labor and transportation, the rapid development of information and communication technologies, lower import barriers and reduction in coordination costs and better remote control (Dachs et al., 2017). However, recently, manufacturing firms in advanced economies are searching for new innovative ways to increase their productivity using industrial robots and computers based on machine learning which is overcoming labor in task performance (Brynjolfsson/McAfee, 2016).

Although robotization in one country affects not only its own labor markets through increased productivity and lower costs, its possible substitution effect might influence low-skilled labor in offshoring countries more through the decline in real wages and manufacturing employment - in our case, reshoring activities are becoming more appealing for manufacturing firms (Baldwin, 2019). Reshoring is the firm's decision to relocate its previously offshored activities back to home country. According to ownership, it also differs to captive if reshored activities are fully owned by the firm and outsource reshoring if there are foreign suppliers involved (Foerstl et al., 2016).

To understand the relationship between robot adoption and reshoring it is crucial to consider firms' decisions in terms of technology implementation and entering or exiting global supply chains. Given the firms' main motives – cost reduction, increase in quality, increase in competitiveness and profit maximization, the firms choose between a range of strategies according to their relative benefits and costs (Fratocchi et al., 2016).

There are many factors that contribute to the attractiveness of reshoring. The main factor is, as Kinkel and Maloca (2009) indicated through their case studies, that the manufacturing firms' decision to offshore their production is based on comparisons of easily measurable costs, especially labor costs of foreign and domestic countries. Thus, rising labor costs and diminishing wage differentials give the firms an incentive to backshore or to search for a country with better conditions for offshoring. Other costs to consider are transport and time costs, travelling expenses, coordination and transaction costs, taxation and tariffs, obsolete material costs and unforeseen or hidden costs related to inaccurate projection of offshoring performance that lead to higher costs and effort and lower quality than expected (Bessen et al., 2019).

Factors other than costs also include the level of environmental uncertainty in terms of currency fluctuations, issues with intellectual property, regulatory barriers, material shortages, issues in quality and flexibility, unpredictability and instability of a foreign market (Baldwin/ Forslid, 2020). In terms of logistics, the firms involve length of supply chain, working capital, monitoring and coordination efforts, vertical and horizontal complexity in global supply chains. From a behavioral perspective, bounded rationality and biases influence firms' decision to offshore by imitating and following the behavior of competitors, which is explained by the bandwagon effect.

Another factor is asset and task specificity which includes uncertainty in technological advances and the potential of robot adoption in manufacturing activities, which brings higher flexibility, lower labor intensity and autonomous production. Investments in automation technology yield the upper hand in reshoring decisions over offshoring to low-wage countries as it allows the firms to integrate manufacturing operations at home plants (Bonfiglioli et al., 2021).

Researchers and economists debate the impact of robot adoption on employment and wages for low-skilled and high-skilled labor in developed and developing countries. Recent papers show empirical evidence of the automation-induced reshoring effects. For instance, Carbonero et al. (2018) and Krenz et al. (2019) developed a model for offshoring and automation and found evidence of automation-based reshoring across countries, mostly advanced. Moreover, Kugler et al. (2020) and Stemmler (2019) found the reshoring effects for South American countries. The evidence leads to questions of whether this phenomenon has any effects on employment in the countries and their trading partners. In addition to this discussion, Acemoglu and Restrepo (2020) developed a task-based model using robot imports as a measure of automation to examine the effects of robots on wages and employment in the US and calculated a reduction in employment by six workers for each newly adopted robot, thus found negative effects of industrial robots on manufacturing employment.

Similarly, Dauth et al. (2017) analyzed the effects of robotization on employment in German labor market and found negative effects on the wages of low-skilled workers. Among others, analyzing Mexico as an offshoring country and using data on Mexican exports to the US and local labor markets in Mexico, Faber (2020) and Artuc et al. (2019) found negative effects of automation as exports from Mexico and employment of low-skilled workers are reduced as the US firms increase robot penetration. On the other hand, Stapleton and Webb (2020) conducted an analysis of Spanish manufacturing firms and found that automation brings firms to expand their offshoring production and induces raise in imports and scale effects, thus increasing employment for both Spanish and the offshoring countries' labor markets. Overall, the empirical evidence of automation-induced reshoring in advanced countries and its effects on employment and wages of low-skilled workers from offshoring countries is still nascent and inconclusive.

3. METHODOLOGY

In theory, for any country to become an attractive offshoring destination for foreign firms, it must possess capital stock low enough to induce lower wages. For labor-intensive tasks, the firms gain an incentive to move their production there, thus increasing the level of physical capital in the offshoring country over time which leads to an increase in wages / labor costs, and therefore, the firms' incentives will lower. There will be a critical point in which the negative effects of the increase in labor costs offset the positive effects of offshoring, thus the firms start to reshore their production back to the home country.

We introduce a game in which players consisting of multinational firms in the advanced country (AC) and the offshoring country (OC) competing for a better outcome. We assume that at the start of the game, AC already has part of its production offshored in OC; OC has a comparative advantage in terms of labor costs relative to AC; the firms in AC decide to offshore their production as the wages in AC are too high, so the high wages in OC cannot be higher than wages in AC, otherwise it gives the firms in AC an incentive to offshore their activities elsewhere and our OC would no longer be an attractive offshoring destination; we also assume that not just a few but all industrial robots adopted in AC substitute for labor in OC as the tasks performed by robots in AC would be done by labor in OC if AC decided not to automate. Moreover, in the model, we assume that MNEs will automate at home rather than in the offshoring country to minimize the costs of transport. Otherwise, automating in the offshoring country would result in an increase in capital flow, thus higher overall costs and wasted cost-efficient potential of the automation technology.

		MNEs in Advanced country (AC): Automate at home	MNEs in Advanced country (AC): Not Automate at home
Offshoring country (OC)	Low barriers	$a - c_1$, $b - c_2$	a , e
	High barriers	$d - c_1$, $f - c_2$	d , g

In order to maximize profit and minimize costs, AC has the capability to invest in automated industrial robots as soon as it becomes more profitable than using the offshoring labor as in (OC, AC) = (LB, NA) = (a, e) which accounts for the long-term outcomes without an opportunity to automate at home and reshore. The barriers stand for the mechanisms that OC could use in terms of deterring or encouraging the MNEs in order to maximize its own outcomes. These include ownership restrictions, tax rates, administrative processes, sanctions, regulations, bureaucracy, etc. The higher the barriers in OC, the lower are the incentives of AC to offshore with rising costs. As the MNEs decide to automate their production at home, there will be costs c_2. OC will be facing its own costs c_1 derived from negative externalities and effects of reshoring on labor outcomes and the overall economy. In the case, when AC automates and starts to reshore their production back, OC will be worse off.

The higher the barriers, the better is an outcome for OC and AC becomes worse off, however, OC must maintain low capital stock to induce wages at a certain level such that it does not exceed the wages in AC. Our game starts at a Nash equilibrium (NE) of (LB, NA) where $a > d$ and $e > b - c_2$ such that OC maintains low wages and barriers in order for AC not to automate as the costs would be too high. However, our NE is not sustainable in the long-term and this is when an increase in physical capital initiates OC to increase the wages and the difference between a and d is decreasing.

As a result of increased labor costs, AC's incentives to offshore will lower, despite that it will continue to offshore its production while $g > f - c_2$, meaning that the positive effects of offshoring are not offset by the outcome of robot-induced reshoring with respect to the costs of automation. As mentioned in the literature, this trend will continue up to the point where $b - c_2 > e$ and $f - c_2 > g$, thus it is more cost-effective for AC to automate and reshore their production back from OC while it maintains higher wages. As a response, OC must lower the wages resulting from the decrease in capital stock as a consequence of automation-induced reshoring. A new NE of (LB, A) will sustain as long as $b - c_2 > e$ and $a > d$, thus AC automates and reshores while it is more profitable than using the offshore labor and OC will keep lower wages in order to compete with the positive effects of automation.

In practice, for the long-term there will be some point where AC becomes totally independent from the offshored labor by using automation technology at home; if AC does not automate successfully, AC could still search for other alluring destinations to offshore their production in case our OC keeps higher wages; OC will eventually become more developed, thus it will no longer be attractive for AC and will offshore their own production to other countries itself due to higher labor costs until automation in OC becomes optional. With rapid technology advancement in automated robotics, MNEs in AC will eventually be able to fully automate the manufacturing production and will no longer need to use offshoring low-wage labor.

4. RESULTS

We present the case of Adidas' approach of automation-induced reshoring strategy and its implementation into our game model. The world leader in the sports equipment industry has been offshoring up to 97% of the footwear production in Asia, especially Vietnam, China, Cambodia and Laos for the last decades to maintain low production and labor costs similarly as its competitors. In 2015, Adidas envisioned a new approach for the future of their production and announced the concept of Speedfactory, which would produce only using automated robots with no assistance from workers, thus reshored production back to home markets. In 2016, they opened 2 Speedfactories in Germany and the US in a long-term collaboration with Oechsler, which developed industrial robots and constructed production facilities, and Carbon 3D, which provides 3D printing technology for footwear production (Hernandez, 2020).

The main reasons why Adidas decided to implement the reshoring strategy was to be less dependent on offshored production in Asia, bring production closer to the US and European customer and provide faster delivery. To produce one shoe, it could take up to two months as there was a factory specialized for each production phase (such as rubber production, rubber shape, midsole production, joining bottom with midsole, etc.). Another few months would be required to bring that shoe from Asia to the customer in the US or Europe (Kim, 2018). Hence, in the Speedfactory, all the work required for the production of one shoe was done by robots in one place, thus making one shoe was a matter of one day and it was expected for such a factory to produce more than 500000 pairs of footwear each year (Galluccio & Agrell, 2022).

Automation in Speedfactories also comes with the substitution of low-cost labor in Asia with industrial robots, efficiently reducing from 1000 workers in Asian factories to 160 workers in the Speedfactory, increasing savings on labor costs. With 3D printing technology, the firm has been able to react faster to consumer demand, meet individual needs and expectations and customize unique products. It allows for fused production instead of using glue which is time-consuming as a shoe must be dry before any further manipulation. Moreover, it leads to reducing the number of steps required for the manufacturing process, waste and carbon footprint reduction, energy reduction, lowering impact on the environment with less transportation and shortening the distance between the factory and consumers (Smith, 2019).

However, Adidas announced to close both of its Speedfactories in the US and Germany in 2020. According to the literature, there have been many factors analyzed behind this failure. It was impossible for the Speedfactory to operate the manufacturing in full automation as it was envisioned. The workers were still needed for some parts of the production process, however, the labor costs in US and Germany were higher and more volatile relative to the Asian market (Ross, 2020). Thus, using the labor force in advanced economies to produce the same products is not economically feasible unless total automation becomes optional. For that matter, the choice to relocate their production closer to their US and European consumers became an obstacle, contrary to their expectation of lower reliance on Asian markets, lower transportation costs and barriers to be their advantage (Boute, 2021).

In practice, the choice to reshore their production back home brought up unexpectedly higher costs in terms of labor and costly partnerships, such that offering faster delivery and being closer to the consumers was not advantageous enough to maintain the production at home. This is also due to a lack of know-how as Adidas‘ main strength has been centralized in Asia, thus entering the US and European markets with the reshored production has been accompanied by higher costs of unpreparedness to face the challenges, numerous possibly unnecessary partnerships made, unobserved need for workers in local labor markets and scarcity of raw materials (Boute, 2021).

Moreover, the know-how obtained from the Asian markets could not be implemented in the US and European market conditions. Adidas envisioned customization to be an upper hand in the future of manufacturing, however, contrary to the concept, the customers have rapidly lost interest in how their shoes were made if it did not affect their price or quality. Hence, they were not willing to pay a higher price for a product only because it was made with innovative robotic technology. Following the failure of the Speedfactories in Germany and the US, Adidas decided to relocate them to an Asian supply base, particularly China and Vietnam. They expect that deploying advanced technologies in Asian factories will allow them to maintain low labor costs combined with the benefits offered by innovation regardless of the proximity to their customers. This strategy is considered to be more cost-efficient than the local approach, therefore, learning from the previous mistakes, Adidas will focus on expanding and strengthening its Asian supply chain while continuing its collaboration with Carbon 3D and Oechsler (Galluccio & Agrell, 2022).

Implementing Adidas‘ case into our model, we observe that an automation-induced reshoring strategy is not profitable and cost-efficient enough for the firm to abandon its offshore workers, thus the set (LB, A) is not a long-term NE as $b - c_2 > e$ is not sustainable and if $a > d$ for OC meaning that keeping an offshored production has a higher outcome for AC than automation at home as long as the labor costs and barriers are at a sufficiently low level. Abandoning both Speedfactories in the US and Germany showed that our AC has shifted to the set of (LB, NA) as the outcome e exceeds $b - c_2$. However, in this case, AC has a choice of whether to automate at home production sites and reshore or to automate in OC and combine advantage of industrial robots in offshored production with relatively low labor costs. As Adidas decided to automate not at home but rather in its Asian supply base to maintain low labor costs, it is expected that automation in developing countries will directly affect the low-wage labor, thus in our model, the failure of the reshoring strategy leads to our players choosing the set of (LB, NA) = (a, e). However, with a rising opportunity of becoming independent of the offshoring supply base, many MNEs will search for innovative ways how to maintain automation at home sustainable and cost-efficient for the long term.

5. CONCLUSION

Through the offshoring trend at its peak, employment in the offshoring countries has significantly increased till the late 2000s. However, simultaneously with large-scale industrial robots adoption and expanding automation by MNEs, the employment share of replaceable occupations and offshoring growth have been exponentially decelerating, especially after 2010. With rising offshore costs, the manufacturing MNEs are searching for new innovative ways to maintain profitable and cost-efficient production. Adidas’ case is the first attempt at such large-scale automation at home and also one of the many cases as researchers have observed consistent trends of the firms’ automation-induced reshoring activities throughout the world. Using our model in this particular case, we have analysed how the choices of both players change relative to the rising offshore costs and the advances in automated technology. This study has shown that automated manufacturing production at home could be possible for advanced countries and it will only take a few steps until reshoring strategies become fully efficient.

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EVALUATING THE EFFICIENCY OF THE US FIRMS IN THE PHARMACEUTICAL INDUSTRY

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ABSTRACT

This paper evaluates the efficiency of US pharmaceutical firms using data in 2019. The data envelopment analysis (DEA) method is applied to help determine the efficient and inefficient firms. The result shows only nine out of 186 firms achieved the desired efficiency while most of the observations are underperforming, which arise a necessary improvement in how these enterprises utilize their resource. Our research contributes to measuring the Unites States pharmaceutical firms' business efficiency and assists managers, politicians, and scholars in regulating policies, and strategic decisions.

Keywords: Business efficiency, DEA method, the US firms, pharmaceutical industry.

1. INTRODUCTION

Many scholars are still debating on what measurement is optimal for evaluating business efficiency. Among various approaches, the commonly utilized method - Data Envelopment Analysis (DEA) is the one tackles problems by reviewing a large number of inputs and outputs, which are considered an important factor in DEA modeling since different inputs/outputs combinations result in different firm efficiency rankings (Serrano-Cinca, Fuertes-Callén, & Mar-Molinero, 2005). Therefore, Gascón, Lozano, Ponte, and de la Fuente (2017) said that an important component of a DEA technique is the selection of the model's inputs and outputs. According to Saranga and Phani (2009), traditional financial indicators such as operating profit margins, net profit margins, fixed asset turnover, working capital intensity, inventory holding period, and so on are calculated using single input/output measurements. However, because only one input and one output are examined at a time, measures like margins, returns, and debt ratios can only characterize distinct performance aspects in isolation. When these metrics are compared in isolation across firms in the same industry, it may create a skewed view of a firm's efficiency in comparison to other enterprises in the same sector. One of the most common nonparametric methods, DEA, a widely used method among researchers, solves challenges by examining numerous inputs and outputs at the same time to produce a single scalar value as a measure of efficiency in a variety of public and private sector industries such as hospitals, schools, banks, railroad corporations, and other institutions. Particularly, it has been commonly used in research projects measuring the pharmaceutical industry (Liu and Lyu, 2020); Hashimoto and Haneda, 2008).

Our study has contributed two aspects. First, we used DEA methods which considered multiple input and output indicators to estimate the business efficiency of the pharmaceutical firms in the United States. Second, our result finds out the benchmark of the United States pharmaceutical industry, then less effective firms can refer to improve their performance.

2. LITERATURE REVIEW

This research includes three inputs: employees, operating expenses and property, plant & equipment and takes firm revenues, market value as two outputs. Accordingly, previous studies Serrano-Cinca et al. (2005); Pastor, Ruiz, and Sirvent (1999) revealed that the number of employees is a generally accepted input and revenue is widely applied as an output in this type of study. Following Saranga and Phani (2004) in evaluating the efficiency of the Indian pharmaceutical industry, operating expense which comprises rent, equipment, inventory costs, marketing, payroll, insurance, etc is employed as input in our study. In addition, the firm market value was generated by the current shares outstanding and current price, which was utilized in measuring the large pharmaceutical businesses' efficiency (Gascón et al., 2017). In summary, the elements of inputs and outputs for the application of DEA in the current paper, are as follows:

Table 1. Definition of inputs/outputs

Input/ Output	Factors	Definitions	References
Input	Employees (person)	Represent the number of both full and part-time employees of the company	Wu, Wang, Chiu, Li, and Lin (2019); Serrano-Cinca et al. (2005); Pastor et al. (1999)
Input	Operating expenses (in thousand USD)	Represent the sum of all expenses related to operations	Serrano-Cinca et al. (2005); Aziz, Janor, and Mahadi (2013); Giokas (1991)
Input	Property, Plant & Equip (in thousand USD)	Represent gross property, plant and equipment less accumulated reserves for depreciation, depletion and amortization	Subramanyam (2016); Pastor et al. (1999); Guedes, Milioni, de Avellar, and Silva (2012); Shu-Ming (2011)
Outputs	Revenues (in thousands USD)	Represent gross sales and other operating revenues fewer discounts, returns and allowances	Shu-Ming (2011); Pastor et al. (1999)
Output	Market value (in thousand USD)	The current total market value of a company is based on the current price and current shares outstanding	Gascón et al. (2017)

However, this model could not support imperfectly competitive markets. To overcome this limitation, we used the CCR model and the BCC model (Charnes, Cooper, & Rhodes, 1978) among the several DEA models (Banker, Charnes, & Cooper, 1984). The fundamental difference between these two models is how they address to return to scale: the first assumes that every DMU runs with constant returns to scale, whereas the second assumes that every DMU functions with variable returns to scale.

CCR model

CCR model (constant return to scale) which is a scale efficiency and technical efficiency. All observed production combinations can be scaled up or down proportionally in the DEA-CCR model.

$$\textit{subject to}\ \theta\, I_{xy} - \sum_{i=1}^{m} \lambda_i I_{xi} \geq 0, x = 1, ...n$$

$$\sum_{i=1}^{m} \lambda_i Q_{ki} \geq Q_{kh}, k = 1, ... \mathrm{p}$$

$$\lambda_i \geq 0, i = 1, ...m$$

Figure 1. CCR model

BBC model

The BCC model (variable return to scale) is a technological and scale efficiency model. The BCC Model introduced Variable Returns to Scale, which replaced the CCR Model's Constant Returns to Scale element (VRS) (Noh, 2011). The BCC model, as described by Banker et al. (1984), assess productivity at a particular size of the operation and finds a return to scale. The objective is to identify a set of inputs and outputs that are important to performance evaluation and have a moderate statistical relationship.

$$\textit{subject to}\ \theta\, I_{xy} - \sum_{i=1}^{m} \lambda_i I_{xi} \geq 0, x = 1, ...n$$

$$\sum_{i=1}^{m} \lambda_i Q_{ki} \geq Q_{kh}, k = 1, ...p$$

$$\sum_{i=1}^{m} \lambda_i = 1$$

$$\lambda_i \geq 0, i = 1, ...m$$

Figure 2. BBC model

3. METHODOLOGY

3.1. DEA model

The DEA-CCR Model and the DEA-BCC Model were established in order to study and evaluate the efficiency of American pharmaceutical companies. We calculated the Technical Efficiency (CCR* BCC) using these research tools. We started by creating a control group with a perfect efficiency rate, then looked into the elements that contribute to inefficient DMUs.

3.2. Data and sample collection

We collect data on the financial status of the US pharmaceutical firms in 2019 from the Refinitiv database. After collecting and eliminating missing values, we end up with a sample of 186 observations used for the research analysis.

4. RESULTS AND DISCUSSIONS

Table 2. Descriptive statistics

Type	Indicator	Unit	Mean	Minimum	Maximum	Std. Deviation	K-S test
Input	Employees	Person	2064.20968	6	132200	10904.45298	p<0.01
Input	Operating Expenses	US$ thousands	1700678.27	14656	143711000	11581944.79	p<0.01
Input	Property, Plant & Equipment	US$ thousands	332309.817	33	18615000	1611885.804	p<0.01
Output	Revenues	US$ thousands	1935049.73	18	145534000	12491067.54	p<0.01
Output	Market Value	US$ thousands	7077416.73	17056	384003796	32354572.54	p<0.01

In Table 2 we present the descriptive statistics of inputs and outputs in DEA model. The result indicates a pharmaceutical firm with an average of 2064.20968 employees, 1700678.27 thousand US dollars of operating expenses and 332309.817 thousand US dollars of PPE will generate 1935049.73 thousand US dollars in revenue and obtain the market value of 7077416.73 thousand US dollars.

Table 3. Correlation

	1	2	3	4	5
1. Employees	1.000				
2. Operating expenses	0.690***	1.000			
3. Property, plant & equipment	0.929***	0.499***	1.000		
4. Revenues	0.761***	0.992***	0.599***	1.000	
5. Market value	0.908***	0.434***	0.976***	0.537***	1.000

Note. ***p<0.01

Table 3 represents the correlation between the inputs and outputs. Overall, all the included variables achieved positive beta values at a significance level of 5% (p<0.01), indicating that the input and output variables are significantly and positively associated.

4.1. Analyze the effectiveness of US pharmaceutical companies

The DEA/CCR and DEA/BCC Models were used to examine the technical and pure-technical efficiency of US pharmaceutical firms. According to the findings, a total of 9 DMUs had a technical efficiency rate of 100 percent, accounting for 4.84 percent of all topics studied. In general, the results showed a low level of efficiency with a high gap between the efficiency of companies and the distribution falling between 100 and 2.97%.

Besides, by using DEA models we were able to create a reference group to provide benchmarking DMUs for inefficient DMUs. As shown in Table 2, the reference groups can be determined by comparing the total number of benchmarks from inefficient DMUs to the DMUs with a 100 percent efficiency rate under the DEA analysis. 9 DMUs produced a 100 percent efficiency rate among the subjects of this paper's analysis. During the process of constructing reference groups, however, the total number of benchmarks was 124 times for D32, 43 times for D122, 35 times for D18, and 23 times for D135. As a result, D32 was the most frequently recommended, and hence had the highest reliability rate among the reference group's subjects.

Table 2. Resource utilization efficiency

Company name	DMU	Technical efficiency (%)	No. Of references	No. Of reference groups	Reference groups				Return To Scale
JOHNSON & JOHNSON	DMU1	68.39%	0	4	P032	P122	P135	P183	Decreasing
LILLY (ELI) AND CO.	DMU2	74.90%	0	4	P032	P122	P135	P183	Decreasing
MODERNA INC	DMU3	23.89%	0	2	P018	P032			Decreasing
AMGEN INC	DMU4	62.98%	0	4	P032	P122	P135	P183	Decreasing
ZOETIS	DMU5	77.89%	0	3	P032	P122	P135		Decreasing
ILLUMINA, INC.	DMU6	74.54%	0	3	P032	P122	P135		Decreasing
REGENERON PHARMA	DMU7	72.69%	0	4	P032	P122	P135	P183	Decreasing
BIOGEN INC	DMU8	86.85%	0	4	P122	P130	P135	P183	Decreasing
VERTEX PHARMA INC	DMU9	83.75%	0	4	P032	P122	P135	P183	Decreasing
SEAGEN INC	DMU10	59.03%	0	4	P032	P122	P135	P183	Decreasing
CATALENT INC	DMU11	53.81%	0	3	P122	P130	P135		Decreasing
ALNYLAM PHARMACEUTICAL	DMU12	31.11%	0	2	P018	P032			Decreasing
ELANCO ANIMAL	DMU13	48.43%	0	3	P122	P130	P135		Decreasing
EXACT SCIENCES CORP	DMU14	40.73%	0	3	P032	P122	P135		Decreasing

INCYTE CORP.	DMU15	77.41%	0	4	P032	P122	P135	P183	Decreasing
BIOMARIN PHARMA	DMU16	54.04%	0	4	P032	P122	P135	P183	Decreasing
NOVAVAX INC	DMU17	9.64%	0	4	P032	P122	P135	P183	Increasing
NOVOCURE	DMU18	100.00%	35	1	P018				Constant
ACCELERON PHARMA INC	DMU19	33.54%	0	2	P032	P175			Increasing
ALECTOR INC	DMU20	20.90%	0	2	P032	P122			Increasing
CYTOKINETICS, INC.	DMU21	16.59%	0	4	P032	P122	P175	P183	Increasing
DENALI THERA	DMU22	17.48%	0	2	P018	P032			Increasing
EDITAS MEDICIN	DMU23	18.33%	0	2	P018	P032			Increasing
FATE THERAPEUT	DMU24	28.27%	0	2	P018	P032			Increasing
GUARDANT HEALTH INC	DMU25	45.41%	0	3	P032	P122	P135		Decreasing
INTELLIA THE	DMU26	18.55%	0	4	P032	P122	P135	P183	Increasing
ACADIA PHARMA	DMU27	92.35%	0	4	P122	P175	P183	P186	Decreasing
ADAPTIVE BIOTECH	DMU28	38.85%	0	2	P032	P122			Increasing
AGIOS PHARM	DMU29	21.74%	0	3	P018	P032	P183		Increasing
AMICUS THERAPEUTICS	DMU30	26.43%	0	4	P032	P122	P135	P183	Increasing
ARCUS BIOSCIENCE	DMU31	15.98%	0	4	P018	P032	P175	P183	Increasing
ARROWHEAD PHARMA	DMU32	100.00%	124	1	P032				Constant

ARVINAS INC	DMU33	42.53%	0	3	P032	P122	P175		Increasing
BIOCRYST PHARMA	DMU34	26.53%	0	4	P032	P122	P135	P183	Increasing
BLUEBIRD BIO INC	DMU35	16.21%	0	2	P018	P032			Increasing
BLUEPRINT MED	DMU36	38.45%	0	2	P032	P122			Increasing
BRIDGEBIO PHARMA INC	DMU37	100.00%	6	1	P037				Constant
CELLDEX THERAPEUTICS	DMU38	3.74%	0	3	P032	P122	P135		Increasing
DICERNA PHARMA	DMU39	18.16%	0	2	P032	P122			Increasing
EXELIXIS, INC.	DMU40	78.14%	0	4	P032	P122	P135	P183	Decreasing
FIBROGEN	DMU41	43.77%	0	4	P032	P122	P135	P183	Increasing
GLOBAL BLOOD TH	DMU42	34.95%	0	2	P018	P032			Increasing
HALOZYME THERAPEUTIC	DMU43	60.70%	0	4	P032	P122	P175	P183	Increasing
HESKA CORPORATION	DMU44	59.91%	0	3	P032	P122	P135		Increasing
IMMUNITYBIO INC	DMU45	15.00%	0	2	P018	P032			Increasing
INSMED INCORPORATED	DMU46	24.78%	0	4	P032	P122	P135	P183	Increasing
INTRA-CELLULAR	DMU47	43.51%	0	2	P018	P032			Increasing
INVITAE CORP	DMU48	30.47%	0	3	P032	P122	P135		Increasing
IONIS PHARMACEUT	DMU49	60.80%	0	4	P032	P122	P135	P183	Decreasing
IRONWOOD	DMU50	98.31%	0	4	P032	P122	P135	P183	Increasing

JAZZ PHA	DMU51	57.82%	0	4	P032	P122	P135	P183	Decreasing
KARYOPHARM	DMU52	29.29%	0	2	P018	P175			Increasing
MACROGENICS INC	DMU53	19.82%	0	4	P032	P122	P135	P183	Increasing
MORPHIC HOLDING INC	DMU54	26.11%	0	3	P032	P122	P175		Increasing
MYRIAD GENETICS, INC	DMU55	59.93%	0	4	P122	P130	P135	P183	Decreasing
NANOSTRING TECHN	DMU56	44.97%	0	3	P032	P122	P135		Increasing
NEKTAR THERAPEUTICS	DMU57	12.12%	0	2	P032	P122			Increasing
NEUROCRINE	DMU58	83.93%	0	4	P032	P122	P135	P183	Decreasing
NGM BIO	DMU59	38.69%	0	4	P032	P122	P135	P183	Increasing
PROTAGONIST THERAP	DMU60	8.15%	0	2	P032	P175			Increasing
PTC THERAPEUTICS	DMU61	29.11%	0	4	P032	P122	P135	P183	Increasing
REATA PHARMAC	DMU62	98.48%	0	3	P032	P122	P175		Decreasing
SAREPTA THERAP	DMU63	33.37%	0	3	P032	P122	P183		Decreasing
SYNEOS HEALTH	DMU64	65.25%	0	3	P130	P135	P183		Decreasing
TG THERAPEUTICS	DMU65	42.86%	0	2	P018	P032			Increasing
TRANSLATE BIO INC	DMU66	11.10%	0	2	P032	P122			Increasing
TWIST BIOSCIENCE	DMU67	27.70%	0	3	P032	P135	P183		Increasing
VERACYTE INC	DMU68	55.79%	0	3	P032	P122	P135		Increasing

VERICEL CORP	DMU69	68.57%	0	4	P032	P122	P135	P183	Increasing
VIR BIOTECH	DMU70	21.34%	0	3	P032	P122	P175		Increasing
XENCOR INC	DMU71	41.98%	0	4	P032	P122	P135	P183	Increasing
ACELRX PHARMA	DMU72	10.55%	0	2	P018	P032			Increasing
ACLARIS THERAP	DMU73	5.08%	0	3	P018	P032	P183		Increasing
ACORDA THERAP	DMU74	30.26%	0	3	P122	P130	P183		Increasing
ADAMAS PHARMA	DMU75	27.14%	0	4	P122	P130	P135	P183	Increasing
ADMA BIO	DMU76	26.41%	0	3	P032	P122	P135		Increasing
ADVERUM BIOTECHN	DMU77	20.11%	0	2	P018	P032			Increasing
AERIE PHARMA	DMU78	19.56%	0	4	P032	P122	P135	P183	Increasing
AGENUS INC	DMU79	58.47%	0	4	P032	P122	P135	P183	Increasing
AKEBIA THERA	DMU80	37.95%	0	4	P032	P122	P135	P183	Increasing
ALBIREO PHARMA	DMU81	16.55%	0	3	P032	P122	P175		Increasing
ANAPTYSBIO INC	DMU82	17.38%	0	3	P037	P122	P175		Increasing
ANTARES PHARMA, INC.	DMU83	78.42%	0	4	P032	P122	P135	P183	Increasing
APTINYX INC	DMU84	13.63%	0	3	P037	P122	P175		Increasing
AQUESTIVE	DMU85	41.82%	0	4	P032	P122	P135	P183	Increasing
ARDELYX INC	DMU86	21.83%	0	3	P032	P122	P175		Increasing

ASSEMBLY BIOSCIENCES	DMU87	14.76%	0	3	P032	P122	P175		Increasing
ATHENEX INC	DMU88	34.55%	0	3	P032	P122	P135		Increasing
AYTU BIOPHARMA INC	DMU89	27.35%	0	2	P122	P183			Increasing
CARA THERAPEUTICS	DMU90	34.77%	0	3	P032	P122	P175		Increasing
CASI PHARMACEUTICALS	DMU91	16.95%	0	2	P018	P032			Increasing
CASTLE BIO	DMU92	74.89%	0	4	P032	P122	P175	P183	Increasing
CERECOR INC	DMU93	48.25%	0	3	P018	P032	P175		Increasing
CHROMADEX	DMU94	60.88%	0	2	P018	P183			Increasing
CIDARA THER	DMU95	27.99%	0	4	P032	P122	P175	P183	Increasing
CLOVIS ON	DMU96	19.69%	0	4	P032	P122	P135	P183	Increasing
CODEXIS, INC	DMU97	57.57%	0	4	P032	P122	P135	P183	Increasing
COHERUS BIO	DMU98	90.41%	0	4	P032	P122	P135	P183	Increasing
COLLEGIUM PHARMA	DMU99	71.57%	0	4	P032	P122	P135	P183	Increasing
CONCERT PHARMA	DMU100	9.24%	0	2	P018	P032			Increasing
CORBUS PHARMAC	DMU101	53.09%	0	2	P018	P183			Increasing
CRINETICS PHARMA	DMU102	30.65%	0	2	P032	P175			Increasing
CUE BIOPHARMA INC	DMU103	33.93%	0	2	P018	P032			Increasing
CYCLERION THERAP	DMU104	2.79%	0	4	P032	P122	P135	P183	Increasing

DURECT CORP	DMU105	51.18%	0	3	P018	P032	P183		Increasing
CYTOMX THERAPE	DMU106	20.33%	0	4	P032	P122	P135	P183	Increasing
DYNAVAX TECH CORP	DMU107	15.52%	0	4	P032	P122	P135	P183	Increasing
ENANTA PHARM	DMU108	59.56%	0	4	P032	P122	P135	P183	Increasing
ENZO BIOCHEM INC	DMU109	57.53%	0	3	P130	P135	P183		Increasing
EPIZYME INC	DMU110	35.56%	0	2	P032	P175			Increasing
ETON PHARMACEUT	DMU111	43.32%	0	2	P018	P032			Increasing
EVOLUS INC	DMU112	22.67%	0	4	P032	P122	P175	P183	Increasing
FLEXION THERAPEUTICS	DMU113	29.31%	0	4	P032	P122	P135	P183	Increasing
FREQUENCY THER	DMU114	38.85%	0	3	P037	P122	P175		Increasing
GERON CORP	DMU115	17.62%	0	3	P032	P122	P175		Increasing
GRITSTONE BIO INC	DMU116	10.16%	0	2	P018	P032			Increasing
HARPOON THERAPEUTICS	DMU117	13.18%	0	2	P032	P122			Increasing
HARROW HEALTH	DMU118	71.76%	0	4	P032	P122	P135	P183	Increasing
HARVARD BIOSCIENCE	DMU119	66.61%	0	3	P130	P135	P183		Increasing
HERON THERAPEUTICS	DMU120	31.99%	0	4	P032	P122	P135	P183	Increasing
HOMOLOGY MEDIC	DMU121	17.35%	0	2	P018	P032			Increasing
INNOVIVA	DMU122	100.00%	43	1	P122				Constant

IMMUNOGEN INC	DMU123	39.85%	0	3	P032	P122	P183		Increasing
INTERCEPT PHARMA	DMU124	55.43%	0	4	P032	P122	P175	P183	Decreasing
JOUNCE THERA	DMU125	84.11%	0	4	P122	P130	P135	P183	Increasing
KALA PHA	DMU126	5.32%	0	3	P018	P032	P183		Increasing
KALVISTA PHARMAC	DMU127	30.23%	0	4	P032	P122	P175	P183	Increasing
KINDRED	DMU128	16.73%	0	2	P018	P032			Increasing
LA JOLLA PHARMA CO	DMU129	13.71%	0	4	P032	P122	P135	P183	Increasing
LEXICON	DMU130	100.00%	5	1	P130				Constant
MANNKIND CORPORATION	DMU131	46.71%	0	4	P032	P122	P135	P183	Increasing
MARKER T	DMU132	24.82%	0	2	P032	P175			Increasing
MEI PHARMA INC	DMU133	59.67%	0	2	P037	P122			Increasing
MERSANA THERA	DMU134	39.94%	0	4	P032	P122	P135	P183	Increasing
MIMEDX GROUP, INC	DMU135	100.00%	23	1	P135				Constant
MOLECULAR TEMPLATE	DMU136	22.02%	0	3	P032	P135	P183		Increasing
OMEROS CORP	DMU137	55.60%	0	4	P032	P122	P135	P183	Increasing
OPTINOSE INC	DMU138	26.29%	0	4	P032	P122	P175	P183	Increasing
OTONOMY INC	DMU139	8.20%	0	2	P018	P032			Increasing
PARATEK PHARMA	DMU140	10.26%	0	4	P032	P122	P175	P183	Increasing

PERSONALIS INC	DMU141	45.73%	0	4	P032	P122	P135	P183	Increasing
PHASEBIO PHARM	DMU142	14.63%	0	2	P032	P175			Increasing
PHIBRO ANIMAL HEALTH	DMU143	84.51%	0	3	P130	P135	P183		Decreasing
PIERIS PHARMA	DMU144	37.09%	0	4	P032	P122	P135	P183	Increasing
PRECIGEN	DMU145	22.85%	0	3	P032	P122	P135		Increasing
PRECISION BIO	DMU146	17.38%	0	2	P018	P032			Increasing
PROQR THERA	DMU147	34.76%	0	2	P032	P175			Increasing
PROTHENA CORPORATI	DMU148	21.90%	0	2	P032	P122			Increasing
RADIUS HEALTH	DMU149	55.79%	0	4	P032	P122	P175	P183	Increasing
RECRO PHAR	DMU150	86.94%	0	3	P032	P122	P135		Increasing
REGENXBIO	DMU151	17.56%	0	2	P018	P032			Increasing
RIGEL PHARMACEUTICAL	DMU152	35.08%	0	4	P032	P122	P135	P183	Increasing
SANGAMO THERAPE	DMU153	23.99%	0	4	P032	P122	P135	P183	Increasing
SCHOLAR ROCK HOL	DMU154	17.03%	0	4	P032	P122	P175	P183	Increasing
SELECTA BIOSCIENCE	DMU155	23.30%	0	3	P032	P122	P175		Increasing
SERES THERA	DMU156	24.48%	0	4	P032	P122	P135	P183	Increasing
SPERO THERAPE	DMU157	17.16%	0	4	P032	P122	P135	P183	Increasing
SURFACE ONCOLOGY INC	DMU158	12.76%	0	4	P032	P122	P135	P183	Increasing

SUTRO BIOPHARMA INC	DMU159	28.68%	0	4	P032	P122	P135	P183	Increasing
SYNDAX PHARM	DMU160	37.20%	0	2	P037	P175			Increasing
SYNLOGIC INC	DMU161	2.61%	0	2	P032	P122			Increasing
SYROS PHARMACEUTI	DMU162	11.52%	0	2	P018	P032			Increasing
THERAPEUTICSMD	DMU163	21.20%	0	4	P032	P122	P175	P183	Increasing
THERAVANCE BIO	DMU164	22.58%	0	3	P018	P032	P183		Increasing
TRAVERE THERAP	DMU165	34.83%	0	4	P032	P122	P135	P183	Increasing
UROGEN PHARMA LTD	DMU166	28.91%	0	2	P032	P175			Increasing
VANDA PHARMA	DMU167	64.91%	0	4	P032	P122	P135	P183	Increasing
VERAS	DMU168	10.94%	0	4	P032	P122	P175	P183	Increasing
VOYAGER THERAPEU	DMU169	36.53%	0	4	P032	P122	P135	P183	Increasing
VTV THERAPEUTICS INC	DMU170	67.14%	0	1	P018				Increasing
XERIS	DMU171	10.07%	0	2	P018	P032			Increasing
XOMA	DMU172	57.52%	0	3	P032	P122	P175		Increasing
SIGA TECHNOLOGIES	DMU173	33.28%	0	3	P032	P122	P175		Increasing
AFFIMED (BRN)	DMU174	23.98%	0	4	P032	P122	P135	P183	Increasing
CHEMOCENTRYX (FRA)	DMU175	100.00%	4	1	P175				Constant

CHIMERIX (FRA)	DMU176	18.28%	0	4	P122	P175	P183	P186	Increasing
ANI PHARMACEUTICALS	DMU177	59.90%	0	4	P032	P122	P135	P183	Increasing
APPLIED GENETIC	DMU178	50.84%	0	3	P122	P130	P135		Increasing
ATHERSYS, INC	DMU179	26.97%	0	1	P018				Increasing
AVID BIOSERVICES INC	DMU180	65.92%	0	3	P032	P122	P135		Increasing
BIODELIVERY SCIENCES	DMU181	77.36%	0	4	P122	P175	P183	P186	Increasing
BIOGEN INC	DMU182	86.85%	0	4	P122	P130	P135	P183	Decreasing
CARDINAL HEALTH, INC	DMU183	100.00%	2	1	P183				Constant
DECIPHERA PHARMA	DMU184	35.81%	0	3	P032	P122	P175		Increasing
EMERGENT BIOSOL	DMU185	58.05%	0	4	P122	P130	P135	P183	Decreasing
ESPERION THERAPEUTIC	DMU186	100.00%	1	1	P186				Constant

4.2. Analysis of inefficient factors of inefficient DMUs

The DEA-CCR Model was used to calculate the efficiency rate, which represents the technical efficiency of DMUs. Pure-technical efficiency and scale-efficiency were combined to generate technological efficiency. As a result, we must address the issues of pure-technical efficiency and scale efficiency in order to determine the factors contributing to DMU inefficiency. This allows us to analyze whether the inefficient DMUs were determined to be inefficient owing to pure-technical reasons or because of scale.

The results reveal out of 186 observations, a total of 23 DMUs (12.37%) had a 100 percent pure-technical efficiency rate, 9 DMUs (4.84%) had a 100 percent scale-efficiency rate, and 9 DMUs (4.84%) had a 100 percent technical efficiency rate. The majority of pharmaceutical companies had a quite low rate of investment efficiency, with the lowest technological efficiency rate at 2.79%.

Table 3. Technical efficiency, pure-technical efficiency, and scale-efficiency

					Radio of relative inefficiency	
Company name	**DMU**	**Technical efficiency (%)**	**Pure technical efficiency (%)**	**Scale efficiency (%)**	**Pure technical efficiency**	**Scale efficiency**
JOHNSON & JOHNSON	DMU1	68.39%	100.00%	68.39%		X
LILLY (ELI) AND CO.	DMU2	74.90%	100.00%	74.90%		X
MODERNA INC	DMU3	23.89%	25.39%	94.11%	X	
AMGEN INC	DMU4	62.98%	100.00%	62.98%		X
ZOETIS	DMU5	77.89%	99.29%	78.45%		X
ILLUMINA, INC.	DMU6	74.54%	98.35%	75.79%		X
REGENERON PHARMA	DMU7	72.69%	83.22%	87.34%	X	
BIOGEN INC	DMU8	86.85%	100.00%	86.85%		X
VERTEX PHARMA INC	DMU9	83.75%	100.00%	83.75%		X
SEAGEN INC	DMU10	59.02%	100.00%	59.02%		X
CATALENT INC	DMU11	53.81%	60.23%	89.34%	X	
ALNYLAM PHARMACEUTIC	DMU12	31.11%	50.75%	61.30%	X	
ELANCO ANIMAL	DMU13	48.43%	59.90%	80.85%	X	
EXACT SCIENCES CORPN	DMU14	40.73%	51.82%	78.60%	X	
INCYTE CORP.	DMU15	77.41%	87.35%	88.62%	X	
BIOMARIN PHARMA	DMU16	54.03%	61.37%	88.05%	X	
NOVAVAX INC	DMU17	9.64%	19.13%	50.39%	X	
NOVOCURE	DMU18	100.00%	100.00%	100.00%		

ACCELERON PHARMA INC	DMU19	33.54%	34.10%	98.35%	X	
ALECTOR INC	DMU20	20.90%	27.09%	77.16%	X	
CYTOKINETICS, INC.	DMU21	16.59%	22.28%	74.48%	X	
DENALI THERA	DMU22	17.48%	18.64%	93.79%	X	
EDITAS MEDICIN	DMU23	18.33%	24.96%	73.43%	X	
FATE THERAPEUT	DMU24	28.27%	35.01%	80.75%	X	
GUARDANT HEALTH INC	DMU25	45.41%	61.09%	74.33%	X	
INTELLIA THE	DMU26	18.55%	24.49%	75.74%	X	
ACADIA PHARMA	DMU27	92.35%	100.00%	92.35%		X
ADAPTIVE BIOTECH	DMU28	38.85%	40.28%	96.44%	X	
AGIOS PHARM	DMU29	21.74%	21.99%	98.89%	X	
AMICUS THERAPEUTICS	DMU30	26.43%	27.44%	96.31%	X	
ARCUS BIOSCIENCE	DMU31	15.98%	24.02%	66.53%	X	
ARROWHEAD PHARMA	DMU32	100.00%	100.00%	100.00%		
ARVINAS INC	DMU33	42.53%	48.70%	87.33%	X	
BIOCRYST PHARMA	DMU34	26.53%	35.17%	75.43%	X	
BLUEBIRD BIO INC	DMU35	16.21%	16.25%	99.73%	X	
BLUEPRINT MED	DMU36	38.45%	39.49%	97.36%	X	
BRIDGEBIO PHARMA INC	DMU37	100.00%	100.00%	100.00%		
CELLDEX THERAPEUTICS	DMU38	3.74%	33.30%	11.23%		X
DICERNA PHARMA	DMU39	18.16%	25.25%	71.92%	X	
EXELIXIS, INC.	DMU40	78.14%	99.26%	78.72%		X

FIBROGEN	DMU41	43.77%	43.79%	99.96%	X	
GLOBAL BLOOD TH	DMU42	34.95%	35.04%	99.76%	X	
HALOZYME THERAPEUTIC	DMU43	60.70%	61.35%	98.94%	X	
HESKA CORPORATION	DMU44	59.91%	65.27%	91.79%	X	
IMMUNITYBIO INC	DMU45	15.00%	32.96%	45.50%	X	
INSMED INCORPORATED	DMU46	24.78%	26.37%	93.99%	X	
INTRA-CELLULAR	DMU47	43.51%	44.52%	97.73%	X	
INVITAE CORP	DMU48	30.46%	30.98%	98.35%	X	
IONIS PHARMACEUT	DMU49	60.80%	88.53%	68.68%		X
IRONWOOD	DMU50	98.31%	98.79%	99.51%	X	
JAZZ PHA	DMU51	57.82%	92.13%	62.76%		X
KARYOPHARM	DMU52	29.29%	31.10%	94.18%	X	
MACROGENICS INC	DMU53	19.82%	24.45%	81.06%	X	
MORPHIC HOLDING INC	DMU54	26.11%	41.40%	63.08%	X	
MYRIAD GENETICS, INC	DMU55	59.93%	66.10%	90.67%	X	
NANOSTRING TECHN	DMU56	44.97%	48.65%	92.44%	X	
NEKTAR THERAPEUTICS	DMU57	12.12%	13.07%	92.78%	X	
NEUROCRINE	DMU58	83.93%	93.86%	89.42%		X
NGM BIO	DMU59	38.69%	42.95%	90.09%	X	
PROTAGONIST THERAP	DMU60	8.15%	24.34%	33.50%	X	

PTC THERAPEUTICS	DMU61	29.11%	29.20%	99.71%	X	
REATA PHARMAC	DMU62	98.48%	100.00%	98.48%		X
SAREPTA THERAP	DMU63	33.37%	47.12%	70.81%	X	
SYNEOS HEALTH	DMU64	65.25%	87.02%	74.98%		X
TG THERAPEUTICS	DMU65	42.86%	44.45%	96.42%	X	
TRANSLATE BIO INC	DMU66	11.10%	22.32%	49.75%	X	
TWIST BIOSCIENCE	DMU67	27.70%	34.50%	80.28%	X	
VERACYTE INC	DMU68	55.79%	60.17%	92.71%	X	
VERICEL CORP	DMU69	68.57%	75.67%	90.62%	X	
VIR BIOTECH	DMU70	21.33%	24.99%	85.36%	X	
XENCOR INC	DMU71	41.98%	43.80%	95.84%	X	
ACELRX PHARMA	DMU72	10.55%	34.55%	30.54%		X
ACLARIS THERAP	DMU73	5.08%	22.43%	22.64%	X	
ACORDA THERAP	DMU74	30.26%	31.81%	95.11%	X	
ADAMAS PHARMA	DMU75	27.14%	36.71%	73.94%	X	
ADMA BIO	DMU76	26.41%	41.98%	62.91%	X	
ADVERUM BIOTECHN	DMU77	20.11%	39.80%	50.52%	X	
AERIE PHARMA	DMU78	19.56%	23.01%	85.01%	X	
AGENUS INC	DMU79	58.47%	63.78%	91.68%	X	
AKEBIA THERA	DMU80	37.95%	39.15%	96.93%	X	
ALBIREO PHARMA	DMU81	16.55%	31.94%	51.81%	X	
ANAPTYSBIO INC	DMU82	17.38%	25.18%	69.01%	X	
ANTARES PHARMA, INC.	DMU83	78.42%	86.76%	90.38%	X	

APTINYX INC	DMU84	13.62%	52.98%	25.72%		X
AQUESTIVE	DMU85	41.81%	55.49%	75.35%	X	
ARDELYX INC	DMU86	21.83%	31.45%	69.42%	X	
ASSEMBLY BIOSCIENCES	DMU87	14.75%	22.08%	66.81%	X	
ATHENEX INC	DMU88	34.55%	38.23%	90.38%	X	
AYTU BIOPHARMA INC	DMU89	27.35%	100.00%	27.35%		X
CARA THERAPEUTICS	DMU90	34.76%	44.07%	78.88%	X	
CASI PHARMACEUTICALS	DMU91	16.95%	47.64%	35.58%		X
CASTLE BIO	DMU92	74.89%	88.18%	84.92%		X
CERECOR INC	DMU93	48.25%	99.22%	48.62%		X
CHROMADEX	DMU94	60.87%	78.33%	77.71%		X
CIDARA THER	DMU95	27.99%	50.14%	55.81%	X	
CLOVIS ON	DMU96	19.69%	21.66%	90.92%	X	
CODEXIS, INC	DMU97	57.57%	68.18%	84.45%	X	
COHERUS BIO	DMU98	90.41%	91.36%	98.96%	X	
COLLEGIUM PHARMA	DMU99	71.57%	74.36%	96.25%	X	
CONCERT PHARMA	DMU100	9.24%	25.39%	36.39%	X	
CORBUS PHARMAC	DMU101	53.09%	60.08%	88.36%	X	
CRINETICS PHARMA	DMU102	30.65%	46.92%	65.32%	X	
CUE BIOPHARMA INC	DMU103	33.93%	58.39%	58.11%		X
CYCLERION THERAP	DMU104	2.79%	16.84%	16.56%		X

DURECT CORP	DMU105	51.18%	70.12%	72.99%	X	
CYTOMX THERAPE	DMU106	20.33%	26.07%	78.00%	X	
DYNAVAX TECH CORP	DMU107	15.52%	22.16%	70.02%	X	
ENANTA PHARM	DMU108	59.56%	62.09%	95.92%	X	
ENZO BIOCHEM INC	DMU109	57.53%	69.28%	83.03%	X	
EPIZYME INC	DMU110	35.56%	36.29%	97.99%	X	
ETON PHARMACEUT	DMU111	43.32%	100.00%	43.32%		X
EVOLUS INC	DMU112	22.67%	29.08%	77.93%	X	
FLEXION THERAPEUTICS	DMU113	29.30%	35.04%	83.64%	X	
FREQUENCY THER	DMU114	38.85%	57.26%	67.85%	X	
GERON CORP	DMU115	17.62%	35.69%	49.36%	X	
GRITSTONE BIO INC	DMU116	10.16%	21.42%	47.43%	X	
HARPOON THERAPEUTICS	DMU117	13.18%	33.82%	38.98%	X	
HARROW HEALTH	DMU118	71.76%	96.62%	74.27%		X
HARVARD BIOSCIENCE	DMU119	66.61%	74.74%	89.12%	X	
HERON THERAPEUTICS	DMU120	31.99%	34.60%	92.46%	X	
HOMOLOGY MEDIC	DMU121	17.34%	27.23%	63.70%	X	
INNOVIVA	DMU122	100.00%	100.00%	100.00%		
IMMUNOGEN INC	DMU123	39.85%	50.60%	78.75%	X	
INTERCEPT PHARMA	DMU124	55.43%	57.75%	95.97%	X	
JOUNCE THERA	DMU125	84.11%	90.74%	92.70%	X	

KALA PHA	DMU126	5.32%	20.60%	25.81%	X	
KALVISTA PHARMAC	DMU127	30.23%	50.95%	59.33%	X	
KINDRED	DMU128	16.73%	33.10%	50.53%	X	
LA JOLLA PHARMA CO	DMU129	13.71%	26.16%	52.39%	X	
LEXICON	DMU130	100.00%	100.00%	100.00%		
MANNKIND CORPORATION	DMU131	46.71%	58.44%	79.92%	X	
MARKER T	DMU132	24.82%	93.71%	26.48%		X
MEI PHARMA INC	DMU133	59.67%	100.00%	59.67%		X
MERSANA THERA	DMU134	39.94%	56.22%	71.03%	X	
MIMEDX GROUP, INC	DMU135	100.00%	100.00%	100.00%		
MOLECULAR TEMPLATE	DMU136	22.02%	37.05%	59.42%	X	
OMEROS CORP	DMU137	55.60%	62.51%	88.94%	X	
OPTINOSE INC	DMU138	26.29%	34.20%	76.86%	X	
OTONOMY INC	DMU139	8.20%	42.72%	19.19%		X
PARATEK PHARMA	DMU140	10.26%	21.62%	47.47%	X	
PERSONALIS INC	DMU141	45.73%	56.33%	81.17%	X	
PHASEBIO PHARM	DMU142	14.63%	46.02%	31.78%		X
PHIBRO ANIMAL HEALTH	DMU143	84.51%	84.89%	99.55%	X	
PIERIS PHARMA	DMU144	37.09%	51.20%	72.43%	X	
PRECIGEN	DMU145	22.85%	25.93%	88.13%	X	
PRECISION BIO	DMU146	17.38%	25.40%	68.41%	X	
PROQR THERA	DMU147	34.76%	51.54%	67.44%	X	

PROTHENA CORPORATI	DMU148	21.90%	32.23%	67.94%	X	
RADIUS HEALTH	DMU149	55.78%	59.80%	93.29%	X	
RECRO PHAR	DMU150	86.94%	98.67%	88.11%		X
REGENXBIO	DMU151	17.56%	21.47%	81.80%	X	
RIGEL PHARMACEUTICAL	DMU152	35.08%	44.86%	78.21%	X	
SANGAMO THERAPE	DMU153	23.99%	26.65%	90.04%	X	
SCHOLAR ROCK HOL	DMU154	17.03%	29.53%	57.65%	X	
SELECTA BIOSCIENCE	DMU155	23.30%	56.85%	40.98%		X
SERES THERA	DMU156	24.48%	36.90%	66.34%	X	
SPERO THERAPE	DMU157	17.16%	35.06%	48.94%	X	
SURFACE ONCOLOGY INC	DMU158	12.76%	34.45%	37.04%	X	
SUTRO BIOPHARMA INC	DMU159	28.68%	39.84%	72.00%	X	
SYNDAX PHARM	DMU160	37.20%	81.22%	45.80%		X
SYNLOGIC INC	DMU161	2.61%	33.81%	7.71%		X
SYROS PHARMACEUTI	DMU162	11.52%	26.86%	42.91%	X	
THERAPEUTICSMD	DMU163	21.20%	25.59%	82.84%	X	
THERAVANCE BIO	DMU164	22.58%	23.48%	96.13%	X	
TRAVERE THERAP	DMU165	34.83%	37.24%	93.54%	X	
UROGEN PHARMA LTD	DMU166	28.91%	36.45%	79.33%	X	
VANDA PHARMA	DMU167	64.91%	67.22%	96.56%	X	

VERAS	DMU168	10.94%	22.87%	47.85%	X		
VOYAGER THERAPEU	DMU169	36.53%	41.43%	88.18%	X		
VTV THERAPEUTICS INC	DMU170	67.13%	100.00%	67.13%			X
XERIS	DMU171	10.07%	17.75%	56.72%	X		
XOMA	DMU172	57.52%	100.00%	57.52%			X
SIGA TECHNOLOGIES	DMU173	33.28%	65.13%	51.10%			X
AFFIMED (BRN)	DMU174	23.98%	40.93%	58.60%	X		
CHEMOCENTRYX (FRA)	DMU175	100.00%	100.00%	100.00%			
CHIMERIX (FRA)	DMU176	18.28%	50.69%	36.07%			X
ANI PHARMACEUTICALS	DMU177	59.90%	62.09%	96.47%	X		
APPLIED GENETIC	DMU178	50.84%	74.82%	67.94%			X
ATHERSYS, INC	DMU179	26.96%	45.65%	59.06%	X		
AVID BIOSERVICES INC	DMU180	65.92%	85.06%	77.50%			X
BIODELIVERY SCIENCES	DMU181	77.36%	85.40%	90.59%	X		
BIOGEN INC	DMU182	86.85%	100.00%	86.85%			X
CARDINAL HEALTH, INC	DMU183	100.00%	100.00%	100.00%			
DECIPHERA PHARMA	DMU184	35.81%	36.66%	97.69%	X		
EMERGENT BIOSOL	DMU185	58.05%	62.33%	93.14%	X		
ESPERION THERAPEUTIC	DMU186	100.00%	100.00%	100.00%			

5. CONCLUSION

This research used the DEA model to thoroughly analyze firm performance in the US in 2019. Results show pharmaceuticals firms in the US are not performing well when only 4.84% of observations achieved 100% technical efficiency. Moreover, after examining the inefficient factors that contribute to these results, we discovered that pure-technical inefficiency was the major cause of observations' inefficiency. These findings suggest that to address these contingency issues pharmaceutical firms need to improve their ability to fully utilize their resources as well as invest in advanced technologies to increase business efficiency. Overall, the conclusions of this paper are very significant to the government, investors, and business owners, and can be used to make investment and policy decisions.

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INNOVATION AND EXPORT PERFORMANCE IN VIETNAM

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ABSTRACT

This paper aims to examine the effect of innovations activities on export performance. Propensity score matching (PSM) method and data from small and medium-sized enterprises (SMEs) in Vietnam are used for empirical analysis. The findings reveal that innovation activities are positively associated with export share and direct export share. However, the effect is mainly contributed by firms' adoption of new process or new technology. Accordingly, we discuss some implications with a focus on how to facilitate innovation activities and export performance.

Keyword: innovation, export performance, SMEs, Vietnam

1. INTRODUCTION

Countries pursuit closed-economy without international trade participation would not survive in 20th century due to the production inefficiency from hardly accessing the non-utilized operating capacity (Matanda and Freeman, 2009). Notably, in the context of Covid-19 pandemic recently, the lock-down to prevent the spread of the pandemic has been the root to disrupt the export activities causing the decreased economic growth. Thus, export performance is highlighted as the important role to boost the recovery of global economy. This paper focuses on the export in overall and direct export performance as multi-essential indicators contribute to national economic growth and prosperity (Sousa et al., 2014).

Scholars have acknowledged that the determinants of the export performance are divided into internal and external factors. The internal factors represent for firm's specific characteristics and management structure which are consistent with the response; while business environment such as international and domestic markets are recognized as external factor which regards contingency (Azar, 2017). More specifically, firm performance is determined by the efficiency of firm's response to the given contingency contexts (Robertson and Chetty, 2000). For that reason, it is expected that firms may gain more export performance if they apply the appropriate internal strategies responding to the foreign markets (Leonidou et al., 2022). Besides, Barber and Alegre (2007) state that innovation plays as a fundamental tool for organizations to response the foreign market contingencies which determine firm's export performance. Thus, firms may rapidly adapt the vitality of international environment to capture higher competitive advantage, growth in foreign markets and export performance in general by turning the innovation to their strategies (Edeh et al., 2020).

Small and medium-sized enterprises (SMEs) is highlighted as the main creators of innovation (Edeh et al., 2020). As per Ayyagari el al. (2011) and Love and Roper (2015), SMEs dominates 90 percent of businesses and they play as an important role in fostering economic growth of developing markets. SMEs are addressed as the creators of innovation (Edeh et al., 2020). Rosenbusch et al. (2011) indicate that the smaller and more flexible form of management structure of SEMs enable them to engage in successful innovation activity. Although the influences of innovation on export performance are mixed, previous studies mostly support the positive effect of that connection (Ramadani et al., 2019). Despite the critical role of innovation on export performance of SMEs recently, the empirical evidences mainly focus on developed markets because of the high amount of innovative firms. The difference of institutional environment from developed markets causes the low relevance in many emerging countries (Fernández-Sastre and Montalvo-Quizhpi, 2019). Thus, the research about the nature, types and influences of innovation on SEMs export performance in developing markets are important.

Besides, since the innovation has been argued not to be considered as single construct (Azar, 2017), we contribute to the literature by further analyze the influence of each dimension of innovation on SMEs' export performance. Thus, the innovation in this paper comprises both technological and non-technological spheres. We follow the literature and define innovation as three forms: (1) introduction of new products, (2) improvement of existing products, and (3) introduction of new technology.

We apply the matching method to analyze data from SMEs in Vietnam in 2013 and 2015. This method benefits to remove the endogeneity concerns due to the possible omission of unobservable factors affecting both innovation and firm performance. The final outcomes add the significant contributions to the current literature. Since most of previous research focus on the effect of one particular innovation dimension on export performance, our paper extends to the analyze the multi-dimension of innovations. Specifically, the final results show that three types of innovation have positive to firm export performance, especially in emerging markets. Thus, our paper is one of the few of relevant research, these findings are the valuable reference for policy makers or managers working at similar countries.

The remainders of this paper are organized as 5 sections. Section 2 presents the proposed framework model and its literature. Section 3 is methodology to support the analyzing step in chapter 4. Section 5 concludes with summary, policy implications and limitations associated with this paper.

2. LITERATURE REVIEW

2.1. SMEs in Vietnam

As per the law of Vietnam, SMEs are defined as micro, small, and medium-sized enterprises with lower than 200 employees registered with the state social insurance scheme. Additionally, firms are recognized as SMEs do not own total capital exceeding 100 billion VND or total revenue of preceding year exceeding 300 billion VND[1].

The significant role of SMEs has been addressed since 1986 when the Vietnam government reform their centrally-panned economy to market-orientation by implementing Doi Moi policy. The policy focus on modifying three main dimension of economy including (1) encouraging the participation of private sectors into economy, (2) reducing the participation of government in economy to liberalize the market, and (3) releasing new policies to enable domestic firms connecting to global markets. The reform policy implementation led the significant growth of Vietnamese economy. For instance, from 1991 to 2010, the GDP growth rate continuously increased with averaged 7.1% and over 6.0% since 2011. Thus, the

[1] Decree No. 39/2018/ND-CP dated March 11, 2018 on Guidelines for Law on support for small and medium-sized enterprises

high economic growth drives Vietnam become one of the fasted growing world economy and transformed to a middle-income from poorest countries.

Nowadays, the SMEs significant contribute to the success of Vietnamese economy. Specifically, SMEs have contributed 32% of GDP, averaged 37% of total investment, 25% of total export value, and 50% of annual economic growth (Ministry of Planning and Investment, 2017). The number of SMEs in Vietnam reached 507.86 thousand accounting for 98.1% of the total enterprises (General Statistics Office of Vietnam, 2018). The government expects that SMEs will increase their contribution to GDP to 49% same as investment (Ministry of Planning and Investment, 2017). To reach that goal, the new policy released to encourage SMEs invest in technological innovation and enhance productivity-quality-competitiveness of products improvement. The SMEs are also encouraged to adapt new technological management, construct the database system for technology and science markers and establish R&D department. Despite the significant support from government, the Vietnamese SMEs have my difficulties in reach the growth goal due to limitation in accessing capital, low-quality human resources and low technology.

2.2. The role of exporting on SMEs performance

Jones (2001) indicate that international SMEs normally increases their competitive advantage by innovation and technology capacity fosters their globalization process through exporting. As per Sousa (2004), exporting is one of the common modes entering to international market of SMEs operating at emerging countries. In that such context, the low level of commitments and investment risks are the essential reasons attract SMEs (Lu and Beamish, 2006). Additionally, through exporting, firms able to approach new resources and capabilities (Fu et al., 2018), increased learning opportunities and technology sourcing (Dunning, 1998) as well as fill the lack of resources such as technology knowledge, human capital (Buckley, 1997).

Besides, Paul and Rosado-Serrano (2019) state that domestic firms commonly enter the foreign market following gradual internationalization process based on Uppsala model. Particularly, SMEs star expanding their business to international markets by client-export strategy and transferring to next stage as direct export. In the second stage, the firms will create their own brand and manufacturing plant to directly control the business in foreign markets. However, the studies also argue that the Uppsala model is not appropriate to adapt to SMEs, especially with knowledge-intensive sectors. Thus, it is evidences of the positive connection between innovation and exporting of SMEs. It is explained that the innovation increases the products with more knowledge-intensive leading SMEs rapidly active their international business.

2.3. Innovation and firm export performance

Damanpour and Arabind (2012) define innovation as a chain of acts including generation, development, and implementation of ideas into new services or products, new process technologies, new marketing techniques, and new organizational structures. Besides, innovation has been argued as a multi-dimension construct. Damanpour and Aravind (2012) show that most of the previous studies sharp the body of innovation literature into two primary aspects comprising technology and non-technology. But technology is discussed more. As per Damanpour (1987), technological innovation consists to the use of new technology to produce changes in products or services, and also to how products and services are produced. Tekin and Hancioglu (2017) present that firms may rapidly expand their business to foreign markets because of technology spillover effect. This is because firms enable to fill the lack of resources through increased learning opportunities and technology sourcing (Dunning, 1998). Besides, Azar (2017) argues that the only one-type measured innovation would limit the firm capacity in capturing higher export performance in the highly global market. Thus, we argue that the innovation should be analyzed as multi-faced constructs. This paper considers innovation as three forms: (1) introduction of new products, (2) improvement of existing products, and (3) introduction of new technology.

The literature indicate that innovation and SMEs' export performance has a strong connection. Radicic and Djalilov (2019) state that the firms with high investment in technology gain more performance in export markets. Since SMEs are characterized by smaller, nimbler and entrepreneurial orientation (Edeh et al., 2020), these indicate that SMEs are more flexible to adapt new technology fostering them rapidly expanding their business to international markets. Becker and Egger (2013) indicate that technological innovation has a significant impact on exporting activities. Given that innovation is important sources of competitive advantage, we expect that Vietnamese SMEs would increase their ability to meet market demands if they spend more effort in investing in innovation; and thus reach better export performance (Zahra et al., 2000).

3. METHODOLOGY

3.1. Analytical strategy

This paper uses propensity score matching (PSM) to examine whether the firms with innovation activities (treated) experience a higher export performance than the firms without innovation activities (control) (D'Agostino, 1998; Garrido et al., 2014). PSM have two main steps. In the first stage, we uses pre-treatment observed covariates to construct the propensity score of each household. A probit model which is used to compute the propensity score is expressed as follows:

$$Probit(Innovation_{i,2015} = 1 \mid X_{i,2013}) = \alpha + \beta X_{i,2013} \qquad \text{(Eq. 1)}$$

where $Innovation_{i,2015}$ is the treatment variable and equals 1 if firm i has any innovation activity in the 2015 survey; otherwise, it equals 0. $X_{i,2013}$ is a vector of pre-treatment observed covariates, and these variables use information from the 2013 survey. The variables used for empirical analysis is reported in **Table 1**.

Prior to matching, the common support region should be specified, and the balancing property test must be satisfied. In the second stage, we match each treated firm to one or more control firms that have the closest propensity scores. The PSM estimator of the ATT is expressed as follows:

$$ATT^{PSM} = E\left\{Y_{1i,2015} \mid Innovation_{i,2015} = 1, P(X_{i,2013})\right\} - E\left\{Y_{0i,2015} \mid Innovation_{i,2015} = 0, P(X_{i,2013})\right\} \qquad \text{(Eq.2)}$$

where $Innovation_{i,2015}$ is the treatment variable and equals 1 if firm i has any innovation activity in the 2015 survey; otherwise, it equals 0. $P(X_{i,2013})$ indicates the propensity score of each firm, given the pre-treatment observed covariates. $Y_{1i,2015}$ and $Y_{0i,2015}$ represent, respectively, the outcomes (i.e., export performance) of the treated and control groups in the 2015 survey. The variables used for empirical analysis is reported in **Table 1**.

One drawback of the PSM is that it does not control for selection bias due to unobserved characteristics that may affect both treatment and outcome (Rosenbaum & Rubin, 1983). Therefore, we assume that the distribution of such unobserved characteristics are the same for both comparison groups.

3.2. Data

We use data from the surveys on SMEs in Vietnam conducted by the Development Economics Research Group at the University of Copenhagen, the United Nations University's World Institute for Development Economics Research, the Central Institute for Economic Management, and the Institute of Labor Science and Social Affairs. The surveys collected data from non-state manufacturing SMEs in 9 cities and provinces of Vietnam.

We use data from the surveys in 2013 (for pre-treatment variables) and 2015 (for innovation and export performance variables). During data cleansing, we remove firms with missing values. Our final sample has 2,111 observations.

4. RESULTS AND DISCUSSION

4.1. Descriptive statistics

Table 1 reports some descriptive statistics. Regarding innovation activities, approximately 39% of SMEs are found to have at least one innovation activity. In particular, the majority of innovation activities are introduction of new products, accounting for around 30%. Around 13% of SMEs report improving their existing products; mmeanwhile, only 5% of SMEs report introducing new production processes or new technology. Regarding export performance, among the exporters, the share of export over total sales are not large; in particular, their shares of export and direct export only account for around 27.73% and 24.4%, respectively. Table 2 also reports other firm characteristics that are used to compute the propensity scores.

4.2. Checking for matching quality

Prior to matching using kernel, it is important to examine the matching quality (Garrido et al., 2014). *First*, **Table 2** reveals that some firms are removed out of the region of common support due to their too different propensity scores. *Second*, **Table 2** also shows that the mean absolute standardized differences for the overall variables are approximately 1.1%–4.1% in the unmatched sample across cases, while balance checking for each variables shows that all variables have absolute standardized differences below 25% in the matched sample across cases. Therefore, the balancing property is satisfied.

Table 1. Descriptive statistics

Variable(s)	Definition	Mean	S.D.
Outcome variables			
Export share	Share of exports over total sales (%)	1.97	12.8
Exporters only	Share of exports over total sales of exporters (%)	27.73	37.16
Direct export share (customers)	Share of direct exports over total sales (%)	1.73	11.42
Exporters only	Share of exports over total sales of exporters (%)	24.40	35.93
Treatment variables			
Any innovation	1 if firm has any innovation activities; 0 otherwise	0.39	0.49
New product	1 if firm introduces new products; 0 otherwise	0.30	0.46

Improved existing product	1 if firm improves existing products; 0 otherwise	0.13	0.34
New processes/technology	1 if firm introduces new production processes or new technology; 0 otherwise	0.05	0.22
Matching variables			
Firm age	Years of operation	15.62	9.94
Physical asset	Total physical assets *(Billion VND)*	4.50	11.48
Financial asset	Total financial assets *(Billion VND)*	0.83	3.88
Firm size	Number of full-time regular employees	13.82	45.01
Professionals	Number of regular professionals	1.00	3.24
Skilled workers	Number of regular skilled workers	10.80	24.07
Salespersons	Number of regular salespersons	0.47	1.62
Formal loan	Number of formal (short- and long-term) loans that firm obtains with the past two years	0.41	0.91
Social network size	Number of businessmen, bank officials, politicians, and others that firm has regular contact with	38.50	52.44
Legal status			
Household business	1 if yes; 0 otherwise	0.65	0.48
Private Company	1 if yes; 0 otherwise	0.08	0.27
Collective/Cooperative	1 if yes; 0 otherwise	0.02	0.15
Partnership/ Limited Company	1 if yes; 0 otherwise	0.21	0.41
Joint Stock Company	1 if yes; 0 otherwise	0.05	0.21
Sector			
Food and beverage	1 if yes; 0 otherwise	0.32	0.47
Textiles, apparel and leather	1 if yes; 0 otherwise	0.11	0.31
Wood	1 if yes; 0 otherwise	0.10	0.30
Paper	1 if yes; 0 otherwise	0.03	0.16
Publishing and printing	1 if yes; 0 otherwise	0.03	0.16
Refined petroleum and chemical product	1 if yes; 0 otherwise	0.02	0.15
Rubber	1 if yes; 0 otherwise	0.06	0.23
Non-metallic mineral product	1 if yes; 0 otherwise	0.04	0.20
Basic and Fabricated metal product	1 if yes; 0 otherwise	0.18	0.38
Furniture, jewelry, watches, toys, and music or medical equipment	1 if yes; 0 otherwise	0.08	0.28
Other sectors	1 if yes; 0 otherwise	0.04	0.19
Location			
Ha Noi	1 if yes; 0 otherwise	0.11	0.31
Phu Tho	1 if yes; 0 otherwise	0.10	0.30
Ha Tay	1 if yes; 0 otherwise	0.15	0.35
Hai Phong	1 if yes; 0 otherwise	0.08	0.27
Nghe An	1 if yes; 0 otherwise	0.12	0.33
Quang Nam	1 if yes; 0 otherwise	0.07	0.25
Khanh Hoa	1 if yes; 0 otherwise	0.04	0.19
Lam Dong	1 if yes; 0 otherwise	0.04	0.19
Ho Chi Minh	1 if yes; 0 otherwise	0.24	0.43
Long An	1 if yes; 0 otherwise	0.06	0.23
	Observations	2,111	

Table 2. Balancing tests

Variable(s)	Any innovation			New product			Improved existing product			New processes/technology		
	Treated	Control	%bias	Treated	Control	%bias	Treated	Control	%bias	Treated	Control	%bias
Firm age	15.19	15.12	0.70	15.21	15.31	-1.00	14.18	14.27	-0.90	14.06	14.38	-3.40
Physical asset	5.00	5.03	-0.30	4.97	4.66	2.50	6.04	5.68	2.90	9.35	8.41	6.00
Financial asset	0.99	1.02	-0.50	0.97	1.04	-1.60	1.43	1.28	2.80	1.99	1.83	2.00
Firm size	15.06	14.79	0.50	13.60	13.42	0.30	19.63	18.62	1.30	26.97	26.00	2.20
Professionals	1.11	1.09	0.40	0.98	0.95	0.80	1.48	1.47	0.30	1.93	1.68	8.30
Skilled workers	12.02	12.00	0.10	11.13	10.55	2.20	15.40	15.03	1.30	20.99	18.23	9.30
Salespersons	0.57	0.55	1.10	0.49	0.47	1.40	0.92	0.73	9.60	1.18	1.08	4.80
Formal loan	0.48	0.48	0.30	0.42	0.41	0.80	0.59	0.61	-1.90	0.73	0.68	4.60
Social network size	38.63	39.16	-1.00	38.40	38.70	-0.50	39.90	39.94	-0.10	42.80	42.32	1.00
Legal status (Included and balanced)	*YES*			*YES*			*YES*			*YES*		
Sector (Included and balanced)	*YES*			*YES*			*YES*			*YES*		
Location (Included and balanced)	*YES*			*YES*			*YES*			*YES*		
Observations	2,111			2,111			2,111			2,111		
On-support	4			3			1			1		
Off-support	2,107			2,108			2,110			2,110		
Mean |bias|	1.00			1.10			1.50			4.10		
Max |bias|	4.70			4.10			9.60			12.70		

Note: *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Matched sample limited to common support region.

Balancing test results for legal status, sector, and location are not reported for brevity but available upon request

4.3. Innovation and export performance

The effects of innovation activities on export performance are reported in **Table 3**. We find that any innovation activity is associated with higher export share and direct export share. Further investigations reveals that the increase in export share variables is be mainly due to firms' adoption of new process or technology. Meanwhile, there is no evidence to conclude the association between the other two types of innovation (i.e., new product and improved existing product) and export performance (i.e., export share and direct export share).

In overall, our findings support the notion that innovative firms perform better in the export markets regarding sales, revenue and competiveness as innovative firms are better able to meet the changing demands or customize their products to adapt to the requirements of the customers (Zahra et al., 2000; Radicic and Djalilov, 2019). Our findings are also consistent with a previous study that found positive effects of technological innovation on export performance (Azar, 2017; Becker and Egger, 2013). However, our findings on insignificant effect of product related innovation activities (i.e., new products or improvement of existing products) are different from those in a previous study (D'Angelo, 2012).

Table 3: Innovation and export performance – the effects

Treatment(s)	Outcome(s)	Treated	Controls	ATT	T-stat
Any innovation	Export share	3.00	1.78	1.21**	1.98
	Direct export share	2.62	1.62	1.00*	1.74
New product	Export share	2.04	2.38	-0.34	-0.57
	Direct export share	1.59	2.21	-0.62	-1.14
Improved existing product	Export share	3.95	2.73	1.22	1.11
	Direct export share	3.95	2.37	1.57	1.45
New processes/technology	Export share	8.78	3.27	5.51**	2.23
	Direct export share	8.31	3.02	5.29**	2.23

Note: *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Matched sample limited to common support region.

5. CONCLUSION

This paper examines the effect of innovations activities on SMEs' export performance. The findings reveals that innovation activities are positively associated with export share and direct export share. However, the effect is mainly contributed by firms' adoption of new process or new technology, while their introduction of new products and improvement of existing products are found to play no role in enhancing export performance.

Regarding policy implications, policy makers should pay more attention to the design and implementation of public policies that foster innovation and export activities. Such policies should focus on supporting the SMEs (D'Angelo, 2012). Since the SMEs are characterized by lack of high-skilled laborers and modern infrastructure, their innovation activities may be inhibited. Therefore, the policy makers should have policy interventions in supporting the SMEs with some basic infrastructure and training activities to reduce the gaps between the SMEs and large companies. Regarding managerial implications, firm managers and leaders who wish to expand their products to international markets should invest more in innovation activities. Since the SMEs often face the problem of resource scarcity, the innovation activities should be conducted step by step. Therefore, based on our findings, SMEs should first focus on innovating their production process and technology.

This paper contains some limitations that should be addressed. First, due to data limitations, we could not analyze the effects of other types of innovation on other export outcomes (Azar, 2017). Second, we only examined the short-term effects of innovation. Third, there are other variables that may affect both adoption of innovation and export performance but were not included in the model; therefore, the estimates may have some biases. Future study should examine more innovation and export indicators, estimate the effects of innovation on export performance in a longer term, and use more advanced econometric techniques to control for potential endogeneity.

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CUSTOMER RETENTION IN SAAS

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1. INTRODUCTION

SaaS remains the largest public cloud services market segment, with a total worldwide end-user spending of $152.2 billion in 2021, and a forecasted amount of $176.6 billion for 2022 (Gartner, 2019). There were 25,000 SaaS companies in the word in 2021 as specified by Statista (2021). According to Dan Fries (2021) there were 38% of companies worldwide in 2016 relying on SaaS to meet their software need, 51% in 2018, and it should reach 80% in 2022. All these figures are demonstrating a growing demand from organizations toward the use of SaaS. It is also presenting the market as an increasingly competitive one. The purpose of a company is value creation; this can be achieved thanks to a competitive advantage (Lecomte, 2021). Then, as one of these 25,000 SaaS companies, how to differentiate from others and build competitive advantage? And from our external point of view, how to recognise which are the viable and successful SaaS businesses?

There were 337 unicorns in the SaaS/Cloud market in 2021. This number is estimated to grow toward 1000 unicorns in 2022 (SaaStr, 2021). Dr. Ramón Compañó is explaining that "Unicorn" term has been chosen to show rarity and is referencing "privately owned start-up company, which has reached a valuation of $1 billion or more" (2022). Thus, what are the arguments of these SaaS Unicorns to get such valuation compared to others? SaaS can be understood as a novel form of IT outsourced, delivering functionalities of software applications over the internet, and based on subscription revenue (Luoma, 2013). SaaS isn't an easy model as everything is based on subscription and recurring revenue, customers can easily churn to competing service providers with low switching costs (Ojala, 2013). SaaS revenue model is depended on the customer's success (Satyanarayana, 2011).

Buttle (2001) is pointing out the importance of customer retention, by explaining its key role in promoting the increase of long-term profitability and declining initial costs, and reach competitive advantage. Davis Skok (2021) is supporting this belief by presenting that SaaS valuations is driven by growth and profitability. Fred Reichheld research shows that increasing customer retention rates by 5% increases profits by 25% to 95% (Gallo, 2014). Thus, customer retention is pointed out as vital for SaaS sustainability. That's what we will be investigating within this thesis. This thesis will be based on the following research question: *Is customer retention key to evaluate Software-as-a-Service performance? And how to enhance it?* Also, to get a more precise answer, three sub-questions are added:

- *What are the main stakes of SaaS model?*
- *What metrics are used in the context of SaaS growth?*
- *What are the main drivers of customer retention in SaaS?*

Our research methodology is based on a qualitative approach over ten semi-structured interviews. Speaking about the structure, the first part of the thesis will be orientated toward literature research of our chosen subject. To do so, a literature review relying on shortlisted academic resources will be constructed. This part will help getting to the choice of our research question. Following this, we will be able to start the second part of the thesis, that will include our empirical research. Thanks to that one, discussions and conclusions will be built toward our research question.

2. LITERATURE REVIEW

This paper focuses the subject of the "fastest growing SaaS businesses". The literature review will contribute to identify the research problem of this paper by analysing more in depth the subject's body of knowledge that we shortlisted as part of the bibliography construction.

2.1 Software As a Service model

2.1.1 Defining software As a Service

Software-as-a-service remains the largest public cloud services market segment, with a total worldwide end-user spending of $152.2 billion in 2021, and a forecasted amount of $176.6 billion for 2022 (Gartner, 2022). Despite from its popularity, SaaS is a complex subject. Mäkilä, Järvi, Rönkkö, and Nissilä (2010), qualify it as "a difficult topic for a study since there is no one generally accepted definition of the concept". According to Luoma (2013), SaaS can be understood as a novel form of IT outsourced, delivering functionalities of software applications over the internet, and based on subscription revenue. Sun, Zhang, Chen, and Liang (2007), are presenting SaaS as a software delivery model, providing clients with an access to remote business functionality as a service, usually over the internet. Infrastructure, right to use, hosting, maintenance, and support services "are all bundled into a single monthly or per-use charging".

A traditional software licensing is based on a perpetual use license from the software publisher and on extra-investments (hardware, installation, maintenance); whereas SaaS is based on subscription to the software where the seller runs and maintain it on his own hardware (Choudhary, 2007). Software-as-a-service solutions have very little personalization for each client due to their multi-tenancy aspect. Thus, customers must rely on the solution that stay unchanged (Ju, Wang, Fu, Wu, Lin, 2010). As a conclusion, SaaS definition is summarised by Mäkilä et al. (2010) into five characteristics:

- Product is used through a web browser.
- Product is not tailor made for each customer.
- The product does not include software that needs to be installed at the customer's location.
- The product does not require special integration and installation work.
- The pricing of the product is based on actual usage of the software.

SaaS is cost saving for the provider thanks to the reduction of personalization, but also operating costs and traditional marketing channels (Benlian and Hess., 2011).The expansion possibility of the customer base and the diminution of the sales-cycle length is also an advantage of this model (Sääksjärvi et al., 2005).

2.1.2 The stakes of SaaS revenue model

Subscription-based revenue model of SaaS is one of the main distinctions from another software model. This one is representing a real growth and profitability challenge to the provider. In fact, in SaaS, there is not any up-front payment of the software development and implementation (Satyanarayana, 2011), everything is based on subscription and recurring revenue, and customers can easily churn to competing service providers with low switching costs (Ojala, 2013). To get return on customer acquisition investments in SaaS, it is important to retain customers and their recuring revenue. The satisfaction and continuance of the subscription is vital to the SaaS providers (Satyanarayana, 2011). SaaS revenue model is dependent on the customer's success (Satyanarayana, 2011). As an example, yearly churning over 20% is fatal for SaaS revenue model (Lah and Wood, 2016). As explained by Skok, D. (2018), SaaS business model is experiencing a cash flow trough as the companies needs to recover from the costs of customers acquisitions by keeping the customer into the company.

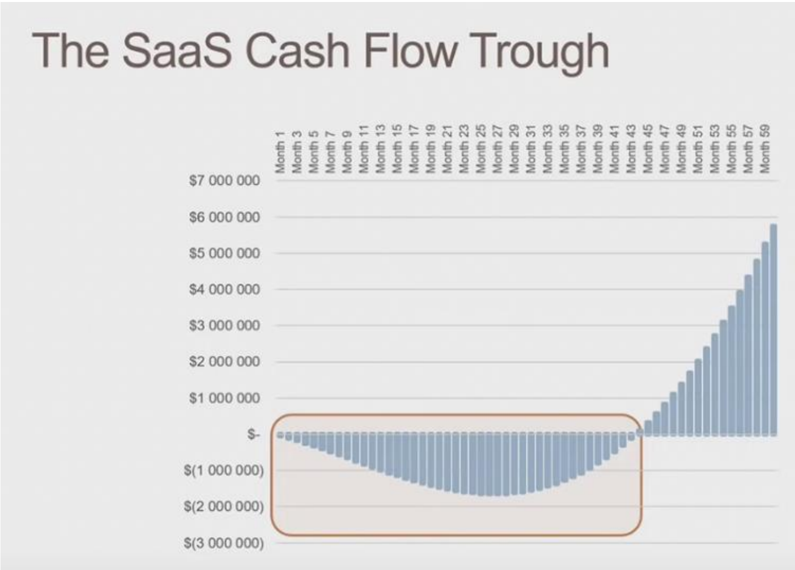

Figure 1. SaaS cash-flow trough (Stock, 2018)

2.1.3 Evaluating SaaS business performance (Metrics)

Evaluating a SaaS success thanks to basic Gaap (Generally Accepted Accounting Principles) isn't the most relevant in growth stages (Skok, 2018). To understand if a SaaS business is performing well, keeping a close look on certain metrics is essential. When asked about how to handle investor communications and shareholders, Sue Barsamian (software leader) is giving explanations about "the rule of 40" as a key metric to assess growth and profitability (McKinsey Insights, N.PAG. 2021). Davis Skok (2021) is supporting this point by presenting that SaaS valuations is driven by growth and profitability, the sum of Growth Rate (% YoY) and Operating Profit (% of revenue) should be equal or greater than 40 (The rule of 40).

As part of "SaaS and the rule of 40", Roche and Tandon (2021) stated that prioritizing net retention is correlated with succeeding in the rule of 40. Barsamian (2021) is also sharing this thought by mentioning that all her SaaS boards are "very focused on net retention as a leading indicator". Thus, Net retention rate is a key operational metric to evaluate SaaS business performance. Median top-quartile SaaS companies is 130 percent; bottom quartile is 104 percent (McKinsey Insights, N.PAG. 2021). According to Barsamian (2021), "magic happens when you get above 120 percent net dollar retention". The way to understand if the company is retaining customers is customer churn rate, explained by Pr. Jill Avery. This metric is also analysed by investors to evaluate the underlying health of a firm and its viability (Gallo, 2014).

Furthermore, Skok is categorizing "bookings" as key indicators of SaaS success. "Bookings", are measure by looking at Net New ARR, made up of the sum of new ARR (new customers) and the expansion ARR (existing customer), to what we subtract the churned ARR (lost customers. Thus, Net New ARR is also a key operational metric to evaluate SaaS business performance. Skok goes further by presenting a way to evaluate if the SaaS funnel is profitable, thanks to unit economics : Cost to acquire a customer (CAC), and, Lifetime value of a customer (LTV). For a viable business model, LTV needs to be significantly greater than the CAC. "LTV should at least be greater more than 3 times than CAC" (Skok, 2018). "The business should recover the CAC in 12 to 18 months" (Skok, 2018). That variable is also named the "Last 12 months (LTM) median payback period" by Roche and Tandon (2021). Median top-quartile SaaS companies is 16 months; bottom quartile is 47 months.

2.2 Sales Growth as part of SaaS Growth

2.2.1 Defining customer acquisition and retention

Customer acquisition

Sales growth is obviously closely linked with customer acquisition, qualified as a process that is "part of the customer-firm relationship that begins with the consumers' first interaction with the firm and proceeds through the first purchase until the first repeat purchase'' (Thomas, 2001)._Customer acquisition isn't a dominant subject within the literature. However, the "cost to acquire a customer" (CAC) is studied much more. As explained by Van der Poel (2013), new customers' acquisition is a process of several stages, performed to get the opportunity of transforming prospects into clients. According to Cooper & Budd (2007), customer acquisition process can also be considerated as a sales funnel. Skok (2018), when talking about CAC, is directly explaining sales funnel. Thus, also considering CAC to define customer acquisition can be interesting.

According to Martell (2020), CAC is made of marketing and sales expenses, divided by the number of acquired customer for a targeted period of time. Expenses are everything related to revenue generation. Considering SaaS funnel, Skok (2018) is differentiating sales funnel from marketing funnel. Tyrväinen, and Selin (2011), when speaking about the method of selling saas, so to acquire new customers, did shortlist "the market communication channel" and "the sales channel" as one of the main factors of selling and marketing software as a service. As a conclusion, marketing / sales funnels and channels are keys to customer acquisition process.

Customer retention

The purpose of a company is value creation; this can be achieved thanks to a competitive advantage that is significant, economic viable, and defendable (Lecomte, 2021). According to Lee and Cunningham (2001), customer loyalty is one of the major sources of sustainable competitive advantage for service firms. Customer retention and loyalty are used in the literature as synonyms. Dawkins and Reichheld (1990) are also sharing this opinion by explaining that customer retention is presenting an opportunity to attain a key competitive advantage. Net retention rate is then proven to be qualified as one of the key metrics to assess SaaS' business success.

The phenomenon of customer retention is defined as the maintenance of a long-lasting relationship between the service provider and the customer (Bó et al., 2018). It happens whenever a customer isn't discontinuing or switching to other competitors (Buttle et al., 2001). Customer retention is described by Neely and Ranaweera (2003) as a "multi-dimensional construct consisting of both behavioural and affective dimensions". It is important to both focus on acquisition and retention in SaaS for growth according to Sayyed-Alikhani et al. (2021). Skok (2018) is linking acquisition to further retention by opening the SaaS acquisition funnel to several steps such as onboarding, supporting, and expanding; considered as a key process of customer retention.

2.2.2 Churn risk

Churn risk is the principal dealing point as it can possibly result in SaaS businesses failures. Keeping the customer in order to recover from investments and later reach the break-even point is essential to expect high growth and profitability, and churn isn't compatible with it.According to skok (2018), negative churn rate is a goal of every SaaS business and is showing that the expansion revenue from existing customer is greater than the revenue lost from churning customers. He is also adding, there are 2 forms of churn, customer churn and dollar churn. That is where a focus needs to be kept on knowing and keeping the right customers.

As explained by Lah and Wood (2016), the action to replace churning clients results in increasing customer acquisition cost and is delaying the break-even point; meaning that there will be a need of higher recuring customers' LTV, because of the payback period getting longer. "Yearly churning of over 20 % of the customers will prove fatal for a subscription-based business" (Lah and Wood, 2016). Roche and Tandon (2021) are also agreeing with Lah and Wood, "Neglecting existing customers ends up adding costs in the long run, resulting in more churn, lower cross- and upsell, and more pressure on sales teams just to stay level".

Also, according to Sayyed-Alikhani (2021), activating previously adopted users, costs less than new users. This thought is also shared on a general scale by Reichheld et al. (1990), one of the first stating that acquiring customers costs more than retaining existing customers, and thus proving higher profitability. Fred Reichheld research shows that increasing customer retention rates by 5% increases profits by 25% to 95%. Vandermerwe (1996) went further by presenting the proof that customer retention provides more long-term value in comparison with customer acquisition. In SaaS related revenue model, Buttle (2001) is pointing a key importance of customer retention, by explaining its key role in promoting the increase of long-term profitability and declining initial costs, and reach competitive advantage.

2.2.3 Customer retention model

Enabling customer retention is key in SaaS, understand its drivers is a necessity. Anna Prończu (2018), is explaining the importance of churn risk identification in SaaS to prevent the final decision of a customer to churn, instead of awaiting clients to churn. Churn risk identification system can be used. Several reasons for customer churn in SaaS have been identified by Benlian et al. (2011), such as security and privacy issues. But also, technical integration problem, low quality customer support, negatively perceived usefulness, or negative price perception (Ranaweera & Neely, 2003). From another point of view, Ranaweeera et al. (2003) did shortlist drivers of customer retention such as price perception, customer indifference, and service quality.

In their study to understand service loyalty, Lee and Cunningham (2001) are examining service loyalty and "various cost/benefit factor" such as "overall quality of services as perceived by customers", "economic costs", "evaluating service performance", "switching costs", "perceptions of risk in selecting a new provider", and "substitutability of the service provider". Prończu is adding that postponement and delayed product delivery can influence risks. But also, one of the most frequently used customer perception metrics, customer satisfaction, that can be divided between client satisfaction associated with its products and their perception of respective professional Service teams. In fact, customer satisfaction is having a positive influence on retention (Gustafsson et al., 2005). Benlian et al. (2009) explain that customer retention is strongly linked with customer satisfaction. Professor Ruth N. Bolton conducted a study toward understanding if there is a link between customer satisfaction and customer retention. As a result, Bonlton is demonstrating that "satisfaction levels explain a substantial portion (26%) of explained variance in the durations of service provider-customer relationships across customers" (Bolton, 1998). Tsai and Huang (2007) are also shortlisting overall satisfaction as influencing customer retention in e-purchase platform industry. Anders Gustafsson, Michael D. Johnson, & Inger Roos are identifying customer satisfaction as the first main driver of customer retention (2005). Moreover, they are also providing conclusions in favour of a customer relationship management strategy as key to customer retention.

Relationship marketing "builds, maintains and develops relationships, which comply with the goals of the participants" (Tyrväinen and Selin, 2011), allowing to generate new and after sales. Thus, customer retention is related to relationship marketing. Trust can be related with relationship marketing, as it plays a central role in long-term customer relationships. Also, Prończu (2018) stated that customer opinions and estimations are very important "to prevent potential churn and strengthen marketing controlling systems". Furthermore, switching barriers is a key determinant of customer retention according to Tsai and Huang (2007). To finish, Lawrence Ang and Francis Buttle investigated on the potential links between customer retention outcomes and management processes. As a conclusion to this study, the authors significantly validated one of their hypotheses: "companies that excel at customer retention have a documented process for handling customer complaints" (Ang and Buttle, 2006).

Linked to the realisation of this literature review, we did choose to study the following research question*: Is customer retention key to evaluate Software-as-a-Service performance? And how to enhance it?* And these three sub-research questions:

- *What are the main stakes of SaaS model?*
- *What metrics are used in the context of SaaS growth?*
- *What are the main drivers of customer retention in SaaS?*

3. METHODOLOGY

3.1 Research Methodology

While previously exploring the literature over the SaaS business model, the database was rather limited and opaque on the identification of fast-growing SaaS businesses' stakes. Thus, it has been decided to deal with a qualitative methodology research by identifying experts of SaaS growth and realise semi-structured interviews with them. The objective will be to collect and compare their thoughts on the stakes of the SaaS model, the role of customer acquisition and customer retention for SaaS growth and performance justification, and the drivers of customer retention in SaaS.

On *appendix 1* can be found the interview guide, that did help pursuing the direction of the talks during the interview. First theme of the interview guide "SaaS revenue model" will help starting the interview by helping the interviewee to understand the context of the research by discussing and identifying the stakes of such a model that made us choose it as a subject. Then, a link will be made by focusing on Company A's growth management by understanding how this one is monitored within the Unicorn. The goal of this question will be to validate (or not) the metrics that we shortlisted as part of SaaS performance justification.

Theme n°3 is the central one and will make a link with the previous two questions by connecting customer acquisition and especially retention to the stakes of a SaaS revenue model and justify its close link to SaaS viability. To finish, churn theme will be closing the interview. The goal of this theme will be to justifying the answers made on theme n°3 about the importance of customer retention and understand how to enhance it. In accordance with the needs of the research, we decided to shortlist 10 interviewees, all operating within a fast-growing French SaaS unicorn (Company A) (2).

Table 1. The list of interviewees

Name	Function	Company
Anonymous	Co-Founder & CEO	Company A
Anonymous	CFO	Company A
Anonymous	Head of Customer Service France	Company A
Anonymous	Sales Director France	Company A
Anonymous	Sales Manager France	Company A
Anonymous	Head of Sales France	Company A
Anonymous	Customer Expansion Manager	Company A
Anonymous	Senior Data Analyst	Company A
Anonymous	SDR Manager	Company A
Anonymous	Sales department	Company A

The interviews did either take place in person or on a digital meeting. Moreover, every interview has been recorded and transcribed within a transcription table (*appendix 2*), as a need for further results analyses. Our interviews did take place between 13th and 17th June 2022. The following table 2 is presenting the interviewees, their date of interview, its duration, and where it took place:

Table 2. Results of the interview process

Title	Date of interview	Format and duration
Co-Founder & CEO	13/06/2022	Face to face interview - 20 minutes
SDR Manager	13/06/2022	Face to face interview - 30 minutes
CFO	14/06/2022	Face to face interview - 25 minutes
Head of Customer Service France	14/06/2022	Zoom conference - 30 minutes
Sales Director France	15/06/2022	Zoom conference - 25 minutes
Sales Manager France	16/06/2022	Face to face interview - 30 minutes
Head of Sales France	16/06/2022	Zoom conference - 15 minutes
Customer Expansion Manager	17/06/2022	Zoom conference - 20 minutes
Senior Data Analyst	17/06/2022	Zoom conference - 15 minutes
Sales department	17/06/2022	Face to face interview - 15 minutes

On appendix 3, is presented an example of a transcription table result.

3.2 Semi-structured interviews results' summary

3.2.1 What are the main stakes of SaaS revenue model?

3.2.1.1 SaaS particularity and advantages

The particularity of SaaS has been defined in our research by the CFO as two principles: "The subscription principle" and "The principle of being a software that is not "on premise" but remotely, where concretely the customers use a tool that they don't have to install and maintain on their hardware". A statement very close to the ones observed in the literature, such as:

- "SaaS can be understood as a novel form of IT outsourced, delivering functionalities of software applications over the internet, and based on subscription revenue" (Luoma, 2013).
- "SaaS is based on subscription to the software where the seller runs and maintain it on his own hardware" (Choudhary, 2007).

Thus, a first conclusion can be made in favour of explaining SaaS as based on the concept of subscription revenue and "off-premise". Advantages of those two principles have been discussed while proceeding the analysis of the semi-structured interviewees.

Concerning the SaaS subscription concept, the CFO, Sales Director, and Sales Manager, are agreeing on three positive outcomes:

- Recurring revenue.
- Long-lasting period.

"The advantage of this subscription model is that it can be long-lasting because it's based on recurring revenue" (CFO).

- Predictive approach.

"Most companies want to move to a SaaS model because it's a much more predictive revenue stream thanks to the fact that there are subscriptions" "Everyone wants to do SaaS because everyone wants recurring and predictive revenue" (Sales Director). Recurring revenue' argument has also been seen in the literature from Ojala (2013) "In SaaS everything is based on subscription and recurring revenue". Concerning the SaaS delivery model advantages, "As it's a remote software and the objective is to make our customers as autonomous as possible; it allows us to have high margins" "around 75% in the market" (CFO).

3.2.1.2 SaaS challenges

From the CEO semi-structured interview's outcomes, two SaaS challenges have been identified:

- Investing to acquire customers
- Retain customers to make profits

"The idea in SaaS is that you invest to acquire a customer who is going to make money for the duration of his life within your SaaS by keeping or discontinuing its subscription" (CEO).

Concerning customer acquisition investments, the CEO did share about the need to get as many customers as possible with a minimum of used resources. Presenting competitive acquisition as needed in SaaS. From his additional explanations on how SaaS acquisition works, we can understand that getting a competitive acquisition goes with well monitoring Sales & Marketing channels costs. Also added by the Head of Sales, the challenge is to get reasonable acquisition costs to recover from them in shorter time, so to make the customer profitable asap. "Acquisition costs impact the strategy of a further retention, the lowest is your acquisition, the less lifetime you need from your customers, so the fastest you can turn them into profitable clients" (Head of Sales). Those costs require to be balanced with customer retention efforts as stated by the sales director. Unbalanced costs between acquisition and retention are identified as a potential failure outcome for SaaS. Thus, investing to acquire customers is a SaaS stake as it includes S&M costs monitoring that will impact on the retention strategy.

Concerning customer retention, the main stakes of customer retention have been identified from the semi-structured interviews' outcomes of the CEO, Head of Customer Service, and Sales Director:

- Keep customers enough time to get on acquisition investments
- Aim beyond to gain profits

"Once the customer is acquired, we are in a situation as a SaaS where we have to recover the cost of acquisition and therefore ensure that there is a return on investment, and for that to happen the customer has to stay for a certain period of time" (Head of Customer Service). Thus, SaaS success or failure can't be all decided during the acquisition, but rather while looking at the customer retention data. According to the CEO, "The fact that your customer stays for a longer or shorter period of time for a given contract size is going to make a lot of difference in understanding how sustainable or unsustainable your SaaS business model is". A statement very close to the ones observed in the literature, such as:

- "The continuance of the subscription is vital to the SaaS providers" (Satyanarayana, 2011).
- "SaaS revenue model is depended on the customer's success". (Satyanarayana, 2011).
- "Churn is the nightmare of SaaS businesses as it is threatening the profitability and business growth" (Lah and Wood, 2016).
- "The action to replace churning clients results in increasing customer acquisition cost and is delaying the break-even point" (Lah and Wood, 2016).

One last subject of challenge, shared by interviewees as an important part of SaaS funnel profitability, is expansion. The identified challenge of expansion by the Sales Manager and CFO is to target product evolution to have resources for upsell (such as new features). "You can take advantage of the growth of your customers; and as it's a subscription we can add services, and therefore increase the prices". "But it all depends on how good you are at retention, and the evolution of your product". (CFO)

3.2.2 What metrics are used in the context of SaaS growth?

3.2.2.1 Customer retention metrics

Cost to acquire a customer (CAC)

This metric has been shared by the CEO and Sales Director as an important one used by every SaaS business and allowing to understand if its growth is costing a reasonable price. "To justify our healthy growth, we look at the CAC, this is what allows you to see if your growth is costing you a reasonable price" (CEO). "All SaaS businesses are tracking this metric" (Sales Director). CAC was also identified by David Skok (2018) within the literature.

Payback ratio

The CFO, Sales Director, and CEO did shortlist Payback ratio as a key metric to evaluate SaaS performance. CFO shares: "We look at what is called the Payback ratio, which allows you to analyse how many months of gross margin you need to have to get a return on your CAC". He is even categorising it as its focus metric, "In any case, what I look at the most is the payback" (CFO). Payback ratio is dependent on the acquisition investments (CAC). The result of this metric represents how many months of gross margin you need to recover from the CAC. This metric allows to understand the performance of different acquisition channels.

The SaaS market's payback average is something like 16 months (CFO). Company A payback is between 8 to 12 months according to the Sales Director. Close observations about payback have also been identified within the literature review, such as:

- "The business should recover the CAC in 12 to 18 months" (Skok, 2018).
- "Median top-quartile SaaS companies is 16 months; bottom quartile is 47 months" (Roche and Tandon, 2021).

Churn rate

Churn rate is the most obvious metric when speaking about SaaS growth. It has a direct link with the success of Payback. "If our customers churn after less than a year our payback would not be good because we wouldn't even manage to cover the acquisition costs" (Sales Director). Churn rate has been shared by the Head of Customer Success as a key indicator of eventual problems and a launching pad for reviews, "It will enable us to identify a problem (if, for example, there is more "churn" than before) and to look at what needs to be reviewed". The CFO precises: "Churn rate is between 10% and 15% in SaaS". The literature review also covered this metric, for example Gallo (2014) said "The way to understand if the company is retaining customers is customer churn rate".

LTV/CAC ratio

LTV is the Lifetime value of a customer. The interviews' outcomes presented the relation between a long or short LTV, and a low or high cost to acquire a customer. So, the needed consistency between the CAC and the LTV. As stated by the CFO, a good LTV / CAC ratio is "around 3". This statement was also identified by David Skok (2018) within the literature: "LTV should at least be greater more than 3 times than CAC".

NRR

When speaking about SaaS evaluation, the CEO, Sales Director, and CFO, did share the Net Retention Rate (NRR). According to the CEO, fastest growing SaaS have an NRR that is above 100%, also called negative churn, "The fastest growing SaaS have an NRR that is above 100%, meaning that without acquiring new customers you continue to grow your MRR from your existing customer cohorts" (CEO).

According to the Sales Director, Company A "net retention rate is 125%".

Close observations about "Net Retention Rate" have also been identified within the literature review, such as:

- Negative churn rate is a goal of every SaaS business and is showing that the expansion revenue from existing customer is greater than the revenue lost from churning customers (Skok, 2018).
- NRR (median top-quartile SaaS companies is 130 percent; bottom quartile is 104 percent) (Roche and Tandon, 2021).

The rule of 40

CFO introduced the rule of 40 during the semi-structured interview and qualified it as a good metric to understand SaaS model. According to him, this metric is demonstrating that the more growth you have, the more money you can afford to lose. The literature review covered this metric, with observations such as Barsamian (software leader) giving explanations about "the rule of 40" as a key metric to assess growth and profitability (McKinsey Insights, N.PAG. 2021).

NPS

NPS has been identified as an important metric to understand customers' satisfaction within the interviews. The goal of this metric is to identify the proportion of promoters and detractors (Head of Customer Service). NPS has a long-term vision. "It's a good indicator of what the cohorts will be looking like a few months or years later" (CEO). The results of this metric will be impactful for future churn as explained by the CEO. This metric wasn't analysed as part of the literature review but identified by Prończuk and Dessel (2018).

Proxys (CSAT)

The Head of Customer Service introduced Proxys during the interview. CSAT is one of the proxy used as part of its activities and allows to measure customer satisfaction and "monitor it in the short term". CSAT takes place "Each time there is an interaction with a customer, once the problem has been resolved we ask the customer to tell us how it went" (Head of Customer Service).This metric wasn't analysed as part of the literature review, and only identified by Dessel (2018).

3.2.3 What are the main drivers of customer retention in SaaS

3.2.3.1 Churn risk identification

Churn risk identification has been recognized during this research as an important way to be orienting retention efforts. The reason behind is explained by the CEO as a need in SaaS to be as forward looking as possible, and not drive SaaS with only lagging indicators. "The thing is that you can't just look at the indicators that are lagging indicators and that are at the bottom of the funnel, if you drive your SaaS with these indicators, it will be too late, you'll already be in a bad position" (CEO). SaaS must pursue the process of analysing the risk of churn and reacting before it's too late (CEO). He says, "You must go back up to try to get to the issue source as quickly as possible, It's the process of analysing the risk of churn and reacting before it's too late". Similar statements have been observed in the literature with the analysis of Prończuk work (2018) "Churn risk identification as an important aspect of marketing controlling".

3.2.3.2 SaaS drivers for customer retention

Customer satisfaction was identified as the main driver of customer retention in SaaS. "First of all, you have to make sure that the satisfaction is high, because if you don't have that, your customers will look for alternatives" (CEO). This statement has also been analysed in the literature review (Benlian et al., 2009) (Gustafsson et al., 2005) (Tsai and Huang, 2007) (Bolton, 1998).

Customer service / support can be a driver of customer retention, but also a reason for churn.

"There are two facts, the first is that when things are going badly, a customer service is an element of deterioration in retention; the second is that when things are going well, it can be a neutral element or a driver of retention. So, it all depends on the health of the service level that is offered" (Head of Customer Service). For some cases, customer service isn't impactful on customer satisfaction. However, it is qualified as an essential driver of retention for the case of SaaS model, especially for Company A where the customer service is sold as part of subscription fees (Head of Customer Service). Customer service/support has been recognized within the literature as a driver of customer retention (Benlian et al., 2011) (Lee and Cunningham, 2001) (Anna Prończu, 2018).

Customer service process is handled by an all-developed Customer service team within Company A. This team is having the "overall objective of enhancing customer retention" (Head of Customer Service). To do so they are pursuing two main missions:

- In the short term, serve the customer and make him satisfied.
- In the long term, contribute to the improvement of the product or service.

"There are two objectives for customer service, one in the short term is to serve the customer, to make sure that they find a solution and are happy. And the second is to contribute to the improvement of the product or service" (Head of Customer Service).

Customer service process has been shared within the literature (Anna Prończu, 2018) (Ang and Buttle, 2006).

Customer experience and satisfaction over the product quality is defined as an important driver of customer retention by the CFO, Head of Customer Service, and CEO. "The quality of product/service, that's what keeps you from losing your customers, that's what makes you have good word of mouth, etc" (CFO). Indeed, good customer service isn't enough to keep the customer if the product itself isn't well-functioning, "Retention is not only about customer relations, but also about a well-functioning product (Head of Customer Service). In consequence, there's a need for the customer experience to improve thanks to product evolution, that will better satisfy the customer expectations, "You need to make sure that your product and your services evolve over time so that it always corresponds to the needs of your customers" (CEO). Similar statements have been seen while pursuing the literature review (Ranaweeera et al., 2003) (Lee and Cunningham, 2001).

Value Perception has been pointed out as a driver of customer retention during the research by the Head of Sales with price perception, and by CFO with "value in use perception". Company A recently did a price repositioning, demonstrating the importance of the balance between the perceived value of its product and its price, "A high value of company A needs to be estimated and felt by customers over the time" (Sales Manager). In Fact, customers and sales team were categorising Company A price as too expensive, increasing potentiality of detraction and churn. (Head of Sales). Also, CFO explained the choice of Company A to provide a product with a strong necessity of usage and accuracy, representing barriers for the client's churn. Price perception and "value in use perception" have also been identified as drivers of customer retention within the literature (Benlian et al., 2011) (Ranaweeera et al., 2003) (Lee and Cunningham, 2001) (Anna Prończu, 2018).

4. RESULTS AND DISCUSSIONS

As a reminder, the research question of the Thesis is:

Is customer retention key to evaluate Software-as-a-Service performance? And how to enhance it?

And the three sub-questions are:

- *What are the main stakes of SaaS revenue model?*
- *What metrics are used in the context of SaaS growth?*

- *What are the main drivers of customer retention in SaaS?*

Firstly, this research allowed us to identify the main stakes of SaaS model. Certain advantages and challenges have been identified linked to the SaaS principle of subscription revenue model and off-premise delivery model. In fact, we analysed that succeeding in SaaS is a three-step process that starts with customer acquisition, continues with customer retention, and ends with customer expansion. Acquisition and expansion both have stakes. However, we did find out that the main stakes of SaaS were presented as part of the customer retention step. As shared by interviewees, customer retention is in direct link with assessing SaaS success or failure. The goal of this step is to prove sustainability into the SaaS business. In fact, the main stakes are to ensure a return on investment and aim further to ensure profitability.

Secondly, it permitted us to determinate what metrics were used within Company A for monitoring its SaaS activity growth. We did shortlist Cost to acquire a customer (CAC), Payback ratio, Churn rate, LTV/CAC ratio, Net Retention Rate (NRR), The rule of 40; but also, Net Promoter Score (NPS) and Proxys (CSAT). This part made our understandings easier on how to succeed in monitoring a healthy growth strategy of a fast-growing SaaS business. Form this analysis, we perceived the link between SaaS stakes and used metrics within Company A. As presented by the interviewees, the metrics shortlisted, and their functioning, is linked to the SaaS customer retention stakes. It confirmed our thoughts on the possibility to analyse SaaS viability thanks to customer retention.

Finally, this study allowed us to establish how to support customer retention. We confirmed the need in SaaS to be early detecting churn risks to react before churn impacts. Certain drivers of customer retention are key to enable better performance. Customer satisfaction has been identified by interviewees as the main driver of customer retention. Other factors, enabling customer retention but also customer satisfaction have been shared, such as: Customer service/support quality, Customer experience, Product quality, Value perception. Each of these drivers, if well-managed, will enhance customer retention. On the contrary they can create detractors and churning customers if they are unwell monitored. As a response to the research question, we can confirm that customer retention is key to evaluate Software-as-a-Service performance. Also, maintaining customer satisfied is the main driver of customer retention.

5. CONCLUSIONS

The main limitation is linked to my choice of taking benefits from my connection with Company A to pursue interesting research compared to the literature. In fact, sticking to Company A SaaS can't open my subject toward comparisons with other SaaS growth businesses' strategy, even though interviewees had previous experience in other businesses than Company A. Possible future research could take place toward comparing our conclusions to other fast-growing SaaS businesses.

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APPENDICES

Appendix 1. Semi-structured interview guide

Themes	Main question	Subtopics
SaaS revenue model	Can you tell about this model and its stakes in line with fast-growth ?	Subscription-based revenue model
		Cash flow trough
		Acquiring the right customer
		Keeping the right customer
SaaS Growth	Can you explain what metrics you are using to evaluate the healthiness and performance of PayFit's growth ?	The rule of 40 (growth rate + profit margin)
		Net New ARR ((new ARR + expansion ARR) - churned ARR)
		Cost to acquire a customer (CAC) & Lifetime value of a customer (LTV)
		Net Retention Rate & Last 12 months median payback (LTM)
Customer acquisition and retention	Linked to the last two questions, can you give your thoughts about the importance of customer acquisition and retention ?	Acquiring
		Onboarding & supporting
		Retaining
		Expanding
Churn	Can you tell about what is made at PayFit to handle and avoid churn risk ?	Documented complaints handling process
		Churn risk identification system

Appendix 2. Interview transcription table

Interview N°1	Anonymous - Title	Date
	In person / Digital meeting	Duration: min
Theme 1: SaaS revenue model		
Theme 2: SaaS Growth		
Theme 3: Customer acquisition and retention		
Theme 4: Churn		
Additional comments		

Appendix 3. CEO interview transcription table

Theme 1: SaaS revenue model	It's quite simple, on the one hand you have acquisition, where you need to get as many customers as possible to sign up to your SaaS with a minimum of used resources and as quickly as possible in terms of sales cycle. To do this, there are 2 channels, marketing and sales. In marketing you will find performance marketing, brand marketing. In sales you have the sales development representatives and the account executives. These channels are going to bring in new customers who are going to use your SaaS, and this is what we call S&M costs (sales and marketing), where you're going to spend €1 to get €1 of MRR. Every SaaS tracks this metric. And so, this acquisition via these S&M costs will give rise to a "payback" (or SaaS magic ratio), which will represent in how many months you will recover your investments when the customer has paid X months of subscription to use your product and service. For example, the payback could be 9 months, 10 months, 12 months, or even 24 months. But in any case, the idea in SaaS is that you invest to acquire a customer who is going to make money for the duration of his life within your SaaS. This is very different from other business models. For example, I was talking to someone who worked for "Club Med", and in these resorts, you acquire customers who are going to buy every year, or every two years depending on when they go on holiday, just like with "vepee", so you have sales cycles that are very different from SaaS. So, SaaS is a very particular revenue model. And so, once you acquire the customers, you've spent an amount of money to get your customer, but your customer can stay X or Y months, it can be 2 months or 15 years. In fact, you will have spent the same amount of money to acquire a customer who will then potentially stay for 2 months or 15 years, that is just crazy. The fact that your customer stays for a longer or shorter period of time for a given contract size is going to make a lot of difference in understanding how sustainable or unsustainable your SaaS business model is. Thus, your customer can stay for 2 months or 15 years, so we're not talking about a life cycle factor of 1 to 2, but potentially 1 to 100. This is called the growth retention rate. What's interesting is that every X months/years you lose customers that you signed, so you start from 100% in a given month and then after 10 years you realise that you only have X% of the customers that you signed that same month 10 years ago. What's also really interesting with your customer lifecycle, is that these customers will evolve, typically at our company they may have more or less employees every month, so more or less users; and again, the ratio can be huge. Sometimes we sign clients who will have 1 employee and 2 years later who will have 150, so you spent X€ to acquire 1 client who brought you 1, but he brings you 150 times more 2 years later. Also, if at the same time this customer has used more product, for example an extra module, you have an effect that is exponential with the growth of the size of the company, and this will allow you to see for 100€ of MRR, how much the next following months you have recovered.
Theme 2: SaaS Growth	To justify our healthy growth, we look at the CAC, this is what allows you to see if your growth is costing you a reasonable price Then you look at the net and growth retention rate, to see if the customers you acquired will not be lost before they are profitable. In fact, the fastest growing SaaS have an NRR that is above 100%, meaning that without acquiring new customers you continue to grow your MRR from your existing customer cohorts. That is to say that your remaining customer cohorts more than compensate for the customers that leave in terms, and it is this effect that leads to business models that are either not viable in SaaS, or business models that are quite extraordinary, because if you have an NRR that is below 100% you lose MRR over time, your acquisition efforts are in vain, it's better to plug the holes before adding water to a bottle. Or if your existing customer cohorts are growing over time, this is something that is extremely important And finally, you also look at NPS to measure customer satisfaction, it's a good indicator of what the cohorts will be looking like a few months or years later. In fact, there are lots of incentives that you look at that tell you things those other indicators will tell you later on, it's really important to be as forward looking as possible. You see, for example, if I look at the churn rate, this is an indicator that will react after the NPS. And in the same way that the NPS is an indicator that will react after certain types of incidents that occur with customers.
Theme 3: Customer acquisition and retention	Acquisition and retention are both very important but it's easier to keep customers you already have than to acquire new ones, so for me that must be the priority. To do so, there are several things we can do. First of all, you have to make sure that the satisfaction is high, because if you don't have that, your customers will look for alternatives, so you have to try to always improve the satisfaction of your customers, whether it's by segment, by country, and then make sure that your product and your services evolve over time so that it corresponds to the needs of your customers. But, globally speaking, you have to do both if you want to keep growing fast, you can't just say you're going to stop acquiring and keep your customers happy.
Theme 4: Churn	The thing is that you can't just look at the indicators that are lagging indicators and that are at the bottom of the funnel, if you drive your SaaS with these indicators it will be too late, you'll already be in a bad position. Thus, you have to go back up to try to get to the source as quickly as possible. It's the process of analysing the risk of churn and reacting before it's too late
Additional comments	

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MARKETING

FACTORS INFLUENCING THE INTENTION TO USE THE METAVERSE PLATFORM: FOCUSING ON VIETNAMESE GENERATION MZ

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ABSTRACT

The Metaverse is a convergence of our physical and digital lives and indicates the future development trend of the internet industry. It is enabled by various technologies like augmented reality (AR) and virtual reality (VR), blockchain, 5G, edge computing, etc. This study conducts an empirical analysis to find factors affecting the use of metaverse platforms in Vietnam. We extracted the factors affecting the intention to use from the UTAUT2 model and added a new factor, switching cost, to address these concerns. Specifically, we collected and analyzed 520 samples (230 for Gen Y and 290 for Gen Z) to determine factors affecting the use of metaverse platforms. Our findings indicate that effort expectancy, performance expectancy, facilitating conditions, hedonic motivation, and value price factors positively influence the intention to use metaverse platforms. Social influence does not affect the intention to use metaverse platforms in a whole data set, but it positively influences in data set of Gen Y. And the switching cost has a negative effect on the intention to use metaverse platforms. Additionally, we conducted a comparative study between Gen Y and Gen Z and found two groups had a significant difference in the factors affecting the intention to use. We expect the results can provide beneficial managerial implications for leveraging metaverse platforms' enormous potential to serve the sustainable development of the internet industry.

Keywords: Metaverse; Generation MZ; Gen Y; Gen Z; Switching cost; UTAUT2, Vietnam

1. INTRODUCTION

Computer science innovations play a major role in everyday life as they change and enrich human interaction, communication, and social transactions. With more un-contact activities taking place due to COVID-19, we now have Metaverse industry as an arising blue ocean. Metaverse refers to an online virtual world and is a combined word of 'Universe' and 'Meta,' which means artificial and abstract (Han et al.,2021). Metaverse creates a lively and interesting virtual world that cannot compare to video meetings. It's an industry that is highly likely to expand to games for entertainment and our everyday lives like business and experience (Mystakidis, 2022). It won't be too long until Metaverse is established as the core technology at your workplace. There could even be a Metaverse square, where people worldwide get together for discussions and parties. This is why there's so much anticipation for Metaverse doing well in the future, which can change the methods of communication, the way people work, and the way people use the Internet. From the standpoint of end-users, three major technological innovation waves have been recorded centered around the introduction of personal computers, the Internet, and mobile devices (Lee et al., 2011). The fourth wave of computing innovation unfolds around spatial, immersive technologies such as virtual reality and augmented reality (Dionisio et al., 2013). This wave is expected to form the next ubiquitous computing paradigm that has the potential to transform online education, business, remote work, and entertainment. This new paradigm is the Metaverse (Bian et al., 2021; Zagalo et al., 2011). Since 1992, many companies such as Rockstart North (UK), Blaxxun Interactive (US), and IMVU (US) have been developing Metaverse into many different platforms such as games and social networks (Mystakidis, 2022). Facebook, Google, Microsoft, and Tencent are also creating their Metaverse platform (Ciuriak, 2021). Considerable investments are being made by firms in virtual and augmented reality technologies and decentralized finance (Defi), NFT (non-fungible token), and payments systems that underpin the immersive digital worlds now being created. And the Metaverse reshapes e-commerce (Zyda, 2022). The Metaverse offers many different attractions for different users <Figure 1>. According to Statista.com (2021), a late 2021 survey of internet users worldwide indicates that over half of the respondents would join the metaverse for work possibilities such as virtual workspaces and networking. 48% stated that art and live entertainment are the main reason to join the metaverse. An 44% answered investing in business platforms with cryptocurrency and NFT.

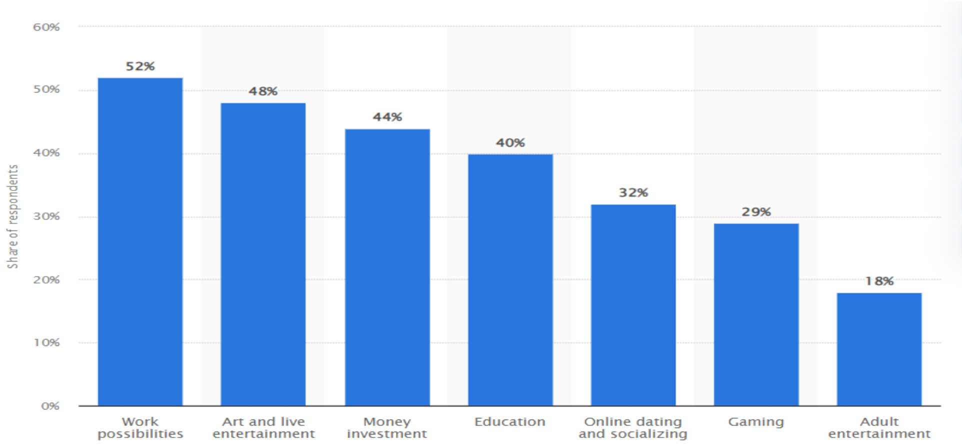

Figure 1. Main reasons for joining the Metaverse

A survey of influencers to adult American Internet users by the American IZEA research team found that about 70% of influencers think Metaverse will replace current social media and change the way people communicate and connect.

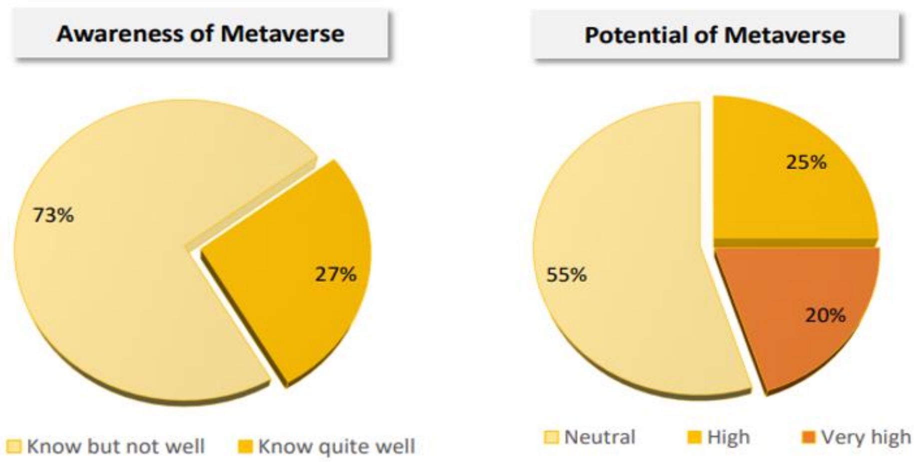

Figure 2. Awareness and Potential of Metaverse in VIETNAM

According to the latest report of NIPA (National IT Industry Promotion Agency), surveyed in 2 big cities, Hanoi and Ho Chi Minh in VIETNAM, 73% of the participants answered that they "know about the metaverse but don't know well" and 27% "knows it quite well." The potential prospects for the metaverse to develop in VIETNAM are very good, with 55% neutral, 25% high, and 20% very high indexes (see Figure 2). Global news and movements around Metaverse also boil VIETNAM. Metaverse is becoming a boiling issue and a horizon for the future economy, industries, and business as a whole new world. Generation MZ is a concept that is a combination of generation Z, and generation Y. Generation Y or Millennials were born from the 1980s to the 2000s. Generation Z was born from the 1990s to the 2000s. Generation MZ is the typical generation of residents of the digital generation (Lee, 2020). They actively use this Metaverse (Park & Kim, 2021; Knox, 2022; Han et al.,2021; Maloney, 2021). Each generation has unique expectations, experiences, generational history, lifestyles, values, and demographics that influence technology adoption and intention to use technology (Williams & Page, 2011; Porral & Sanchez, 2019).

The generation gap between Gen Z and Gen Y leads to differences in technology adoption or technological trends (Dhinakaran et al., 2020). Many previous studies have also demonstrated that the generation gap leads to differences in perception and acceptance of technology (Debb et al., 2020; Hysa et al., 2021; Curtis et al., 2019; Shams et al., 2020; Reisenwits, 2021; Daqur et al., 2020). So in this study, we predict that there will be a difference between Gen Z and Gen Y in using the Metaverse platform. The Metaverse platform is also gaining popularity in the VIETNAM market with the appearance of Blockchain and NFT (Non-fungible tokens), which has brought in the solutions for the economic system in Metaverse (Viet, 2022). Many business sectors are racing to enact new strategies for building Metaverse. In particular, Generation MZ is more interested in this field than anyone else. In 2019, VIETNAM market, due to the emergence of COVID-19, individuals' outdoor activities have been restricted. Due to this phenomenon, demand for online activities has been increasing, and the interaction in the metaverse environment is attracting significant attention (Brandsvietnam.com). Generation MZ is the primary user of the metaverse platform, but there is not enough research that has studied the main factors affecting intention to use the metaverse platform yet in VIETNAM. To explain the phenomenon of great interest of Generation MZ in VIETNAM to the Metaverse, we conduct an empirical study. With the advancement of technology and the explosive interest of society, leading research on the user's intention to use the Metaverse service platform is necessary. Metaverse is becoming a popular service platform, so a process of empirical analysis or examination of the factors influencing the intention to use is essential. Therefore, from the early stages of the emergence and introduction of new technologies, we suggested and analyzed the factors influencing consumers' intention to use the Metaverse platform in VIETNAM.

Through two big questions, this study presents specific research issues on the factors affecting the intention to use the Metaverse platform.

Question 1: What factors influence Generation MZ's intention to use the Metaverse platform, and which factors significantly affect it?

Question 2, What is the difference between the two groups, Gen Y and Gen Z?

2. LITERATURE REVIEW

2.1 Metaverse

Several researchers have defined the definition of the Metaverse. Metaverse is a compound term for Meta and Universe, a term th`at first appeared in American novelist Neal Stephenson's novel Snow Crash in 1992 (Smart et al., 2007). Metaverse is a new medium with the expectation of the next major evolution phase of the internet. The metaverse will impact human society, production, and life (Sivan, 2008). Metaverse is a concept of a virtual, 3D, online space that connects users in all aspects of their lives. This space connects multiple platforms, just as users on the Internet can access many different websites through a browser (Lee et al., 2011). The Metaverse refers to another world where the intersection of the real and virtual worlds is implemented by 3D technology (Zagalo et al., 2011). Metaverse is based on the convergence of virtual reality and augmented reality. These enable multisensory interactions with virtual environments, digital objects, and people (Mystakidis et al., 2021). Hence, the Metaverse is an interconnected web of social, networked immersive environments in persistent multiuser platforms. It enables seamless embodied user communication in real-time and dynamic interactions with digital artifacts. Its first iteration was a web of virtual worlds where avatars were able to teleport among them. The contemporary iteration of the Metaverse features social, immersive virtual reality (VR) platforms compatible with massively multiplayer online video games, open game worlds, and augmented reality (AR) collaborative spaces (Zyda, 2022). Metaverse is a collective term for a community implemented in a 3D computer graphics environment, which refers to virtual reality with a single completion that operates independently of reality (Knox, 2022). In other words, “The Metaverse of designing a space, era, cultural background, characters, social institutions, etc., is different from reality, and living in it is a virtual world (Ciuriak, 2021). Metaverse refers to virtual reality that provides users with experiences to become part of extended worlds (Hollensen et al., 2022). While a clear definition of the metaverse is still being discussed, it is generally viewed that the Metaverse is a current XR as the Metaverse is designed as an extension of the real world. The metaverse works on the principle that anything real can be experienced virtually; many firms like Meta, Google, and Samsung took innovative steps toward the parallel virtual universe (Gartner, 2022). Metaverse becomes a new interactive form that provides an immersive spatial experience based on extended reality technology (Xi et al., 2022). Metaverse is a collective virtual shared place designed by combining virtually enhanced physical and digital reality. Extended reality (XR) realm is continually growing with new technological advancements, software developments, and products. Metaverse is a digital universe that combines aspects of social media, online gaming, AR, VR, the Internet, and money to allow users to use virtual reality technology to interact (Mozumder et al., 2022). As Metaverse develops, it will open up a more multi-dimensional user interaction online space compared to current technologies. Instead of just viewing digital content, users in Metaverse will be able to immerse themselves in the space where the virtual digital world is located. The Acceleration Studies Foundation started the “Metaverse Roadmap-Pathways to the 3D Web” project, which defined four metaverse types (virtual worlds, mirror worlds, augmented reality, lifelogging) called ‘Metaverse 1.0’ (Smart et al., 2007). The latest version of Metaverse is Metaverse 2.0 or Digital X, which is classified into three categories: digital reality (XR-AR), digital ME (AVATAR), and digital twin. Metaverse is transforming into multiple platforms, such as social VR, a form of the game service platform. It refers to a 3D multi-user role-playing space where users are connected through head-mounted displays (HMDs) and are represented by a virtual avatar that is tracked all or part of the body in social VR. can interact, socialize, and game with each other in new and immersive ways (Maloney, 2021). As a result, they have attracted diverse user groups, especially many young users. For them, Metaverse provides a great service platform for social engagement, entertainment, education, and experience. economic (Lawrence et al.,2021). The current metaverse service platform is spreading by combining social network services and game platforms such as Roblox, Minecraft, Fortnite, and ZEPETO (Kraus et al., 2021). The Metaverse platform expands virtual reality and social network service content. So metaverse platform has certain characteristics of virtual reality and social network service platforms (Hendaoui et al., 2008). In the virtual world, people use avatars that are not their true selves to act directly reflecting their will and engage in political, cultural, economic, and social activities similar to those in the real world with "user-generated content" (Lastowka, 2021; Fernandez & Hui, 2022). The virtual world is where the metaverse's social passion, freedom, and monetization are more actively being serviced (Han et al., 2021). The Metaverse is a social phenomenon with various technological development services (Kaur & Gupta, 2022). Metaverse business platform appears poised to become the future center of gravity for online social interactions (Knox, 2021). Metaverse business platform changes signal a radically new business model based on an unprecedented configuration of the three components: value creation, value proposition, and value capture (Kraus et al., 2021). The Metaverse continues to evolve in various forms, such as in games on social media (Knox, 2022; Han et al., 2021). The video platform is a new service platform from Metaverse (Lawrence et al., 2021). With AI, VR/AR technology to give users new experiences. The metaverse service platform is divided into three types: game platform (Minecraft, Roblox, Naver ZEPETO, Fortnite, etc.), Business platform (Nvidia enterprise, Horizon Worlds, etc.), and video platform such as Google Starline-AI video (Zyda, 2022).

2.2 Previous Studies on Metaverse

im (2021) verified Metaverse's characteristic factors influencing word-of-mouth intention through flow and satisfaction. As a result of the analysis, enjoyment, challenge, and telepresence positively affect flow. And flow has a positive effect on satisfaction and word-of-mouth intention. Satisfaction has a positive effect on word-of-mouth intention. Aburbeian et al. (2022) showed that self-efficacy, perceived curiosity, and perceived pleasure positively influence perceived ease of use. Secondly, social norms, perceived pleasure, and perceived ease of use positively influence perceived usefulness. Third, perceived ease of use and perceived usefulness positively influence attitude toward Metaverse technology use, influencing behavioral intention. Fourth, the relationship between price and behavioral intention was significant and negative. Finally, the study found that participants with an age of fewer than 20 years were the most positively accepting of Metaverse technology. Bae (2021) examined the effect of Virtual World Metaverse experience factors on behavioral intention through presence and satisfaction focused on the Z generation. As a result, it showed that entertainment experience, educational experience, aesthetic experience, deviant experience, and relational experience, and the path that these experiences factors lead to presence and satisfaction was verified, and the path that presence and satisfaction lead to behavioral intention was also verified. it was found that educational experience, deviant experience, and relational experience had a significant positive effect on the presence among the metaverse experience factors, and entertainment experience and aesthetic experience did not. The hypothesis on satisfaction according to the metaverse experience factor was partially adopted as it was confirmed that entertainment experience, deviant experience, and relational experience positively affected satisfaction. It was found that the presence of the metaverse experience had a positive effect on satisfaction. In the case of the relationship between presence and behavioral intention, it was confirmed that presence significantly positively affected both continuous use intention and recommendation intention. Finally, even in the relationship between satisfaction and behavioral intention, both continuous use intention, and recommendation intention were found to have a significant positive effect. Oh (2021) examined factors influencing the intention to use Metaverse, focusing on the virtual world. The results showed that perceived usefulness and perceived ease of use positively affected the intention to use Metaverse, while perceived usefulness influenced perceived ease of use. The perceived ease of use, perceived usefulness, and intention to use the Metaverse were all affected by the perceived content quality and perceived enjoyment. The effect of social influence on perceived usefulness and intention to use Metaverse was discovered. As well as perceived ease of use, self-efficacy affected intention to use metaverse. According to the study of trainees' learning immersion using metaverse, course design, course content support, and course evaluation of contactless education and training using metaverse significantly influence performance expectations. Second, the course content support, effort expectancy, social influence, and hedonic motivation of contactless education and training in metaverse enhance behavioral intentions to use (Seo, 2021). An empirical study was conducted to determine the main motives of metaverse service users and how they relate to the factors of use motive, immersion attitude, and continuous use intention. The effect of play motive, self-expression motive, and interaction on attitude and intention The mediating effect was verified by the degree of user immersion (Jang, 2022). An empirical analysis was conducted on the use intention of the metaverse service platform for college students in UAE, KSA, and Oman (Akour et al., 2021). This study determined perceived ease of use and perceived usefulness as factors impacting intention to use. Park & Kang (2021) showed that perceived pleasure, interactivity, self-efficacy, and social influence positively relate to perceived ease of use. Interactivity and social influence had a statistically significant effect on perceived usefulness. Neither perceived ease of use nor perceived usefulness were statistically significant, but both had a significant effect on forming positive attitudes toward Metaverse. Finally, positive attitudes about the metaverse platform positively impacted the intention to continue using it. Shen & Eder (2009) investigated factors related to the users' intentions to use the virtual world. As shown in the conclusions of the exploratory study, perceived usefulness and perceived enjoyment have considerable effects on behavioral intentions to use the virtual world for business tasks. However, perceived ease of use is not a significant immediate predictor of behavioral intentions. Furthermore, computer playfulness and self-efficacy have been demonstrated to be key dimensions of perceived ease of use.

2.3 Unified theory of acceptance and use of technology

Extended Unified Theory of Acceptance and Use of Technology, which is known to exhibit higher explanatory power than the UTAUT1 and the UTAUT2 model, is applied to explain users' intention and behavior of use in information technology (Venkatesh et al., 2012). The UTAUT2 is a theory that also incorporates 32 concepts from 8 main theories: Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Combined TAM-TPB, Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Motivation Model (MM), and PC Utilization Model (MPCU) (Chang, 2012; Alazzam et al., 2015; Nasser & Khalid., 2019; Kupfer et al., 2016; Chung, 2017). Venkatesh et al. (2012) indicated that the previous UTAUT1 did not consider the user's position correctly reflecting the characteristics of an application, device, or service. Thus, he added the psychological and cognitive factors of hedonic motivation, habit, and price value as independent variables and proposed UTAUT2 using gender, age, and experience.

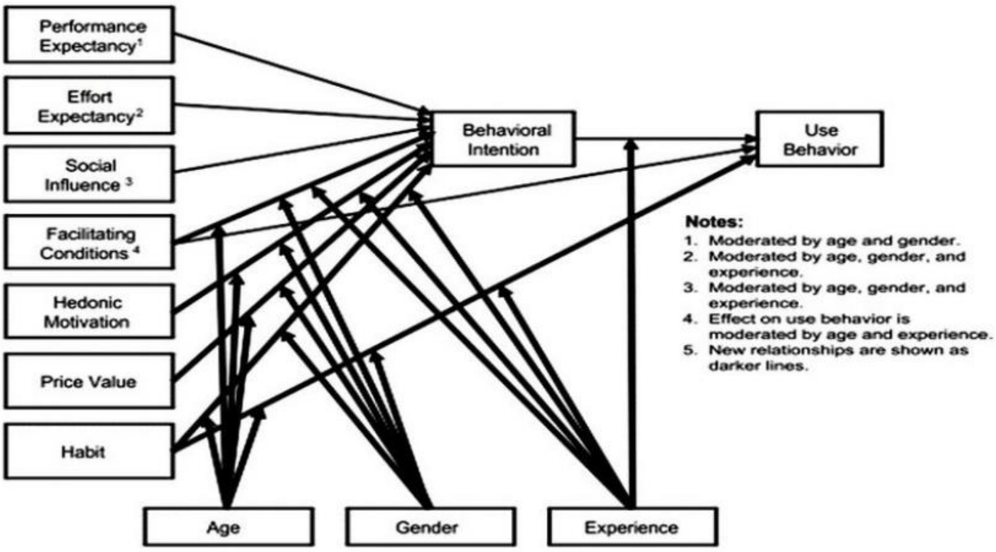

Figure 3. UTAUT2 Model by Venkatesh (2012)

The hedonic motivation reconceptualizes the perceived pleasure that arises from the use of services means the pleasure and joy experienced in using technology. Price value refers to cognitive transactions that occur between the perceived profit obtained through the use of technology and the price paid. And habit is a tendency to unconsciously use a particular technology or service, which is highly correlated with the user experience (Chang, 2012; Kupfer et al., 2016). Compared to UTAUT1, UTAUT2's intention to use was improved by 18% (56% to 75%), and technology acceptance was improved by 12% (40% to 52%) (Chung, 2017; Kupfer et al., 2016; Tamilmani et al., 2020).

Zahra et al. (2019) proposed to understand the customer's Behavior Intention by using theories from UTAUT2 so that it can further research in ICT (information communication and technology). On the other hand, Chung (2017) suggests that using the UTAUT2 model with the combination of specific variables related to the research topic will improve the explainability of the research model.

Chen (2017) applied the UTAUT2 model to the factors affecting the acceptance intention of VR devices. The result showed that performance expectancy, effort expectancy, social influences, facilitation conditions, price value, pleasure motivation, and habit positively affected the acceptance intention. Adegoke et al. (2021) used the UTAUT2 model to examine factors influencing real estate firms' decisions to adopt virtual reality technology. The study results showed that performance expectations, effort expectations, price value, and habits positively affected the adoption of virtual reality technology. Mutterlein et al. (2019) With the main variable model of the UTAU2 model as the research foundation, in the study of influencing factors on the acceptance of media innovations in the case of mobile augmented reality, the variables have clearly affected the intention to use and the moderating effect of age on habit, price value, hedonic motivation. Faqih & Jaradat (2021) integrated task technology fit (TTF) and UTAUT2 to investigate the adoption of augmented reality technology in education. The results reveal that task technology fit, performance expectancy, effort expectancy, social influence, facilitating condition, and hedonic motivation positively affect the adoption process of augmented reality in educational settings except for price value. This model explains 49% of the variance in behavioral intention to adopt AR technology in the educational context.

Table 1. Previous studies using UTAUT2 model

Author	Topic
Alqahtani & Thorne (2020)	Factors affecting acceptance of mobile augmented reality applications for cybersecurity awareness
Park et al.(2015)	Innovation resistance and adoption regarding a virtual reality motion-sensing input device
Harborth & Page (2017)	Factors affecting the adoption of pokemon go
Chung & Dong (2019)	Factors affecting the adoption of augmented reality technology
Jin (2021)	An empirical study on the factors affecting intention to the adoption of eXtended Reality
Gharaibeh et al.(2021)	Factors affecting the intention to use augmented mobile reality in the tourism sector
Choi et al.(2017)	Understanding factors influencing usage and purchase intention of VR devices

This study examines factors influencing the intention to use the Metaverse platform in VIETNAM using the UTAUT2 model. Through many previous studies related to the topic of this thesis, it shows that using the Utaut2 model as a research foundation is very suitable for the research purpose (Gharaibeh et al., 2021; Chung & Dong, 2019; Chen, 2017; Park et al., 2015; Faqih & Jaradat, 2021; Jin, 2021; Adegoke et al., 2021; Mutterlein et al., 2019; Choi et al., 2017; Harborth & Page, 2017). So performance expectancy, facilitating conditions, habit, effort expectancy, price value, and social influence are expected to influence the intention to use the Metaverse platform.

3. RESEARCH MODEL AND HYPOTHESES

Performance Expectancy (PE)

In UTAUT, performance expectations are defined as the extent to which an individual believes using technology will help them achieve work outcomes (Venkatesh et al., 2003). This performance expectation is defined as a concept similar to the perceived usefulness of the technology acceptance model (Davis, 1989) and the relative advantage of the innovation resistance model (Chung, 2017). On the other hand, in a study that proposed the extended integrated technology acceptance theory (UTAUT), performance expectations were defined as the degree to which technology benefits consumers who perform certain activities (Venkatesh et al.,2012). Performance expectation means that the system is expected to maximize work productivity and efficiency relatively compared to those that do not use the system. Performance expectations are an important predictor of consumers' behavioral intentions. Prior studies analyzing the factors influencing the acceptance of new technologies and products using UTAUT1 and UTAUT2 have repeatedly tested the fact that performance expectations have a static influence on the degree of consumer behavior (Moran et al., 2010; Wang & Wang, 2010; Martin & Herrero, 2012). Performance expectations have been reported to positively affect acceptance intentions (Davis, 1992; Venkatesh et al., 2003). It has been argued that when a user encounters a new technology, they think about whether it will be a benefit to their work or life, and they are aware that it is the benefit them, the more they are willing to use the technology (Venkatesh et al., 2003, 2012, 2016). Performance expectations are an important factor in continuously predicting consumer behavioral intention. Macedo (2017) discovered that performance expectancy influences Portuguese older adults' intention to use ICT. Sanchez et al. (2021) showed that performance expectancy, facilitating conditions, and eco-friendly performance are important factors influencing the intention to use VR applications in the National parks. Faqih & Jaradat (2021) showed that performance expectancy directly and significantly influenced the intention to use AR technology in education. Prior research has identified variables that highly impact performance expectancy, explaining the intention to use. Thus we hypothesized that:

H1: Performance expectancy will positively affect intention to use the Metaverse platform.

Effort Expectancy

Effort expectation (EE) is recognizing whether new technologies or systems can be easily used when using them. It also means how convenient the user interface of new information technologies is (Venkatesh et al., 2003, 2012). Effort expectation is a variable estimated from the perceived ease of use in the technology acceptance model (TAM) and the ease of use of the innovation diffusion theory. It refers to what you believe will be easy to do (Davis, 1989; Alwahaishi & Snasel, 2013). It is a concept similar to the ease recognized in the existing technology acceptance model, and how many information technology interfaces are convenient and intuitive, how easy the search and utilization process is, and whether helpful functions are provided conveniently and in various ways. Effort expectations can be determined by how high the accuracy of the results is (Venkatesh et al., 2003). Many studies have reported that this expectation of effort also significantly affects the intention to use (Wu & Lee, 2017; Venkatesh et al., 2012). In other words, when users perceive that new technologies and systems are easy to use and can be used without much effort, it positively affects their intention to use (Chen et al., 2011; Martins et al., 2014; Venkatesh & Zang, 2010). Effort expectations are related to ease when using a system, conceptually similar to the complexity of the theory of innovation diffusion (Alwahaishi & Snasel, 2013). Prior studies examining the UTAUT and the Extended UTAUT2 have shown that consumers' perceived expectations of effort for new technologies and products have a positive effect on behavior agreement (Venkatesh et al., 2003, 2012; Wang & Wang, 2010; Alwahaishi & Snasel, 2013; Moran et al., 2010). For consumers to use an emerging technology or innovative product, they must make an effort to identify its functionality or learn how to use it. Correa et al. (2019) showed that effort expectancy drive users' intention to use the online game on a mobile device. Adegoke et al. (2021) proved that effort expectancy strongly affected the intention to use mobile AR. Tuki (2021) has verified the significant influence of effort expectancy on intention to use augmented reality. In addition, many studies demonstrate that effort expectancy affects the intention to use (Chen et al., 2011; Akour et al., 2022). Therefore, we hypothesized that:

H2: Effort expectancy will positively affect intention to use the Metaverse platform

Social Influence

Social influence (SI) is one of the key components of the extended UTAUT2, a construct similar to the subjective norm presented in the study of rational behavior theory by Ajzen & Fishbein (1977). Individuals perceive social influence as their perception of their surroundings' beliefs about what skills to use (Venkatesh et al., 2003, 2012). According to critical mass theory by Marwell & Oliver(1988), individual decisions and actions are influenced by group decisions. In other words, social influence can be seen as critical in an individual's behavior or decision. People tend to follow the opinions of others around them when they perceive that utilizing new technologies, systems, and services is important

(Bagozzi & Lee, 2002). This is recognized as a concept similar to social influence theory, and social influence has a positive effect on users' behavioral intentions for new technologies, products, and services (Venkatesh et al., 2003, 2012). Social influence is a variable inferred from the subjective norm of TAM, MPCU, and IDT (Moore & Benbasat, 1991; Thompson et al., 1991). Social influence is the perceived social influence that affects the acceptance of media services. It is suggested that the most comprehensive determinant of an individual's behavior regarding the acceptance of new communication is the influence of the environment surrounding the individual (Deutsch & Gerard, 1955). According to Fishbein & Ajzen (1975), an individual's perception about whether should or should not is affected by social group, people around, and environmental factors. An individual's perception often directly impacts the individual's intention to act (Thompson et al., 1991). Social influence is an invisible pressure on the individual's behavior. One of the key constituents of the Extended UTAUT2, social influence, is a constructive concept similar to the subjective norms presented in the study of TRA by Ajzen & Fishbein (1977). Social impact is the degree to which those around them believe that an individual should use certain skills (Venkatesh et al., 2003, 2012). Social influence refers to the influence of the opinions of surrounding acquaintances on an individual's behavior. According to social impact theory, consumers tend to follow the opinions of those around them who they perceive to be important (Bagozzi & Lee, 2002). Mutterlein et al. (2019) also proved that social influence directly affects the intention to use new media innovations. Several previous studies have demonstrated that social influence has a positive impact on intention to use (Venkatesh et al., 2003, 2012; Xian & Shen, 2020; Algahtani et al., 2021; Adegoke et al., 2021; Guest et al., 2018; Macedo, 2017; Gupta et al., 2008; Wang & Wang, 2010). So we hypothesized that:

H3: Social influence will positively affect intention to use the Metaverse platform

Facilitating Conditions

Facilitating conditions (FC) refer to the degree to which a person believes that the technological and organizational infrastructure is in place to support the use of new technologies (Venkatesh et al., 2003). In other words, the facilitation condition is the degree to which a user believes that the technical base supports the use of the technology. And FC includes the belief that when an individual user wants to acquire the relevant technology, people will be able to use guidance, training, and support services for the technical base (Venkatesh et al., 2008, 2012). Facilitation conditions affect the use of technology in UTAUT1 but affect not only the use of technology but also the intention to use it in UTAUT2 (Venkatesh et al., 2012). The facilitating condition is a variable inferred from TRA and TPB, MPCU, and IDT (Ajzen, 1991; Thompson et al., 1991; Moore & Benbasat, 1991; Taylor & Todd, 1995). Suppose users believe that the facilitation conditions are appropriate. In that case, they feel less burdened with new technologies, systems, and services, so their resistance is low, and their intention to use increases (Venkatesh et al., 2008, 2012). Perceived behavior control is a major factor that limits or predicts an individual's behavior internally or externally. This is because the degree of ease and difficulty felt when using a specific product or service is often determined based on an individual's economic power, experience, and technology used (Ajzen, 1991). Also, in general, if an individual is given sufficient resources to use a service, it means that the use of the service will occur soon (Nysveen et al., 2005). So the individual's awareness of the degree to which the conditions for smooth service use has been considered an influencing factor that directly predicts the actual level of use and intention to use (Venkatesh et al., 2016). When using new technology, if the belief that an organizational and technological environment can support the user's use activity increases, the intention to use it will also increase. The facilitation condition has been considered an influencing factor that directly predicts an individual's perception of the actual level of use to the extent that the conditions are met for smooth service use (Venkatesh et al., 2003, 2008). It was argued that the stronger the user's belief that the technical and organizational infrastructure is in place to support the use of new technology, the higher the intention to use the technology (Venkatesh et al., 2012; Wu & Lee, 2017). Kim & Chung (2019) showed that facilitating conditions could increase consumers' intention to use AR. Bower et al. (2020) also claimed that facilitating conditions directly affect behavioral intention to use immersive virtual reality in education. Adegoke et al. (2021) proved that facilitating conditions influenced intention to use virtual reality technology. Correa et al. (2019) proved that facilitating conditions influenced the intention to use an online game in a mobile device. Prior research has identified variables that highly impact facilitating conditions explaining the intention to use. Thus we hypothesized that:

H4: Facilitating conditions will positively affect the intention to use the Metaverse platform.

Hedonic Motivation

Hedonic motivation (HM) refers to the level of fun and pleasure that users feel when using new systems, technologies, and services (Venkatesh et al., 2012). Hedonistic motivation is a theory developed from the motivation model of Davis et al. (1992). It emphasizes the importance of intrinsic motivation, such as pleasure in using technology, and extrinsic motivation. Jin & Kim (2003) defined hedonic motivations as drivers that bring consumers to marketplaces to satisfy needs. When a user tries to perform a task using new technology or system, practical functions such as task completion and non-practical functions such as pleasure or fun, which are entertainment elements of the user's interface, have a positive effect on the intention to use. It has been shown to substantially affect users' immediate adoption and use of new technologies (Brown & Venkatesh, 2005; Venkatesh et al., 2012). Hedonistic motivation is an important concept in understanding consumer behavior and can be defined as an internal psychological state that directs and promotes the user's behavioral direction based on the theory of uses and gratification (McGuire, 1976; Kim, 2013). Users will satisfy their needs by using social media, which is expected to satisfy their psychological needs (Hossain, 2019). In hedonistic motivation, the importance of intrinsic motivation, such as pleasure in using technology, as much as extrinsic motivation, such as ease of use, was emphasized (Vieira et al., 2018). Holbrook & Hirschman (1982) divided consumers' motivations into utilitarian and hedonic dimensions. Hedonic motivation presents behavior related to fun, amusement, fantasy, and the sensorial stimuli aspects of consumption (Babin et al., 1994). Hedonic motivation is defined as a key predictor of intention to purchase in consumer behavior research (Holbrook & Hirschman, 1982). It has recently also been associated with customer satisfaction and loyalty (Vieira et al., 2018). Hedonic motivation is an individual's fun and enjoyable experience when using a specific technology. It has been confirmed that it plays an important role in users' decision to accept and use a technology (Brown & Venkatesh, 2005). This means that when users perform tasks using new technologies and products, not only practical functions but also non-practical functions such as entertainment positively affect the user's intention to use. These variables were influenced considerably (Brown & Venkatesh, 2005; Brown et al., 2012). Several information systems studies have also suggested that hedonistic motivation affects the acceptance and immediate use of technologies, products, and systems (Heijden, 2004; Thong et al., 2006; Venkatesh et al., 2012). In addition, it was confirmed that the hedonistic motivation factor had a fairly high explanatory power in the software acceptance study to which UTAUT2 was applied (Raman & Don, 2013).

A survey of the online service to which UTAUT2 was applied confirmed that the hedonistic motivation factor significantly affects intention and behavior (Martin & Herrero, 2012; Wang & Scheeper, 2012). Chen & Park(2018) demonstrated that hedonic motivation positively influences the acceptance of VR headsets. Herrore et al. (2017) pointed out that hedonic motivation is the most vital factor that positively affects the intention to use SNS for sharing user-generated content. Xian & Shen (2020) proved that hedonic motivation directly affected the intention to use AR in education. Gharaibeh et al. (2021) verified the influence of hedonic motivation on the intention to use mobile AR in tourism. Prior research has identified that facilitating conditions is an important factor explaining the intention to use. Thus we hypothesized that:

H4: Hedonic motivation will positively affect the intention to use the Metaverse platform.

Price Value

Price value (PV) confirmed that the degree of ease and difficulty felt when using a product or service is often determined based on an individual's economic power, experience, and use of technology (Ajzen, 1991). Price value refers to the perceived benefits and monetary costs incurred when consumers adopt new technologies (Venkatesh et al., 2012). The higher the perceived benefit compared to the monetary cost, the more positive the customer's intention to use it. The perceived value formed by the influence of price and quality affects the purchase intention of consumers (Chang & Wilt, 1994; Venkatesh et al., 2012). Positive benefits felt by consumers from purchased products or services and value factors perceived by consumers are recognized as one of the causal variables that induce behavioral intentions (Rich, 1999). In general, if an individual is given sufficient resources to use a service, the intention to use the service will occur soon (Nysveen et al., 2005). The price or cost of using new technology is an important factor in the consumer behavior that the person pays directly. The cost plays a very important role in the decision-making to adopt the technology (Davis & Venkatesh, 2004; Baptista & Oliveira, 2015). Price value is a variable added to the existing model as a construct that predicts consumer behavioral tendencies toward technology acceptance along with hedonistic motivation and habit in UTAUT2. Price effectiveness can be defined as consumers' cognitive tradeoff between profits and expenditures when using new technologies and products (Choi et al., 2017). When the benefit obtained from using new technology or service is perceived to be greater than the expenditure incurred when using the service, price effectiveness has a significant effect on the intention to use (Venkatesh et al., 2012). In addition, in a previous study that tested the causal relationship between price utility and intention to use UTAUT2, Paulo et al (2018) showed that price value is a great factor in explaining consumer intent to use augmented reality and virtual reality applications in the tourism. Mutterlein et al. (2019) proved that price value affected the intention to try new media innovations in mobile AR. Prior research has identified that price value is an important factor explaining the intention to use (Alroqi, 2021; Adegoke et al., 2021; Macedo, 2017). Thus we hypothesized that:

H6: Price value will positively affect the intention to use the Metaverse platform

Habit

Habits mean performing behaviors automatically based on behaviors learned in the past and are known to positively influence future behaviors (Limayem et al., 2007). Studies on technology use motivation have reported that both acceptance intention and acceptance behavior increase as the habitual use motivation increases (Venkateseth et al., 2012). In previous studies, habit was conceptualized as ritual motives, and ritual motives were assumed to be an important factor in media use motives (Tetreault & Kleine, 1990). Habits are the thoughts or actions accumulated in the user's past experiences that are also influenced by the stimulus of the user's current environmental conditions, which may not be a conscious behavioral process (Hsu et al., 2015). That is, it may mean a case in which external environmental stimuli automatically perform a user's personal past learning experience, and if it is repeatedly performed, it may be defined as a habit (Venkatesh et al., 2012). Habits can be seen as similar behaviors in a similar environment by experiences formed by past learning from a specific situation to a wide range of situations, and this can also appear in a technological environment (Orbell et al., 2001). Many studies consider habitual use to have a significant impact on the acceptance of performance-related skills and reduce the influence of behavioral intentions on predicting behavioral use (Limayem et al., 2007; Raman & Don, 2013). Habits directly influence or weaken the relationship between intention to use and technology use. Habit refers to the degree of tendency to act automatically due to a learning experience and can be divided into two concepts: the view that habit is a prior action and the degree of automatic action (Limayem et al., 2007). Habit refers to an action that a user learns through learning and is an action that repeatedly appears (Venkatesh et al., 2012). A habit is a cognitive construct created from past experiences and performed unconsciously for a long time, automatically and repeatedly using a specific technology or service, and acting without intention to perform future behavior, a variable with a strong influence on technology acceptance to establish a correlation with user experience (Venkatesh et al., 2012). Habitual use not only affects technology acceptance (Raman & Don, 2013) but also reduces the influence of behavioral intentions that predict use to the extent that people automatically perform behaviors with learning and perceive use by individuals (Limayem et al., 2007). Habits are the thoughts or actions accumulated from the user's past experiences that are also influenced by the stimulus of the user's current environmental conditions, which may not be a conscious behavioral process (Hsu et al., 2015). Correa et al. (2019) showed that habit influenced users' intention to use online games on mobile devices. Sanchez et al. (2021) also proved that habit directly affects behavioral intention to use and adopt AR. Hartl & Berger (2017) also proposed that habit influenced the intention to use VR glass. Prior study has proved that habit is important in explaining the intention to adopt. Thus we hypothesized that:

H7: Price value will positively affect the intention to use the Metaverse platform.

Switching Costs

Switching costs is typically defined as the disutility customer experiences in switching products or product providers. This includes the cost of terminating an existing relationship and starting a new relationship. And other costs, either explicit (e.g., contractual penalties) or implicit (e.g., risk aversion and uncertainty about new products), makes deviating from past product choice more costly than staying with a previous choice (Chen & Hitt, 2005). Jones et al. (2002) show that switching costs refer to the temporal, financial, and psychological costs of a customer changing services and are a decisive factor that has a decisive impact on customer retention. The greater the conversion cost, the more familiarity you feel while using an existing service, and the time and cost of finding a new service to keep you in a relationship with the customer (Sharma & Patterson, 2000). Switching costs is a concept that includes non-economic costs, such as psychological and emotional costs, rather than merely objectively measurable monetary costs (Jones et al., 2002). They affected customer loyalty and switching intention. Beggs (1989) argued that switching costs lead to the adoption of inferior technologies. Oliver (1999) has proved that it not only directly improves the customer's continuous intention but also affects customer intention to use a new one.

Based on previous studies, we expect that switching costs will be an important factor affecting the intention to use the Metaverse platform. Switching costs can also function as a barrier to entry or slow down the adoption rate of new technologies by lowering the value of new products in markets where most customers already use an existing product (Chen et al., 2005). We expected that switching costs would be an important factor in this study based on previous studies. Jeon & Lee (2016) used 406 valid questionnaires to gather empirical results indicating that switching costs and offline trust had a beneficial effect on continued intention to use online retailers in offline-online multi-channel cases. Fei & Bo (2014) proved that current SNS users show that both dissatisfactions with the original SNS and the relative attractiveness of the competitive SNS exert a strong positive impact on users' decision to switch to the competitive SNS. Moreover, switching costs not only directly reduce users' switching intention but also mitigate the impact of dissatisfaction and relative attractiveness on users' switching intention (Choi et al., 2013). Liao et al. (2019) proved that push effects (social interaction and service quality), mooring effects (switching costs and prior switching experience), and pull effects (attractiveness of new services and social effect) have a considerable impact on switching intention. Platform providers can reduce switching costs by boosting service quality and system capabilities to maintain and attract users. At the same time, educators can create appropriate approaches to improve social interaction and social effects. Switching costs comprise five dimensions: monetary costs, benefit loss, learning, evaluation/establishment, and uncertainty, and it drives the intention and behavioral use of a program application or new software program (Gogus & Ozer, 2014). Polinar & Lee (2011) investigated the factors that drive users' intentions and behavior while transferring from one social networking service to another in the Philippines, focusing on Friendster users and Facebook users. Among many factors, the switching cost had a negative effect on the intention to use. Asimakopoulos & Asimakopoulos (2014) showed that both perceived usability and switching costs negatively affect the intention to use a new information system. Bansal et al. (2005) proved that switching costs had a negative effect on the switching intention of new services. The research findings revealed that social affinity, switching costs, and customer service has a meaningful impact on these university lecturers' intention to use mobile phone service (Ikechukwu, 2012). Particularly, switching costs had a negative relationship with the intention to use. So we hypothesized that:

H8: Switching costs will negatively affect the intention to use the Metaverse platform.

Research model

UTAUT2 is one of the strongest theories for explaining user intentention and is suitable for research purposes. In this study, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and switching cost are independent variables expected to significantly affect the intention to use. So we presented the proposed research model based on UTAUT2 model (see Figure 4). Furthermore, we compare the results after analyzing the influence of factors between Gen Z and Gen Y to evaluate whether the independent variables affect the dependent variable differently across the two groups.

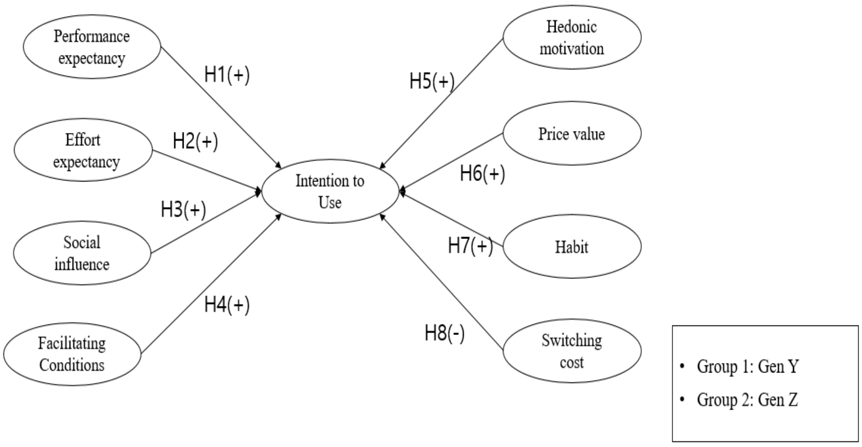

Figure 4. Research model

4. RESEARCH DESIGN AND ANALYSIS

Operational definition and measurement items

We surveyed VIETNAM users to examine the factors influencing the intention to use the Metaverse platform. The questionnaire consisted of a total of 34 questions. The dependent variable, intention to use, is described by 3 items. And independent variables include social influence (3 items), effort expectancy (3 items), hedonic motivation (3 items), price value (3 items), habit (3 items), facilitating conditions (3 items), and performance expectancy (3 items).

Table 2. Operational definition and mesurement items

Variable	Definition	Measurements		Reference
Performance Expectancy	The degree to which an individual perceives that using a system will help to attain a gain in job performance.	PE1	I find Meta useful in my daily life.	Venkateshet et al. (2003, 2012). Faqih & Jaradat (2021)
		PE2	Using Meta help me accomplish things more quickly.	
		PE3	Using Meta increases my productivity.	
Effort Expectancy	The degree of ease associated with the use of a system.	EE1	Learning how to use Meta is easy for me.	Venkateshet et al. (2003, 2012). Gharaibeh et al. (2021)
		EE2	My interaction with Meta would be clear and understandable.	
		EE3	It is easy for me to become skilful at Meta.	
Social Influence	The degree to which an individual perceives that important others believe he or she should use the new system.	SI1	People who are important to me think I should use Meta.	Venkateshet et al. (2003, 2012). Faqih & Jaradat (2021)
		SI2	People who influence my behaviour think that I should use Meta.	
		SI3	People whose opinions that I value prefer that I use Meta.	
Facilitating Conditions	The degree to which an individual believes that an organisational and technical infrastructure exist to support the use of	FC1	I have the resources necessary to use Meta.	Venkateshet (2003, 2012). Gharaibeh et al. (2021)
		FC2	I have the knowledge necessary to use Meta.	
		FC3	I can get help from others when I have difficulties	

	technology.		using Meta.	Faqih & Jaradat (2021)
Hedonic Motivation	Fun or pleasure derived from using technology	HM1	Using Meta is interesting.	Venkateshet et al. (2012)
		HM2	Using Meta is enjoyable.	Jin (2021)
		HM3	Using Meta is entertaining.	Faqih & Jaradat (2021)
Price value	Cognitive trade-off between the perceived benefits of technology and the monetary cost of using it	VP1	Meta is reasonably priced.	Venkateshet et al. (2012)
		VP2	Meta is a good value for money.	Gharaibeh et al. (2021)
		VP3	Meta provides good value for the current price.	
Habit	Tendency to unconsciously use a particular technology or service.	HB1	The use of Meta has become a habit for me.	Venkateshet et al. (2012)
		HB2	Using Meta has become natural to me.	Hartl & Berger (2017)
		HB3	Using Meta is something I do without planning.	Sanchez et al.(2021)
Switching Cost	Monetary or non-monetary cost when users try to use new one.	SC1	I think there can be a monetary cost when using Meta.	Jones et al. (2002)
		SC2	I think it can take time when using Meta.	Jeon & Lee (2016)
		SC3	I think there can be a non-monetary cost when using Meta.	
Intention to Use	The degree to which a person has formulated conscious plans to perform or not perform some specified future behaviour.	BI1	I intend to make payment by using Meta in the future.	Venkateshet et al. (2012)
		BI2	I will always try to use Meta in my daily life.	Davis(1989)
		BI3	I plan to use Meta in the near future.	

Sample design and data collection

For this study, we collected data from Vietnamese between 15 and 41 years of age. Each questionnaire item was constructed based on the items whose reliability and validity were verified in previous studies. We used Smart PLS to test with 105 data samples (55 samples from Gen Z and 50 samples from Gen Y). The result indicates that all the measurements fit our context. Questionnaire in VIETNAM from March 15th, 2022, to April 15th, 2022, a total of 600 copies was collected online and offline. In case respondents who gave invalid, unfinished, or incomplete answers were excluded to ensure the validity of constructs, 80 were removed from the collected data. Finally, valid data are 520 (290 samples from Gen Z, 230 samples from Gen Y).

This study analyzed the data using SPSS 25 and AMOS 20. SPSS was used to analyze the questionnaire with demographic characteristics, reliability, and Cronbach’s alpha coefficient to test the reliability of the measurement items of the variables used in the study. In addition, confirmatory factor analysis (CFA) was conducted to determine the validity of the measurement items of variables and the validity. We used a structural equation model and multi-group analysis to test the research hypothesis.

Analysis

Demographic Statistics

Table 3 summarizes the sample’s demographic statistics. This survey was carried out in four big cities in VIETNAM to collect data. Among 520 respondents, the percentage was female (50,6%) and male (49.4%). Respondents aged between 15 and 25 accounted for 55.8%. The rest are from 28 to 41 years old. A large number of the respondents possess a bachelor’s degree (59%).

Table 3. Demographic Statistics

Demographic Categories	Range	Frequency	Percentage
Gender	Male	263	50.6%
	Female	257	49.4%
Age	15~25	290	55.8%
	25~40	230	44.2%
Occupation	Student	205	39.4%
	Officer	183	35.2%
	Doctor	15	2.9%
	Police	18	3.5%
	Businessman	39	7.5%
	Teacher	42	8.1%
	Others	18	3.5%
Education	High School	121	23.3%
	Bachelor Degree	307	59%
	Master Degree	53	10.2%
	Doctor Degree/Higher	21	4%
	Other	18	3.5%
Place	HA NOI	139	26.7%
	HAI PHONG	93	17.9%
	DA NANG	89	17.1%
	HO CHI MINH	150	288%
	Other	49	9.4%
Income	< 500$	262	50.4%
	500$~1000$	204	39.2%
	1000$~1500$	25	4.8%
	Other	29	5.6%
Platform	Game platform	256	49.2%
	Business platform	214	41.2%
	Video platform	50	9.6%

Reliability and Validity test

Table 4. Reliability, C.R., and AVE

Construct	Items	Factor loadings	C.R	Cronbach's alpha	AVE
Performance Expectancy (PE)	PE1	0.855	0.907	0.846	0.764
	PE2	0.818			
	PE3	0.818			
Effort Expectancy (EE)	EE1	0.841	0.908	0.847	0.766
	EE2	0.816			
	EE3	0.805			
Social Influence (SI)	SI1	0.805	0.904	0.840	0.757
	SI2	0.800			
	SI3	0.780			
Facilitating Conditions (FC)	FC1	0.826	0.902	0.837	0.753
	FC2	0.819			
	FC3	0.810			
Hedonic Motivation (HM)	HM1	0.816	0.901	0.835	0.752
	HM2	0.806			
	HM3	0.755			
Price value (VP)	VP1	0.774	0.904	0.841	0.759
	VP2	0.835			
	VP3	0.803			
Switching Cost (SC)	SC1	0.860	0.892	0.820	0.734
	SC2	0.852			
	SC3	0.700			
Habit (HB)	HB1	0.786	0.899	0.831	0.748
	HB2	0.772			
	HB3	0.821			
Intention to Use (IU)	IU1	0.877	0.914	0.859	0.764
	IU2	0.868			
	IU3	0.876			

Cronbach's Alpha of the scales are all greater than 0.7, so the scales have good reliability (Van et al., 2012). The composite Reliability of all scales is better than 0.7, Average Variance Extracted (AVE) is greater than 0.5, so all scales are convergent (Bagozzi & Yi, 1988). The square root of AVE is larger than the correlations between the latent variables, so the discriminant is confirmed (Fornell & Larcker, 1981).

Table 5. Discriminant Validity

	EE	FC	HB	HM	IU	PE	PV	SC	SI
EE	**0.875**								
FC	0.310	**0.868**							
HB	0.333	0.342	**0.865**						
HM	0.330	0.348	0.431	**0.867**					
IU	0.527	0.478	0.562	0.593	**0.882**				
PE	0.452	0.302	0.297	0.269	0.543	**0.874**			
PV	0.240	0.276	0.442	0.507	0.568	0.207	**0.871**		
SC	-0.294	-0.305	-0.458	-0.349	-0.503	-0.183	-0.377	**0.864**	
SI	0.363	0.447	0.357	0.405	0.542	0.362	0.405	-0.349	**0.870**

** The boldface values on the diagonal are square roots of AVEs.*

Table 6. Model Fit

Fit Index	Recommended Value	Structural Model
χ^2/DF	<3.00	1.283
GFI (goodness of fit index)	≥0.90	0.950
CFI (comparative fit Index)	≥0.90	0.989
NFI (normed fit index)	≥0.90	0.952
AGFI (adjusted goodness of fit index)	≥0.90	0.934
RMSEA (root mean square error of approximation)	≤MSEA	0.023
RMR (root mean square residual)	≤MR (r	0.025

Table 6 shows the model fit of the whole dataset. χ^2/DF is 1.283, less than the recommended value of 3.0. GFI, CFI, NFI, AGFI are all higher than the recommended value 0.9. RMR is 0.025, less than the recommended value 0.050, and RMSEA is 0.023, less than the standard value 0.050. That means it is a good model fit.

Hypothesis test

Table 7. Hypothesis Test

Hypothesis		Estimate	S.E	C.R	P-value	Result
H1	PE→EU	0.294	0.032	7.332	***	Accepted
H2	EE→EU	0.157	0.033	4.007	***	Accepted
H3	SI→IU	0.063	0.033	1.460	0.144	Rejected
H4	FC→CU	0.104	0.032	2.717	0.007	Accepted
H5	HM→MU	0.206	0.032	4.669	***	Accepted
H6	VP→PU	0.232	0.034	5.252	***	Accepted
H7	HB→BU	0.121	0.033	2.804	0.005	Accepted
H8	SC→CU	-0.160	0.030	-4.081	***	Accepted

**p<0.05; **p<0.01; ***p<0.001*

Hypothesis test results are presented in Table 7. Excluding hypotheses (H3: path coefficient = 0.063 and p-value > 0.05), all hypotheses are accepted. H1 (path coefficient = 0.294; p-value = 0.000) is supported. Performance expectancy positively affects the intention to use, with a path coefficient of 0.229 being the highest compared to the remaining variables. H2 (path coefficient = 0.157; p-value = 0.000) is accepted, Effect performance has an effect on intention to use. H4 (path coefficient = 0.104; p-value = 0.007) has been approved but the significant level is not high, meaning facilitating conditions influence intention to use. H5 (path coefficient = 0.206; p-value = 0.000) also was supported, Hedonic motivation has a positive effect on intention to use with high significant level. Additionally, H6(path coefficient = 0.232; p-value = 0.005) has been supported, Price value has an significant effect so intention to use as well as Hedonic motivation. H7 (path coefficient = 0.121; p-value = 0.000) has been supported. Habit has an significant effect so the intention to use. Finally, H8 (path coefficient = -0.160; p-value = 0.000) is accepted as expected. Switching cost has a negative effect on intention to use Metaverse platform.

Multi-group analysis

<Table 8> shows that in the Gen Y, Switching cost (-0.314) and then performance expectancy (0.287), Social influence (0.210), Hedonic (0.186), Price value (0.164), effort expectancy(0.121), facilitating conditions(0.095) are sorted in descending order of influence on intention to use. Gen Z case, Price value (0.281) and then performance expectancy(0.219), Habit(0.208), effort expectancy(0.158), Hedonic motivation(0.177), Switching cost(-0.122), Facilitating conditions(0.121) are sorted in descending order of influence on intention to use. To compare the difference between Gen Z and Gen Y, we used the approach suggested by Chin et al. (2003) as follows:

$$t_{ij} = \frac{p_1 - p_2}{\sqrt{\frac{(n_1 - 1)\times SE_1^2 + (n_2 - 1)\times SE_2^2}{n_1 + n_2 - 2}} \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

pi: path coefficient in the structural model;

ni: sample size of the dataset

SEi: standard error of path in the structural model.

t_{ij}: t-statistic with n_1+n_2-2 degrees of freedom

Table 8. Group analysis

	Gen Y (230)			**Gen Z (290)**			**t-value for coeft** (t > 1.96)	
	χ^2/df=1.055; GFI=0.917 AGFI=0.901; NFI=0.923 CFI=0.996; RMSEA=0.016			χ^2/df=1.269; GFI=0.917 AGFI=0.906; NFI=0.905 CFI=0.978; RMSEA=0.031				
Path	Estimate	S.E	P-value	Estimate	S.E	P-value	*tij*	Result
PE→Es	0.287	0.035	***	0.219	0.037	***	21.388	exist
EEist	0.121	0.033	0.007	0.158	0.045	0.011	34.538	exist
SIist	0.210	0.043	***	0.088	0.033	0.152	36.726	exist
FCist	0.095	0.038	0.042	0.121	0.037	0.040	-8.194	exist
HM→Mi	0.186	0.043	0.001	0.177	0.032	0.004	2.744	exist
PVist	0.164	0.039	0.002	0.281	0.036	***	-35.591	exist
HBist	0.054	0.038	0.287	0.208	0.038	0.002	-46.053	exist
SCist	-0.314	0.041	***	-0.122	0.031	0.036	-61.000	exist

The group analysis result shows the difference between Gen Y and Gen Z. The biggest difference between the two groups is switching costs. Switching costs were found to have a certain (-) effect on the whole dataset and also had a different impact on each group. In Gen M, switching costs are the most influential factor on intention to use, but in Gen Z, the switching costs have a negligible effect. On the other hand, habit factor had no great deal of influence on intention to use in Gen Y, with a not too high significant effect on the whole data. However, it was discovered to be one of the strong key factors leading to intention to use in Gen Z. In addition, social influence (SI) had a significant effect on the intention to use in the Gen Y but not on the whole data and Gen Z. Price values (PV), effort expectancy (EE), performance expectancy (PE), facilitating conditions (FC), and hedonic motivation (HM) have an influence in the whole data, Gen Y, and Gen Z. Through the multi-group analysis, we found that there is a difference from these factors to the intention to use the Metaverse.

5. IMPLICATIONS AND DISCUSSION

Academic implications

This study is an empirical analysis of the factors affecting the use of the Metaverse platform by the factors proposed in the UTAUT2 for Generation MZ users in VIETNAM. Specifically, we have extracted the factors affecting the intention based on Venkatesh et al. (2012) model and proposed adding a new factor. After collecting the database through the survey, we analyzed 520 samples, of which 230 were from Gen Y and 290 from Gen Z. The academic implications are as follows.

First, H1, H2, H3, and H4 are supported. Performance expectancy, effort expectancy, and facilitating conditions were found to have a positive (+) effect on the intention to use the Metaverse platform. Not only in the whole dataset but also this was found in Gen Y and Gen Z. These results are consistent with the findings of the UTAUT2 (Venkatesh et al., 2012). H3 is not supported. Social influence did not significantly affect the intention to use the Metaverse platform in the whole dataset and Gen Z, but a positive influence on the intention to use in the Gen Y. H5 and H6 are supported. Hedonic motivation and price value were found to have a positive (+) impact on the intention to use the Metaverse platform in the whole dataset, Gen Y and Gen Z. This result is consistent with the hypothesis of the UTAUT model by Venkatesh et al. (2012). H7 is not supported. Habit was found to have no significant positive (+) impact on the intention to use the Metaverse platform in the whole dataset and Gen Y but had a significant impact in Gen Z. Finally, H8 is supported. The switching costs was found to have a positive (-) effect on the intention to use the Metaverse platform in the whole dataset, and Gen Z and Y. Gen Y was affected more strongly than Gen Z by switching cost. The relationship between the independent and dependent variables is different between the two groups.

Practical Implication

Metaverse is changing the way people think about how e-commerce works. The results of this study are significant for the company developing the metaverse towards the VIETNAM market. Companies have new perspectives on the way how to approach their potential users. They can identify the potential customers and then make the right strategies to approach customers for each group. For example, in the whole dataset, factors such as performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, and switching costs are the main factors affecting the intention to use the Metaverse platform. Therefore, companies need to focus on improving the technology, the utility, and features of Metaverse, helping users have the smoothest and the best experience without effort. Towards further goals, they need to design diverse content with high quality to provide the best service platform to customers, attracting customers' intention to use. An important point for companies is the switching costs. When users want to try a new technology or service, the switching cost could be a big barrier. They need to reduce related costs such as monetary, time, and psychological costs for users to easily adopt and lead to earlier intention to use new service platforms.

In the case of Gen Y, companies need to focus on performance expectancy, hedonic motivation, and effort expectancy. That means developing related technologies to get high efficiency is essential. Improving the quality and quantity of Metaverse content leads to higher motivation. In this group, it is necessary to advertise through multi-channel e-WOM (electronic Word of Mouth) to enhance the impact of social influence. In the case of Gen Z, social influence is not important, but habit and switching costs are important factors. Companies need long-term strategies to reduce switching costs, making users feel that using the Metaverse platform becomes a natural habit. These will promote the user's intention to use.

6. CONCLUSION

Summary of Research Results

This study examined the factors influencing the intention to use the Metaverse platform of the Generation MZ in VIETNAM. In addition, we also divided the whole dataset into two groups, group 1 (Gen Y) and group 2 (Gen Z), to do a multi-group analysis. For the whole dataset, only social influence was rejected. The rest of the factors, hedonic motivation, price value, habit, facilitating conditions, effort expectancy, and performance expectancy, significantly impact the intention to use the metaverse platform. Additionally, switching cost has a negative effect on the intention to use. Comparing Gen Y and Gen Z, we found that the relationship between the variables effort expectancy, performance expectancy, hedonic motivation, price value, habit, switching cost, social influence and intention to use the metaverse platform has difference between the two groups, Gen Y and Gen Z. The social influence factor had no influence on the whole data and the Gen Z. In spite of that, it is an important factor had a significant impact in the Gen Y. Similar to such social influence, habit also had no influence on the intention to use in the Gen Y and had an effect with not high significant level in the whole dataset, but it is a good factor to predict the intention to use the Metaverse platform in the Gen Z. Switching cost is a new factor that has been found to have a considerable opposite effect on intention to use in whole dataset and Gen Y but not too strong in Gen Z. The results of this study found important factors influencing the Generation MZ's intention to use the Metaverse platform. Moreover, there is a considerable difference between the two groups, Gen Y and Z. Based on these differences, companies can correctly identify their customers. The direction of development depends on each group to make reasonable marketing strategies and improve service quality in the right way to achieve the best results in e-commerce.

Limitations and Future Research

Although its many implications, this study has some limitations as follows.

First, this study did not consider moderating variables of gender, age, and experience in the UTAUT2 proposed by Veskatesh et al. (2012). In future studies, it is necessary to pay attention to the moderating variables and conduct comparisons by various groups to provide more detailed findings.

Second, it is necessary to explore more exogenous variables affecting behavioral intention to improve the explanatory power of the research model. Other factors such as the service provider's reputation, platform security, and trust need to be considered.

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THE ANTECEDENTS OF CONSUMER ONLINE SHOPPING USAGE IN AN EMERGING ECONOMY: A CONCEPTUAL STUDY

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ABSTRACT

In today's dynamic environment, digital technologies are enabling innovation in the form of products, services, infrastructure, tools, systems, digital applications; and content, resulting in an enhanced consumer experience. Given that consumers are constantly looking forward to accessing foreign products and this phenomenon has been heightened by the outbreak of Covid-19, the goal of this study is to unearth the antecedents of online shopping usage in an emerging economy. Several studies have highlighted the behavioural aspects that influence the use of e-commerce platforms. However, some barriers and facilitators of online shopping usage in developing countries context remain unexplored. The study therefore reviewed and conceptualized some antecedents of online shopping through a critical review of literature sourced from databases including Google Scholar, Scopus, Emerald Insight, Web of Science, and EBSCO. Qualitative enquiry focusing on document analysis coupled was utilized to ascertain the antecedents of online shopping usage in an emerging economy. The literature reviewed suggests that product information, the effectiveness of a website, agent trust and perceived safety will either facilitate or hinder online shopping usage as these provide an indication of assurance of the product quality, real-time information accessibility as well as safe delivery of the product. A conceptual framework with hypothesised relationships between key constructs is developed for testing and validation. Implications of the study for online shopping usage in emerging economies are discussed.

Keywords: Online shopping, barriers, facilitation conditions, digital technology, emerging economy

1. INTRODUCTION

Developments in digital technologies and their application continue to grow, resulting in unprecedented changes in economic and social activities (Ciriello, Richter, & Schwabe, 2018), and much of the literature has focused on its ability to foster business competitiveness, survival (Amankwah-Amoah, Osabutey, & Egbetokun, 2018) and global competition (Narula, 2014). As a result of this shift, digital projects have grown at an enormous rate and size (Huang, Henfridsson, Liu, & Newell, 2017). Many industries are also accelerating their digital transformation to provide better services. Insurers, for example, have turned to self-service claims assessment while healthcare providers have pushed hard for telemedicine (Blackburn, LaBerge, O'Toole, & Schneider, 2020). The shackles have been loosened, freeing consumers from the fear of being denied access to foreign goods. Consumers may access items and services at any time and in any location across the world because of the advances in e-commerce, and online shops offering contactless purchasing and delivery. Online purchasing has become increasingly popular all around the world. This behaviour was amplified during the Covid-19 pandemic, which was accompanied by social isolation and lockdowns (Goel, Parayitam, Sharma, Rana, & Dwivedi, 20220; Xiao, Zhang & Zhang, 2020). According to statistics on the global trend of online shopping, an income of 4.9 billion dollars was realized in 2021, indicating a 47.4 per cent rise from 2019. The rate is expected to rise by 50 per cent by the end of 2025 (Statista, 2021).

In Africa, internet shopping platforms are expanding, with Jumia emerging as the most popular, with over 23.3 million monthly visits. Although online commerce is still in its infancy in Ghana, it is growing rapidly. Online shopping platforms are currently on the rise in Ghana, as they are in South Africa, Nigeria, and Kenya. Online market platforms such as Jumia Ghana, Kikuu, Alibaba, Africart, Superprice, and Melcom Ghana are gaining momentum in the Ghanaian market. Comparatively, traditional markets in Ghana have a wide range of products. Consumers visit the market daily to purchase things that meet their needs. Consumers can bargain for good prices, which is a phenomenon that is crucial to every buyer but is virtually unavailable to online shoppers. In addition, there are markets in practically every part of the country. Given that Ghana is one of the African nations with the largest open-air market, it is critical to examine the factors shaping online shopping habits among consumers.

Furthermore, there are inherent dangers associated with online purchasing, such as counterfeit products, information risks, financial risks, product performance risks, social risks, physical hazards, and convenience risks, all of which can result in a consumer’s loss (Yeboah, Boateng, Owusu, Afful-Dadzie, & Ofori-Amanfo, 2018; Forsythe, Liu, Shannon, & Gardner, 2006). Because online shopping entails sharing personal information and performing financial transactions over the internet, as well as delivery methods that require agents, the perception of trust and security is a big concern on online shopping platforms. When shopping online, customers’ personal information (email address, shipping address, and residence address) is required, rendering them vulnerable to spam and privacy invasion (Kim & Benbasat, 2003). Anjum and Chan (2020) add that anxiety about providing credit card information and a lack of technical knowledge about online payment accounts also pose challenges to online buying. Other than cash on delivery, online shopping typically necessitates the use of electronic payment methods. Mobile money is the most used payment method for online shopping (Baganzi & Lau, 2017), especially in developing countries such as Ghana. Furthermore, unlike traditional face-to-face shopping, things ordered online are not delivered in real time. Because delivery agents are used as intermediaries, trust difficulties arise because some scammers identify themselves as such. Hence, it is critical to have a thorough awareness of the roadblocks that prevent people from using shopping online.

Although there is an enormous literature on online shopping adoption behaviour (Erjavec & Manfreda, 2021; Groß, 2015; Guo & Barnes, 2011), there are few studies on why customers will object to this service and how this influences behaviour intention and actual usage. According to studies (Meuter, Ostrom, Bitner, & Roundtree, 2003), customers’ technology usage experiences influence their likelihood to promote that technology. In light of this and given the paucity of research on the antecedents of online shopping in Africa, notably Ghana, this study examines barriers and facilitating conditions linked to the use of online shopping. This research contributes to understanding factors that influence customer behaviour on online purchasing platforms. The results would therefore be useful to businesses on how to design their online shopping platforms for competitive advantage, growth, and survival.

2. METHODOLOGY

The objective of this paper is the unearth the barriers and facilitating conditions for online shopping usage in developing economies. To achieve the goal of the current study, the researchers solely used the qualitative inquiry approach (Amoah & Jibril, 2020). In terms of qualitative research methods, document analysis was employed. According to Neuendorf & Kumar (2015); Valk, Rashid & Elder (2010); and Bowen (2009), document analysis encompasses finding information (both written and manual) to gain a meaningful grasp of a particular issue or challenge. The choice of document analysis was also informed by Neuendorf and Kumar (2015) assertion that it is a great way to identify existing issues and draw from a variety of pertinent phenomena due to its greater coverage. Furthermore, studies such as Amoah & Jibril (2020); Keles, McCrae, & Grealish, (2020) and Osakwe, 2016) employed document analysis in carrying out their qualitative research of which this study is not an exception. Taking these into consideration, existing publications relevant to the subject matter were gathered from databases of Web of Science, SCOPUS, Emerald Insight, Google Scholar and EBSCO. A keyword search was done to locate scientific publications published in the subject area to find the preferred information needed. Out of the sixty-two (62) downloaded publications, the researchers analysed a total of thirty-seven (37) relevant papers to successfully provide the required results of the current study. The database was searched using keywords like online shopping acceptance, online purchasing behaviour, mobile shopping, and e-commerce. Ultimately, and articles written and published in English.

3. RESULTS – ANTECEDENTS OF ONLINE SHOPPING

Online shopping behaviour is considered a broader research area in the context of e-commerce. The phenomenon has received numerous attentions and great contribution towards theory and practice have been made since the dawn of digital technologies. Considering prior literature, much emphasis has been placed on access to internet and devices as they are the bedrock for the phenomenon. Other technological, behavioural, and attitudinal antecedents have captured the focus of extant literature. For instance, prior studies have examined antecedents such as performance expectancy, effort expectancy, facilitating conditions and social influence (Erjavec & Manfreda, 2021; So et al., 2020; Chopdar, Korfiatis, Sivakumar, & Lytras, 2018; Lai & Lai, 2012). Similarly, perceived usefulness, perceived ease of use, perceived enjoyment and trust have been considered in existing literature (Groß, 2015; Domina et al., 2012; Guo & Barnes, 2011; Ha & Stoel, 2009). Although, prior studies document the prospect of anxiety, self-efficacy, perceived safety, agent trust, the effectiveness of the website and product information in facilitating or serving as a barricade towards the adoption of technology (Rashid, Rashid, & Pitafi, 2020; Hagmann, Semeijn, & Vallenge, 2015; Luo, Ba & Zhang, 2012; Osswald, Wurhofer, Trösterer, Beck, & Tscheligi, 2012; Rammile & Nel, 2012; Kim & Niehm, 2009; Ohman, 1993; Simon, Maurer, Montag-Torardi, & Whitaker, 1987); these factors have not been explicitly explored in the context of emerging economies. Consequently, behavioral precursors including anxiety, self-efficacy, perceived safety, agent trust, the effectiveness of the website and product information are explored in this study.

3.1 Anxiety

Anxiety refers to how apprehensive and unpleasant an online shopper is when confronted with situations related to online shopping (Osswald et al., 2012). It reflects the uneasiness towards the usage of devices including making mistakes due to inexperience. Prior studies highlight the effects of anxiety on behaviour and attitude (Ohman, 1993; Simon, Maurer, Montag-Torardi, & Whitaker, 1987) concerning technology usage. In a study Vroman et al. (2015) they indicated that the adoption of technology is thwarted by technology anxiety. Accordingly, Meuter et al. (2003), anxiety negatively influences individuals' capability and disposition to use technology. In the context of online shopping, few studies have explored the role of anxiety as an antecedent of behavioural intention.

3.2 Self-Efficacy

Self-efficacy is defined as people's judgments of their abilities to attain specified levels of performance that have an impact on events in their lives, according to Social Cognitive Theory (SCT) (Bandura, 1994). Self-efficacy in the use of technology, therefore, reflects the degree to which a consumer is convinced by his or her ability and competence to use technology to execute or in the context of an online buying task (Osswald et al., 2012;) or make use of technological services (Rammile & Nel, 2012). While Bandura (1977) suggests perception of self-efficacy arises from sources including emotional arousal, personal experience, verbal persuasion and vicarious experience, Ellen et al. (1991) indicate personal experience is the strongest determiner of self-efficacy. Online shopping requires the usage of digital technology devices such as computers, laptops, smartphones and notepads to access online-based services. As a result, customers who believe they can use such technological tools during purchases on the internet are more likely to engage in online shopping while those who lack such confidence will not.

3.3 Perceived safety

The degree to which a customer believes that using online purchasing would affect his or her security and well-being is referred to as perceived safety (Osswald et al., 2012). According to Dorusoy and Zengel (2017), a user's perception of safety is a significant factor that determines their attitudes and avoidance behaviour; it can either be a facilitator or a deterrent. As a result, safety is an important factor since it influences people's decision-making processes when it comes to technology (Hagmann et al., 2015; Osswald et al., 2012; Rittichainuwat & Chakraborty, 2009). Given the context of online shopping, perceived safety is imperative because customers need to connect genuinely with sellers and experience feelings of security in a controlled environment (Wong, McDough, Bridel & Culos-Reed, 2022). Perceived safety may reduce the fear amongst customers, offering them a positive experience. Prior studies that explored security and safety issues in the adoption of technology highlight its capability of facilitating or suppressing its adoption and usage in internet banking and autonomous vehicles (Montoro et al., 2019; Rahi, Ghani & Ngah, 2018; Fraedrich & Lenz, 2016; Schoettle & Sivak, 2014). Consequently, Salisbury et al. (2001) have emphasized security as a principal barricade in the context of online shopping.

3.4 Agent Trust

Agent trust denotes the belief in an intermediary's ability to fulfil responsibilities as defined by users of online shopping (Comer, Plank, Reid, & Pullins, 1999). Users of online shopping services rely heavily on third-party intermediaries, known as agents, to complete transactions such as the delivery of goods. Furthermore, online shoppers have to provide information on their residence for delivery purposes, account details and basic personal information including emails. However, for fear of security, in some cases, customers may feel reluctant to provide such information. Also, receiving the goods purchased after payment is another issue. Therefore, trust in agents is one essential element in the context of online shopping.

3.5 Effectiveness of Website

Extensive acceptance of e-commerce necessitates technological advancements that transform websites into more than objective catalogues delivered through various media. Website plays a significant role, especially, in assisting the consumer's information search (Luo et al., 2012) and product selection. Accordingly, an imperfectly designed website interface can interrupt consumers' experience by requiring exorbitant attention or distractions (Martins, Costa, Oliveira, Gonçalves, & Branco, 2019). Most consumers are more likely to abandon online shopping when the website is difficult to navigate. While an effective website reduces information mismatch, Cheng and Huang (2013) noted that it promotes the understanding of the contents available. Furthermore, an effective website provides consumers with a better experience. Prior studies indicate effective websites aid consumers in online shopping (Martins et al., 2019; Li, Daugherty, & Biocca, 2001).

3.6 Product information

Customers can use the information supplied by online retailers to help them make online shopping decisions. The reason is that customers can forecast the quality of a product based on detailed information. Unlike in the traditional context whereby customers can assess products before purchasing, providing adequate information about the product will increase the intention of customers to purchase the product (Jiang & Rosenbloom, 2005). Wolfinberger and Gilly (2003) suggest consumers envisage the worth as well as the usefulness of the product through the availability of comprehensive and in-depth information. Also, from the perspective of traditional marketing theory, product information aid consumers to obtain information including reliability, price, quality and performance (Day & Wensley, 1983; Murray, 1981). The quality of product information is therefore considered an antecedent to online shopping usage.

3.7 Behavioural intentions

Customers' desire and willingness to accept a new system and technology have always been regarded as a principal antecedent of their actual behaviour (Osswald et al., 2012; Venkatesh, Thong, & Xu, 2012; Venkatesh, Morris, Davis, & Davis, 2003). Evidence from the results of prior studies on technology acceptance in various contexts has highlighted the significance of behavioural intention on actual use behaviour (Venkatesh et al., 2012; Venkatesh et al., 2003). In the context of online shopping, prior studies (Chopdar et al. 2018; Groß, 2015; Javadi, Dolatabadi, Nourbakhsh, Poursaeedi, & Asadollahi, 2012) have established the relationship between behavioural intentions and online shopping behaviour.

3.8 Online shopping usage and intention to recommend

Intention to recommend denotes customers' likelihood of persuading others to purchase the products of retailers by sharing their experiences (Bai, Yao & Dou, 2015; Meuter et al., 2003). Shopping platforms that are tailored to the customers' satisfaction are likely to grow through recommendations since customers who are dissatisfied with purchases are more inclined to leave negative feedback (Srinivasan et al., 2002). When customers think the products purchased are of good quality and worth, the likelihood of them recommending them to others is high. Moreover, individuals tend to engage in online activities, especially, when they are highly rated and recommended by users.

3.9 Proposed Conceptual framework

Based on the extant literature reviewed on the phenomenon under study, the investigators conceptualized and proposed the following for future studies:

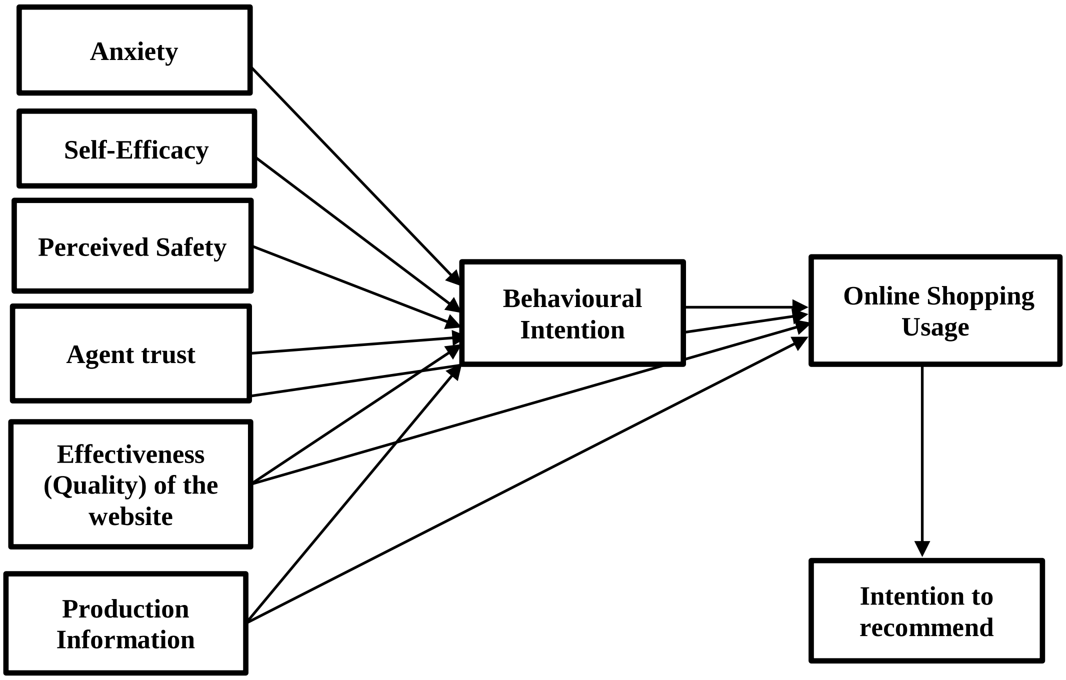

Figure 1: Conceptual framework

Proposition 1: Anxiety would negatively impact behavioural intentions.

Proposition 2: Self-efficacy would positively influence behavioural intention.

Proposition 3: Perceived safety would impact behavioural intention positively.

Proposition 4: Agent Trust would positively affect behavioural intentions and online shopping usage.

Proposition 5: The effectiveness of the website would impact behavioural intentions and online shopping usage.

Proposition 6: Product information is expected to positively influence behavioural intentions and online shopping usage.

Proposition 7: Behavioural intention would impact online shopping usage positive.

Proposition 8: Online shopping usage would have a positive effect on the intention to recommend.

4. THEORETICAL AND PRACTICAL IMPLICATIONS

The purpose of this research is to uncover the antecedents of online shopping usage in a developing economy, including the barriers and enablers. This study has theoretical significance given that it contributes to our understanding of consumer behaviour research in the context of online shopping. Further, anxiety and self-efficacy are relatively less studied in the context of online shopping usage adoption, hence, an understanding of the influence of these factors is important in the context of e-commerce.

Further, the study will contribute to the e-commerce literature by focusing on how consumers in developing countries like Ghana respond to online shopping systems. In contrast with prior studies which are largely conducted in developed countries where the settings are usually characterized by a massive deployment of digital technologies, this study will focus on the Ghanaian setting which is not ranked highly on the technology index and online shopping. From these viewpoints, diverse kinds of issues may be encountered in an attempt to provide adequate information on how these factors affect online shopping behaviour. The results thus provide valuable insight into the development of online shopping platforms.

Focusing on a developing country that is endowed with natural resources and human capacity (Amankwah-Amoah and Lu, 2022), it is prudent to advance the understanding of the barriers and facilitating conditions towards online shopping, and electronic commerce. Electronic commerce is very important as it positions the products of retailers at the forefront, providing them with larger markets, thereby increasing consumption as well as employment. It also fosters the development of countries as taxes are levied on products sold. The results of this study have implications for organizations and countries as a whole in developing and expanding their economic activities. There is an urgent need for a more deliberate study to be conducted to address this issue. Also, the researchers believe that satisfaction derived from online shopping will impact the intention of consumers' recommendations. This implies that means the more consumers suggest online shopping to each other, the more this method of shopping will be popular among people. This affirms the significance of and the use of word-of-mouth marketing for retailers.

5. SUGGESTIONS FOR FUTURE RESEARCH AND CONCLUSIONS

In conclusion, the study provides a review of barriers and facilitators of online shopping behaviour in a developing country's context where it has not received much attention in the existing literature. Hence, a conceptual framework is proposed for a future quantitative study. Also, the study suggests significant awareness for managers of online shopping platforms and services to enhance the usage of online shopping whilst circumventing the barriers.

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APPLYING THE PRIVACY CALCULUS THEORY IN STUDYING SOCIAL NETWORKING SITE USE

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ABSTRACT

Privacy concern is one of the main inhibitors of social networking sites (SNSs) engagement. SNSs users express their concerns about the unconsented collection, storage, and transfer of personal information. These misused behaviors may come from SNSs developers (institutions) and other SNSs users (peers). However, privacy concerns on institutions and peers have received little attention in the literature. Therefore, this study proposes a conceptual model to investigate the influence of privacy concerns from the privacy calculus theory (PCT). A partial least square structural equation modeling analysis on a sample of 370 Facebook users shows that privacy concerns is a predictor of passive use, whereas expressiveness (including self- and social) have positive influence on active use. This tradeoff between privacy and benefit is affected by users' trust, information sensitivity, and uniqueness. Despite the limitations of a cross-sectional and student sample, the study extends the application of the PCT to the SNS use behavior and provides some implications for SNS developers to enhance the user engagement.

Keywords: SNS use, privacy calculus theory, expressiveness, trust, information sensitivity, uniqueness.

1. INTRODUCTION

In recent years, social networking has become a phenomenon that strongly attracts the online community. According to the statistics of Digital Vietnam (2022), Facebook is the first application in terms of downloads in 2020. According to a report by Datareportal (2021), in January 2021, Facebook had a user rate of 91.7% in the age group of 16 - 64 years old, especially Gen Y and Gen Z.

In addition, some recent studies show that users' privacy on social networks is violated and is a scorching topic for discussion. Users are concerned that some unethical companies will abuse and access privacy data (Wang et al., 2016). Therefore, customers also worry that personal information may be sold to third parties (Xu et al., 2011).

For the above reasons, this study chooses Facebook as the representative of the social networking platform. Researching the factors in the privacy calculation theory (Privacy Calculus Theory) affecting the behavior of using social networks is necessary to minimize user privacy risks. Therefore, this study will clarify the relationship between the computational theory of privacy and other factors (expressiveness, perceived privacy risk, information sensitivity, uniqueness, trust in the user) that affects how individuals use social networks in Vietnam. We pose three questions that need to be addressed in this study, specifically:

- Do privacy concerns impact users' behavior use the social network Facebook?

- The degree of influence of each factor: expression, risk, information sensitivity, uniqueness, trust in the user on active and passive behavior of using a Facebook social network?
- What are the recommendations and suggested policies to improve privacy mechanisms on social networking platforms and Facebook in particular?

We set out the objectives to broaden the scope of understanding privacy calculus theory in the context of social networks by exploring the effects of privacy calculus theory (perception of privacy risks) on the social network use behavior of Gen Y and Gen Z users in Vietnam; at the same time, determining the importance of the antecedents (expressiveness, perceived privacy risk, information sensitivity, uniqueness, trust in the user) to the social network use behavior of individuals of the same category: Gen Y and Gen Z in Vietnam. Thereby, proposing suggestions and policies to improve privacy mechanisms on social networking platforms.

In terms of scientific significance, the study contributes to building a theoretical model that measures the elements of privacy calculation theory (perceived privacy risk) that affect people’s behavior in using social networks used in Gen Y and Gen Z generation in Vietnam. Besides, the topic also examines whether other factors (expressiveness, perceived privacy risk, information sensitivity, uniqueness, trust in other users affect the behavior of using social networks or not.

2. RESEARCH HYPOTHESES

2.2.1. Expressiveness

According to Hofacker et al. (2011), expressiveness is supposed to be a strong determinant of consumer intention and behavior towards specific goods or services in a community environment such as social networking platforms. According to Hofacker et al (2011), in Consumer behavior theory, expressiveness is more clearly defined through two aspects: Self - identity expressiveness and Social identity expressiveness.

Self-identity expressiveness (SELFEX). In psychology, self-identity is defined as a construct of self-perception that answers the question "Who am I?" (Pan et al., 2017). According to Kim (2018), self-expression is “the act of showing a composite image of oneself or showing that one is unique.” In the context of this research, self-identity expressiveness refers to how and to what extent users use a social network, specifically Facebook, to express their own identity and values to other users and themselves.

Social identity expressiveness (SOCIEX). Barker (2012) showed that expressing social identity significantly impacts the intention of using online social networking sites. In addition, the expression of social identity is the ability to skillfully communicate to attract people and interact on social networks (Hofacker et al., 2011). Individuals who are often called “hidden” rarely reveal aspects of themselves on social networks. In contrast, expressive users tend to be extroverted and easily express themselves, so they are more active when using social networks than passive users. Therefore, the study tests four hypotheses as follows:

H1a: *Self-identity expressiveness positively influences the active use of social networking sites.*

H1b: *Self-identity expressiveness negatively influences the passive use of social networking sites.*

H2a: *Social identity expressiveness positively influences the active use of social networking sites.*

H2b: *Social identity expressiveness negatively influences passive use of social networking sites.*

2.2.2. Perceived privacy risk (PR)

In managing and sharing private information, risk plays a vital role in influencing social network behavior (Trepte et al., 2017). The disclosure of personal information through social media posts is increasing as users become aware of the level of interaction such as liking, sharing, and commenting on posted content. They can observe essential information and other relationships in the online community (Trepte et al., 2019). Typically in terms of physical impact, some risks may occur, such as information theft for personal gain, the threat of blackmail, and data being sold. This can form negative feelings of fear, making it difficult for users to disclose personal information on social networks.

H3a: *Perceived privacy risk negatively influences the active use of social networking sites.*

H3b: *Perceived privacy risk positively influences the passive use of social networking sites.*

2.2.3. Information sensitivity (SEN)

In the context of using social networks, based on the research of Dinev et al. (2013), the focal study defines information sensitivity as an individual attribute that shows the degree of sensitivity and difficulty when their information is disclosed to a third party. User sensitivities can be related to types of information such as personal information, contact information, education level, or information about personal relationships and interests. Moreover, as that level of sensitivity is further threatened, privacy concerns will have a more substantial negative impact on active social media use, and users are more concerned about their willingness to use social media. Based on the preceding discussion, we propose the following hypotheses:

H4a: *Information sensitivity negatively influences the active use of social networking sites.*

H4b: *Information sensitivity positively influences passive use of social networking sites.*

2.2.4. Uniqueness (UNI)

According to Scherr et al. (2021), a new application entering the social networking platform must be successful when it brings satisfaction and outstanding difference for users. The platform's uniqueness goes beyond existing platforms to be able to exist and position in the user's mind. In particular, the uniqueness is expressed through the features, interface, access speed, or ease of use application. Therefore, the study tests two hypotheses as follows:

H5a: *Uniqueness positively influences the active use of social networking sites.*

H5b: *Uniqueness positively influences the passive use of social networking sites.*

2.2.5. Trust in the user (USR)

In previous studies, most authors only mentioned the concept of users' trust in social networking platform providers. To broaden this scope, the present study focuses on the effects of trust among other users on social network usage behavior. Users' trust in other users is demonstrated through interactions that show respect for each other on social networks. When the perception of trust between users is positive, active users tend to use it more frequently. In contrast, passive users engage in social networks less and rarely interact with others when the perception of the relationship between trust and other users is negative.

H6a: *Trust in the user positively influences the active use of social networking sites.*

H6b: *Trust in the user negatively influences the passive use of social networking sites.*

3. METHOD

3.1. Research process

The research process is divided into two main phases. The first phase is to conduct research to identify models, factors, and measurement variables appropriate to the Vietnamese context in Vietnam. The second phase is to collect, process, and analyze data. This study collects data through a survey designed by authors on the Google Form tool, which will be sent to the respondents.

3.2. Measurement scales

The scale of the study includes 8 constructs. The scale includes 34 items referenced from previous studies (Hofacker et al., 2011); Chen, 2018; Dwivedi et al., 2018). The factors are measured on three types of 7-point Likert scale: Agreement, Frequency, and Concern.

3.3. Data collection

According to Hair et al. (1998), the minimum sample size in a research paper is calculated by the formula n>=5*x+5 (x: total observed variables). The total number of variables in this research scale is 34, so the sample size must be greater than or equal to 175 samples. Therefore, to ensure the accuracy and comprehensiveness of the research results, this study decided to choose a sample size of 400.

The sampling process is divided into two phases. In the preliminary sampling phase, the survey was sent to the respondents within the survey audience through a link to Google forms, and 30 preliminary samples were taken. In the formal sampling phase, after collecting all 400 samples, we filtered and cleaned the invalid answers. As a result, the number of valid respondents was 370.

4. RESULTS AND DISCUSSION

4.1. Demographic and descriptive statistics

The sample demographics include 30% male and 70% female respondents. Most respondents are between 18 and 25 years old, with a rate of 89.7%. Therefore, the income of respondents is most at the age of students, freshly graduated students, so it is still not high, accounting for 54.3% of the proportion of people with incomes below 3 million VND.

4.2. Reliability and validity

The outer loadings of the variable are recommended to ideally be at a threshold of 0.7 or higher. Loadings between 0.4 and 0.7 should consider rejection (Henseler et al., 2009). The test results on the outer loadings of all the scales presented are most of the outer loadings test results greater than 0.7. However, the indicator of SEN 2 (0.669) and UNI 4 (0.679) with outer loadings less than 0.7 were considered to be removed from the model. After removing the above two scales and having a change in the outer loadings of the SEN 1 scale (0.691 < 0.7), we decided to remove it from the model again.

According to the results of composite reliability (CR), the satisfactory confidence interval is from 0.650 to 0.952 (Wiegard and Breitner, 2017). The factor with the highest composite confidence coefficient is PAS with 1,000, and the lowest is SOCIEX with 0.859. These results prove that all factors are reliable for further analysis.

Besides, the study also analyzed the t-value with the results ranging from 15,908 to 103,600, indicating the importance of all loading coefficients with $p < 0.001$.

According to Fornell and Larcker (1981), the model is also evaluated for accuracy by evaluating the average extracted variance (AVE) greater than 0.5, then it is satisfactory.

Fornell and Larcker (1981), to measure the discriminant value, the square root of AVE of each measurement factor is larger than the maximum correlation coefficient of that factor with other factors showing the discriminant and reliability of the satisfactory elements.

According to the value of Cronbach's Alpha must be greater than 0.7, factors will be accepted (Hair et al., 2009). According to the analysis results, the values from 0.754 to 1,000 (the smallest value is SOCIEX and the largest value is PAS) are all suitable for inclusion in the scales of the model.

According to Wiegard and Breitner (2017), the validity of all variables is tested by the cross loadings coefficient. In this study, construct cross-loadings show that loads of each measure are higher on its construct than on any of the other constructs. This shows that all cross-loadings coefficients load correctly and validly on the variable observed in the model.

Table 1: Discriminant value according to Fornell & Larcker criterion

	ACT	PAS	PR	SELFEX	SEN	SOCIEX	UNI	USR
ACT	**0.780**	0	0	0	0	0	0	0
PAS	0.052	**1.000**	0	0	0	0	0	0
PR	0.203	0.118	**0.869**	0	0	0	0	0
SELFEX	0.511	0.092	0.251	**0.908**	0	0	0	0
SEN	0.209	-0.101	0.321	0.201	**0.862**	0	0	0
SOCIEX	0.511	0.065	0.246	0.654	0.191	**0.820**	0	0
UNI	0.391	0.108	0.256	0.484	0.206	0.447	**0.886**	0
USR	0.351	-0.068	0.103	0.322	0.204	0.312	0.389	**0.874**

Note: The bold value is the square root of AVE.

4.3. Structural model

After testing the scale, the study tests the hypothesis of the relationship between the relevant variables and the user's behavior in using social networks. To get valid path coefficient evaluation results, we do it using Bootstrapping method and run 5000 subsamples to check the statistical significance of the path coefficient.

First, the study's structural model's quality is measured by the coefficient R squares (R2). As shown in Figure 4.4.2, the model shows the results of the path coefficients, the significance level, and the R2 value of the two dependent variables: active use (ACT) of 0.354 and passive use (PAS) is 0.059.

The results of all the hypotheses and relationships in the model were shown based on what was found in the PLS-SEM analysis.

For hypothesis H1a, Self-identity expressiveness positively impacts active social networking behavior with a path coefficient of 0.238 and p-value = 0.000, consistent with previous research results. Therefore, hypothesis H1a was statistically supported.

For hypothesis H1b, Self-identity expressiveness hurts passive social networking behavior with a path coefficient of 0.071 and p-value = 0.294, which is inconsistent with previous research results. Therefore, hypothesis H1b is not supported.

For hypothesis H2a, Social identity expressiveness positively impacts active social networking behavior with a path coefficient of 0.253 and p-value = 0.000, consistent with the research results. Therefore, hypothesis H2a is supported.

For hypothesis, H3b perceived privacy risk positively impacts passive social networking behavior with a path coefficient of 0.133 and p-value = 0.019, which is consistent with previous results. Therefore, the H3b hypothesis is supported.

For hypothesis H2b, Social identity expressiveness harms passive social networking behavior with a path coefficient of 0.000 and p-value = 0.995, which is inconsistent with the research results previously saved. Therefore, hypothesis H2b is not supported.

For hypothesis H3a, perceived privacy risk hurts active social networking behavior with a path coefficient of 0.026 and p-value = 0.579, which is inconsistent with the results of previous research. Therefore, hypothesis H3a is not supported.

For hypothesis H4a, information sensitivity harms active social networking behavior with a path coefficient of 0.057 and p-value = 0.237, which is inconsistent with previous research results. Therefore, hypothesis H4a is not supported.

For hypothesis H4b, information sensitivity positively impacts passive social networking behavior with a path coefficient of - 0.159 and p-value = 0.004, consistent with previous research results. Therefore, hypothesis H4b is supported.

For hypothesis H5a, uniqueness harms active social networking behavior with a path coefficient of 0.087 and p-value = 0.099. Therefore, hypothesis H5a is not supported.

For hypothesis H5b, uniqueness positively impacts passive social networking behavior with a path coefficient of 0.118 and p-value = 0.040. Therefore, hypothesis H4b is supported.

For hypothesis H6a, trust in the user positively impacts active social networking behavior with a path coefficient of 0.148 and p-value = 0.002. Therefore, hypothesis H6a is supported.

For hypothesis H6b, trust in the user positively impacts passive social networking behavior with a path coefficient of - 0.118 and p-value = 0.048. Therefore, hypothesis H6b is supported.

5. DISCUSSION

Consistent with the results of Hofacker et al. (2011), our research also shows that self-identity and social identity expressiveness positively influence dynamic social networking behavior. However, according to the research results, most passive social media users who participated in the survey said that expressing themselves or expressing their social identity did not affect their usage behavior there. This proves that all 4 hypotheses H1a, H1b, H2a and H2b are consistent with previous research results.

For the relationship between perceived privacy risk and information sensitivity. Comparing the results with the previous study by Wang et al. (2016), the results again confirm that individuals who use social networks passively have a much higher perceived risk of privacy than active users (hypotheses H3a, H3b, H4a, H4b). However, this study shows more clearly the influence of risk perception and information sensitivity on active use behavior. The results reconfirm that, despite being active and proactive on social networks, users are still hesitant and cautious in disclosing information and aware of privacy risks. However, the level is lower than those of passive users. This proves that the above results are suitable for the context in Vietnam. The perception of privacy risks and the level of information sensitivity are still two crucial factors in controlling the use of information using social networks. The other two variables, user's uniqueness, and trust, are two factors that this study has expanded and developed compared to previous studies on the behavior of users using social networks. According to the research results, most users who actively participate in the survey believe that the uniqueness of a social networking platform does not affect their frequency and behavior. The reason may be because individuals who actively use social networks in the Vietnamese context will actively participate in any social networking platform they want without paying too much attention to whether that platform is different from other platforms. However, this was in contrast to passive social media users, the results confirming the hypothesis posed by the study. For the last variable - trust in the user, the results show that both hypotheses of this variable are accepted. Since then, when the perception of trust between users on social networking platforms in Vietnam improves, active users tend to use it frequently and are more open to other users. In contrast, for passive users, when the perception of the relationship between trust and other users is negative and unsafe for them, passive users tend to use social networks less and rarely interact with other users.

6. CONCLUSION

This study contributes to helping people be more careful when using social networks, whether active or passive, because the risks will occur unexpectedly. Research results have demonstrated that perceived privacy risk harms active social networking behavior and positively impacts passive use. Thereby, on the operator side of applications in general and Facebook, in particular, should set out strict management policies on user information. They can build trust and help them confidently express themselves using social networks. Research results show that active users tend to express themselves and their social identities more than passive users. From a theoretical point of view, information sensitivity predicts that information-sensitive users will often be passive users. The concern of passive users is the sensitive element of information. Therefore, being sensitive to information creates a mindset of passive use to reduce risks when using social networks. When the perception of trust between users on a social network is positive, active users use it frequently and are more open to other users. In contrast, passive users use social networks less and rarely interact with other users.

The study proposes policies on social network security to improve, while other articles in Vietnam have not yet done this. These suggestions contribute to creating a more positive and friendly environment for using social networks.

This study contributes and make suggestions businesses can apply to their platforms to attract more application users. Businesses and platform owners can assess the main factors affecting the intention to use that platform user. By understanding the essential factors, businesses can introduce new policies to minimize the factors that have a negative impact on the user experience on the platform. In addition, develop more factors that positively influence the user's behavior of using social networks to make your application develop strongly, stand out in the future and attract more people using active participation.

The perception of privacy risk and information sensitivity is one of the crucial factors that strongly impact the behavior of using social networks. In addition, according to the research results, active users tend to use the application actively and have a lower level of concern about their personal information than the passive user group. Therefore, application developers and managers should note and make policies that are committed to protecting the privacy of customers' personal information and not selling the information to third parties to receive benefits or other benefits. In addition, it is necessary to improve the construction of a strict security censorship system to prevent the intrusion and theft of information from other organizations. When implemented, these solutions will help users feel more secure when providing their personal information and continue using the application.

This research is working on only one platform, namely Facebook. It is impossible to confirm how privacy risks affect other social networking platforms. Further studies can apply computational privacy theory to other social networking platforms. The next shortcoming of the study is that it only took the survey mainly from respondents between 18 and 25 years old. In addition to age, there is a difference between the proportion of male and female respondents. Further studies should balance this disparity to show that regardless of age or gender, there are concerns about privacy risks. In addition, the study was only performed and measured by two main types of variables: independent variables and dependent variables. The author also encourages further research papers to be diversified and tested from different angles. This helps to discover new relationships and find depth for the research paper.

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HOW DO PANDEMIC LEVELS MODERATE DIGITAL FOOD ORDERING RISKS DURING THE PANDEMIC PERIOD? AND STRATEGIES RESPONSES TO THE COVID-19 PANDEMIC FOR DIGITAL FOOD ORDERING IN VIETNAM

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ABSTRACT

The first part of the paper explains the effect of perceived risk on the intention to consume processed foods in Vietnam.The study was carried out based on the prospect theory and the perceived risk framework. Data is collected throughout Vietnam. The results show that knowledge of covid-19 and perception of the company's competency have a negative effect on perceived risk and that perceived risk has a negative impact on purchase intention. Self-efficacy and Risk propensity did not have a moderating effect on the relationship between perceived risk and purchase intention. The study also found there is no difference in consumer perceived risk between different pandemic levels.

The results were suggested to be the basis for businesses and the Government to refer to organize effective consumer risk management plans and come up with a more appropriate marketing strategy. Finally, the study outlines the limitations of the research topic and sets out future research directions.

Keywords: Pandemic levels; Digital food ordering risk; Perceived risk; Prospect theory; Self-efficacy, Risk propensity.

JEL Classification: O30

1. INTRODUCTION

The accommodation and food service business in Vietnam suffered heavy losses during the epidemic period. In 2020, the accommodation and food service business had a negative growth rate of 17.03%, from the end of April 2021, the growth rate decreased sharply by 20.81% (GENERAL STATISTICS, 2020, 2021). In compliance with the State's regulations on safety and disease prevention, food providers must limit the number of guests at a time of service, and in order to quickly adapt, food service establishments must organize take-away and apply online food delivery platforms (Morgan Stanley Research, 2020) to its business. Besides, in the context of integration and the spread of the 4.0 revolution, e-commerce has made a great contribution to promoting the flow of goods and services (National Statistics on E-commerce, 2020). Associated with food demand, food delivery services on applications have 83% of Vietnamese consumers (Qandme, 2021). Vietnamese consumers order food through the app because of convenience, saving time and having many choices. Moreover, the danger of Covid-19 is believed to be the main reason why Vietnamese consumers switch to using online food ordering more, with 75% of people using food delivery services, of which 24% are beginners (Qandme, 2020, 2020a). In terms of consumer spending, food also accounts for the highest proportion with 35% monthly and 15% of the country's GDP. Nationwide, there are about 640,000 enterprises doing business in this field (Ha, 2021).

However, the epidemic has affected 91.3% of F&B businesses from severe to very serious, and in 2021 on average, 10,000 businesses will withdraw from the market every month (GENERAL STATISTICS, 2021).

To identify the main factors that influence the intention to use online food delivery as well as the factors that significantly influence the consumer decision-making process, this study builds on the integration of the previous “perspective theory” and “perceived risk framework” by Leung and Cai (2021) to answer the question of interpretation and decision making of consumers towards online catering businesses and food delivery platforms. Therefore, this study aims to explain how the impact of perceived risk on their consumption intention. Second, this study investigates how consumers' understanding of Covid-19 and perceptions of the capabilities of online food delivery platforms affect consumers' perceived risk. Third, describe how the moderating role of individual capabilities and individual consumer acceptance tendencies on the relationship between perceived risk and that individual's purchase intention. Fourth, to determine whether consumers in different pandemic regions have different decision-making processes, the study investigates the regulatory role of pandemic level on the relationships proposed above. Finally, the results of this study will provide information on how consumers respond to the Covid-19 pandemic related to the use of online food ordering services in Vietnam and help regulators to develop the right strategy to maintain business operations during the impact of the Covid-19 pandemic.

2. LITERATURE REVIEW

2.1 Risk perception framework

Risk factors are assessed subjectively by individuals, while experts have a lot of objective knowledge or expertise to assess risk factors (Paek and Hove, 2017). According to Slovic (2000) risk factors are assessed by such individuals based on its characteristics such as novelty (risk has just been discovered or has existed for a long time), infectivity, ability to threaten. threat to future generations, mortality and controllability. Slovic et al (1984) proposed that the perceived risk framework consists of two main factors, dread and unknown risk. Dread risk reflects an individual's perception of the uncontrollability of the risk, the resulting panic, the possibility of a global catastrophe, the deadly consequences that risk could bring, and the analysis uneven distribution of benefits and risks (Slovic, 1987). Unknown risk involves unclear perception of a hazard, the inability to observe and perceive the hazard, the risk is new and the loss of that risk takes time to reveal. exposed (Slovic, 1987). Research by Murakami et al. (2016) shows that dread risk and unknown risk affect decision-making related to radiation and find that the risk factor dread has a major influence on decision making. decision-making rather than unknown risk. Also related to the topic of infectious disease Covid-19 such as Xu et al's (2020) study on the H7N9 epidemic also found that fear risk and uncertainty risk both have an impact on people's responses. consumption. To measure consumers' perceived risk in terms of fear and uncertainty, previous research has measured consumer knowledge and company’s competency to identify perceived risk. (e.g.Leung and Cai, 2021).

Consumer knowledge plays a very important role in shaping their intentional behaviors, and is particularly relevant to decision-making (Park et al., 1994). unknown risk refers to a problem of risk that is new and unfamiliar, so at the core of it is a lack of understanding (Bassarak et al., 2017). In addition, the consumer's perceived risk varies with the information available at any point in time, so a consumer's current perceived risk depends on prior beliefs (based on previous risks are similar) and new information is updated (Liu et al., 1998). From that knowledge, that information of consumers will influence how they think about the level of risk they are tolerable and also their self-assessment behavior to make a decision. their decisions (Rohrmann et al., 2000). In more detail, knowledge and information influence decision makers' perceived risk by focusing their attention on certain aspects of risk, while reducing their attention. into another dimension (Sitkin and Pablo, 1992). And as mentioned earlier, consumers don't have as much objective knowledge (expertise) as experts, so the subjective knowledge they gain is largely through biased media reports. about a controversial aspect and information will increase consumer perceived risk (Klerck and Sweeney, 2007; Falk et al., 2002; Hoban, 2002). Such conflicting or inconsistent information increases uncertainty, which at the same time increases perceived risk and negatively affects their behavioral intentions (Stern et al., 1977). When customers feel they have more information and knowledge in a context, they are more inclined to take risks in that context (Heath and Tversky, 1991). It has also long been argued that increasing consumer knowledge is an important strategy to reduce perceived risk, because more information or experiences lead to learning, searching, and retrieving. information makes consumers perceive less risk (Roselius, 1971). Klerck and Sweeney (2007) found that consumer knowledge affects perceived risk, thereby predicting consumer purchase intention, the research results of Klerck and Sweeney (2007) also show that High consumer knowledge significantly reduces their perceived risk. Based on the above information, this study proposes the following first hypothesis:

H1: Consumer awareness of COVID-19 has a negative impact on perceived risk of online food ordering.

In an exchange relationship, each party has its own role and the ability to perform that role is considered to be their competence (Barber, 1983). In volatile markets, company's brands act as a signal to convey information about their capabilities (Erdem and Swait, 2004; Erdem et al., 2002). In consumption, the competence of a given brand is considered particularly important in relation to potential uncertainty and perceived risk (Honl et al., 2017). The perceived risk of customers comes from an imbalance in the capabilities of the enterprise, which is considered to be related to the weaknesses of the enterprise in terms of internal factors and certain external factors. outside (Veres, 2009). A high level of competence signals that the enterprise has managed to control crises, reduce feelings of dread and reduce the risk of fatal consequences (Leung and Cai, 2021). Perceived competence of enterprises is determined by the overall perception of service quality from past experiences (Twyman et al., 2008). Sako (1992) stated that belief in competence is a prerequisite for the survival of any repetitive transaction. Crisis is an opportunity to demonstrate the ability of businesses, the covid-19 pandemic is an occasion for businesses to show how capable they are (Mishra, 1996). Consumers who trust businesses that can provide expected services are more likely to perceive low risks (Erdem and Swait, 2004), similar to the findings of Salam et al (2003). When trust in the business increases, the customer's perceived risk decreases, so there will be more likely to perform the behavior of using the service. Likewise in the context of Covid-19, consumers perceive the risks associated with online food ordering as low or high depending on their perception of the capacity of distribution platforms in terms of as to how they meet their requirements, consumers perceive low risk as they appreciate the supplier's capabilities, so the second hypothesis is proposed as follows:

H2: Perceived business competence has a negative impact on perceived risk when ordering food online.

2.2 Prospect theory

According to the prospect theory of Kahneman and Tversky (1979), In a given context under certain conditions there will be a significant impact on risk taking. Accordingly, decision-makers in a context where conditions are favorable to obtain benefits will be risk averse, whereas in contexts that force decision makers to face risks they will tend to take risks. Although prospect theory does not directly address perceived risk, the most important thing influencing decision makers' perceived risk is whether their context is negative or positive (Sitkin et al. and Pablo, 1992). In addition, prospect theory addresses the role of beliefs, attitudes, and background in determining individual decision-making under conditions of uncertainty (Sitkin and Pablo, 1992). When Covid-19 is still a new issue, its potential risks are considered a challenge for decision makers. Therefore, decision-making regarding online food delivery during the pandemic is closely related to perceived risk.

According to Bauer (1960), the first person to speak about perceived risk argued that perceived risk is a multidimensional construct that implies that consumers feel uncertain before making a purchase and that the expected loss is from purchasing and using the product. According to Mitchell (1999), perceived risk is defined as the subjective expectation of loss. Perceived risk plays an important role in human behavior, particularly in relation to decision making under uncertainty (Cho and Lee, 2006). Extensive research on perceived risk indicates that customers' perceptions regarding risk are central to their purchasing behavior and evaluation (Laroche et al., 2004). Based on prospect theory Hwang and Choe (2020) placed customer perceived risk as a central role in understanding how consumers make decisions. Besides, in a situation with a certain amount of loss, customers with different behavioral and personality perceptions will have different psychological effects (Mao and Lyu, 2017). Cho and Lee (2006) also state that perceived risk is a subjective assessment and that for different individuals there will be different assessments. The higher the perceived risk, the lower the intention to continue using the accommodation service (Bae and Chang, 2020). Recently, a study by Peco-Torres et al (2021) has shown that there is a significant impact from individuals' perceived risk on consumer behavioral intentions during the Covid-19 pandemic. The study also found a similar effect that the higher the perceived risk, the lower the intention to continue to use the accommodation service. The perceived level of risk is even higher when products and services are directly related to food consumption (Taylor, 1974). Therefore, assessing the risks associated with ordering food online in the context of the Covid-19 pandemic outbreak in the fourth wave will have a significant influence on consumer decision-making, as well as because the following hypothesis is put forward:

H3: Perceived risk negatively affects purchase intention when ordering food delivery online.

A person who believes in their ability or ability to accomplish a task produces a positive outcome (Bandura, 1977a). In addition, there is a moderating effect of individuals who believe in their own ability to take that individual's perceived risk related to risk-taking intention (Wong and Yang, 2020). Different self-efficacy will lead to difference in the intention or subsequent behavior of each person (Bandura, 1977a). Gist (1987) also argues that the perception of self-efficacy varies between individuals and depending on the situation. Previous studies such as Cho and Lee (2006), Faqih (2013) have also used self-efficacy to explain the difference in risk propensity in different contexts and situations. The risk-taking actions emphasized by Heath and Tversky (1991) are more likely to occur in individuals who believe in higher personal competence. In clients with high self-efficacy in a given context, they are more confident in carrying out their intentions (McKee et al., 2006). In contrast, clients with low self-efficacy are often hesitant about whether to take on challenging goals that they are not confident in or believe in, and are therefore less likely to take action. (McKee et al., 2006). Similar to the results of Wang and Yang (2020) in people with high self-efficacy will show that their perceived risk will reduce their risk-taking intentions and actions. Referring to self-efficacy in this study is the ability of Vietnamese consumers to protect themselves against possible risks when ordering food online during the Covid-19 pandemic. Based on prospect theory and previous research papers, this study proposes the following hypothesis:

H4: Self-efficacy has a significant moderating effect on the relationship between perceived risk and purchase intention such that the effect of perceived risk on purchase intention is smaller for effective customers. high self-efficacy (compared to clients with lower self-efficacy).

Individual differences related to risk research should be applied to address the complexities within risk-taking and predicting decision-making related to improving risk (Bryant and Dunford, 2008), individual differences such as pre-studied risk-taking propensity to be included in the research model to explain variances in different contexts (e.g.Leung and Cai, 2021; Cho and Lee, 2006). Furthermore, consumers' risk propensity affects their ability to make more or less risky behavioral decisions in different contexts (Kühberger et al., 2002; Sitkin and Weingart, 1995). In the context of the Covid-19 pandemic, Cai and Leung (2020) found that the purchase intention of people who tend to avoid risks is often affected by thinking effects (having self-assessment, problem commenting, etc.). The above view is similar to that reported by Novokmet et al (2021) who found that in the context of Covid-19 people tend to take moderate risks (with moderation in risk-taking propensity) with an increase in risk aversion. Based on the information on this study, it is suggested that risk takers will be more confident in using online food ordering services, these individuals will exhibit lower perceived risk than purchase intention. In contrast, risk-avoiders have a higher perceived risk than purchase intention. The following hypothesis is suggested:

H5: Risk propensity has a significant moderating effect on the association between perceived risk and purchase intention, such that the effect of perceived risk on purchase intention is smaller for risk seekers. risk (compared to risk avoiders).

2.3 Pandemic severity

Prospect theory is a behavioral model that offers a comprehensive approach to adjust for contextual factors that reflect risk characteristics and the context in which risks are presented (Honl¨ et al., 2017; Sitkin and Pablo, 1992). Yes, it is also mentioned in Kahneman and Tversky's (1979) discussion of prospect theory that situational conditions have a significant main effect on risk taking. Based on prospect theory, the study by Leung and Cai (2021) assumes that the severity of the pandemic affects how consumers handle communication risks, perceived risks, and acceptance risks. The pandemic severity is measured by the rate of new cases in the community/population/time, vaccine coverage, and the ability to accept and treat at all levels according to Resolution 128/ NQ-CP dated 11/10/2021 (Government, 2021). At that time, four levels of the covid-19 pandemic were identified as follows: Level 1: Low risk (new normal); Level 2: Moderate risk; Level 3: High risk; Level 4: Very high risk. Recent research also shows that there is variation in the psychological impact of the pandemic across regions, and that the negative effects are stronger in severely affected areas than in less affected areas (Zheng et al., 2020). The covid-19 pandemic has been found to be associated with emotional discomfort and stress when contagion is high (Zheng et al., 2020). According to kim (2018) individuals who perceive a disease with high prevalence will have a psychological distance close and rare diseases will have such a psychological distance and such psychological distance between the individual and the disease Disability can lead to different subjective perceptions of risk. Different pandemic levels also have a psychological impact by changing the psychological distance of consumers and diseases similar to the above view (Zheng et al., 2020). Psychological distance is the subjective experience of something near or far from others such as people, events, time, possibilities (Liberman and Trope, 2014). Cai and Leung (2020) also show the opposite effects of thinking on customer purchase intention between severe pandemic area and mild pandemic area. To be relevant in Vietnam, the severity of the pandemic is divided into 4 levels and consumers are aware of the pandemic level of the area they live based on mass media, social networks and so on in areas where consumers perceive the risk of infection is very high, consumers perceive psychological distances very close, corresponding to each other level such as high, medium, low, there will be different psychological distances. The following hypothesis is proposed.

H6. Hypothetical relationships would vary among consumers living in areas with different levels of pandemic. Specifically,

H6a: Pandemic level has a moderating effect on the influence of knowledge on consumers' perceived risk.

H6b: Pandemic level has a moderating effect on the effect of firm capacity on consumer perceived risk.

H6c: Pandemic level has a moderating effect on the effect of perceived risk on consumer purchase intention.

H6d: Pandemic level has a moderating effect on the effect of self-efficacy on the relationship between perceived risk and purchase intention.

H6e: Pandemic level has a moderating effect on the effect of acceptance bias on the relationship between perceived risk and purchase intention

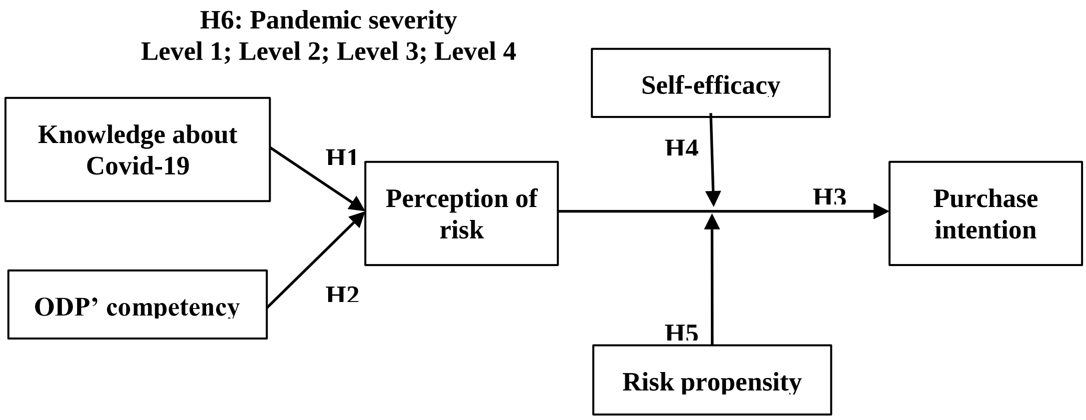


Figure 2.1 Proposed research model

3. METHODOLOGY

3.1 Reseach design

The target population is defined as those who have used and intend to use online food delivery orders during the Covid-19 season in Vietnam. The survey's questions are displayed on the "google form" software and distributed to potential respondents through discussion groups of food, students, office workers, etc. Qandme (2020b), 66% of people do not use online food delivery because they can prepare their own meals, and 63% of people using online food delivery services are under the age of 30, therefore the potential objects are considered limited in terms of time to cook their own meals. In total, 237 survey questionnaires were collected, the pandemic levels are assessed and published on the web side of Vietnam's Government. According to the information provided in Table 5.1, show that men (53.6%) and women (46.4%). By age, the group of 19 to 24 years old, accounting for 83.5%, the group of 25 to 34 years old, accounting for 14.3%, 35 to 44 years old (1.3%) and under 18 years old (0.8%). the majority of survey respondents have a university degree with 71.7% and College at 15.2%, upper secondary education with 10.1% and Master's degree (2, 1%), Middle School (0.8%). the respondents with a job are 57.4% and without a job is 42.6%. The income is approximately 38.4% of the participants have collected from 5 to 10 million VND per month. month, 34.2% have income from 3 to 5 million, 21.1% have income under 3 million, in high income group from 10 to 20 million account for 4.6% and from 20 million or more is 1, 7%.

Detailed analysis of the characteristics of using online food delivery, it can be concluded that the popularity of applications compared to 2020 has remained unchanged, with 183 (30.5%) respondents having used it. Using the GrabFood platform, 161 (26.8%) users used NowFood (ShopeeFood), 135 (22.5%) users Baemin, 73 (12.2%) GoFood users and 45 (7.5) users. %) Loship users, in addition, there are people who have used online food delivery by restaurants, cafeterias or other support services and platforms (Villship).

The respondents used the service a few days ago was 21.5% (51 people), last week accounted for the highest with 28.7% (68 people), the most recent use in the previous month was 15.6% (37 people), in the previous 6 months it was 20.3% (48 people), in the previous year it was 7.6% (18 people) and the usage for more than 1 year was 6, 3% (15 people).

Judging by the level of epidemic in the place where the respondents live, it can be seen that level 1 and level 2 account for the majority with the structure of 41.4% and 32.9% respectively, while the situation of level 3 pandemic accounts for the majority. 19% and level 4 is 6%.

3.2 Survey measurement

The author's scale is based on previous research by Leung and Cai (2021). Construct a structured questionnaire and through which quantitative research is carried out based on the customer survey approach. The survey questionnaire is divided into two parts, the first part is a qualitative study that includes information on the use of online food delivery platforms, epidemic level, demographics (living area, gender, etc.) gender, age, education level, employment status, income) and the second part is quantitative research, the research content includes customer knowledge, perception of business capabilities, risk perceived risk, self-efficacy, risk-taking propensity, and purchase intention. The questions are based on research, related references before and are translated into Vietnamese language, and adjusted sentences to be easy to understand but still stick to the original meaning of the questions.

4. DATA

Statistical analysis was run on SPSS 22 and Smart-Pls 3 software. The data was coded and ran detailed analysis such as descriptive statistics (Descriptive Statistics), reliability check of the scale, exploratory factor analysis on SPSS statistical software and then using the software.

Smart-Pls 3 software to evaluate the resulting measurement model, evaluate the structural model (SEM), analyze the multi-group structure (Multi-group Analysis - MGA).

5. RESULTS AND DISCUSSIONS

5.1 Results

5.1.1 Measurement (outer) model

The reliability and validity of all constructs were evaluated in the outer model using PLS-SEM. All factor loadings of the five constructs have minimum of 0.702 more than 0.5 (Hair et al., 2009). Based on Table 5.1, the reliability is 0.756 > 0.6 (Nunnally, 1978), the composite reliability is 0.856 > 0.7 (Bagozzi and Yi, 1988). This table also shows that the average variance extracted has a minimum value of 0.599 (Hair Jr. et al., 2017). The square root of AVE is larger than the correlation between latent variables (Hock and Ringle, 2010). In summary, construct validity and reliability of the measurement model were met.

Table 5.1.Reliability and Accuracy

	Reliability	**Composite Reliability**	**AVE**
Comp	0,840	0,892	0,674
Know	0,756	0,859	0,670
PI	0,848	0,908	0,767
PR	0,889	0,918	0,693
PR*PR	1,000	1,000	1,000
PR*SE	1,000	1,000	1,000
RP	0,778	0,856	0,599
SE	0,807	0,873	0,632

5.1.2 Structural (inner) model

The statistics show that the SRMR index is 0.066 < 0.08 (Hu and Bentler, 1998), so the proposed model is suitable for the observed model. the VIF indexes between latent variables are all less than 3, so the data does not violate the assumption of collinearity Hair et al. (2019). See Table 5.2 and Figure 5.1 for the normalized effect coefficients and the significance level of the effects, hypothesis testing based on this result recognizes hypothesis H1, H2, H3 (significance in the acceptable range) are statistically supported, H4 and H5 (with significance exceeding 5%) were rejected.

Table 5.1. Results of impact relationship analysis

	Original Sample (O)	Sample Mean (M)	Std. Deviation	T Statistic	P Values
Comp → PR	-0,178	-0,185	0,066	2,683	0,007
Know → PR	-0,200	-0,208	0,060	3,318	0,001
P → PI	-0,299	-0,301	0,062	4,802	0,000
PR*PR → PI	0,110	0,112	0,062	1,770	0,077
PR*SE → PI	0,038	0,036	0,066	0,576	0,565
RP → PI	0,234	0,239	0,064	3,675	0,000
SE → PI	0,231	0,231	0,060	3,868	0,000

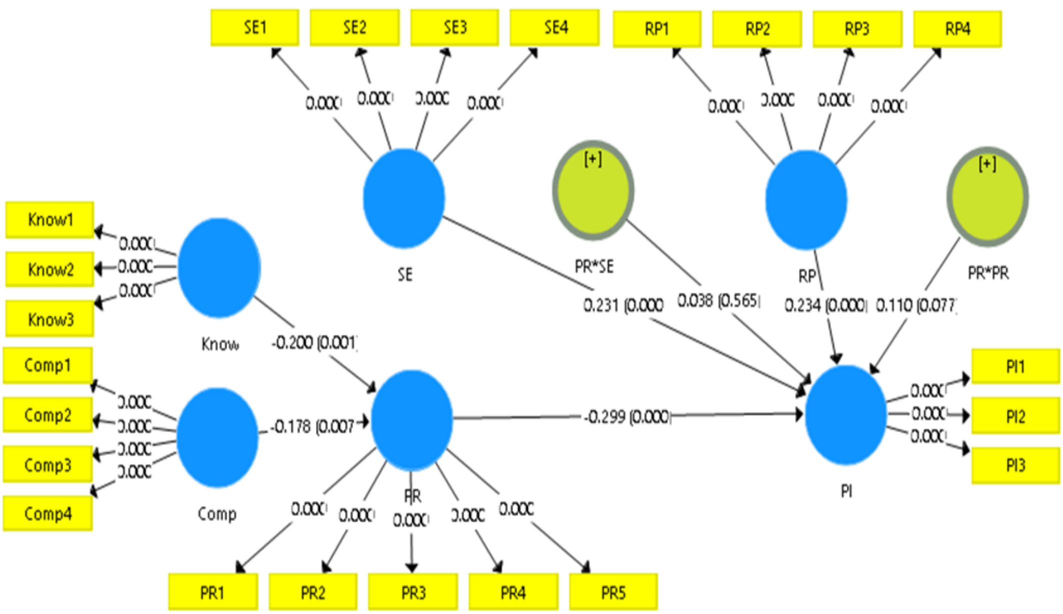


Figure 5.1 SEM structural model results

5.1.3 Multi-group structure analysis

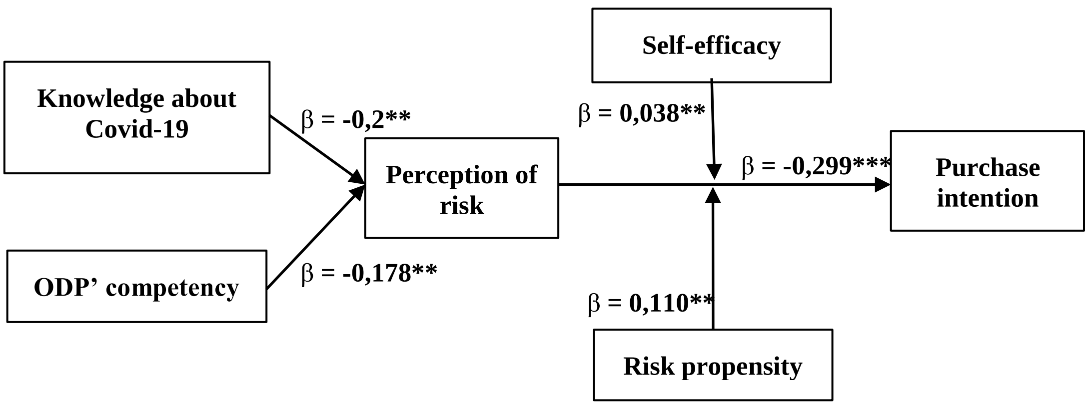
Table 5.3. Multigroup comparison test results

	Level 1 - Level 2 (PC-d; P)	Level 1 - Level 3 (PC-d; P)	Level 1 - Level 4 (PC-d; P)	Level 2 - Level 3 (PC-d; P)	Level 2 - Level 4 (PC-d; P)	Level 3 - Level 4 (PC-d; P)
Comp → PR	0,007; 0,961	0,054; 0,596	0,139; 0,492	0,047; 0,650	0,132; 0,510	0,085; 0,649
Know → PR	0,122; 0,381	0,167; 0,279	0,085; 0,716	0,045; 0,577	-0,037; 0,933	-0,082; 0,882
PR → PI	-0,234; 0,221	0,152; 0,281	0,105; 0,868	0,386; **0,043**	0,340; 0,714	-0,046; 0,714
PR*PR → PI	-0,060; 0,695	0,112; 0,471	0,334; 0,287	0,172; 0,321	0,394; 0,246	0,222; 0,435
PR*SE → PI	0,267; 0,132	0,070; 0,735	-0,027; 0,939	-0,197; 0,301	-0,294; 0,412	-0,097; 0,884
RP → PI	0,175; 0,370	-0,191; 0,259	0,028; 0,985	-0,366; 0,062	-0,147; 0,572	0,219; 0,513
SE → PI	-0,177; 0,258	-0,002; 0,988	-0,188; 0,490	0,175; 0,295	-0,011; 0,847	-0,187; 0,502

Note: Path Coefficients-diff (PC-d; difference between the normalized effect coefficients of the two comparison groups); P (P value)

The data results presented in Table 5.3 show that there is no significant difference between most of the translation levels and in most of the relationships in the research model, so hypothesis H6 is rejected.

5.2. Discussion



*Note: ***p < 0,001; **p < 0,01; *p <0,05; ^{ns}p ≥ 0,05.*

Figure 5.2. Path model of risk perception

Based on Table, this composite result shows that when Knowledge of Covid-19 increases by one standard deviation, the consumer's Perceived Risk decreases by 0.2 standard deviation units at the significance level. 0.001, this result is in contrast with the study of Leung and Cai (2021). Explaining this, Leung and Cai said that because the information about Covid-19 is inconsistent and overloaded, which makes consumers worried, in addition, objective knowledge exists a lot and contradicts each other in various ways. media, but verifying information is very difficult. However, the results of this study are similar and are supported by the study of Klerck and Sweeney (2007) and Alba and Hutchinson (1987), that consumer knowledge negatively affects perceived risk from that predicts their purchase intention. While consumer subjective knowledge is closely related to confidence in decision making, objective knowledge is core to decision making (Sharifpour et al., 2013), so consumers also want to have a better understanding of risk to balance negative emotions (Sturges, 1994). In other words, increasing a full and accurate understanding of Covid-19 information will help consumers not panic and be more confident in taking their actions. Less risk in using ODP.

Compared with Covid-19 Awareness, the Competence Perception of the online food delivery platform has a lower influence, when this factor increases one standard deviation unit will reduce 0.178 standard deviation units of Risk. Risk is perceived at the 0.007 significance level, which is supported by Leung and Cai (2021). According to a study in the field of e-commerce transactions by Salam et al. (2003) also found that increased trust in the organization will reduce the perceived risk of customers, the above results at the same time support the trustworthiness of customers. Reliability of this study. Moreover, the results of D’Alessandro et al. (2012) recognize that the higher the trust in the enterprise’s ability to ensure service and ensure safety, the lower the perceived risk will also be. Love the author’s research results. In particular, service assurance is commonly defined as a statement that an enterprise promises that customers can have high expectations for its products and services, and the company’s compensatory efforts if the commitment is not fulfilled. Ensuring safety shows how businesses can cope and minimize risks. Thus, in the context of Covid-19, online food delivery platforms known to consumers as a business responsible for public health or a low-risk form of delivery and receipt will be highly appreciated, which also leads to fears about the possibility of disease transmission in consumers being reduced. An ODP enterprise with loose disease prevention criteria, weak in the implementation of epidemic prevention measures during its operation, is generally poor in its ability to control risks from Covid-19 In the eyes of consumers or consumers not accurately assessing the capacity of the business will have a dominant effect, increasing the harmful risks that consumers perceive.

When perceived risk decreases, behavioral intention increases, this result is also determined at the 0% significance level. The perceived risk of consumers will reduce 0.299 standard deviations of Online Food Purchase Intent when this factor increases one standard deviation unit. In a context where risks are considered new such as insect foods in the study of Hwang and Choe (2020) or Baker et al (2016) both show that the risk that consumers perceive about food That increase will decrease their consumption intention, which agrees with the author’s results. In the context of the epidemic, the author’s results are also agreed with Leung and Cai (2021). This implies that when consumers perceive a high possibility of infection, they feel unhappy when they think about themselves being infected, and feel anxious when they have to come into contact with a delivery person who cannot determine if they have been infected or not. Or many other consequences stemming from Covid-19, from using ODP services during the epidemic season, which has led to their emotions and thinking becoming more and more negative and aversion, away from the implementation of actions using the ODP service.

Unlike the results of Leung and Cai (2021) which play a very small role in the relationship between perceived risk and the purchase intention of consumers' personal ability, on the other hand, this result is. Supported by research by Ray et al. (2019), that difference Ray et al. argues that since in this modern era people are losing their own faith to succeed, it can also be argued that Vietnamese consumers are worried about their ability to protect themselves against risks from ordering food during the epidemic season, which is very true with the actual situation when the spread of the disease is not controllable and Vietnam has chosen to live with the disease, conventional measures such as wearing masks, keeping distance, etc. are no longer 100% effective against new strains. Although Vietnam has covered vaccines nationwide, there are still high infections and mortality rates, which obviously affect consumers' perception of their ability to protect 153hemselves.

In this study, risk propensity has no regulatory role in the relationship between perceived risk and consumer purchase intention, this result is similar to the study of Leung and Cai (2021). The prospect theory view of Kahneman and Tversky (1979) holds that individuals avoid risk in the face of potential gain and seek risk in the face of potential loss, in search of certainty. People are naturally averse to loss, but there is some evidence that the propensity to take risks is also based on individual reference points of personal preference (Novemsky and Kahneman, 2005). Expected, potential returns become the reference point by which risk aversion will play out (Baye and Prince, 2013). However, Brockman et al. (2006) found that in the relationship between the degree of potential loss and perceived risk there is no moderating effect of propensity to accept risk. However, there is also agreement from the research of Kwon and Lee (2009), the moderating role of risk-taking tendency is not statistically significant on the relationship between the reference point of risk and the evaluation of financial products. Besides, to explain based on this research point of view, as mentioned earlier, risk trends have two positions, one is pure nature, the other is behavioral tendency to change based on context and individual review and evaluation. According to prospect theory, this study applies the second position, the risk bias is the behavioral tendency influenced by the context. But the problem this study encountered is that it is not possible to separate the two positions above. It can be understood that if individuals are in the first stance, whether their perception of risk is high or low, they still evaluate based on their personality, for people in the second position, the perceived risk They will be considered and evaluated to make appropriate behavioral decisions. Because it is not possible to separate individuals from different positions, thus leading to such results. Previous research by Kwon and Lee (2009), as well as Leung and Cai (2021) also shared the same view and suggested that more effort is needed to examine the regulatory role of risk bias.

Finally, the results of the multi-group analysis show that there is no difference in the path coefficients between pandemic levels, so there is no regulation of epidemic levels in this research model in Vietnam. Male. This result is different from that of Leung and Cai (2021) on the comparison between severe and mild pandemic levels and found that 3 out of 5 relationships have differences in those two groups of pandemic severity. Supporting this result is the study on the conflicting relationship between perceived risk and risky behavior by Mills et al. (2008), who found that respondents chose the absolute principle of "no risk" which is more risky" than the relative principle "less risk is better than more risk", respondents choosing the above absolute principle lead to negative correlation with behavioral intention to accept risk ro. Above all, it is proposed in prospect theory by Kahneman and Tversky (1979) that different contexts associated with different risk probabilities will lead to differences in consumer decisions, based on content. The above can be said that Vietnamese consumers assess the risk of using ODP services equally between disease levels. This finding is consistent with the general psychology of the potential target group in this study, currently there is a phenomenon of "no longer afraid of Covid-19", especially young people who have received enough doses of the vaccine, which makes the Protect yourself, your loved ones and the broken community. In addition to vaccines, human behavior awareness also plays an important role, but people are still subjective (TUOI TRE, 2022). Although Covid-19 still has its dangers, existing with it is the topic of "no longer afraid of Covid-19" and that is the biggest reason for the difference compared to the previous research by Leung and Cai. (2021), as well as the difference between Vietnamese and US consumers and consumers at the time of the outbreak with consumers familiar with the name Covid-19. So an investigation by the author continued to be carried out with the target audience of this study, 22 individuals were all asked "why you are no longer afraid of Covid-19". All 22 individuals share the same views on this question including: reliance on Vaccines; Covid-19 is no longer as dangerous as before; epidemics are not dangerous and harmful in adolescence; diseases become common; have had medication; experienced medical staff in the treatment of Covid-19. Thus, the findings of this study accurately reflect the psychological status of Vietnamese consumers. In addition, this result still likely comes from the reason that the perception of the risk level of the epidemic levels is not clear. This implies that Vietnamese consumers are still confused in determining the risks of possible levels, currently the Vietnamese State only promulgates a decentralization method, assesses the level of the epidemic and how activities, organization of activities and business for businesses and individuals. The level of the epidemic is determined and announced by the local authorities based on the criteria in the media, however, the level of risk associated with each level of epidemic has not been specified and clarified for people. When people know it, important information such as infection density in a given area, treatment response rate, mortality rate, etc., is not disseminated to the public, only when individuals actively learn about it. The way the translation level is classified is to understand the difference between those levels. Therefore, the information that most people know is only the name and title of the epidemic level. The exact information about the risk of the epidemic level has not been clearly reflected in the people's thinking, thus affecting the survey results.

6. CONCLUSIONS

6.1 Conclusion

This article is very meaningful for the food and beverage market in Vietnam, specifically the use of food delivery services through online distribution platforms, this study has identified the factors that impact on the consumer's decision-making process, this result also fulfills the stated research objectives. The consumer's perceived risk plays a central role and greatly affects the intention to use ODP services, the more consumers perceive a higher level of loss in using ODP, the higher the intention to use ODP services. purchase action will be lower, so it is necessary to give consumers a less sense of risk, to accomplish this goal, this study has also presented two main factors that play an important role in achieving this goal. Factors such as disease awareness and awareness of the capabilities of online food delivery platforms are key to reducing the perceived risk to consumers. In terms of knowledge, consumers feel less loss and more confident in their actions when they are well aware of Covid-19 information. Likewise, when consumers perceive the ability of food delivery platforms to fulfill tasks or ensure food delivery safety as high, their perceived risk is reduced. Go. However, this study identified no moderating role of perception of self-protection capacity and self-risk-taking tendency in the relationship between perceived risk and purchase intention. and no pandemic-level effect on consumer decision-making. Through the above conclusions, this study has understood how consumers react to the pandemic in using ODP, thereby proposing reasonable solutions to help managers run their business effectively in new conditions.

6.2 Management Implications

Improving consumer understanding about Covid-19

The results show that consumers' knowledge about the disease is high (mean Knowledge of Covid-19 = 4.11/5). However, from the point of view of managers, it is necessary to emphasize more on the role of the State Government of Vietnam in strengthening education and disseminating information about Covid-19, especially in the mass media. Then, the information provided must give consumers a comprehensive view. But to ensure that the information is not misleading in the media, the Government and related parties need to take timely measures and sanctions against the acts. Not only the Government, but also restaurant and hotel businesses, especially ODP enterprises, also share this responsibility. Currently, there are not too many barriers to communicating information, businesses can completely update their information. update, disseminate information about Covid-19 flexibly and creatively on communication platforms. In addition, ODP businesses also need to provide their employees with knowledge of the risks that customers may face and how they can reduce them, this helps employees and customers to cooperate to minimize risk more effectively.

Strengthening communication about ODP's capacity to fulfill tasks

First, in order for consumers to know their capacity, businesses must have an organizational plan to demonstrate that capacity. Therefore, organizations and individuals need to have detailed plans and plans on transportation activities from one locality to another, from areas with a severe pandemic to a mild region, and must commit to implementing the plan. Currently ensuring safety against Covid-19 epidemic for food goods and employees. In addition, businesses also need to discuss with relevant parties to promote the correct implementation of epidemic prevention regulations. Businesses need to demonstrate their ability to control risk through out media. The organizational direction in this example helps the customer visualize how secure the service is in mind, in other words increases the service's tangibles and the service's security as well as the controllability of the service. corporate risk control, thereby reducing the perceived risk of customers (Laroche et al., 2003). To ensure the effectiveness of this strategy, at the same time, attention must be paid to brand reputation and customer satisfaction. Reputation can be increased by ensuring the clarity of the brand's message (Erdem and Swait, 1998) and the communication does not deviate from the actual capacity of the firm to respond. In Vietnam, Baemin is considered as a brand that does well in keeping customer satisfaction, it can be said that Baemin retains the trust of customers. Customers trust in the business, trust in the ability to implement the statements of the business, the level of risk perception of customers will decrease (Salam et al., 2003). Building customer satisfaction not only increases brand reputation but is also key in effective word-of-mouth marketing and customer retention (Sweeney and Swait, 2008). In summary, in order to effectively reduce the perceived risks of consumers and help consumers make informed decisions, businesses need to ensure three factors: organize safe operating procedures during the epidemic season; communication about the risk management capacity of the enterprise; building trust, reputation and consumer satisfaction.

6.3 Limitations and directions for future research

Although this study has significant contributions, there are still limitations in this paper. Firstly, because the sample was collected in a convenient way, so the sample is only representative of the southern part of Vietnam, a more comprehensive study is needed in Vietnam. Second, the number of samples between the translation levels is too large to be compared fairly, so it is necessary to balance the number of subject groups between the translation levels in future research. Finally, the study only used a few factors in a stereotypical way, so it is necessary to add many other individual factors that have the potential to affect consumers' perceived risk such as brand reputation (reliability and perceived risk). trust and expertise), familiarity, experience, social impact, etc. to improve the model and further explain the variances

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THE IMPACT OF FASHION INFLUENCERS ON CUSTOMERS'S PURCHASE INTENTION IN VIETNAM

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ABSTRACT

Today, the 4.0 Revolution brings the Internet with super-fast speed and coverage everywhere. Businesses look for influencers as an essential factor influencing and stimulating consumer purchase intentions. The purpose of this study is to examine the impact of attitudes towards fashion influencers on consumer intentions. We utilize SPSS and SmartPLS to explore that relationship by using a unique sample including 350 Vietnamese customers. The study indicated that several dimensions of customer attitudes, perception of trustworthiness, subjective standards, perception of expertise, and homogeneity have the positive impact on consumers' attitudes toward influencers, leading to a positive impact on brand attitudes and purchase intentions. In addition, this study also showed that affiliate marketing moderates the positive relationship between attitude toward influencer and purchase intention that this form of marketing increases purchase intention. In terms of practical implications, marketers can clearly understand the factors that reflect customer psychology, thereby helping them make informed decisions in choosing suitable influencers and other forms of influence. accompanying marketing methods to influence the intentions of current and potential customers.

Keywords: fashion influencers; social media; purchase intention; influencer marketing, affiliate marketing, brand attitude

JEL Classification: M1, L83

1. INTRODUCTION

Statista Research Department (2022) shows that the two most popular social networking sites are Facebook and Youtube, which each have 2.91 billion and 2.56 billion users respectively. Technological developments make social media known as a platform that provides unlimited access to time, space, and a tremendous amount of information from over the globe that is becoming a part of the daily routine life of users (Pentina et al., 2018). This practice has allowed brands to communicate with customers easier. Additionally, the rise in social media followers has prompted the usage of influencers as a form of marketing in recent years. According to Freberg et al. (2018), influencers are people who regularly share their emotions, opinions, activities, and recommendations based on their experiences and knowledge. ODM (2020) shows an exciting report that 74% of users rely on social networks and consult influencers to guide and help them make purchase decisions. Influencers are used in many industries. Fashion is one of the industries where influencer marketing has been widely used in marketing strategies.

Besides using influencers, affiliate marketing is also being strongly combined with influencers in marketing strategies in fashion. Accordingly, when making a purchase, customers visit the link or affiliate website and make a purchase, instead of buying directly at the brand's store or website. Since then, not only will the customer receive an account refund when purchasing through the affiliate link, but the affiliate provider will also receive a commission (Vana et al., 2017). Vana et al (2017) also said that affiliate marketing is very diverse, including discounts, voucher codes, cashback, and other forms.

Vietnam is a country with an emerging economy. Fashion is currently one of the fastest-growing industries in this country. Unlike previous generations, Millennials who were born between 1980 and 2000 GenY (DMS, 2019) are the generation with frequent access to social networks and a great interest in fashion. To target these young, potential customers, businesses have focused on new marketing strategies such as influencer and affiliate marketing in recent years. Although it has only penetrated Vietnam for a few years, affiliate marketing is also gradually becoming explosive in this market, bringing great profits to businesses and attracting the participation of many brands.

Because it is a new issue, there is a lack of research in this field, especially in the context of emerging economies nations. This is the motivation to research. First, we determine what factors influence consumer attitudes toward influencers. Then, analyze the relationship of attitude towards the influence of brand attitude and purchase intention under the regulatory influence of affiliate marketing. To do this, we build the model by combining the original model of Youssef et al. (2019), Ajzen's (1991) theory of planned behavior (TPB), and the Technology Acceptance Model (Davis, 1986) to answer the question. Answer the questions:

RQ1. Which factors affect consumers' attitudes toward fashion influencers?

RQ2. Does attitude towards influencers positively affect purchase intention through brand attitude?

RQ3. What is the role of affiliate marketing in the relationship between brand attitudes and purchase intention?

2. LITERATURE REVIEW

2.1. Theory of planned behavior

Developed by Ajzen (2011), TPB is an extension of the rational action theory (Ajzen and Fishbein, 1980). It was one of the first influential theories to use individual beliefs to predict human behavior (Hegner et al., 2017). According to TPB, attitudes, subjective norms, and behavioral controls influence an individual's intention to perform a particular behavior. The intention is an essential construct in theory as a mediating variable between consumer motivation and individual behavior. According to TPB, it is a direct function of attitudes, subjective norms, and control over behavior (Ajzen, 2011).

Subjective norms reflect an individual's perception of general social pressures. If an individual perceives that others approve (or disapprove) of behavior, they are more likely (or less likely) to intend to exhibit that behavior. Behavioral control factors refer to the perceived influence of a specific variable to facilitate or prevent a particular behavior. Comparatively, Ajzen (2011) posits that emotions are the result of beliefs and influence intentions and behavior. In this study, TPB’s subjective norms and perceived behavior control are included in the model to consider the factors affecting the attitude towards influencers.

2.2. Brand attitude affecting purchase intention

According to Korler (1997), a brand is a name, symbol, sign, etc, combined to specify the services, the goods, or a company. For many years, this has been a part of the marketing landscape. The research of Foroudi (2018) shows that a company brand's signature has an impact on the reviewer's attitude towards the brand. Brand attitude will tell what people think about a product or service, whether the product meets the needs of the consumer, and to what extent the consumer wants the product. In the context of this study, attitude toward influencers is the main factor affecting brand attitude because of the messages, and content that influencers showed customers.

Purchase intention is the possibility that customers will intend or be willing to acquire a specific product or service in the future is measured by purchase intention (Wu, Yeh, & Hsiao, 2011). According to previous research, a rise in purchase intention corresponds to an increase in the likelihood of making a purchase. Favorable brand engagement will encourage customers to make a purchase if they have a positive buy intention. The TPB suggests that an increase in intention reflects an increase in the chance of executing the behavior. In the context of influencer marketing, prior literature suggests that consumers' attitudes toward a specific brand directly impact their purchasing intention (Pradhana et al., 2016).

2.3. Factors affecting customers's attitude towards influencers

Perceived credibility

The term perceived credibility refers to a person's plausibility (McCroskey, 1998), conceptualized as a set of truth, genuine and impartiality (Hass, 1981). Accordingly, customers seek advice and consultation from influencers when they are confused or unsure about shopping options, which has established perceived credibility. Previous research suggests that celebrity-endorsed more believability produces deeper attitude change than the less one (Lotte, Peter, & Fred, 2012). Nevertheless, there is still a lot of discussion concerning the exact scale of the Electronic-Worth of mouth (E-WOM) structure, believability (credibility) is frequently constituted by two fundamental components: trustworthiness and a highly competent endorser (Lee & Koo, 2012).

Perceived credibility has a strong relationship between consumer attitudes and influencers. As a result, an influencer who is recognized as trustworthy will have more opportunities to influence followers' attitudes, choices, and purchase intentions *(Youssef et al., 2019).* Besides, because influencers was considered as a valuable source of knowledge, followers enhance their attitudes toward it (Daniel et al., 2020)

H1. Perceived credibility is positively associated with the consumers' attitude toward the influencer.

Trust

Trust is defined in our study as trustworthy subjective opinions and honesty in influencer reviews. Followers' trust is explained as the extent of belief intended for celebrities about their actions and the messages they convey (*Youssef et al., 2019).* Trust is vital in online marketing since it promotes the desire to purchase customers (Kassegn and Sahil Raj, 2020).

According to previous research, there are three primary factors that define trust: the degree of trust in a fashion influencer (Jabr and Zheng, 2017), the positive relationship between trust and attitude (Macintosh and Lockshin, 1997; Ohanian, 1990; Suh and Han, 2002), and eventually the popularity of the celebrity (*Kim* et al., 2018).

Based upon the preceding ascertainment, trustworthiness in social media influencers is considered as a mediation between the influential person's power and consumer attitudes (Lubna et al., 2021). Miller and Baseheart (1969) analyzed many previous cases of fear-inducing conversations to have an objective view of the effect of source trustworthiness on the convince. The result showed that if the speaker was thought to be trustworthy, their opinion was significantly effective in impacting attitude adjustment. Furthermore, when influencer recommendations are able to express trustworthiness and usefulness, it is implemented to improve customer attitudes and purchase inclinations (Jaywant et al., 2020). As a result, an influencer who is regarded as a highly trustworthy individual has a greater possibility of influencing the attitudes, preferences, and purchasing intentions of his or her followers (*Youssef et al., 2019).*

H2. Trust is positively associated with the consumers' attitude toward the influencer.

Perceived expertise

Expertise reflects influencers' experience and intensive knowledge in a certain field they are interested in *(Langner and Eisend, 2011).* Consumers have more opportunities to take information and recommendations suggested by influencers perceived as professionals in that field (Yadav et al., 2013). An expert is typically seen as a highly qualified somebody likely to make fair and accurate decisions.

There are two factors that build the perception of expertise: accuracy and credibility. According to numerous prior studies, expert influencers can have a considerable impact on consumer perceptions of a particular business (Hayes and Carr, 2015; Bergkvist et al., 2016). Customers' trust in influencers will grow as a result of their competence, influencing their attitude toward the influencer and purchase intention (Smith et al., 2005). According to Ohanian (1991), one of the most closely connected factors intending to acquire the endorsed product was perceived expertise.

H3: Perceived expertise of influencers is positively related to consumers' attitudes towards influencers.

Perceived congruence

Perceived congruence is defined as the degree to which motivations correspond to each other (Garretson & Niedrich, 2004). According to Hosany and Martin (2012), the synchronicity of motivation can facilitate impression creation and have an emotional impact on consumer response. Increasing influencers' similarity to potential customers can lead to higher purchase intention and better attitudes towards influencers (Youssef et al., 2019).

In addition, the perceived congruence here is built from three factors: personality traits, lifestyle, and interests. Previous research suggests that consumers are more likely to follow fashion influencers if they have similarities with consumers from the above three factors (Xu (Rinka) & Pratt, 2018). Therefore, Choi and Rifon (2012) also believed that a higher degree of similarity between influencers and potential customers reflects positive attitudes towards fashion influencers and leads to increased purchase intention.

H4: Perceived congruence towards fashion influencers is positively related to consumers' attitudes towards influencers.

Attitude toward the influencers

Talkwalker (2018) also showed that influencers might create fresh ideas, thoughts, or material that attract the attention of social media users regularly. The author believes that their message will reach a vast number of individuals because of their huge following. Therefore, they often have a strong persuasive power to consumers.

Factors affecting attitudes towards influencers: perceived credibility, trust, perceived ability to control behavior, subjective standards, expertise, and similarity (Youssef et al., 2019). Consumers' positive attitudes towards fashion influencers have a great influence on brand attitudes and consumer purchase intentions. The more influential people are, the more people follow and trust the products and services they recommend.

H5: Consumer’s attitude toward influencers is positively related to brand attitude.

Brand attitudes

Brand attitudes are positive or negative feelings and opinions towards a product. In addition, brand attitude is also a concept used in the case of assessing consumers' attitudes toward brands that are new in the market or theoretically familiar (Freberg et al., 2011).

Consumer attitude towards influencers is a key factor in building brand attitudes towards users. In addition, factors such as perceived credibility, trust, perceived ability to control behavior, subjective standards, expertise, and similarity are also considered indirect factors that directly influence brand attitudes toward users (Youssef et al., 2019). A good brand attitude has a positive effect on consumer purchase intention. When consumers are aware of a brand and have a high level of sympathy for it, consumers will consider more about that brand's products in their purchase intentions.

H6: Consumer's attitudes toward fashion influencers are positively related to purchase intention.

Purchase intention

According to Hosein (2012), companies have understood the value of purchasing intentions that it helps increase product and service sales and maximize profitability. In the context of influencer marketing, previous literature shows that consumers' attitudes towards brands directly influence their purchase intention (Pradhana et al., 2016). Measurements such as brand attitude, brand image, quality, brand knowledge, attributes, and brand loyalty have all been revealed to have a strong influence on purchase intention in previous research (Tariq et al., 2013). A positive attitude towards a brand not only leads to a continued preference for those brands but also has a positive effect on purchase intention (Youssef et al., 2019).

H7: Brand attitude is positively related to purchase intention

2.4. Moderating effect of affiliate marketing

For affiliate marketers who are influencers with whom the brand works, the brand often offers promotional codes to increase customer attraction. Moreover, Vana et al., (2017) identified rebate offers that affect customers, showing that financial rewards make customers spend money to buy products. Websites that promote your business and are referred to as "affiliates" earn commissions based on the cost per acquisition. These websites may offer content, cashback, coupons, and loyalty programs. In this study, the cashback component was our main focus.

Brand-celebrity matching attests to it enhancing the likelihood of that celebrity's influence on customers, while also having a beneficial impact on brand attitudes (Till and Busler 2000). This is because celebrities can convey the right brand image to consumers. In actuality, a large number of customers use affiliate platforms because they may feel a connection with the author or because they are perceived as more trustworthy (Lediard, M., 2017). Additionally, affiliate marketing will enable the business to attract new clients who are motivated by the affiliate that is endorsed by a well-known celebrity and has a sizable following in the brand's target market (Heathcote 2013). According to the study by Lediard, M. (2017), celebrity-endorsed affiliate programs like cash back do not diminish the prestige of the brand; rather, these programs boost credibility and have a favorable impact on the consumer's perception of the brand.

Brand attitude is one of the aspects in which purchase intention is determined (Chetna kudeshia Amresh Kumar, 2017). Additionally, brand attitudes, which are formed based on advertising through promotional activities, are considered to have a positive impact on purchase intention. According to Whitby (2015), affiliate marketing is now a viable strategy to establish brand attitudes in the fashion sector. Therefore, the way influencers recommend or disapprove using of an affiliate program to the buying an item is regarded as a component affecting the Purchase Intention (J.M.M. Christino et al., 2019). The research of Lediard, M. (2017) shows that if a customer sees something of interest about a brand, for example, a celebrity product review or special offer (cashback) by the brand convinces them to buy a particular product from that brand. They also tend to be or click on endorser affiliate links to see other products.

Through the conclusion of two theories, the Theory of Reasonable Action (TRA) (Fishbein & Ajzen, 1975) and the Theory of Planned Behavior (TPB) (Ajzen, 1985) demonstrate how consumer views have a direct impact on their behavioral intentions, which in turn have an impact on their purchase intention (L.-C. Lu et al., 2014). Moreover, influencers' ability to connect their suggestions to the places where customers can be purchased, they become taken on the role of being highlighted as a major trend in affiliate marketing (Lediard, M. 2017). Through the perceived advantages of affiliate marketing, an overall mindset is created that affects the attitude and purchasing behavior of online shoppers (Ghosal et al., 2020).

Based on the above discussion, this study hypothesized that:

H8. Affiliate marketing moderates the relationship between Attitude toward the influencers and Brand attitudes

H9. Affiliate marketing moderates the relationship between Brand attitudes and Purchase Intention.

H10. Affiliate marketing moderates the relationship between Attitude toward the influencers and Purchase Intention.

Proposed research model

Considering the research model of Youssef et al. (2019), the research team found that the elements in the model are completely suitable for Vietnamese customers in the fashion field. Therefore, we inherit the entire model in the research paper. In addition, the increasingly strong e-commerce and social networking environment. In which, the form of affiliate marketing of influencers is increasingly exploding, the team decided to add the affiliate marketing variable to the moderate model. Specifically, affiliate marketing moderates the positive relationship between attitude toward influencer and purchase intention that affiliate marketing increases purchase intention.

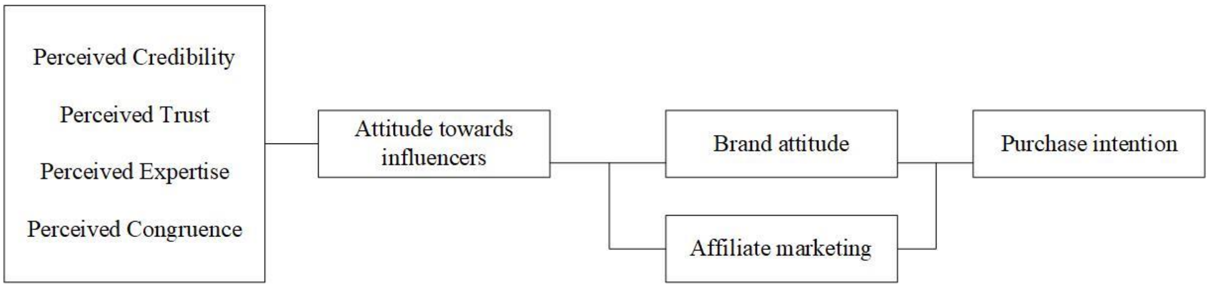

Figure 2.1 Proposed research model

3. RESEARCH METHODOLOGY

3.1. Research process

The research process is divided into three main phases as follows:

Phase 1: Conduct research to identify models, factors, and measurement variables appropriate to the Vietnamese context in Vietnam.

Step 1: Consult, consider and decide on research objectives: Read and research previous articles to find out the appropriate topic objectives in the Vietnamese market. Find more about the research and exploration gaps that underlie the paper.

Step 2: Conduct a search and study the relevant theoretical bases in previous studies and correct them to suit the topic: Research and identify questions, hypotheses, and research methods.

Step 3: Develop a research outline and plan: Outline the main content of the research paper, then send it to experts for review and comment. Develop research progress with specific timelines so you can project and track project progress.

Step 4: Build a sampling process: Build a draft scale based on previous studies, then contact two experts and 10 respondents to submit the questionnaire and adjust the questionnaire to suit the Vietnamese context.

Phase 2: Collect, process, and analyze data.

Step 1: Perform Pretest to check the suitability of the scale: Take the first 50 samples and perform pretest. Review and revise the questionnaire again to fit the Vietnamese context

Step 2: Collect and process data: Encrypt and clean to remove corrupted data.

Phase 3: Analyze data and report the research results

Step 1: Conduct descriptive statistical analysis: Perform tests and models, the process by software (quantitative data) and not by software (qualitative data)

Step 2: Assess the fit: Assess the fit of the measurement model through issues such as Outer Loadings, Cronbach's Alpha, Composite Reliability, AVE,…and of the structural model such as P-Values, R Square, VIF,…

Step 3: Write a report on research results: Present the content corresponding to the previous research outline, and complete the research paper.

3.2. Research scale

The scale of the study includes 10 constructs. The scale includes 26 items referenced from previous studies:

Firstly, Perceived credibility includes 4 items as suggested by Liu et al. (2012); Martins et al. (2017); Yang et al. (two thousand and thirteen). Secondly, Trust includes 3 items referenced from Lu et al. (2014); Ohanian (1990). Next, Perceived behavioral control (PBC) includes 2 items referenced from Ajzen (2011); Fishbein and Ajzen (2010). Then, Subjective norms (SUBN) includes 1 item refer to Ajzen (2011). Next, Perceived expertise (EXP) including 3 items refer to Bergkvist et al. (2016); Ohanian (1990). Besides, Perceived congruence (CONG) includes 3 items referenced from Xu (Rinka); Pratt (2018), and Attitude towards influencers (ATTIN) includes 4 items which are referenced from Ajzen (2011); Casalo et al., (2018). Next, Brand attitude (ATTBR) including 1 item is referenced from Ajzen (2011); Bergkvist et al., (2016). Following, Purchase intention (PI) includes 3 items referenced from Ajzen (2011); Hsu and Lin (2015); Kumar et al., (2009); Martins et al., (2017). Finally, Affiliate marketing (AFM) includes 3 items from Ajzen (2011); Hsu and Lin (2015); Kumar et al., (2009); Martins et al., (2017).

Table 3.1: Official scale

Variable	Description of Variable	Reference
	Perceived credibility (CRED)	
CRED1	I believe that the fashion influencers I follow are persuasive.	Liu et al. (2012); Martins et al. (2017); Yang et al. (2013
CRED2	I believe that the fashion influencers I follow are trustworthy.	
CRED3	I believe that advertisement by fashion influencers is a useful source of product recommendations.	
CRED4	I feel it valuable to purchase products/services represented by fashion influencers I follow.	
	Trust (TR)	
TR 1	I believe I can make purchasing decisions based on the fashion influencers I follow.	Lu et al. (2014); Ohanian (1990)
TR 2	I believe that the fashion influencers I follow are honesty	
TR 3	I believe that the fashion influencers I follow use the things they recommend.	
	Perceived expertise (EXP)	
EXP1	I'm following fashion influencers who are specialists in their profession.	Bergkvist et al. (2016); Ohanian (1990
EXP2	The fashion influencers I follow are really knowledgeable.	
EXP3	The fashion influencers I follow make recommendations found on their expertise.	
	Perceived congruence (CONG)	
CONG1	How do you feel about the similarity between you and your favorite fashion influencers?	Xu (Rinka) and Pratt (2018)

CONG2	How do you see the level of suitability between your personality and your favorite fashion influencers?	
CONG3	How do you rate the relevance of your favorite fashion influencers' publications to your personal beliefs and lifestyle?	
	Attitude towards influencers (ATTIN)	
ATTIN1	I believe fashion influencers act as fashion models for me	Ajzen (2011); Casalo et al., (2018)
ATTIN2	I believe fashion influencers produce interesting content	
ATTIN3	I believe fashion influencers offer new deals on different products and services	
ATTIN4	I consider fashion influencers as a trusted source of information and discovery	
	Brand attitude (ATTBR)	
ATTBR1	I trust brands promoted by fashion influencers I follow	Ajzen (2011); Bergkvist et al., (2016)
	Purchase intention (PI)	
PIN1	I generally intend to purchase products promoted by fashion influencers I follow	Ajzen (2011); Hsu and Lin (2015); Kumar et al., (2009); Martins et al., (2017)
PIN2	I general give recommendations of products and/or services promoted by fashion influencers I follow	
	Affiliate marketing (AFM)	
AM1	The fashion influencers you follow encourage you to use cashback programs.	(Christino et al., 2019)
AM2	People who are related to you think that you should use cashback programs	
AM3	The fashion influencers you follow wish (recommend) you to use cashback programs	

To conduct this research, we based on 350 survey samples collected from Google Forms. Survey questions are built on a 5-point Likert scale. In this survey, we focused on the Gen Z (Gen Z generation is a term used to refer to people born between the 1997s and the early 2012s). These are the people who grew up with social media such as forums, blogs, Facebook, ... Therefore, choosing a sample from a group of people belonging to the Gen Z generation will help us expand more survey subjects and collect data with higher accuracy to meet research needs.

3.3. Research sample

Phase 1: Preliminary sampling

After completing the preliminary scale, the research team carried out preliminary sampling through an online survey by sending the link of the survey to two experts and 10 respondents to collect 50 preliminary samples.

Phase 2: Formal Sampling

After conducting preliminary sampling and preliminary data analysis, we re-calibrated the survey according to the feedback of experts and respondents. After that, send the official survey through an online survey by sending the link of the survey on social networking sites. In addition, data is also collected through relationships such as relatives, friends. friends, teachers, and many other sources.

The survey is divided into 3 parts. The first part is filter questions to correctly identify the research object, the second part records the respondents' responses to each observed variable and the last part records the demographic information of the respondents.

Over four weeks, we collected 420 samples. The total number of observations remaining after filtering was 350. The survey sample uses filter questions to make sure the survey participants are the audience target of the study. By using the Sort&Filter tool in Excel software, we remove samples with “No” answers to the question “Are you interested in fashion influencers?” and using the one “Name the fashion influencers you follow” to make sure the right audience. After removing samples from the non-audience target, we check each sample directly, discarding those with only a single, non-quality rating, and keeping the quality samples.

3.4. Quantitative Research:

3.4.1. Evaluation of the measurement model:

- ***Reliability***

First, the measurement model is evaluated through three values: reliability value, convergence value, and discriminant value. According to Hair et al. (2009), the reliability of the scale is evaluated based on the following values:

The higher the Factor Loading coefficient of the observed variable, the greater the correlation between the observed variable and the factors and vice versa. The observable variable is good statistical significance when Factor Loading is greater than or equal to 0.7

In testing the reliability of the Cronbach's Alpha scale, to check whether the observed variable is suitable or not suitable for inclusion in the scale, the Cronbach's Alpha coefficient allows evaluating the degree of concordance between the observed variables in the same factor. The factors are acceptable when the value of Cronbach's Alpha is greater than 0.7.

Due to the limitations of Cronbach's Alpha on the number of observed variables in the scale and the tendency to underestimate, we use the Composite Reliability (CR) scale. The reliability of this scale is good and acceptable when the value of CR is greater than 0.7.

- ***Authenticity***

The value of Average Variance Extracted (AVE) must be greater than 0.5 to present the convergent value of the factors.

According to the Fornell-Larcker criterion, compare the square root of the extracted variance AVE with the correlation coefficient of the two latent variables. Specifically, the square root of the AVE of a factor must be greater than the maximum correlation coefficient of that factor and other factors for the results to be statistically valid. (Hair et al., 2011).

VIF (Variance inflation factor) must be less than 3 (low-order model) to ensure reliability and validity.

3.4.2. Model and hypothesis testing:

After evaluating the measurement model's reliability and validity, we utilize the

Bootstrapping test technique with 5000 sampling times to assess the agreement of the structural model with the supplied hypotheses. According to Hair et al. (2009), when assessing the relevance of the model to the research context, we consider the following indicators:

R – square R^2 indicate that the dependent variables in the structural model can be described as significant, moderate or weak, according to Hair et al. (2011).

4. RESULTS AND DISCUSSIONS

4.1. Demographic analysis

After running descriptive statistics on SPSS 26.0 software, the obtained results in Table 4.1 shows that 79.4% of respondents are female and 20.6% of respondents are male. Because the survey subjects are people interested in fashion, they approach women more, leading to a gender disparity between men and women. The percentage of respondents between the ages of 18 and 25 is the highest, accounting for 90%, suitable for the survey subjects who are Gen Z and millennials. Regarding occupation, the majority of respondents surveyed are students with 49.1%. In addition, some respondents have other occupations such as freelancers or office workers, accounting for the relative proportion of 12.3% to 21.1%. Therefore, the income is also hierarchical as most of the respondents have an income of 2 - 5 million VND/month (41.7%), 33.7% of the respondents are under 2 million VND/month and 20% of the respondents have an income of 5 - 10 million VND/month. In general, with this income level, respondents can afford to make decisions to buy fashion products.

Table 4.2 Research samples characteristics

Characteristics (n=350)		**Quantity**	**Ratio (%)**
Gender	Male	72	20.6
	Female	278	79.4
Age	From 18 to 25 years old	315	90.0
	From 26 to 30 years old	33	9.4
	From 31 to 40 years old	2	0.6
Job	Student	172	49.1
	People looking for jobs	16	4.6
	People working at government agencies	45	12.9
	People working at companies	120	21.1
	Freelancers	40	12.3
Income	Under 2 million VND/month	118	33.7
	From 2 to 5 million VND/month	146	41.7
	From 5 to 10 million VND/month	70	20.0
	From 10 to 15 million VND/month	11	3.1
	Over 20 Trên 20 million VND/month	5	1.4

Source: Calculating from survey data

4.2. Measurement estimation

The reliability and validty of the measurements has been checked by SmartPLS 3.0 and the results are as follows:

4.2.1. Reliability and validity

- ***Outer loading***

In order to serve the next analysis of the article as well as ensure the accuracy in the analysis process, the research data should be tested for reliability. To check the appropriateness of the factors in the research model, we checked the index of outer loadings. According to Joe et al. (2011), Outer loadings are recommended to ideally be at the threshold of 0.7 or higher, between 0.4 and 0.7 should consider removing to increase the overall reliability (Joe et al., 2011). et al., 2011)

Our results suggest that most of all items have loadings above 0.7. However, the TR3 item has a load factor of 0.665 < 0.7. But this item plays an important role in the research model and the value of outer loadings is still at an acceptable level, so we keep this item for further analysis.

- ***Construct Reliability and Validity***

In addition, the Cronbach's Alpha value ranges from 0.571 to 1,000. The composite confidence (CR) ranged from 0.777 to 1,000. Along with that, the coefficient of variance extracted (AVE) fluctuates as low as 0.551 to as high as 1,000. In which, the value of Cronbach's Alpha has some values less than 0.7. However, all constructs have the combined confidence CR greater than 0.7, meaning that the degree of concordance between items in the same variable is still satisfactory. It shows that all elements satisfy the requirements of reliability as well authenticity as suggested by Hair et al (2011). In summary, the above results show that the use of the item for this model is completely appropriate.

Table 4.2 Measurement reliability and validity

Constructs	**Items**	**Factor Loading**	**VIF**	**Cronbach's Alpha**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**
Affiliate marketing	AM1	0.727	1.155	0.571	0.777	0.537
	AM2	0.713	1.177			
	AM3	0.759	1.176			
Attitude towards influencers	ATTIN1	0.733	1.355	0.715	0.824	0.539
	ATTIN2	0.701	1.286			
	ATTIN3	0.754	1.418			
	ATTIN4	0.748	1.338			

Attitude towards influencers * Affiliate marketing	ATTIN *AM	1.132	1.000	1.000	1.000	1.000
Attitude towards influencers * Affiliate Marketing	ATTIN *AM	1.128	**1.000**	1.000	1.000	1.000
Brand attitude * Affiliate Marketing	ATBR* AM	1.168	**1.000**	1.000	1.000	1.000
Brand attitude	ATBR	1.000	1.000	1.000	1.000	1.000
Perceived congruence	CONG 1	0.748	1.303	0.743	0.855	0.663
	CONG 2	0.855	1.779			
	CONG 3	0.835	1.658			
Perceived credibility	CRED1	0.713	1.350	0.728	0.830	0.551
	CRED2	0.729	1.312			
	CRED3	0.733	1.390			
	CRED4	0.792	1.508			
Perceived expertise	EXP1	0.793	1.489	0.726	0.845	0.644
	EXP2	0.803	1.497			
	EXP3	0.812	1.343			
Purchase intention	PIN1	0.835	1.266	0.629	0.843	0.729
	PIN2	0.872	1.266			
Trust	TR1	0.903	**1.396**	0.693	0.816	0.600
	TR2	0.738	**1.493**			
	TR3	0.665	**1.258**			
GEN		1.000				
INCOME		1.000				
JOB		1.000				

4.2.2. Convergent and discriminant validity of the measures

- ***VIF - Variance Inflation Factor***

After analyzing the variance magnification factor, the results show that, variance inflation factor (VIF) of all variables in the measurement model range from 1,000 to 1.779, all of which are less than 3. This means that all the factors in the model are distinct from each other. From there, it is confirmed that all these factors included in the model are appropriate.

- ***Discriminant validity of the constructs in the measurement model***

In this paper, in order to test the discriminant validity of the constructs in the measurement model, we analyzed the Formell-Larcker ratio, which is presented in table 4.4. By comparing the square root of the AVE, we found that the square root of the AVE for one construct is larger than the construct's maximum correlation coefficient with another factor.

Table 4.3. Fornell-Larcker

	AM	ATTIN	ATBR	CONG	CRED	EXP	PI	TR
AM	0.733							
ATTIN	0.451	0.734						
ATBR	0.426	0.459	1.000					
CONG	0.340	0.497	0.281	0.814				
CRED	0.364	0.476	0.278	0.502	0.742			
EXP	0.268	0.453	0.286	0.367	0.506	0.803		
PI	0.599	0.519	0.603	0.327	0.281	0.230	0.854	
TR	0.137	0.150	0.111	0.161	0.271	0.229	0.057	0.775

- ***Cross loading***

We also measured discriminant validity based on the cross-load coefficient. The analysis results show that the external loading coefficients of any observed variable in the parent factor are also larger than the entire cross-load coefficient of that observed variable with other factors in the model. Table 4.5 indicates that all cross-loading coefficients are loading correctly and validly the variable to be observed in the model as proposed by Wiegard and Breitner (2017). Table 4.5 below shows the value of cross loading.

- ***Model fit:***

The appropriate range for the SRMR index is 0 to 0.08 (Hu and Bentler) (1999). The value of 0.08 may be interpreted as follows since the bulk of the components in the SRMR formulation are simply the mean square error of estimated and observed correlations. As a result, the NFI generates a range of values from 0 to 1. The NFI gets closer to 1 as the fit becomes better (Hu and Bentler).

The SRMR index of the model is 0.071 < 0.1, the NFI is 0.617, and the Chi-Square is 1145.080 > 20. All of the aforementioned signs suggest that theory and proof are in harmony.

	Saturated Model	Estimated Model
SRMR	0.065	0.068
Chi-Square	1,071.846	1,068.383
NFI	0.661	0.662

4.2.3. Structural equation analyses

By using Bootstrapping analysis with 5,000 repetitions of the sample, the results from Y show the relationship between perceived factors of trustworthiness, trust, ability to control behavior, subjective standards of image, perception of expertise, similarity affects attitudes towards influencers, attitudes towards brands, and purchase intentions. Statistical significance of each relationship is expressed through specific T-statistic and P-value as follows:

Table 4.4. Structural model testing

	InDependent variables	→	**Dependent variable**	**Std. beta**	**Std.D**	**T Values**	**P Values**	**Decision**
H1	Perceived credibility	→	Attitude towards influencers	0.203	0.056	3.597	**0.000**	Supported
H2	Trust	→	Attitude towards influencers	0.007	0.054	0.178	**0.859**	Rejected
H3	Perceived expertise	→	Attitude towards influencers	0.232	0.054	4.444	**0.000**	Supported
H4	Perceived congruence	→	Attitude towards influencers	0.314	0.056	5.530	**0.000**	Supported
H5	Attitude towards influencers	→	Brand attitude	0.333	0.050	6.657	**0.000**	Supported
H6	Attitude towards influencers	→	Purchase intention	0.211	0.050	4.308	**0.000**	Supported
H7	Brand attitude	→	Purchase intention	0.320	0.050	6.437	**0.000**	Supported
H8	**Moderating Effect 1**	→	**Brand attitude**	0.094	0.043	2.242	**0.025**	Supported
H9	**Moderating Effect 2**	→	**Purchase Intention**	-0.120	0.052	2.330	**0.020**	Supported
H10	**Moderating Effect 3**	→	**Purchase Intention**	0.179	0.056	3.203	**0.001**	Supported

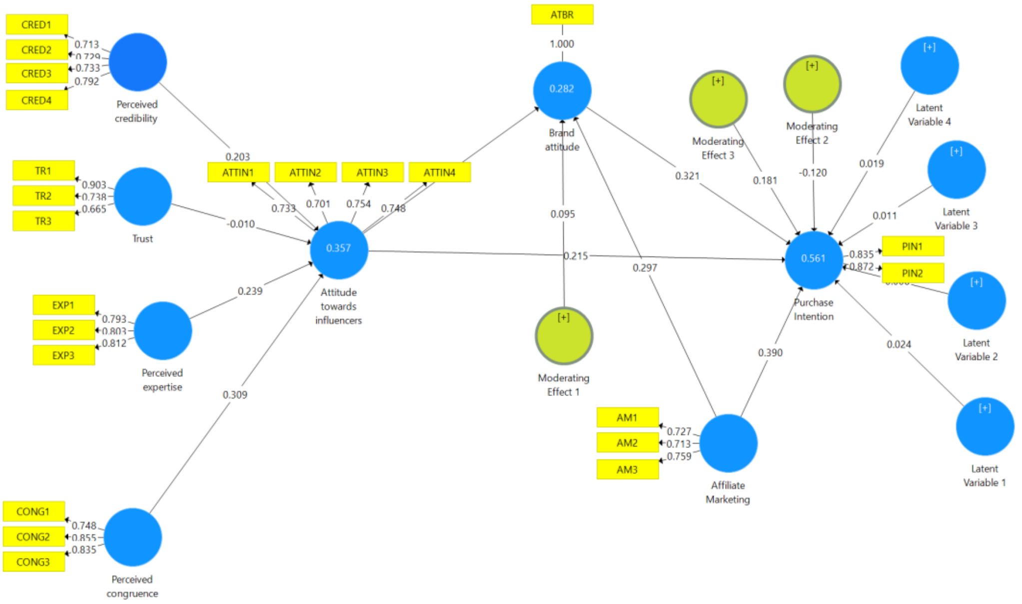

Figure 4.9 PLS - SEM results for measurement model

According to the results of the structural equation model from Table 4.7, the writer will conclude the relationship among latent variables based on some standards such as p – value, R2 value.

Firstly, p – value will be used to evaluate whether a hypothesis is supported or rejected. Moreover, p - value is a 5% significance level, meaning that p – value is higher than 0.05 will be rejected to ensure the statistical significance.

Hypothesis H1: The statistical result indicates that Perceived credibility has a positive impact on attitudes towards fashion influencers (β= 0.203, p<0.05). Therefore, hypothesis H1 is accepted.

Hypothesis H2: The statistical result shows that Trust has a negative relationship with attitudes towards fashion influencers (β= - 0.007, p>0.05). Therefore, hypothesis H2 is rejected.

Hypothesis H3: The statistical result shows that Perceived expertise influences positively on Attitude toward the influencer (β= 0.174, p<0.05). Therefore, hypothesis H5 is accepted.

Hypothesis H4: The statistical result presents that Perceived congruence has a positive effect on Attitude toward the influencer (β= 0.303, p<0.05). Therefore, hypothesis H6 is accepted.

Hypothesis H5: The statistical result shows that Attitude toward the influencer has a positive impact on Brand attitude (β= 0.459, p<0.05). Therefore, hypothesis H7 is accepted.

Hypothesis H6: Attitude toward the influencer has a positive effect on Purchase intention (β= 0.194, p<0.05). Therefore, hypothesis H8 is accepted.

Hypothesis H7: Brand attitude has a positive relationship with Purchase intention (β= 0.346, p<0.05). Therefore, hypothesis H9 is accepted.

Hypothesis H8: The statistical result indicates that Affiliate marketing plays a mediating role in the relationship between Attitude toward the influencer and Brand attitude (β= 0.094, p<0.05). Therefore, hypothesis H10 is accepted.

Hypothesis H9: The statistical result indicates that Affiliate marketing plays a mediating role in the relationship between Brand attitude and Purchase intention (β= -0.120, p<0.05). Therefore, hypothesis H10 is accepted.

Hypothesis H10: The statistical result indicates that Affiliate marketing plays a mediating role in the relationship between Attitude toward the influencer and Purchase intention (β= 0.179, p<0.05). Therefore, hypothesis H10 is accepted.

Furthermore, the R-square value of ATTIN is 0.426 that explains 42.6% of the relationship of 6 variables CRED, TR, PBC, SUBN, EXP, CONG to the attitude towards influencers. In addition, the R-square value of ATTBR is 0.211, which explains 21.1% for the relationship of ATTIN to ATTBR. Finally, the R-square value of 0.548 of the PIN variable shows that 54.8% of the impact of the four variables of ATTIN, ATBR, AM and moderate variable on PIN. Furthermore, the P-values of ATTIN, ATTBR, and PIN are all equal to "0.0000", meaning at the significance level <1%. It is for that reason that these R-square values are statistically significant.

Table 4.5. R-square test results

	R-square	**P-Values**
ATTIN	0.357	0.000***
ATTBR	0.282	0.000***
PIN	0.561	0.000***

4.3. Discussion

In chapter 4, we have presented the statistical analysis data and the arguments for the hypothesis in detail. The study model's data has reached statistically significant levels in general. This demonstrates that the study data has worth and may be used to examine and formulate corporate policies. With a sample of 350 observations, the findings show that there are eight out of ten adjustment relationships that have a positive effect, which means accepting eight out of ten hypotheses posed at the beginning of the study. Meanwhile, the remaining two relationships give the following results: Trust and Perceived behavioral control have a negative effect on Attitudes towards fashion influencers. This indicates that depending on the research situation and context, the study results may differ.

Despite the similarities, our research still has findings showing that factors such as personality, demographics, and culture are seen as evidence of market differences, here as Morocco and Vietnam. Therefore, the above factors are not considered to be a perfect measure in all emerging market contexts in general. From the survey results of the study, it shows that the participants who are students and those who are working in the business are the ones who tend to have a lot of experience and regularly follow influencers for the purpose of serving online shopping. These findings demonstrate the difficulty of reaching customers of different ages and backgrounds, but also contribute to identifying the strengths and target customers of online shopping.

Compared with the previous study, most of the relationships in this study give the same results as a positive relationship. This may be because Morocco and Vietnam are both emerging markets and the pace of economic and social development tends to be similar (congthuong.vn, 2020). However, unlike the conclusion of , the two factors Trust and Perceived behavioral control in this study did not show a positive effect on Attitudes towards fashion influencers. With the negative adjustment relationship between trust factor and buying attitude, this can be explained that Vietnamese people's consumption habits are often based on many factors and carefully considered purchasing decisions. Therefore, consumers do not just rely on the advice of influencers to make attitudes and conclusions about products. In other words, consumers have a low tendency to show trust with influencers. The remaining negative adjustment relationship is between the factor Perceived behavioral control and Attitudes towards fashion influencers, which can explain that Vietnam is a country with very high collectivism(Nguyen-Thu, 2018), so consumers users tend to rarely draw conclusions or behavior on their own, but often consult with those around them first.

Based on the results of this study, it is possible that this research model is appropriate in Vietnam. Online shopping and e-commerce platforms are growing, and the fast fashion market is becoming more popular. In the era of digital technology development, social media and the number of influencers in many fields, including fashion are increasing, thus making it clearer the influence of influencers on people's purchasing decisions. Vietnamese consumption. The factors affecting Attitudes towards fashion influencers in the original study are consistent with consumers' perceptions and attitudes towards influencers in Vietnam.

5. CONLUSIONS

5.1. Conclusion

Inheriting the research model of author Yousef et al., (2019), the team has built a research model to assess the factors affecting attitudes towards influencers. From there, we research the impact on brand attitudes and purchase intentions in the Vietnamese context. At the same time, the team considered the development of affiliate marketing through media and e-commerce platforms, along with the high level of social media usage among Gen Z and Millennials. The group proposed a new research model with the element of Affiliate Marketing to determine whether discount and cashback programs in this have the effect of increasing the purchase intention and brand attitude of a customer being interested in fashion influencers. The data of the research paper, including 8 factors being referenced from previous studies, is collected through a Google Form with a scale of 5 Likert. We utilize SPSS and Smartpls to explore that relationship by using a unique sample including 350 Vietnamese customers.

The results of this study have practical implications for businesses that are trading fashion for Vietnamese consumers. Managers of fashion companies and marketers will know how Vietnamese consumers, especially the young generation, are thinking and being affected. From there, they can make appropriate policies for the communication plan for the brand. Specifically, business administrators can make appropriate policies in the selection of media in general and criteria for selecting suitable influencers for their brands. At the same time, businesses can combine sales promotion programs to increase sales and brand reputation.

5.2. Managerial implications

The research indicates some managerial implications. Particularly, the study shows that perceived behavioral control is an underappreciated factor in impacting consumers' attitudes towards influencers. In contrast, factors such as perceived credibility, perceived expertise, and perceived congruence have a positive impact on consumers' attitudes towards influencers.

Besides, the affiliate marketing factor has been shown to have a moderating effect increasing on three relationships: between consumers' attitudes towards influencers and purchase intentions; consumers' attitudes towards influencers and brand attitude; brand attitude and purchase intention. Specifically, affiliate marketing increases purchase intentions and brand attitude. This analytical result provides marketers and managers suggestions when evaluating and choosing influencers and accompanying campaigns for their brands appropriately.

Choosing suitable influencers for brand

According to Sekhon et al., (2016), customers are more likely to trust product recommendations from social media influencers than ones from family and friends as shown by 40% of customers purchase products from suggestive influencers. This proves that using influencers as a marketing strategy is an effective plan for increasing sales and brand reputation. Many factors influence customer attitudes towards influencers. According to the results of the study, factors such as perceived credibility, perceived expertise, and perceived congruence positively affect customers' attitudes towards influencers. Therefore, marketers and managers should focus on analyzing and measuring these factors when choosing influencers.

The first is perceived credibility, customers often seek advice from influencers when they are confused or uncertain in choosing to buy a product. This creates credibility for the influencer. To assess the credibility of an influencer, a brand can analyze through followers' interactions on influencers' social media networks whether followers are interacting and communicating positively with the influencers.

The second, as for *perceived expertise*, it is easy to assess whether an influencer is an expert in their field by asking for information about qualifications, experience, and achievements in the field. In addition, expertise is also reflected in user reviews of influencers.

Thirdly, about *perceived congruence*, increasing similarity between influencers and potential customers can lead to higher purchase intention and better attitudes towards influencers (Youssef et al., 2019). Therefore, brands should consider whether their target customers have similarities with the influencer.

Marketing activities with influencers to increase efficiency

According to Christino et al,. (2019), cashback in affiliate marketing is useful when making purchases on e-commerce platforms or online stores. Particularly, the types of cashbacks are used by influencers and brands such as discounts, presents, refunds on e-commerce platforms, etc. Accordingly, attractive cashback programs are assessed as a factor that stimulates customers to make more purchasing decisions. When a customer has a positive attitude towards an influencer, the fact that the influencer offers a preferential policy increases purchase intention and also brand attitude. According to the results of study, cash back in affiliate marketing has an impact on increasing the relationships between brand attitude and purchase intention. Therefore, marketers and administrators should consider offering cashback programs when incorporating an influencer to increase effectiveness in their media campaign.

5.3. Limitations of the study and future research directions

As for the model of the study, the team found that this is a suitable model for the research. The model has all the necessary elements to evaluate consumers' attitudes towards influencers. It is perfectly reasonable to arrange brand attitude and purchase intention as dependent intermediate variables. Moreover, the model test results also evaluate the significance of the factors, helping businesses know the importance of using fashion influencers for their fashion businesses.

We conducted sampling by providing Google Forms surveys and conducted sampling at fashion and youth groups. Although it is possible to reach the right target audience, we cannot specifically assess how high or low the audience's real interest in fashion and influence is. This affects the quality and accuracy of the research paper.

In order to add accuracy and clearer practical significance to the research paper, besides quantitative research, we can conduct qualitative research. Qualitative research increases contact and exchange time with research subjects, so that new meanings can be discovered for the research paper.

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THE ROLE OF GOVERNMENT AND PEER INFLUENCE IN FOSTERING SUSTAINABLE CONSUMPTION BEHAVIOR OF GEN Z IN THE CASE OF VIETNAM

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ABSTRACT

The COVID-19 outbreak has significantly impacted the economy and people's lives. This epidemic made us reconsider every aspect of our existence. It has helped people realize why purchasing sustainable products would become increasingly important in the future. In this context, this article aims to investigate the influence of internal psychological factors and the role of external contextual stimuli in purchasing sustainable FMCG items in Vietnam. A dataset of 305 respondents analyzed by SmartPLS software showed that most of the hypotheses are accepted, except for the impact of environmental concern (EC) on attitudes towards sustainable purchasing (AGP). In addition, green marketing (GM) does not moderate the relationship between attitudes toward sustainable purchasing (AGP) and sustainable purchasing intentions (SPI). Thus, our findings are valuable to fulfill the literature on sustainable FMCG products and drive the relevant strategies for firms working in developing markets.

Keywords: Sustainable consumption; sustainable purchasing; peer influence; green marketing, governmental initiatives,...

1. INTRODUCTION

The COVID-19 outbreak in 2020 caused several social impacts and threatened the worldwide economy (Nicola et al., 2020). In addition to economic issues, Cartwright et al. (2020) discussed that the COVID-19 pandemic has an impact on the environment. Cohen (2020) sees the COVID-19 crisis as an opportunity for a sustainable consumption transition. According to a survey of 14,000 people from 9 countries in 2021 by Ithe BM Institute for Business Value, 90 percent of individuals now have new perspectives on environmental and sustainable consumption. More than 50% of respondents said they would be prepared to spend money on sustainable brands or goods in the next year's survey. Customers are becoming more conscious of environmental issues, acting more responsibly, and are more willing to pay for sustainable products (Dangelico et al., 2022). Sustainable development, sustainability psychology, and economic crises are all related since they all affect people's quality of life (Rothan and Byrareddy, 2020). These shifts in customer attitudes and behaviors emphasize expanding the potential for businesses to incorporate sustainability into their strategy, position themselves as sustainable organizations, and offer sustainable products.

Previous research on sustainable purchasing behavior mostly examines how internal variables affect buying decisions, the role of external stimuli is limited (Paul et al., 2016; Tan, 2011; Uddin and Khan, 2016; Yadav and Pathak, 2016). Furthermore, these studies simply identified characteristics that have a direct influence on sustainable purchasing behavior without explaining a profound interrelationship between those factors (Nittala, 2014; Mei et al.; 2012). According to Kumar (2019), external forces should also be considered as internal variables are not the only factors that influence a person's decision-making process. Kumar (2019) further claimed that external factors are crucial in assessing and explaining how internal motives affect sustainable consumption habits. Therefore, research on the intertwined relationships between internal and external factors in sustainable consumption is necessary, particularly in Vietnam where environmental preservation is still not deeply embedded in the consciousness of the citizen.

There is a lack of evidence to observe the sustainable purchasing practices of Vietnamese consumers and neglect its association with the context of the product, particularly in the case of FMCG goods (Koning et al., 2015; Rydström, 2020). Fast Moving Consumer Goods (FMCG) is a prominent sector in the Vietnam economy (Kantar, 2020). The FMCG industry is a key sector that green marketing is concerned about (Nagaraju, 2014). In this context, this study investigates the complex purchasing behavior of Vietnamese customers for sustainable FMCG products by examining internal cognitions that influence environmentally-friendly consumption decisions as well as the role of external determinants in shaping the adoption of sustainable consumption.

This paper focuses on young adults and an educated sector of customers since this generation is more inclined to sustainable purchases and is more responsive to the green concept than the older generation (Diamantopoulos et al, 2003). The high level of education and young age were found to be associated with a positive approach toward sustainable consumption (Wang, 2014). Hence, this study hopes to contribute knowledge to understanding more about sustainable behavior among consumers in Vietnam. This practical implication of the literature study in sustainable consumption behavior is expanding past empirical research in developing countries.

For this purpose, this study applied the stimulus – organism – response (S-O-R) framework to constitute a relationship among the factors. According to the framework, the environmental stimulus might cause an individual's internal evaluation state (organism) to be activated. Since then, it responds to stimuli by producing either good or negative actions (Mehrabian & Russell, 1974). By investigating in this aspect, this study intends to contribute to the sustainable consumption literature. Based on this purpose, this research propose the research questions:

RQ1. What is the influence of peer influence and government initiatives on Gen Z consumer’s about green purchase intention?

RQ2. What is the influence of green marketing on the relationship between environmental knowledge, environmental concern, and perceived value on green purchase intention?

Nowadays, main object of research for policymakers and researchers has been the “young consumers”, especially the Gen Z, the main generations of the future. They are considered as the primary element of the development of green consumption intention. Therefore, the primary focus of this paper is to examinate the major influential of government and peer influence in fostering sustainable consumption behavior of Gen z in the case of Vietnam.

2. LITERATURE REVIEW

Environmental psychologists Mehrabian & Russell (1974) established the S-O-R framework, which has been used to examine user behavior across a variety of areas. Lin and Lo (2015) assert that a stimulus is a component of the external environment that exerts influence over an organism's mental and cognitive state. The organism would respond to environmental stimuli with an internal or external behavioral response after a sequence of psychological or cognitive processes. According to Lorenzo Romero and Gomezborja (2016), the individual's attitude is an internal response while a particular behavior is an external response. The stimulus organism response formula became a medium to understand the complexity of human behavior, especially in the field of sustainable consumption, which has been proven by many papers in recent years (Kumar et al., 2019; Wang et al., 2020; Yang et al., 2021; Han et al., 2022). Taking this aspect into consideration, this study developed an integrated model to examine the effect of external factors (stimuli) on consumers' sustainable purchasing intention (response) through the environmental psychology mechanism (organism). We proposed the environmental concern, environmental knowledge, and perceived effectiveness of the consumer depends upon green marketing combined with the role of government and peer influence while purchase intention is successfully reached with the help of these customers' cognitive factors.

2.1 Sustainable purchasing intention

The S-O-R framework indicates responses as the conclusions and choices made by users deriving from their cognitive and affective reactions (Sherman et al., 1997). Purchase intention is a consumer's subjective tendency to purchase products, and this is a factor of response (R) for consumers (Zhu et al., 2020). Sustainable purchasing intention is the extent to which customers are willing to purchase sustainable items to contribute a beneficial influence on the environment (Mostafa, 2007; Dagher and Itani, 2014). The purchase intention is a complex component that includes a variety of factors that influence the actual purchase (Ramesh et al., 2019).

2.2 Attitude towards sustainable purchasing

Attitudes of individuals are a strong predictor of behavioral intentions (Sultan et al., 2020). Individuals' behavior is rooted in attitude, which refers to how much an individual judges products and services (Ajzen, 1991). According to Zafar et al., (2021), the customer's cognitive assessment of sustainable shopping is defined as their attitude toward sustainable purchasing. Although the SOR framework places attitude and intention in the same quadrants, Kumar et al., 2019 made a clear separation between the two variables and argued that attitude influences purchase intention. Positive attitudes have been proven to improve people's consumption behavioral intention performance in prior studies (Graessley et al., 2019; Dhir et al., 2021). A favorable attitude toward specific behavior increases the chances to perform a specific action through a psychological mechanism (Yadav and Pathak, 2016). Several sustainable consumption studies have investigated the relationship between sustainable purchasing attitudes and sustainable consumption intentions (Paladino and Ng, 2013; Jaiswal and Kant, 2018; Ho et al., 2020; Nguyen et al., 2021). As a result, we hypothesized:

H1: There is a positive significant relationship between attitude towards sustainable purchasing and sustainable purchasing intention.

2.3. Environmental concern

Alibeli and Johnson (2009) clarified environmental concern as the extent to which people are aware of environmental issues and their willingness to solve environmental problems. The environmentally concerned consumer will gather more information about environmental issues, and they may look for actions and products, which can help them to protect the environment (Kumar et al., 2019). Furthermore, it implies a sense of responsibility to protect the environment, which is embodied by an emotional appeal at the individual level and reflected in their involvement in environmental protection (Lee, 2008; Dagher and Itani, 2014; Prakash and Pathak, 2017). According to prior studies, environmental concern has a direct and significant impact on attitudes toward sustainable purchasing (Mostafa, 2007). Their findings also revealed that when consumers with high environmental concerns come across environmentally friendly products and activities that can meet their expectations of saving the environment, they are directly associated with a positive attitude toward sustainable purchasing, which leads to purchasing intention. By considering this, we propose:

H2: There is a positive significant relationship between environmental concern and attitude toward sustainable purchasing.

2.4. Environmental knowledge

Environmental knowledge is referred to people's comprehension of the status of the environment, climate change, and the burden that production and consumption have put on the environment (Pagiaslis and Krontalis, 2014). Environmental knowledge affects people's attitudes and intentions by providing information about potential mitigation and corrective action measures in addition to the negative effects of environmental challenges (Laroche et al., 1996; Zsóka et al., 2013). The importance of environmental knowledge in shaping people's sustainable consumption behavior has been highlighted (Pagiaslis and Krontalis, 2014; Zsóka et al., 2013). Environmental knowledge shifts harmful actions toward the environment into a more aware effort. Environmentally conscious consumers are more likely to have a favorable attitude toward the environment and engage in sustainable consumption behavior (Hines et al., 1987; Fraj-Andrés and Martínez-Salinas, 2007). As a result of the preceding discussion, this study hypothesizes:

H3: There is a positive significant relationship between environmental knowledge and attitude toward sustainable purchasing.

2.5. Perceived consumer effectiveness

Ellen et al. (1991) defined perceived consumer effectiveness as the consumers' perception of what extent to which their actions can make a difference in solving environmental issues. According to Bei and Simpson (1995), most consumers believe that by engaging in sustainable consumption activities, they are helping the environment. These customers will get emotional fulfillment when they take action that benefits the environment, and this is the effectiveness they expect (Kumar et al., 2019). According to research, people who believe that sustainable behavior can make a positive difference in the environment are more likely to adopt that behavior (Jaiswal and Kant, 2018; Kang et al., 2013). Consumers with a high level of perceived consumer effectiveness are more likely to show positive attitudes toward sustainable purchasing (Webb et al., 2008; Kumar et al., 2019). Hence this study postulates the following hypothesis:

H4: There is a positive significant relationship between perceived consumer effectiveness and attitude toward sustainable purchasing.

2.6. Government Initiatives

The term "governmental initiatives" refers to actions taken by government and policymakers to raise public awareness, broaden understanding, and persuade individuals to adopt sustainable consumption (Kumar et al., 2019). This study proposes that the activities carried out by the government are stimuli. Anand and Gaur (2019) stated that the government's initiatives could raise awareness and affect the perspectives or feelings of customers. Government actions can indirectly influence consumers' attitudes toward sustainable consumption by impacting psychological factors (Yu et al., 2021). Governments may take actions to increase knowledge and awareness of environmental degradation, which may influence consumer attitudes. When these activities capture consumers' attention, they may process the activities (which are "information" to consumers). In this case, cognitively processed information leads to environment-related knowledge, and emotionally processed information leads to environmental concern and perceived consumption effectiveness. These considerations led to the following theories being developed:

H5: There is a positive significant relationship between government initiatives and environmental concern.

H6: There is a positive significant relationship between government initiatives and environmental knowledge.

H7: There is a positive significant relationship between government initiatives and perceived consumer effectiveness.

2.7. Peer Influence

Peer influence is defined as the actions taken by environmentally conscientious people to raise awareness among their friends and encourage them to engage in sustainable purchasing behavior (Kumar et al., 2019). These people can talk about how the environment is deteriorating, make recommendations on eco-friendly items, and motivate their friends to buy eco-friendly products. Previous research has also shown that peers can influence their counterparts (Kumar et al., 2019) and act as information providers (Deutsch and Gerard, 1955) or pushing agents (Lamb et al., 1980). As a result, we investigate peer influence as another stimulus. Consumers may pay attention to the information provided by these environmentally conscious individuals and process it emotionally and cognitively (Kumar et al., 2019). According to Lee (2008), environmental concern, environmental knowledge, and perceived consumer effectiveness are cognitive factors that drive sustainable purchasing behaviors. Their research demonstrated the influence of peers on environmental concern, environmental knowledge, and perceived consumer effectiveness. Their study strongly established the impact of peers on environmental concern, environmental knowledge, and perceived consumer effectiveness. Thus, the following hypotheses are proposed:

H8: There is a positive significant relationship between peer influence and environmental concern.

H9: There is a positive significant relationship between peer influence and environmental knowledge.

H10: There is a positive significant relationship between peer influence and perceived consumer effectiveness.

2.8. Green marketing

According to Robitot (2010), green marketing, which promotes products through environmental claims, has grown in importance as a field of study. Liao et al (2020) have shown that green marketing influences and enhances consumer attitudes toward sustainable purchasing. Environmental advertising affects positively consumer attitudes toward a sustainable product, brand advertising, and the intention to buy the product mentioned in the advertisement (Haytko and Matulich, 2008; Saboo et al., 2016; Kao, 2020). However, there is a gap in the advancement of green marketing as a moderator to hasten the adoption of sustainable consumption. This study posits that green marketing moderates the influence of attitude toward sustainable purchasing and sustainable purchasing intention. The persuasive marketing messages will boost the impact of customer attitude on sustainable purchasing intention (Liao et al., 2020). The hypothesis for green marketing is proposed below:

H11: There is a moderating relationship between green marketing and attitude toward sustainable purchasing to sustainable purchasing intention.

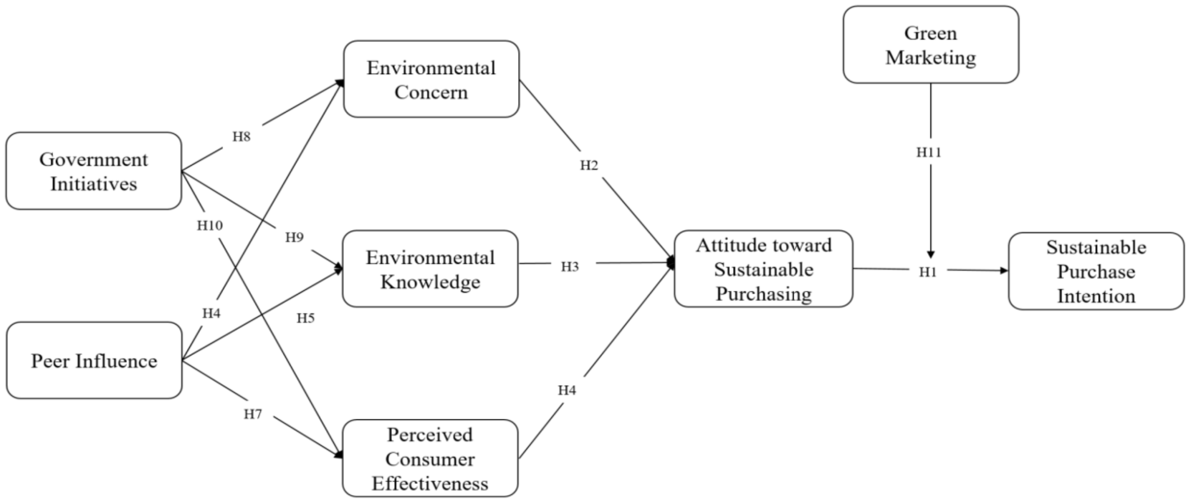

Figure 1. The Proposed Research Model.

3. METHODOLOGY

3.1. Data collections

The young generation has been marked as the high perceived environmental protection. Thus, we focus on the participants from 18 to 27 who live in Ho Chi Minh City which is the leading economic region of Vietnam. After removing the inappropriate respondents, 305 questionnaires remained. The data was then analyzed by Smartpls 3.0 which is recommended by Hair et al. (2011) fitting with the explanatory study.

3.2. Data measurements

A systematic questionnaire was developed based on the literature. From Ling et al. (2012), governmental initiatives for five-scale items were adopted together with peer influence with four-scale items from Lee (2008). A five items scale for environmental concern was drawn from Paul et al. (2016). The environmental knowledge scale with five items was adopted from Mostafa (2006), while the perceived consumer effectiveness constructs with four items were taken from Kim & Choi (2005) and Kim (2011). Green marketing was measured by four-scale items adopted from Rahbar & Abdul Wahid (2011) and Rahim et al. (2012) and Haytko & Matulich (2008). Followed by four items of attitude toward sustainable purchasing based on Joshi and Rahmanb (2019). Three items were used to measure sustainable purchase intentions based on a model by Lau et al. (2000) and Mostafa (2006) and sustainable purchase behaviour was adopted from Lee (2010). Furthermore, the measurement scale of the questionnaire is a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used.

4. ANALYSIS AND RESULTS

4.1. Data analysis

Table 1. Demographic information (N=305)

Demographic Characteristics		Frequency	Percentage (N=305)
Gender	**Male**	114	37.4
	Female	191	62.6
Age	**18 - 22 years old**	244	80
	22 - 27 years old	61	20
Education Level	**High School**	10	3.3
	College/ University Degree	268	87.9
	Postgraduate Degree and higher	27	8.9
Annual income	**Under 3,000,000 VND**	91	29.8
	3,000,000 – under 7,000,000 VND	125	41.0
	7,000,000 – under 15,000,000 VND	59	19.3
	15,000,000 VND or above	30	9.8

This article's primary source of data was an online poll that received about 328 responses. However, 305 data were chosen for analysis and investigation after unsuitable data were excluded. Email and social media are used to distribute survey questions to respondents. Before to being extensively disseminated, the research was additionally piloted with 20 respondents to clear up any ambiguities and reduce inaccuracies. Along with the study topic, four primary kinds of demographic data were gathered: gender, age, education level, and income.

4.2. Measurement Model

To ensure the accuracy of the subsequent analysis, the research data should be checked for the appropriateness of the observed variables and the research model. Latent variables in the research model are converted into observed variables in the form of reflecting indicators. Therefore, the observed variables have a relationship with each other and affect each other, to check the appropriateness of these factors, the author checks the outer loadings index. All of the outer loadings are greater than 0.7, thus all the variables meet the requirements (Hair et al., 2017). In addition, the Cronbach's Alpha of eight factors is high (from 0.789 to 0.919) so the variable scale is good reliability. The high of Composite Reliability (from 0.877 to 0.949) are implying the independent variables scales had good internal consistency. Moreover, all extracted mean-variance (AVE) values are more than 0.5, indicating a strong correlation between all variables. Therefore, the indexes in Table 2 all satisfy the above conditions, proving that the variables meet the requirements to ensure the suitability of the factors and the analysis process.

Table 2. Convergent validity test results

Variable and Item	Number of items	Cronbach's Alpha	CR	AVE
Governmental initiatives (GI)	3	0.919	0.949	0.861
Peer Influence (PI)	4	0.871	0.912	0.721
Environment Concern (EC)	5	0.918	0.939	0.754
Environment Knowledge (EK)	5	0.912	0.934	0.740
Perceived Consumer Effectiveness (PCE)	4	0.909	0.936	0.786
Green Marketing (GM)	3	0.789	0.877	0.704
Attitude towards Sustainable Purchasing (ASP)	4	0.860	0.905	0.705
Sustainable Purchase Intentions (SPI)	3	0.865	0.918	0.788

To measure the fit of the model with the study area, the SRMR value of the estimated model is 0.079 < 0.1, thus concluding that the above structural model has good quality and is suitable for the study area. According to the Table 3, the Chi-square index of 1335.725 proves that the model is very suitable for the collected research data. As a result, it can be concluded that there is sufficient confidence in all of the table's elements (Hair et al., 2017).

Table 3. Measurement model fit

	Saturated Model	Estimated Model
SRMR	0.050	0.079
d_ULS	1.219	3.117
d_G	0.672	0.816
Chi-Square	1207.517	1335.725
NFI	0.853	0.837

In table 4, all the square root of the AVE are higher than the correlation coefficients between the constructs, so the discriminant validity of the variables are satisfied. The correlation coefficient is greater than all initial AVE values.

Table 4. Discriminant validity-Fornell-Larcker Criterion

	ASP	EC	EK	GI	GM	PCE	PI	SPI
ASP	**0.840**							
EC	0.414	**0.869**						
EK	0.477	0.779	**0.860**					
GI	0.38	0.746	0.788	**0.928**				
GM	0.576	0.623	0.652	0.558	**0.839**			
PCE	0.475	0.808	0.838	0.842	0.674	**0.887**		
PI	0.394	0.769	0.711	0.711	0.588	0.761	**0.849**	
SPI	0.619	0.352	0.418	0.333	0.586	0.416	0.304	**0.888**

4.3. Structural Model:

According to the Table 5, government initiatives and peer influence have significantly positive influences on environmental concern, environmental knowledge, and perceived consumer effectiveness with the p-value = 0.000. Thus, the hypotheses from H5 to H10 are accepted. Additionally, environmental knowledge, and perceived consumer effectiveness have a positive influence on attitude toward sustainable purchasing with the p-value at 0.042 and 0.014 respectively, resulting in the approval of H3 and H4. Attitude toward sustainable purchasing is proven to have a positive impact on sustainable purchasing intention with the p-value = 0.000 and T-Statistic = 3.842, Therefore, hypothesis H1 is accepted. Likewise, environmental concern (T Statistics = 0.124, $p > 0.05$), is not found to have a critical influence on attitude toward sustainable purchasing. Hence, H2 is rejected. Finally, green marketing doesn't have a moderating effect on the relationship between attitude toward sustainable purchasing and sustainable purchasing intention (T Statistics = 1.955; p-value = 0.051), leading to the rejection of H11.

Table 5. PLS-SEM analysis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Hypotheses
GI -> EC	0.403	0.400	0.048	8.347	0.000	Accepted
GI -> EK	0.572	0.570	0.057	10.048	0.000	Accepted
GI -> PCE	0.609	0.606	0.043	14.311	0.000	Accepted
PI -> EC	0.482	0.484	0.049	9.898	0.000	Accepted
PI -> EK	0.304	0.306	0.040	7.587	0.000	Accepted
PI -> PCE	0.328	0.329	0.037	8.919	0.000	Accepted
EC -> ASP	0.010	0.012	0.084	0.124	0.901	**Rejected**
EK -> ASP	0.259	0.256	0.128	2.030	0.042	Accepted
PCE -> ASP	0.249	0.255	0.101	2.466	0.014	Accepted
ASP -> SPI	0.354	0.364	0.092	3.842	0.000	Accepted
ME -> SPI	-0.078	-0.074	0.040	1.955	0.051	**Rejected**

5. DISCUSSION AND IMPLICATION

5.1. Discussion

The present study applied the integrated model of sustainable consumption based on the SOR model to assess the relationship of government initiatives and peer influence with attitude toward sustainable purchasing via the mediating role of cognitive factors including environmental concern, environmental knowledge, perceived consumer effectiveness, which in turn examined with sustainable purchasing intention. In previous studies, sustainable consumption intention is influenced by internal elements, including environmental awareness, behavior, interest, and attitudes (Afonso et al., 2012; Huang et al., 2013; Chang et al., 2015; Maniatis, 2016; Khan et al., 2016; Hwang et al., 2010), research evaluating the effects driving from external factors including governmental actions, peer influence, and green marketing are limited (Hooper et al., 2016; Lee, 2010, Liao et al., 2020). Therefore, this paper focuses on how important external forces are in motivating Vietnamese consumers to make sustainable purchase decisions.

The results of this study indicate that governmental initiatives have a direct effect on consumers' environmental concerns, and in influencing consumers’ perceived effectiveness. The result is consistent with Tsen et al. (2006) and Sinnappan et al. (2011) research which stated that government plays an important role in affecting the consumers’ sustainable purchasing behaviour and Kumar et al., (2019) proved that governmental initiatives significantly influence a consumer's environmental knowledge, environmental concern, and perceived effectiveness in making sustainable purchasing intentions. Therefore, the government's involvement in educating consumers and raising awareness is crucial. This is an effective approach for attaining sustainability across a variety of goods and services since, once consumers acknowledge the effectiveness of sustainable practices, this attitude could be converted into the friendlier products being consumed by them. The government also actively promotes environmental protection by enforcing harsh penalties for damaging behavior, which increases consumer knowledge of environmental issues and their ability to impact the environment favorably to customers' subjective aspects.

While consumers’ ethical beliefs and their active participation in environmental issues can derive from their own experiences or being affected by many contextual factors, peer influence has a significant direct effect on customers' environmental concern, environmental knowledge, and perceived consumer effectiveness. Thus such similar results were found to be in line with the findings of other former research on sustainable consumption (Kumar et al., 2019; Lee, 2008). The findings deduce that recommendations from peers are powerful as young people especially are keen to act in the same way as their friends; and to uphold the subjective norm (Suki, 2019). In other words, peer influence is seen when individuals are exposed to environmental issues by friends who subsequently share knowledge about their green product purchasing, and encourage for those individuals to follow suit. Environmentally concerned people's information may have an emotional influence on certain customers' beliefs, leading them to adopt environmentally beneficial habits. By watching their peers, particularly what they purchase, how they purchase it, and how they use it, consumers may gain knowledge about the goods and services they need.

Environmental knowledge in Vietnam has a favorable effect on customers' attitudes toward sustainable purchasing. In the study of Stern (1992), in contrast to those who were unaware, those with knowledge of the specific issue and how to approach it in a better way were found to be more actively involved. The attitude of sustainable purchasing emphasizes the understanding of consumers on the seriousness of the issue, their duty, and their involvement with environmentally friendly behaviors. The more they are aware of how their actions affect the environment, the more worried they are about the environment, and the more conscious they are of the repercussions of their actions. On the other hand, perceived consumer effectiveness is one of the greatest indicators of attitudes toward sustainable purchasing. Previous research on this topic has established that perceived consumer effectiveness plays an essential role in explaining variability in environmentally responsible consumer behavior, and in certain situations is a stronger predictor of consumer behavior than other internal psychology (Roberts, 1996; Straughan and Roberts, 1999; Jaiswal and Kant, 2018). Perceived consumer effectiveness can facilitate the conversion of attitudes in favor of sustainable development into consistent behaviors (Kim, 2011; Sharma and Jha, 2017). Therefore, attitude toward sustainable purchasing is positively and significantly driven by environmental knowledge, and perceived consumer effectiveness.

In Vietnam, environmental concerns are found to be not strong enough to influence people's purchasing decisions. As compared to Nekmahmud et al, 2020, this finding demonstrates a difference. According to Chyong et al., (2006), while one is profoundly concerned about the climate crisis, they still consider the only effective way to control and protect the environment are actions from the government such as putting regulations, bans, restrictions, and the government hold a strong responsibility for preserving the environment. People often focus on practical actions such as cleaning up garbage, limiting discharge into rivers and lakes, and limiting the emission of harmful gasses from factories instead of buying sustainable products.

The construct of attitude toward sustainable purchasing is showing a direct and significant influence on sustainable purchasing intention. Attitude toward sustainable purchasing successfully plays a mediating role between environmental knowledge, and perceived consumer effectiveness with sustainable purchasing intention in the integrative model and is determined to be compatible with the examination of earlier studies (Mostafa, 2006; Tan, 2011; Kang et al., 2013). A more positive attitude toward sustainable purchasing would lead to higher sustainable purchasing intention that they believe in, which are sustainable consumption and its advantages in terms of function or society and environment. Thus, the findings regarding attitudes toward sustainable products suggest that the current young adult and educated generations are serious about environmental sustainability and feel it is their responsibility to protect the environment by avoiding ecologically damaging products in their purchase decisions.

Lastly, this paper has also demonstrated that green marketing in Vietnam is currently not effective when it is not possible to regulate the relationship between attitudes and sustainable consumption behavior. Peattie and Crane’s (2005) research helps explain some failures of green marketing. The first mistake is using the “green selling" marketing technique. Instead of considering social ideals, they are just adding some green claims to their current product to increase sales. Second, marketers are increasingly using the green harvesting technique. Only when it reduces their expenses do they become enthused about the environment. For instance, reducing wasteful packaging materials and input resources,...

5.2. Implications of management

This study offers crucial insights for businesses and governmental organizations promoting sustainable consumption habits and environmental protection. To successfully convey the value of sustainable practices to consumers, politicians and marketers should work together to raise consumer awareness. Government can directly guide consumers to become more aware of sustainable consumption with guidelines, laws, financial inducements (such as taxes and subsidies), and data (including labeling schemes). The findings of this study indicate that respondents agreed that stringent regulations and policies should be enforced to promote the use of sustainable consumption practices. Moreover, the government can educate the populace with essential and encouraging knowledge. People will become more actively interested in buying green items if they have a thorough understanding of their impact on the environment. The governmental policy also has an indirect impact on sustainable consumption through other pertinent efforts, such as its incorporation into the educational system and the media's promotion of the importance of propagandist operations.

In charge of marketers, the correct kind of environmental marketing will "sow the seeds of environmental education" (Coddington, 1990). Perceived consumer effectiveness and environmental knowledge of customers allow marketers to identify current environmental issues and offer insights at an early stage of product development and promotion. By creating environmentally friendly products and teaching consumers about green habits through marketing efforts, they may help spread awareness and encourage sustainable consumption. While advocating for sustainable products, it is essential to understand customers' beliefs and decisions derive from which values. Marketers can enhance consumers' perceived effectiveness by means of providing consumers information about the potential impacts of their behaviors on the severity of the sustainable development-related issue (e.g., climate change) and the need to help solve the issue. Additionally, the focus on sustainable development-related outcomes, such as climate protection and better living conditions also helps to reinforce customer self-efficacy beliefs and purchasing intention. Consumers will develop a favorable attitude toward sustainable consumption by having a clear awareness of how they can help improve or prevent environmental damage and are urged to purchase green products. Green marketers should also use buzz marketing to persuade their customers to share their experiences, discuss environmental messages, and recommend high-quality environmental products to their peers because peer influence has a significant impact on customers' psychological factors and knowledge creation. This will increase the effectiveness of word-of-mouth advertising.

6. LIMITATIONS AND FUTURE RESEARCH

The current study still has some limitations that would guide future research. First, the data is just gathered by using Google Form with 305 people and it is easier to approach younger consumers and people who have knowledge as well as experience in using sustainable products. Therefore the results can not warrant for generalization of the proposed model in the overall Vietnamese context. To reduce the bias in participants, future researchers should conduct with a bigger sample size as well as combine a lot of types of data collection methods to the overall nature of the results. Next, beyond the role of the government, peer influence, and green marketing on sustainable purchase behavior, future researchers may also confirm the underlying relationship of this model using some other important factors in sustainable consumption such as price sensitivity. Young consumers still have low income; therefore, future researchers should survey many people of diverse ages and high revenue to create breakthroughs.

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THE EFFECTS OF INFLUENCERS' CREDIBILITY ON YOUNG CONSUMERS' ATTITUDES AND BEHAVIOURAL INTENTIONS: MODERATING ROLE OF THE PARASOCIAL RELATIONSHIP BETWEEN CONSUMERS AND INFLUENCERS

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ABSTRACT

The Internet is now more available than ever; smartphones are everywhere and like a "global home" - a place where people can listen and communicate with each other through social media platforms and other online means. Especially with the rise of social media accounts and image and video sharing apps has fueled the rise of Influencers. The role of influencers is becoming increasingly important in shaping consumer attitudes and intentions based on the credibility they build from expertise, trustworthiness, and reliability. Based on theories of Theory of Planned Behavior (TPB), source credibility, and parasocial theory, this study investigated how influencers' credibility affects the effectiveness of influencer marketing campaigns. Whether influencers' credibility directly impacts or indirectly impacts consumer intentions through brand and product attitudes. How does parasocial relationship moderating affect the relationship between influencers' credibility and consumer attitudes and purchase intention? Using data collected from 315 respondents aged 15-35 on social networking platforms such as Facebook, Instagram, and direct message email. Individuals were asked to name an influencer they had regularly followed within the past three months before answering the questionnaire. The authors empirically test the conceptual model using a partial least squares (PLS) estimation. Results indicated that Influencers' credibility positively affects the attitudes of followers toward the product and sponsored brand. The attitudes partially mediate the effect of influencers' credibility on purchase intention. However, influencers' credibility only has indirect effects on the intention to recommend through attitudes. Also, the moderating role of parasocial relationships in linkages will be discussed. This research provides managerial implications for brands cooperating with influencers to build effective influencer marketing campaigns, and influencers could enhance the parasocial relationship of followers through their activities on social media.

Keywords: Behavioural Intentions; Parasocial; Consumers; Influencers

1. INTRODUCTION

According to Kemp's We Are Social study (2021), nearly 60% of the world's population has access to the Internet, with social media users reaching 3.8 billion. Furthermore, in 2020, 68.17 million Vietnamese has been connected to the Internet (70% of the population). 145.8 million phone subscribers and 65 million phone subscribers with social media accounts. The development of mobile apps for image sharing, such as Instagram, has spurred the rise of Influencers (Marwick, 2013). "Influencers" are ordinary individuals – not celebrities – who have attracted large numbers of followers on social media sites by showcasing their expertise in various areas (Cotter, 2019). Social media and influencer marketing have become essential components of many digital efforts, particularly in reaching more than 25% of customers who use traditional internet ad blockers. Consumers skip or block ads because of an excessive increase in digital ads. This practice has significantly eroded the value of traditional brand-based advertising (Petty, 2008). Consumers are empowered to avoid unwanted ads, and they aim to decide what information is needed in their decision-making process. Consumers also understand that traditional ads only make arguments in favor of the promoted products, which reduces advertising reputation (De Veirman et al., 2017).

In advertising, its information can influence the way consumers receive this information and their attitude towards the products or brands displayed in advertising (MacInnis & Jaworski, 1989). Influencer marketing is said to appeal to customers better than celebrity advertising because it gives consumers a sense of the close and relevant relationship with the influencer they love (Sokolova & Kefi, 2020). Brands can take advantage of these advantages in their advertising campaigns, but it is also challenging as consumer skepticism increases due to the encounter of non-genuine campaigns. Furthermore, partnering with influencers who lack the ability to influence is pointless (Belanche et al., 2021). Therefore, as part of their work, influencers must manage their images to increase the number of followers or interactions. Moreover, it is essential for influencers to maintain their credibility to strengthen their relationships with followers because those people tend to value influencers' advice because of their expertise in specific areas (De Veirman et al., 2017).

Many studies on influencer marketing (De Veirman and Hudders, 2020) show how sponsorship disclosure affects consumer response to Instagram "sponsored" labeled posts and influences influencer credibility. While (Belanche et al., 2021) explained how influencers' advertising efforts would affect their credibility and followers' opinions and behavioral reactions to influencers (continue to follow, imitate, and recommend them to other users). Along with this are studies on the "parasocial relationship" impact on followers' attitudes.From a relational perspective, influencers want to develop a deeper caring relationship with their followers to establish a long-term relationship (Tafesse and Wood, 2021).

The Internet is unique due to its two-way communication between individuals on social media. People are born with a tendency to connect and a desire to interact. Along with the length of media formation, we have had the first glimpses of the audience's interactions with media figures (actors, famous athletes, most recently, social media influencers). Forming a bond allows users to feel that they enjoy interpersonal relationships with personalities /celebrities in their favorite media; the connections seem so intimate that users feel that the celebrities are personal friends, characters of fathers, siblings, or even lovers (Hung et al., 2011). The concept was clearly defined as "parasocial relationships" by Horton and Wohl (1956). Parasocial relationships refer to the connections supported by the media between users and characters /celebrities in the media (Rubin and Perse, 1987). In essence, a parasocial relationship is a one-way relationship when one or more people think of another person and give affection and thought to one person. In contrast, that person has absolutely no knowledge or awareness of the existence of the other (Horton and Wohl, 1956).

In this study, we aimed to investigate how influencer credibility affects consumers' attitudes about the products and brands that the influencers represent, leading to intention to recommend and purchase intentions. Social relationships are considered very important for consumer brand assessment (Fournier, 1998) and brand value, quality value, and relationship value (Blackston, 1992; Dwivedi and Johnson, 2013), it affects customer value and long-term customer value (Rust et al., 2004; Vogel et al., 2008). So the research team wanted to elucidate the regulatory impact of social relationships on consumers' attitudes and their buying intentions. We believe that this study will bring more insights into the field of influencer marketing, thereby suggesting suggestions to help collaboration between influencers and brands be more effective in influencer marketing campaigns.

2. LITERATURE REVIEW

2.1 Theory of Planned Behavior (TPB)

TPB is an extension of the theory of rational action (TRA) (Azjen, 1980), developed by Ajzen (1991). This is one of the most influential theories in explaining and predicting human behavior using personal beliefs (Hegner et al., 2017). According to this theory, attitudes toward behavior, subjective norms, and behavioral control influence an individual's intention to perform a particular behavior. Intention is an important construct in theory as a mediating variable between consumer motivation and individual behavior; it is thought to be a precursor to behavior (Chetioui et al., 2020). According to TPB, intention is a direct function of attitude towards behavior, subjective norms, and behavioral control (Ajzen, 2011). Subjective norm refers to an individual's perception of general social norms. If an individual perceives that others endorse (or disapprove) the behavior, they are more likely (or less likely) to intend to engage in the behavior. Attitudes towards behavior reflect an individual's positive or negative judgment as a result of performing a particular behavior. In general, the more favorable the attitude towards the behavior, the stronger the individual's intention to perform the behavior (Armitage, 2001). According to (Ajzen, 1991), behavioral control factors have a direct impact on the tendency to perform the behavior (facilitation or prevention). Because sometimes, a person intends to perform a certain act but lacks the necessary conditions to perform that act.

Many authors have pointed out the limitations of the TPB theory, one of which is the idea that the theory is entirely rational because it does not consider affective and cognitive factors, two aspects that can change people's judgments and behaviors (Hegner et al., 2017). The human emotional factor at the time of decision-making is ignored even though it is related to the model. However, the theory of Planned Behavior (TPB) can be used to study customers' behavior, consumers, the integration of other variables, and the determinants given by TPB in the model to form an attractive research base.

2.2 Parasocial relationship theory

A parasocial relationship (Horton and Wohl, 1956) is defined as an intimate relationship between an actor (or social media influencer) and an audience. A one-sided, influencer-controlled, and non-adjustable relationship develops two-way. The relationship between the audience and media characters constitutes a social relationship, so social media platforms are perfect for promoting these relationships (Chung and Cho, 2017). This relationship is referred to as a sense of intimacy that social media users can experience far beyond the context of direct contact. In other words, influencers can directly interact with their fans through social media and easily share their daily lives from a first-person perspective. As a result, despite not knowing influencers directly, consumers tend to develop closeness and psychological attachment to them (Schickel, 2000).

The stronger the parasocial relationship, the more likely the audience will buy products recommended by celebrities (Ballantine, 2005). Thus, in the marketing context, the benefits derived from the parasocial relationship are reflected in the impact on consumers and businesses. Consumers tend to be more loyal to the media when they can get more helpful information through social relationships (Labrecque, 2014). In this process, marketers believe that celebrities attract the attention of consumers, and the positive traits of celebrities are transferred to endorsed brands (Chung and Cho, 2017); they can use parasocial relationships as a strategic promotion tool for product promotion and product information dissemination (Yuan et al., 2016). Studies have identified the attractiveness and credibility of influencers as prominent predictors of parasocial relationship, showing that influencers are perceived as good-looking and trustworthy may evoke intense fantasy attachment among their fans (Gong and Li, 2017; Sakib, Zolfagharian, and Yazdanparast, 2020; Sokolova and Kefi, 2020). In a line of research regarding the impact of parasocial relationship on influencers and brand-related outcomes. The authors of previous studies in this area argue that the relationship between consumers and endorsers is a strong indicator of the effectiveness of endorsements as well as the ability of consumers to persuade consumers of an influential endorsement (Aw and Labrecuqe, 2020; Carlson et al., 2020; Wellman et al., 2020). Since then, parasocial relationships as a strategic marketing tool have played an important role in creating benefits for both consumers and businesses (Lou and Yuan, 2019).

2.3 Source credibility theory

Source credibility is a term often used to refer to the positive characteristics of a speaker that will influence the recipient's acceptance of a message. Alternatively, is it the extent to which the target audience follows the source to gain expertise and understanding of the product or service (Ohanian, 1990). The source's credibility is based on the communicator's trustworthiness, attractiveness, and expertise (Ohanian, 1990). The quality of the argument and the speaker's persuasiveness also affect the source's credibility (Kutthakaphan and Chokesamritpol, 2013). The credibility of a source enhances the effectiveness of persuasion and advocacy (Homer and Kahle, 1990; Horai et al., 1974; Hovland and Weiss, 1951; Pornpitakpan, 2004). Credibility can create favorable attitudes of listeners toward the source and lead to the receptivity of the message. If the reviews or statements on social networks about products or services are valid, consumers will develop a positive attitude towards the brand (Spry et al., 2011). When endorsed products are perceived as false and invalid, consumers have negative attitudes toward the brand and celebrity endorsers (Cheung et al., 2009). In general, people tend to agree more with an expert and are more likely to change their behavior according to an expert's opinion (Eyal and Rubin, 2003).

2.4 Influencer and influencer marketing

Influencers, by definition (Frebeg et al., 2011), are independent people who act as authentic third parties capable of reshaping the attitudes and behaviors of their followers through social media platforms, where they try to build an image associated with marketing-oriented messages for commercial purposes (Belanche et al., 2021). These people often have a relatively high number of followers and are likely to build a large community of followers on social media platforms (Jin and Phua, 2014; De Veirman et al., 2017). They are rated as trusted experts in a specific field on social media, such as technology, fashion and beauty, lifestyle, photography, tourism, sports, and as opinion leaders (Audrezet et al., 2018; Ladhari et al., 2020). The opinions and reviews of experts in the field that they have experienced are gaining more and more interest from consumers thanks to the fact that today consumers regularly use social networks and feel like it is a part of life (Hu et al., 2020; Jacobson et al., 2020). Their influence is spread in the form of many relevant followers, who reach a broad audience based on various social media platforms (Freberg et al., 2011). Consumers spend a significant amount of time using social media. They have also changed their habits and perceptions of online advertising, thus requiring lighter, less public, and more authentic advertising methods (Campbell and Grimm, 2019). Influencers have made a big difference in online marketing thanks to the way they leverage their knowledge and skills and have strong connections with their followers (Campbell and Farrell, 2020).

The term influencer marketing refers to the collaboration between businesses and influencers in delivering messages and spreading oral marketing through the internet related to a company's products or brands (Sundermann and Raabe, 2019; Casaló et al., 2020). It is seen as a new marketing method when social networks appear and become increasingly popular as an essential thing for human life, especially for young people (Li et al., 2012). Social media is seen as the "home" of influencers, where they can interact with the audience to share knowledge and experiences, thereby influencing the audience's thoughts, attitudes, and behaviors (Dhanesh and Duthler, 2019). Influencer marketing gives marketers more control and more precise assessment of the campaign's effectiveness than traditional oral marketing, meaning that marketers can see views, likes, comments, and feedback from the audience in product endorsement posts by influencers (De Veirman et al., 2017). Social media posts that involve the endorsement of influencers for a product or brand have implications for consumer decision-making (Cheah et al., 2019).

The results of a qualitative study by Uzunoglu and Misci Kip (2014) involving bloggers, who are seen as influencers and opinion leaders, have shown that the relevance of labels and bloggers, content, credibility, and popularity of bloggers are seen as essential criteria in choosing to cooperate. Some previous studies also show that factors affecting the effectiveness of influencer marketing campaigns (Colliander and Dahlen 2011; Djafarova and Rushworth 2017; Lu et al., 2014) have shown that the parasocial relationship between consumers and influencers, the credibility of influencers or the trust in influencers are important factors determining the effectiveness of the campaign.

The use of influencers' images and views promotes brand awareness and consumer buying intent (Scott, 2015). Influencer marketing is considered to be more effective in promoting products and brands to young consumers than traditional means (Chatzigeorgiou, 2017; Lin et al., 2018). An influencer marketing campaign is considered adequate when it can help raise brand awareness, improve brand recognition and positive word of mouth, thereby increasing brand value and revenue (SunderMann and Raabe, 2019). A report researched by Ahmad (2018) on social media trends has shown that 94% of marketers have noticed the effectiveness of marketing campaigns based on the influence of influencers.

2.5 Hypotheses

Credibility is the positive, reliable characteristics of the person delivering the message approved by the recipient (O 'Keefe, 2002; Ohanian, 1990). The source credibility theory proposes that the effectiveness of a message is determined by factors such as expertise, trustworthiness, and attractiveness of influencers (Ohanian, 1990; Chu and Kamal, 2008). While attractiveness is seen as a conditionally influencing factor in building trust and depending on the communication context (Kim and Kim, 2021; Till and Busler, 2000), professionalism and trustworthiness are two factors that are considered essential to indicate trustworthiness as it relates to the personality of influencers (Rifon et al., 2016). A study by (Erdogan, 1999) has defined professionalism as the degree to which a person is judged to have in-depth knowledge of a particular field. Furthermore, according to this study, trustworthiness relates to the consumer's belief in the authenticity's honesty, uprightness, and integrity. Followers see influencers as a valuable source of information when they perceive the person to be credible and from which the authenticity of influencers will be compelling (Sokolova and Kefi, 2019; Munnukka et al., 2019). It is also seen as a determinant of the effectiveness of a marketing signal (Herbig, 1996). Maintaining credibility awareness is vital for influencers because it contributes to enhancing their influence on the social media community of followers (Sokolova and Kefi, 2020; Schouten et al., 2020). Influencers deliver a highly credible message that leads to positive changes in consumer attitudes and behavior (Miller and Baseheart, 1969; Petty and Wegener, 1998).

Kim and Kim (2021) found that followers see the relationship as a reward when they perceive the credibility of influencers. They expect positive results from endorsements. Influencers' messages for products and brands that are perceived as trustworthy will lead to positive changes in consumer attitudes (Miller & Baseheart, 1969; Schouten et al., 2020). Attitudes are defined as those states or positive or negative judgments about a particular object (Bernstein, 1984). Bilgihan et al. (2013) have defined more clearly that attitude is an individual's beliefs, feelings, and behavioral intentions towards things and people; it can be like or dislike, right or wrong. It can maximize the benefits or minimize the disadvantages of things in a particular situation (Katz, 1959). Therefore, consumer preferences and beliefs about a particular product are seen as attitudes towards the product (Smith, 2013). Kotler et al., (1999) define brand attitudes as affectionate or unsympathetic reviews of a brand, which are emotional or express an individual's intent to behave. Attitude is one of the determinants of consumers' ability to purchase (Ponte et al., 2015; Chetioui et al., 2020). Many previous studies on endorsed brands have shown that influencers create trust among consumers, and then the brands and products they endorsed are also positively assessed by consumers (Erdogan, 1999; Bergkvist & Zhou, 2016; Kim et al., 2018). Perceived credibility on the part of followers plays an important role in enhancing attitudes towards endorsed products (Pick, 2020). Nafees et al. (2021) also proposed that influencers' credibility has a positive effect on consumers' attitudes towards endorsed brands. Brand trust can be traced back to consumers' trust in influencers (Reinikainen et al., 2020). Thus, the following hypothesis was formulated:

H1: Influencers’ credibility have a positively effect on Product Attitude.

H2: Influencers’ credibility have a positively effect on Brand Attitude.

Purchase intention indicate an individual's tendency to act in relation to a product or brand (Dickinger, 2011; Bagozzi et al. (1979); Spears and Singh, 2004) argued that buying intent refers to the ability that consumers consciously plan and perform the buying behavior of a particular brand in the future. Intention to purchase was seen as the most important and accurate factor for marketers in predicting consumer behavior and subjective purchasing decision making (Huang et al., 2010; Kim and Chung, 2011; Xie et al., 2014). Purchase intention can be used to predict the likelihood that a customer could make a purchase decision (Schiffman and Kanuk, 2007). Previous literature indicated that consumers increase purchase intention when they trust endorsers even if it is an advertised product (Boerman et al., 2012; Sokolova & Kefi, 2020; Argyris et al., 2021). Erkan and Evans (2016) also suggested that credibility has a positive relationship with the purchase intention of users on social networks. Audiences are likely to purchase products endorsed by a source they consider trustworthy (Pornpitakpan, 2004). The higher the influencer's trustworthiness, the more likely a follower will have a purchase intention for products recommended by that person (Argyris et al., 2021).

When a person's attitude is shown to be satisfied with a product or brand they are more likely to perform behaviours (Armitage & Conner, 2001). Attitudes toward advertisements and brands have a positive relationship with consumers' purchase intention toward the brand (Goldsmith et al., 2000; Huang et al., 2011). Chetioui et al. (2020) also suggested that consumers' attitudes toward brands through endorsers have a positive association with purchase intention. Consumers' positive attitudes toward a product influence the customer's behavioural intentions, for example, the ability to choose the product when there is a need (Lu et al., 2014). The theory of planned behavior (TPB) identified attitude as a predictor of purchase intention (Ajzen, 2011; MacKenzie et al, 2006). We thus propose the following hypotheses:

H3: Influencers' credibility have a positively effect on purchase intention.

H4: Brand attitude (a) and product attitude (b) mediate the relationship between influencers' credibility and purchase intention.

Credibility is considered to be an important determinant of word-of-mouth through the internet (Reichelt et al., 2014), which is considered similar to recommend intention (Cheung & Lee, 2009). Casaló et al., (2017) defined recommendations are statements made by an individual, which can be positive or negative, beneficial or harmful to a brand. These statements are easily accessible to countless people through the internet. Algesheimer et al. (2005) consider that the intention to propose is one of the three critical factors that help maintain and achieve the goals of the community and create effective marketing campaigns thanks to the suggestions of the community; it is considered similar to word of mouth marketing (Cheung and Lee, 2009). The intention to recommend a product or brand makes it possible for marketers to predict whether consumers will do a positive review (Casaló et al., 2017). Previous research by Chetioui et al. (2020) in the field of fashion showed that recommendations for fashion brands from reputable influencers are highly likely to influence to consumers' evaluations and recommend intentions. Followers tend to act on things suggested by an influencer they trust, so they are also more likely to recommend and buy the products and brands that the influencer endorsed (Ki and Kim, 2019).

The recommendation is an important criterion to evaluate a positive behavioural outcome of satisfaction (Bigne et al, 2001; Prayag and Ryan, 2012). If customers have a positive attitude towards a product or brand, they are also more likely to recommend that product or brand to others (De Matos & Rossi, 2008). We therefore suggest the following hypothesis:

H5: Influencers' credibility have a positive effect on recommend intention.

H6: Brand attitude (a) and Product attitude (b) mediate the relationship between influencers' credibility and recommend intention.

Parasocial relationship is an intimate relationship between followers and influencers, which is a unilateral relationship established by followers (Chung & Cho, 2017). This relationship is considered a one-way because influencers rarely respond to their followers and have no "reciprocal obligations" towards other users, i.e. It is not necessary for the two people to respond to each other (Hargittai and Litt, 2011). The stronger a parasocial relationship is established, the higher the purchase intention is based on perceived credibility (Ballantine and Martin, 2005). Burnasheva and Suh (2020) found that the parasocial relationship have moderating effects on the relationship between the influencer's credibility and the brand affection as well as the brand self-connection. Therefore, this study also expect the parasocial relationship have a moderating effect on the relationship between the credibility of influencers and consumers' attitudes towards product and brand.

H7: Parasocial relationship moderate the effect of the influencer's credibility on brand attitude (a), product attitude (b) and purchase intention (c) such that a stronger parasocial relationship strengthens the positive influence on brand attitude (a), product attitude (b) and purchase intention (c).

Accordingly, our theoretical model includes six constructs and eleven research hypotheses that are depicted in Fig. 1.

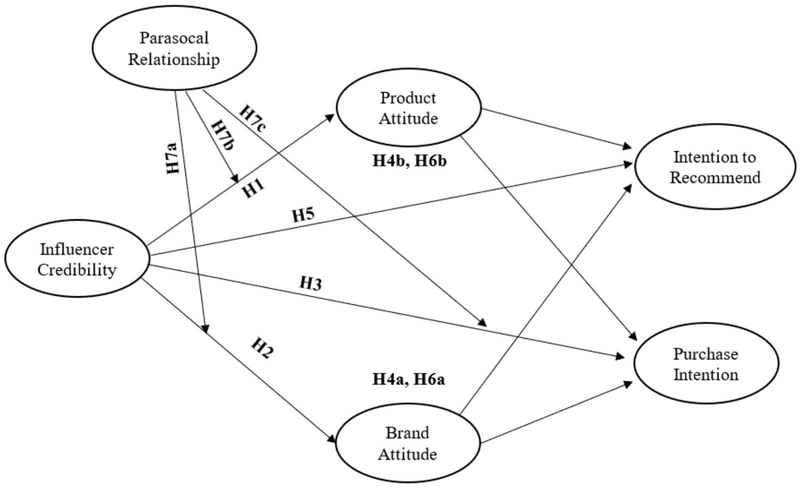

Figure 1. Structural equation model

3.METHODOLOGY

The indicators´ structure which was used for knowledge economy ------

The research paper is carried out through many stages from generating ideas to analyzing and interpreting research results. Specifically, the process includes:

Step 1: Recognize problems and identify the topic. The area of research relates to social media marketing. The research clarifies the effects of influencers' credibility on consumer attitudes and behaviours and parasocial relationship.

Step 2: Literature review and the research design.

Step 3: Investigate and form items adjusted from previous studies.

Step 4: Build Google form-based questionnaire and distribution on social media platforms and email. All items are translated into Vietnamese for the understanding of respondents. Some invalid responses were removed because they didn't give the name of an influencer they followed most often within 3 months.

Step 5: Evaluate measurement model, structural model and the moderating role of parasocial relationship.

Step 6: Discuss results and give implications. Consider limitations and suggest future research directions.

The measurement items for each construct in the research model were adopted and adjusted from previous studies. To measure influencer credibility, we adapted a scale suggested by (Belanche et al., 2021a; Ohanian, 1990). Prodcut attitude was operationalized by using the scale proposed by (Kim & Kim, 2021; Madden et al., 1988). Brand attitude was measured using the scale used by (Spears & Singh, 2004). Measure for parasocial relationship was took and adapted from (Yuan et al., 2016; Sokolova & Perez, 2021). Recommend intention and purchase intention were measured using the scale used by (Bigne et al., 2001; Müller et al., 2018; Sia et al., 2009; Xu & Pratt, 2018). All measures use 7-point Likert or semantic difference scales. The research scale is shown in Appendix.

4. DATA

The survey forms were widely distributed on social media platforms mainly Facebook and direct message to email for calling participation of university students. Respondents aged 15-34 living and working in Vietnam, the age group is considered suitable for the study because they often use social media. A total of 315 responses were considered valid out of 346 people attending the survey. Participants were asked to name the influencer that they most frequently followed in the past 3 months. Then, they had to choose a particular field involving the influencer and answered the frequency of following. Those who did not give the specific name of the influencer were unaccepted. In the following section, they evaluated questions concerning the influencer they had identified to measure constructs.

The sample size satisfies the 10-time rule states that the sample size must be 10 times larger than the maximum number of inner or outer model links pointing to any latent variable, in the case of this study there are three links (Hair et al., 2014).

5. RESULTS AND DISCUSSIONS

5.1 Respondents characteristics

We analyzed valid data from 315 respondents for descriptive statistics. The number of females is outstanding with 68.25% (n=215) of the sample compared to just 31.75% of males (n=100). Approximately 81.6 percent of the participants aged 15-24 (n=187) and 18.4 percent aged 25-34 (n=58). The income of our respondents per month in different levels including 3-5 million VND (60.3%; n=190), 5-10 million VND (24.8%; n=78), 10-15 million VND (9.2%; n=29) and above 15 million VND (5.7%; n=18).

The particular field that the influencer famous were given: fashion & beauty (39%; n=123), life (24.8%; n=78), education (12.7%; n=40), games and technology (12.7%; n=40), sports (4.8%; n=15), travel (3.2%; n=10), and food (2.9%; n= 9We noticed that 62.5% (n=197) of people in the survey showed that they often follow the activity of influencers at least once within three days, of which 46.7% (n=92) have the habit of following daily.

5.2 Measurement model

We evaluated the measurement model by using SmartPLS 3.3.9 software. The PLS approach is considered more effective in complex structural models with many relationships and appropriates with small sample size and data distribution method as characterized by the present study (Hair et al., 2019). First, the reliability of each construct was assessed by Cronbach's alpha. As shown in Table 1, all the factors achieved Cronbach's alpha index greater than the proposed threshold of 0.7, ranging from 0.841 to 0.912 (Nunnally, 1978). Second, we used factor analysis to test the validity of all constructs. The factor loading for all measures is above 0.7, indicating the significant correlation between observed variables with the factor (Hair et al., 2019). To assess the convergent validity, we tested the average variance extracted and the composite reliability. AVE values for all constructs exceed the 0.50 benchmark (Hock & Ringle, 2010). The composite reliability values ranged from 0.905 to 0.934, greater than the recommended value of 0.7 (Bagozzi và Yi, 1988). The root square of AVE for all constructs exceeded the correlations between latent variables (see Table 2), supporting evidence of discriminant validity (Fornell & Larcker, 1981). We also used morden method to assess discriminant validity by considering HTMT criterion (Henseler et al., 2015). The results in Table 3 show all values are lower than the threshold of 0.85. Therefore, both the convergent validity and discriminant validity were confirmed.

Table 3. Reliability and convergent validity analysis

Factor	Items	FL[a]	A[b]	CR[c]	AVE[d]
Influencer Credibility	IC1	0.779	0.841	0.905	0.761
	IC2	0.932			
	IC3	0.899			
Product Attitude	PA1	0.885	0.904	0.933	0.777
	PA2	0.873			
	PA3	0.883			
	PA4	0.885			
Brand Attitude	BA1	0.835	0.912	0.934	0.74
	BA2	0.857			
	BA3	0.864			
	BA4	0.872			
	BA5	0.872			
Parasocial Relationship	PR1	0.828	0.868	0.91	0.716
	PR2	0.848			
	PR3	0.852			
	PR4	0.857			
Recommend Intention	RI1	0.885	0.883	0.928	0.811
	RI2	0.898			
	RI3	0.919			
Purchase Intention	PI1	0.847	0.864	0.917	0.787
	PI2	0.919			
	PI3	0.893			

Notes: a. Factor loading b. Cronbach's α c. Composite reliability d. Average variance extracted

Table 4. Fornell–Larcker criterion results

Factor	BA	IC	PA	PI	PR	RI
BA	**0.86**					
IC	0.619	**0.87**				
PA	0.754	0.66	**0.881**			
PI	0.664	0.63	0.711	**0.887**		
PR	0.658	0.54	0.696	0.69	**0.85**	
RI	0.632	0.5	0.654	0.614	0.56	**0.9**

Notes: Diagonal elements (in bold) are the square root of the AVEs (variance shared between the constructs and their measures). Off-diagonal elements are the inter construct correlations. The model not included moderating effects of parasocial relationship.

Table 5. HTMT results

Factor	BA	IC	PA	PI	PR	RI
BA						
IC	0.701					
PA	0.829	0.75				
PI	0.748	0.743	0.803			
PR	0.736	0.628	0.778	0.79		
RI	0.705	0.5	0.731	0.701	0.629	

5.3 Hypothesis testing

Before examining the structural model, we evaluated the multicollinearity problem that potentially skew the regression results. The results indicated that the highest VIF value was 3.142, lower than the benchmark of 3.3 (Knock & Lynn, 2012). We estimated R^2 to understand showed that the variable brand attitude had an adjusted R^2 of .527, indicating the brand attitude explained 52.7% and the remaining 47.3% originated from systematic error and other factors outside the model. Likewise, product attitude (adjusted R^2 = .594; explained 59.4% of variance), purchase intention (adjusted R^2 = .615; explained 61.5% of variance), and recommend intention(adjusted R^2 = .469; explained 46.9% of variance). In addition, the model shows out-of-sample predictive power with Q2 values of all constructs greater than zero, suggesting exogenous variables likely to predict to endogenous variables (Cha, 1994).

The non-parametric Bootstrap procedure was applied for testing the significance level of the model (Hair et al., 2019). In this study, we carried out the Bootstrapping technique 5000 times to ensure the requirements of testing the linear structural model. PLS-SEM is applied to test the relationships between factors and research hypotheses.

Table 6. Results of path analysis and mediating effect test

Hypothesis	Relationship	Std. Beta	t-value	Decision
H1	IC → PA	0.353^{***}	5.304	Supported
H2	IC → BA	0.311^{***}	5.628	Supported
H3	IC → PI	0.168^{***}	3.351	Supported
H4a	IC → BA → PI	0.036^{*}	1.687	Supported
H4b	IC → PA → PI	0.082^{***}	3.093	Supported
H5	IC → RI	$0.054^{n.s.}$	0.753	Unsupported
H6a	IC → BA → RI	0.096^{***}	3.219	Supported
H6b	IC → PA → RI	0.137^{***}	3.783	Supported
H7a	PR*IC→ BA	-0.108^{***}	2.790	Unsupported
H7b	PR*IC→PA	-0.079^{**}	1.985	Unsupported
H7c	PR*IC→ PI	-0.115^{***}	3.571	Unsupported

Notes: *p < 0.01, ** p < 0.05, *** p < 0.001, n.s. = not significant. IC: influencer credibility, PA: product attitude, BA: brand attitude, PI: purchase attention, RI: intention to recommend, PR: parasocial relationship

The hypotheses testing results are presented in Table 4. Our analysis found that influencers' credibility have a positive impact on attitudes toward product ($\beta = .353$, $p < 0.001$) and brand ($\beta = .311$, $p < 0.001$), implying that influencers perceived as credible likely to enhance customers' attitude involve endorsed product and brand. The results also revealed that influencers' credibility positively effects on purchase intention ($\beta = .168$, $p < 0.001$). These findings support H1, H2 and H3. In contrast, the relationship between credibility and intention to recommend was insignificant ($\beta = .054$, $p > 0.1$), which suggests that influencers achieving more credibility could not directly boost followers' recommendations to others about the products and brands they proposed. Hence, H5 was not supported. However, We found the indirect effect of credibility on recommend intention through brand attitude ($\beta = .036$, $p < 0.01$) and product attitude ($\beta = .082$, $p < 0.05$), indicating that influencers' credibility could enhance the ability of consumers' recommendations when they have positive attitudes toward the product and brand. Consumers' attitudes also mediated the effect of credibility on purchase intention including attitudes toward brand ($\beta = .096$, $p < 0.001$) and attitudes toward product ($\beta = .137$, $p < 0.001$). These fingdings support H4a,H4b and H6a,H6b.

The Relationships between influencers' credibility and consumers' attitudes

This study reinforces the significant positive effects of credibility on product and brand attitude that suggested in several previous research papers(Kim & Kim, 2021; Pick, 2020; Nafees et al., 2021). Consumers assess the credibility of influencers based on activities they generate regularly on social media. These activities gradually forming trust with followers because they think that these people have a lot of experience, sharing is trustworthy. Result in positive changes in consumers' attitudes toward influencers and the messages influencers deliver (Miller and Baseheart, 1969; Schouten et al., 2020). For example, a famous influencer in Vietnam for men is Benjamin Tran. He is building his images in the fashion field. He usually shares opinions and experiences with brands that he used over a long period. He showed expertise by assessing the pros and cons of the fashion products, leading to offering style advices for manny different audience groups and seasons. Then, followers feel Benjamin's credibility and form positive attitudes toward endorsed products and brands. Attitudes are shown in the positive comments below the visuals in his accounts. Certainly, Benjamin has maintained credibility by cooperating with reliable brands. He contributes to the community through giveaway programs and collaborates with brands to create privately discount codes.

The Relationships between influencers' credibility and consumers' behavioural intention

The analytical result confirms the positive relationship between the credibility of influencers and consumer purchase intention and was consistent with previous studies conducted by Erkan and Evans (2016), Sokolova & Kefi (2019) and Argyris et al. (2021). This study adds the direct influence of credibility on purchase intention, which the previous study of Burnasheva & Suh (2020) suggested that it has no direct effect. Products and brands endorsed by credible influencers are more likely to be noticed by followers in the purchasing decision process. Because they could be getting an approach to quality products that are appropriate for themselves. These products have been thoroughly tested, experienced and evaluated by trustworthy experts with leading opinions in a particular field before being recommended to followers.

The study did not show a direct effect of credibility on intention to recommend although this relationship was suggested to be positive in a research paper by Belanche et al. (2021b). The prior study however found the impact of influencers' credibility on the intention to recommend influencers to others, not endorsed products and brands. This can be explained by the S-O-R theory (Donovan & Rossiter, 1982; Mehrabian & Russell, 1974) suggests that cues outside the environment act as a stimulus factor (S) influencing emotional responses emotions, feelings and perceptions (O) then stimulating the receiver perform some behaviours (R), particular the consumer's recommend intention in this case.

The mediating role of consumers' attitudes

This study presents the importance of forming consumers' attitudes as influencers' credibility effect purchase intention and especially the aptitude of recommendation through positive attitudes toward product and brand. These findings are appropriate to many studies accomplished by (Pick, 2020; Lee và Koo, 2015), was indicated that attitudes toward brands and products perform as mediators between the endorsement of influencers and customer responses, namely purchase intention and word of mouth. When consumers trust influencers leading to the formation of positive attitudes toward both the influencer and call-to-action messages. They desirably own endorsed products and feel drawn by the interest of the product and the brand. As a result, they have a high probability of buying products to achieve their goals. Consumers also want to share their desires and goals with others for finding empathy. Moreover, if they feel satisfied with the brand and product using experience originating from the recommendation of influencers, they are likely to share those experiences with the surrounding people or simply want to recommend great products. Consumers deliver positive attitudes attached to stories of everyday life.

The moderating role of parasocial relationship

After analyzing process, we found that the moderating effects of parasocial relationship on the relationship between the credibility of influencers and attitudes toward product ($\beta = -$

0.079, $p < .05$), attitude towards the brand ($\beta = -0.108$, $p < .001$), purchase intention ($\beta = -0.115$, $p < .001$) are significant. Then we used slope plot analysis to better understand the nature of the detected moderation. Figures 2 and 3 show that credibility increases consumer attitudes regardless of whether the parasocial relationship is strong or weak. However, the relationships between influencers' credibility and attitudes toward product and brand are stronger when the parasocial relationship is weak since they present a steeper slope. This result contradicts the proposed hypothesis, therefore H7a,b are unsupported.

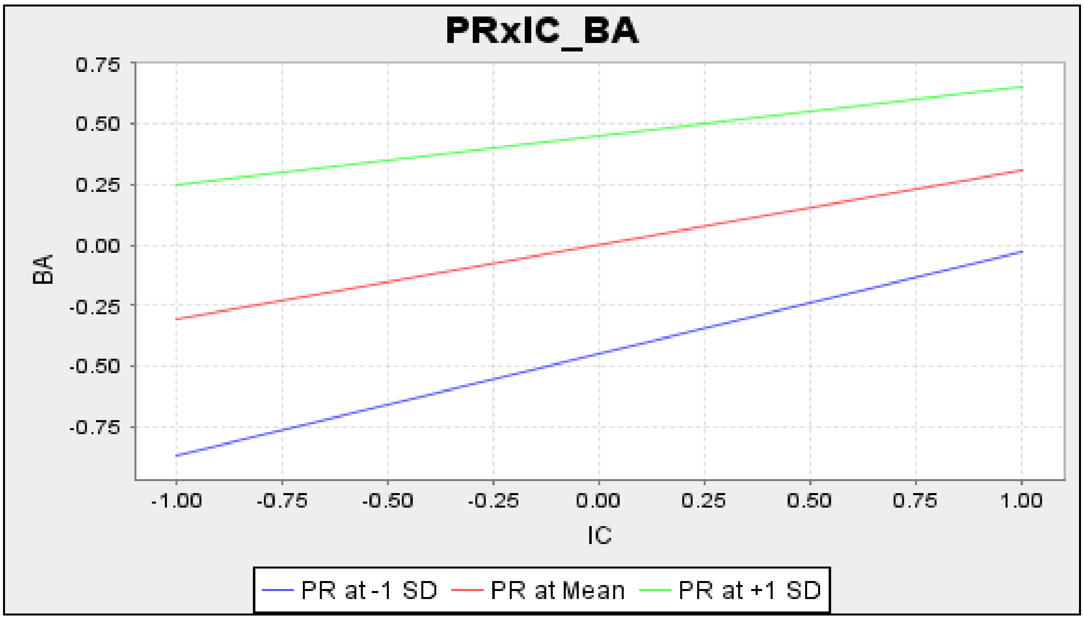

Figure 2. Moderatting effect of PR on the relationship between IC and BA

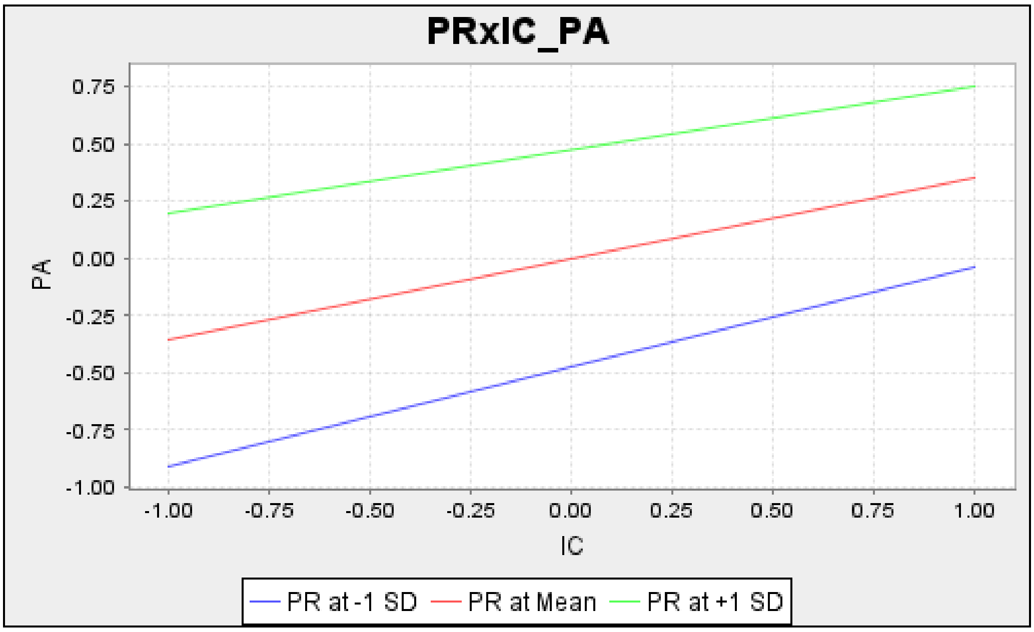

Figure 3. Moderating effect of PR on the relationship between IC and PA

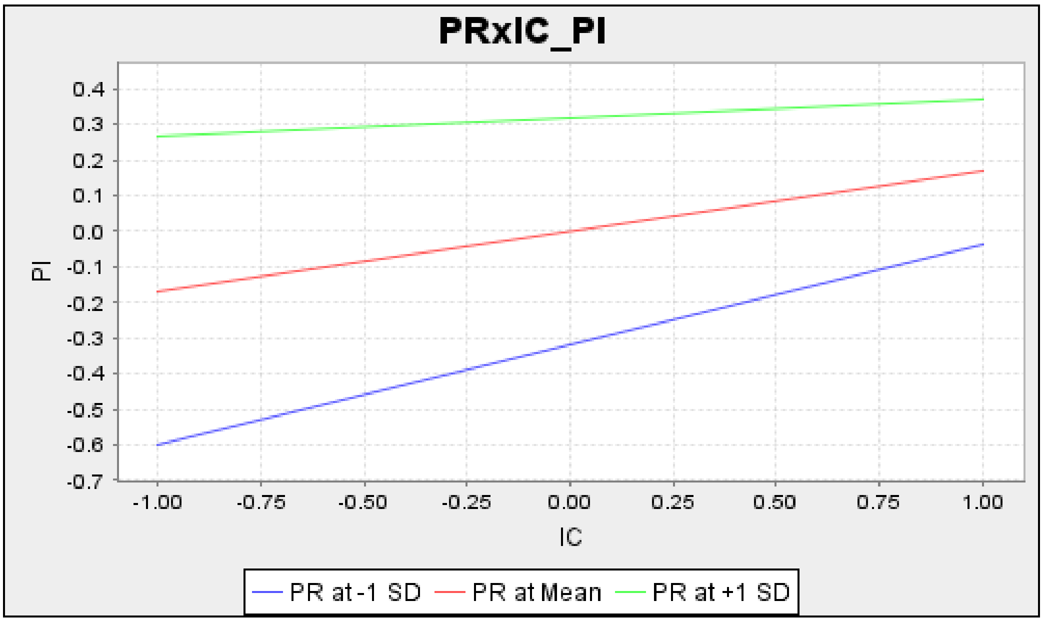

Figure 4. Moderating effect of PR on the relationship between IC and PI

As shown in Figure 4. The effects of influencers' credibility on purchase intention changed slightly in strong parasocial relationship. Weak parasocial relationship strengthen the relationship between influencers' credibility and purchase intention because it shows a steeper slope.

In addition, we realized these patterns shown in Figures 2, 3 and 4 are also called the substitution effects. According to Aiken & West (1991), these substitution effects mean that parasocial relationship could replace influencers' credibility in positively influencing attitudes toward brand, product and purchase intention or credibility could also act as a moderator. When followers can't perceive credibility but they formed a strong parasocial relationship with influencers also enhance attitudes and drive purchase intention. Yuan et al. (2016) and Sokolova & Kefi (2021) also suggested these positive relationships. Moreover, the simultaneous increase of both parasocial relationship and perceived credibility is associated with an increase in consumer attitudes and purchase intention. However, the influence of one of the two factors on consumers' attitudes and purchase intention will decrease when the other factor increases. Mean that only increasing the parasocial relationship without changing the perceived credibility will weaken the positive effects of credibility on attitudes and purchase intention.

5.4 Post-hoc analysis: the moderating role of age group

Many previous studies show that in the different aged groups, their attitudes and behavioural intentions also change, so the research team has examined and analysed the moderating role of age groups affecting the relationship between credibility and consumers' purchase intention and attitudes, specifically the aged group 15-24 (n=257) and 25-34 (n=58).

As suggested by Henseler et al. (2016), we evaluated measurement invariance for the two age groups by using the MICOM procedure. The results of the analysis (see Appedix 2 and 3) show that a composite invariance has been established and there is a significant difference in mean and variance for constructs, indicating that there is a fully measurement invariance. Therefore, performing PLS-MGA analysis to compare structural path coefficients between two groups was allowed (Henseler et al., 2016). The results of the multi-group analysis (Appedix 4) showed that there was no difference between the two age groups in the relationship between credibility and consumer's attitude, credibility and purchase intention.

6. CONCLUSIONS

6.1 Theoretical Implications

The study contributes theoretical implications to further understanding influencer marketing in assessing the effectiveness of influencer endorsements depending on their credibility. The effectiveness is measured by consumers' attitudes toward the endorsed product and brand, their purchase intention and the ability to recommend the product and brand to others. Many prior studies have been interested in the effects of influencers' credibility but they were still limited in investigating the relationships with the behavioural intentions presented by two important factors: purchase intention and recommend intention (Pick, 2020; Nafees et al., 2021; Kim and Kim; 2020; Belanche et al; 2021a). Our findings suggest that perceived credibility has an important role in forming positive attitudes toward products and brands and enhancing the buying probability of consumers. Consumer attitudes are improved when they feel secure in receiving messages from credible influencers.

Second, this study helps to emphasize the importance of consumer attitudes in inspecting marketing outcomes when attitudes also mediate the relationship between credibility and intention to purchase and suggest the product to others. The results showed that the influence of credibility on purchase intention is partially mediated by consumer attitudes. Pick (2020) suggested that consumers' attitudes toward advertising and advertised products mediate the impact of credibility on purchase intention. However, we found that these attitudes also play an important role in influencing consumers' ability to recommend the endorsed product or brand, as a way of spreading positive information about the brand. Credibility can't directly predict the intention to recommend but it can motivate performing recommendations from followers to users on social media and surrounding people through positive attitudes.

Finally, the present study has contributed to the field of research on the moderating effects of parasocial relationship, the aspects that have not yet received much attention from researchers, especially in the online environment. The significant moderating effects of parasocial relationship from our analysis showed that a strong parasocial relationship does not always have positive effects on the effectiveness of endorsements in this case. The results show that consumers' attitudes toward product and brand and their purchase intention are more strongly impacted by influencers' credibility if the parasocial relationship is weak. Several reasons can be given to explain this phenomenon. First, when the parasocial relationship is strongly established, consumers are likely to increase attention to the influencers' activities (Rubin & Perse, 1987). Puzakova et al. (2009) indicated that individuals with a high need to belong, arising from a strong parasocial relationship, tend to observe more often signs of people. Therefore, high attention to influencer-endorsed content is likely that consumers will adjust their behaviours and attitudes after they are exposed to an advertising message (Friedstad & Wright, 1994). Hwang and Zhang (2018) also suggested that parasocial relationships can reduce the effects of advertising because consumers have a sense of familiarity with influencers when they frequently approach the activities of influencers (Kim & Kim, 2021). Second, the unexpected results of the moderator can be explained by the Optimal Distinctiveness Theory (Brewer, 1991). The theory indicated that each individual has two needs: to assimilate and to differentiate from others (Leonardelli et al., 2010). Consumers with strong parasocial relationships have a high sense of similarity to influencers, so they are more desirable to differentiate themselves by reducing the attitudes and purchasing intention of the endorsed products. The competition between these two needs makes their ability to absorb messages less. Another reason that can be given is the impact of the ceiling effect, meaning that strong parasocial relationships are more difficult to improve consumer attitudes and purchase intention when this effect is already high. However another important finding was found, an increase in consumer attitudes and purchase intention can occur if the perceived credibility and parasocial relationship simultaneously increase. In summary, the parasocial relationship is still an important factor if applied reasonably.

6.2 Managerial Implications

The results may help managers in the influencer marketing field select influencers effectively for endorsing products. Marketers meet a lot of difficulty in choosing the right influencer for the marketing campaign (Pick, 2020). Therefore, the study has shown the importance of influencers' credibility in shaping consumers' positive attitudes toward both endorsed products and brands, and enhancing the likelihood of making a purchase decision. Marketers can consider the expertise, trustworthiness, and honesty of influencers from previous brand collaborations and other activities to assess the credibility of influencers. In addition, credibility should be chosen as the top criterion for choosing cooperation when the purpose of the marketing campaign is related to the spread of the brand or product. Therefore, managers need to value the credibility of influencers instead of concentrating just on the number of followers and reach, sometimes influencers with a smaller number of followers have more effectiveness in endorsements (Schouten et al., 2019; Pittman & Abell, 2021).

This study also shows that brands should place common concerns between consumers' credibility and parasocial relationship. To optimize the conversion rate of consumers, it is necessary to increase the perception of influencers' credibility while improving the parasocial relationship. Therefore, marketers need to clarify information about products and brands and analyze product pros and cons to influencers so that they can improve credibility when responding to questioning comments from followers, leading to strengthening consumers' parasocial relationship (Frederick et al., 2012; Labrecque, 2014). From such responses, followers feel cared for and these reinforce the influencer's credibility with experience and knowledge of the endorsed product. Influencers should pin featured comments that satisfy questions from the audience or interact multiple times, then these responses will be suggested to the top of visuals to help other followers can easily notice and access these positive signals. To be an effective endorser, influencers need to constantly hone their knowledge and experience in their field, and interact with their followers. They need to show trustworthiness and persuasion in the content that is published on social media platforms. Besides, it is also necessary to choose the right partners to avoid damaging the credibility they have built for a long time. However, it should be noted that, if only improving the parasocial relationship without the simultaneous enhancement of perceived credibility will lead to a decrease in the effectiveness of the marketing campaign in measuring the attitudes and purchase intention of consumers. Therefore, it is important that stakeholders closely balance these two variables to maximize consumers' attitudes toward product, brand, and purchase intention.

6.3 Limitations and recommendation

Our study targeted social media users in Vietnam, a developing country, so the results may not be generalizable to developed countries. Therefore, the following studies may investigate whether there are differences between developed and developing countries.

Our study was generalized as respondents were required to name influencers regardless of the field they regularly follow, nor did we include brand names to avoid familiarity effects and increase the internal validity of the study. Future studies should research deeper into a particular industry and specific brand to gain insight into the effects of influencers in that field on the endorsed brand. However, it is necessary to control the participants' attitudes and behavioural intentions towards the proposed brand.

This study identified the importance of influencers' credibility but it has not yet investigated the congruence between influencers, products, and followers, which is suggested also play a role in influencing consumer attitudes and behaviours (Belanche et al., 2021a). Future studies may explore the relationship between credibility and congruence, and its effects on message effectiveness.

Our study is a cross-sectional study, so the results are limited at the time of the study. Currently, there are few longitudinal studies on the influences of parasocial relationship, so long-term observations of parasocial relationship are needed to better understand the effects and the change of parasocial relationship (Liebers and Schramm, 2019). In addition, we only investigated the moderating role of parasocial relationship. Future studies may have other moderators affecting consumer attitudes and behavioural intentions such as gender, generations (X, Y, Z), types of influencers based on the number of followers (nano, micro, mid-tier, macro and mega influencers). The continuous variables can are concerned such as an individual's self-discrepancy, and need to belong.

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MANAGEMENT

"NEW NORMAL" IN DRIVING MARKETING PHILOSOPHY FOR POST COVID 19 ERA IN VIETNAM

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ABSTRACT

We have recently emerged from what some people call a "crisis of the times." The pandemic caused by the COVID 19 virus struck within two years, causing everyone's thinking, lifestyle, and perspectives to shift. Since the start of the most prolonged lockdown period in October 2021, Vietnam has operated chiefly under the status of "new normal." Since then, the market in Vietnam has also seen considerable upheaval. This article contains bibliometric reviews grounded in the most recent research to maintain a current understanding of how Covid-19 affects marketing trends. According to the survey's conclusions, there have been substantial adjustments in recent times regarding consumer buying behavior, priorities, and CSR inclinations. As a result of these shifts, businesses have the chance to more precisely define their business viewpoints and the fundamental marketing concepts they use.

Keywords: New Normal, Marketing Philosophy, Post Covid-19 Era, Vietnam

1. INTRODUCTION

Recent statements made by COVID-19 progress have prompted the World Health Organization (WHO) to label the situation as a worldwide public health emergency. As of the 18th of May in 2020, over 4.8 million cases have been confirmed in a laboratory worldwide. COVID-19 has killed almost 317,000 individuals (WHO, 2020). Vietnam's initial and most crucial response was fast and decisive. People's health became the principal focus of national policy, resulting in a significant mobilization of resources across all sectors. Before the first occurrence of COVID-19, the nation prepared COVID-19 response action plans and technical standards. There have also been nationwide screening and testing programs designed to target elevated individuals regardless of signs or susceptibility in order to detect cases reported and track the transmission networks. Despite the country's attempts to control COVID-19, Vietnam continues to be impacted by the pandemic in various ways (Nguyen et al., 2021). During the pandemic wave that began in late May 2021 in Vietnam, mainly in Ho Chi Minh City, dreadful incidents such as these occurred throughout the nation.

According to a report published in 2020 by Tan & Tran, firms in Vietnam are required to embrace the fact that the market is volatile. Although social isolation or lockdown may affect operations in the short term, it would appear that these tactics have longer-term repercussions for the formulation of strategy. The first is a decrease in revenue in June 2022 that is 81 percent lower than the same period the prior year. At the same time, growth indicators have dropped to -27%, which requires firms to triumph over the difficulties that now exist. As a result of individuals being required to remain at home and the primary form of communication being based on wire connections, businesses are gradually becoming aware of the potential of digital media. Over half of all companies have increased their reliance on digital communication channels to weather the storm.

The world is transforming, and Covid-19 may be a part of it (He & Harris, 2020). We regard Covid-19 to be an odd disease with potentially harmful side effects because of the circumstances and events that have taken place. We should all brace ourselves for some rough waters ahead. We have witnessed scenes of dread and panic during epidemics, the loss of lives, and the fragmentation of families. In the face of the crisis and other legitimate concerns, the economic headquarters and the managers were powerless. Now is the time for everyone to reconsider, gain valuable insights from the previous age, and ask the vital question, "What should we do next?"

Deputy Prime Minister Vu Duc Dam just signed Resolution No. 128/NQ-CP of the Government in October 2021, which promulgated the provisional rule titled "Prefer full application, flexibility, and effective testing of COVID-19." The activities that are stated in the resolution will adhere to the principle of the "new normal." The term "new normal" means a notion used to denote the changes in activities, social interactions, and human behavior resulting from the Covid-19 epidemic. It is the state that the Vietnamese Government has established to orient the nation and its people to operate, live, and operate everything with the priority of health protection and illness prevention. This article cites significant circumstances and the "New Normal" to review recent studies demonstrating how changing times affect how organizations formulate their strategic marketing philosophies and incorporate their corporate social responsibility (SCR) roles into this circumstance.

2. LITERATURE REVIEW

Marketing Philosophy

A key part of marketing management is identifying target markets and establishing, maintaining, and growing customer bases by creating, providing, and disseminating goods and services that satisfy customer needs. Target markets are selected, and after that, efforts are made to bring in new clients and retain and grow relationships with those already established (Dowling & Dowling, 2004). In other words, marketing is the process of creating, communicating with, and delivering products or services to consumers to meet their needs and grant their wishes. This is done in the name of customer satisfaction. It is the purpose of a marketing philosophy first to ascertain a customer's requirements and then to fulfill those objectives. Over the course of many years, scholars and professionals in the field of marketing have lauded the marketing concept to such an extent that its acceptance as the best marketing management philosophy is close to being universal (Houston, 1986). There are five distinct philosophies or concepts that can be found within the realm of marketing. They are as follows: the production concept, the product concept, the selling concept, the marketing concept, and the societal marketing principles (Kotler & Keller, 2016; Kotler & Amstrong, 2008; Deepak & Jeyakumar, 2019). To comprehend how each thought developed into the present marketing paradigm, it is necessary to conduct a comprehensive investigation into the fundamental idea and application of each concept (Nwankwo & Kanyangale, 2022).

Production concept is one of the oldest concepts in business based on the philosophy that supply creates its demand. It has been around for a very long time. In this concept, customer convenience and cost are two of the most important variables (Kotler & Keller, 2016). All efforts must be directed toward manufacturing a product in more significant quantities while keeping the cost per unit low to meet this objective. Productivity is emphasized, along with cost containment and the use of new technology in the production paradigm. Further, these convos often ignore the consumer (Armstrong & Kotler, 2015). There are several instances when an emphasis on internal business aims above customer needs is prevalent in manufacturing. The dilemma arises in the question of whether firms have become complacent in their manufacturing ideas or if they have progressed to keep up with current marketing strategies. Some customers' needs are satisfied not by a product's potential for mass production and decreased price, but rather by the product's quality and performance in meeting those needs.

According to the product concept, defined by a concentration on product innovation, exceptional quality, and performance that surpasses the product's core functional needs, the product must meet or exceed these characteristics to be considered successful. In their quest for product innovation, firms have claimed continual improvement as a justification for charging more fantastic prices than their rivals (Kotler & Keller, 2016; Ndubisi, 2016). Because the product concept evolves, it becomes more apparent that defining and establishing quality by companies is difficult. This is because it needs firms to do ongoing research on the market and their customers, which demands applying talents and resources.

Customers will only purchase things from a company that makes significant efforts to promote and sell those products to many potential buyers. This is the central tenet of the Selling Concept. Manufacturing a product and letting customers make their own choices about whether or not to buy it is insufficient to meet sales goals, according to the selling concept, which was built on the principle (Kotler & Armstrong, 2018). Besides, the buyer is led to choose one product over another by sales and promotional operations that provide a variety of incentives, techniques, contests, direct interactions, and promotional messaging.

The marketing strategy is founded on the notion of "sense and respond," which prioritizes the client's needs. In this stage, the marketing manager concentrates on the requirements and preferences of the consumer to provide superior levels of satisfaction. The term "marketing concept" refers to the dynamic relationship between a corporation, its customers, and those customers' needs. According to the marketing philosophy, businesses need to advertise their long-term and consistent performance to compete in marketplaces with sophisticated consumers. When designing a marketing strategy, it is essential to take into consideration not only the plan but also any changes in the business environment, as well as the objectives and capabilities of the company (Sharp, 1991). The requirements and expectations of customers are at the center of the marketing strategy, which strives to satisfy those requirements and desires (Skripnik, 2017). Marketers have the misconception that particular client needs are manufactured and then communicated to customers, as opposed to the marketer just finding what customers want.

Meanwhile, the Concept of Societal marketing places an emphasis not only on giving gratification to customers but also on the general well-being of consumers and society as a whole. In the 1970s, it was first introduced (Nwankwo & Kanyangale, 2022). The shift away from marketing as a concept and toward social marketing is notable because it is a response to widespread, excessive consumption and unethical commercial activities. The term "social marketing" is being used more often these days, and there are three reasons for this. Examples of these values include human welfare (often known as "doing the right thing" or "doing what's best for people"), customer demands (as opposed to consumer wishes), and long-term client relationships (Ndubisi, 2016). According to this theory, marketing managers should always analyze the requirements, preferences, and interests of their target markets. They should provide superior value to customers more effectively and efficiently than their competitors. This should ultimately result in the general welfare of customers and society.

Corporate Social Responsibility

In the years before to the 1950s, there was no evidence of CSR definitions in any of the published literature. But at the other extreme, throughout the 1960s, there was a notable rise in the number of initiatives to define or correctly explain what exactly constitutes CSR (Carroll, 1999). On account of the fact that it is fundamental in nature and that it is in line with what the general public expects from the modern-day commercial sector, numerous extra concepts have been constructed on top of it. The concept of corporate social responsibility, sometimes known as CSR, will continue to play an important part in both the academic study of business and its actual application. When new research is undertaken or when fresh instances are published in academic literature, the definitions of corporate social responsibility (CSR) may shift or be altered.

It is impossible to envisage a situation in which these new ideas would have come about without the extensive research that has been done over the last 50 years. In part, this is due to a half-worth century's of study on this subject. Carroll (1999) provided a comprehensive account of the events leading to the conception of CSR within the limitations of his statistical investigation. Johnson, the CED, Davis, Steiner, Eells and Walton, Sethi, Preston and Post, and Carroll all made significant contributions to the definitional framework throughout the 1970s. Corporate social responsibility was defined in fewer ways back in the 1980s than it is now, despite the existence of several issue frameworks (CSR). The frequency of CSR evaluations and investigations rose as well. In the 1990s, the notion of corporate social responsibility, or CSR for short, expanded significantly to include a wide range of issues. Among the subjects covered were stakeholder analysis and business ethics, corporate social responsibility (CSR), and corporate citizenship. Throughout the 1990s and into the new millennium, we should expect a greater focus on theoretical advances and activities related to measurement. We should be able to foresee this change in focus.

Table 1: Corporate Social Responsibility concept development

Period	CSR Definition	Author
1950s	Businesspeople have a duty to promote policies, make judgements and take actions that are helpful to society as a whole, in accordance with its aims and values.	Bowen’s (1953)
1960s	Businesses that take socially responsible action (SRB) might justify their conduct by claiming that they will reap long-term financial benefits for their socially responsible acts.	Davis (1960)
	Having a public view of society's economic and human resources is a prerequisite for social responsibility, as is the desire to ensure that they are used for the greater good rather than limited personal gain.	Frederick (1960)
	Social responsibility implies that companies have duties to society beyond economic and legal obligations.	McGuire’s (1963)
	Social responsibility emphasizes institutional acts and their social system impact. Social responsibility broadens a person's vision of society.	Davis (1967)

Period	CSR Definition	Author
	In the new notion of social responsibility, senior managers must bear in mind the close ties between the firm and society as it pursues its objectives.	Walton, 1967
1970s	Socially responsible firms balance several interests. A responsible firm considers workers, suppliers, dealers, local communities, and the country, not just investors.	Harold Johnson's (1971)
	According to the concept of social responsibility, firms implement social initiatives to increase their profitability.	
	Business operates with the permission of the public, and its fundamental aim is to fulfill society's needs constructively—to the pleasure of society.	CED (1971)
	Responsibility means the company is at least somewhat free. If any of the above social goals are mandated by law, the company has no duty while implementing them.	Manne & Wallich (1972)
	Perhaps the easiest approach to conceptualize social responsibility is as "good neighborliness."	Eilbert & Parket (1973)
	CSR focuses on society objectives and needs rather than profits. The corporate social responsibility movement emphasizes on the corporations' role in maintaining and promoting social order since the present business system can only thrive in a free and functional society.	Eells & Walton (1974)
	Society responsibility is aligning company activity with social norms, values, and performance expectations.	Sethi (1975)
	Public responsibility defines organizational management duties in public life.	Preston and Post (1975)
	Business social responsibility includes economic, legal, ethical, and discretionary obligations of corporations at a particular period.	Carroll (1979)
1980s	CSR is the belief that firms have an obligation to constituent groups in society other than investors and beyond what is mandated by law and collective bargaining agreement.	Jones (1980)
	To simplify the operationalization of CSR, it would be beneficial to have an analytical framework; Maslow's framework is the best option.	Frank Tuzzolino and Barry Armandi (1981)
	The "legally responsible" cell was the correct CSR approach for businesses.	Dalton and Cosier (1982)
	The four principles of corporate social responsibility (CSR)	Carroll

Period	CSR Definition	Author
	are: economic, legal, ethical, and philanthropic.	(1983)
	Business social responsibility is making choices that (by some normative criteria) benefit rather than harm corporate stakeholders. CSR focuses on the normative appropriateness of business activity.	Epstein (1987)
1990s	The CSR firm should strive to make a profit, obey the law, be ethical, and be a good corporate citizen	Carroll (1991)

3. METHODS AND RESULTS

Impact of Covid-19 on Marketing Philosophy in Vietnam

We are all aware that for firms to undertake good marketing, they must have a thorough understanding of the market and its conditions and a clearly defined direction. The Covid–19 incidents are comparable to the so-called "Black Swan Event," which is an unexpected occurrence that altered the subsequent course of history (Taleb, 2008). Consumers' thoughts, deeds, and shopping habits are all changing as a direct contribute of Covid-19, and it is anticipated that many of these shifts will remain when the epidemic is over. In the same way that the evolving expectations and behaviors of customers will effect the future of industries, they will also provide businesses with new challenges as well as new opportunities. Therefore, in order for businesses to develop effective business strategies to accommodate new and developing consumer trends, they need to have a comprehensive understanding of the evolving behaviors of their customers. Businesses have a responsibility to understand how their customers are reacting to the pandemic and devise marketing strategies that are tailored to match the requirements of their various clients.

Before we can analyze how the pandemic has impacted core marketing concepts, we must first have a better understanding of the specific adjustments that have happened in consumer buying behaviors, and the top priorities of Vietnamese purchasers.

The Changes in Buying Behaviors

As a direct consequence of the Covid-19 pandemic, the behavior of the Vietnamese population as a whole changed drastically. Notably, forty-seven percent of Vietnamese individuals have altered their eating habits, and sixty percent have changed how they use their leisure time. 70% of Vietnamese people have limited their trip plans, and 44% believe their principal source of income has been badly impacted (Tien et al., 2021). As a result of the public's attention on social isolation, there has been a significant behavioral change among individuals. Numerous individuals who have never shopped online are anticipated to begin doing so. Current online shoppers are expected to spend more money due to the multiple benefits that e-commerce, online shopping, and speedy delivery services provide. It is anticipated that e-commerce, online shopping, and rapid delivery services would gain market share due to their various handy characteristics, including higher sales volume and income. In the case of an epidemic, businesses should focus on creating opportunities to sell products and services that can be consumed at home since this is the most probable place of consumption. Moreover, this is the optimal age for online network channels since people tend to maintain their activities after an epidemic (Tien et al., 2020; Nguyen et al., 2021; Pham et al., 2020; Ha et al., 2022).

Convenience shops have had the highest growth over the last several years. Still, one of the challenges they confront is the rising relevance of customer proximity due to customers' heightened knowledge of developing trends. Minimize your time spent away from home. Many convenience shops cannot supply their clients with the entire assortment of supplies they need to stock up or cook at home. As a direct consequence of this evolution, convenience shops have an extraordinary chance to increase their offering of critical food-related products beyond "eat-in-shop" and "take-away" goods. Customers are more anxious than ever about their purchases' convenience (Nguyen et al., 2022; Giang et al., 2022; Thy, 2021; Nguyen et al., 2020).

What are customers' top priorities?

To begin, there has been a rise in the level of awareness on health care among Vietnamese consumers (Tien et al., 2021; Ngan & Khoi, 2021; Tien et al., 2020; Ha & Trinh, 2021). Even if the Covid-19 outbreak has stabilized in Vietnam and the rest of the globe, people's growing interest in health and awareness of their own health has influenced the use of safe food, especially organic food. In order to overcome the great tribulation, the goal of encouraging environmentally friendly consumption and manufacturing environmentally friendly products has enabled people to enjoy excellent health and a healthy lifestyle. According to study performed by Ngan and Khoi (2022) on food buying, the quality of the food and the customer's understanding of his or her own health are two of the most significant factors in the customer's decision to purchase. Customers are becoming concurrently more aware of the relationship between the state of their own health and living circumstances and the climate system. From there, many buying options are available based on the country of origin of the goods. Customers will choose products that are better for the environment and have a history that can be researched (Ha & Trinh, 2021).

The price is a second element that must be addressed. Covid influences the pricing of several sorts of commodities and products in several distinct ways. Despite this, there is a growing interest in a novel idea known as the "green pricing approach." This implies that pricing decisions should be based on how customers feel about a product and how much they are ready to pay for a product that provides a consumption advantage in addition to prospective health advantages and protective effects. A circumstance in which the ideas of production cost consideration and desired rate of return are not employed to drive decision-making (Tien et al.,2020). As the cost of living continues to rise, more people are buying products that are currently on sale rather than paying total price. On the other hand, this presents a challenge for businesses in marketing because they are experiencing a variety of unfavorable impacts as a direct result of the rising cost of raw materials and operations. These impacts include the inability to attract and retain customers as well as a reduction in overall profits.

Core Marketing Concepts

Marketing is centered on the marketing concept, which seeks to comprehend and respond to the requirements and aspirations of target consumers more effectively than contenders might (Kotler & Armstrong; Harris, & He, 2019). We may be able to establish a key concept for its marketing efforts if we base it on changes in the buying behavior and actual desires of Vietnamese consumers brought on by the "new normal" that occurred after the epidemic. The degree to which the marketing philosophy concept is prioritized to drive product and company development will significantly influence the level of commercial success achieved. Businesses were compelled to increase their strategic agility before, during, and after the outbreak because of changes in the environment and landscape of marketing. These changes occurred as a result of the epidemic. These shifts are directly attributable to the epidemic. To be able to keep up with the lightning-fast growth of the firm, companies needed to display such entrepreneurial agility as to represent hypermobility-level adaptability. This was necessary because of the lightning-fast development of Covid-19. The client market has shifted not only following the criteria of the people they serve but also in product distribution routes, sales methods, and distribution networks. In other words, it has become more competitive. Establishing a marketing philosophy is very necessary for companies that are currently doing business in Vietnam at this time.

Impact of Covid-19 on CSR

A company that participates in CSR initiatives can develop a better reputation with its customers, benefiting the company. Large-scale acts of philanthropic responsibility demonstrate the immense significance of compassion beliefs. In light of this, firms must prioritize philanthropic efforts as one of the four pillars of their corporate social responsibility (CSR) programs, particularly during times of crisis like the Covid-19 pandemic (Nguyen & Nguyen, 2022; Mai, 2022). Customers and the general public will develop a stronger relationship with a company whose corporate social responsibility (CSR) is genuine and authentic because they have high expectations of major brands, especially the brands that they prefer, in light of the efforts that major brands are making to combat the virus during the current crisis (Tran & Kauma, 2020). Because major businesses have made significant efforts to combat the virus, their clients and the broader public have high expectations for those businesses. Customers would have a positive emotional response if the firms they patronized gave money and supplies to their employees during the economic downturn. This would increase client satisfaction with the firms they support. During times of "quiet," the bond between a brand and its customers may not be as strong or as long-lasting as during times of crisis. As a direct consequence of the Covid-19 pandemic, businesses now have several opportunities to actively participate in the actions and goals of their corporate social responsibility initiatives. There are several plausible causes for this occurrence. Since the Covid-19 epidemic is still active, substantial concerns have been raised about the community's health and safety. People are conscious that their physical health and life are of the utmost importance as a direct consequence of this. As a result, the great majority of businesses are getting increasingly involved in CSR initiatives, such as donating to the national covid vaccination fund and sponsoring medical equipment such as sterile water, masks for frontline medical workers, and hospital ventilators. Charity work for the less fortunate and workers who have lost their jobs as a direct result of the Covid-19 outbreak will benefit the company's image and reputation. Vietnam is now facing severe social and environmental difficulties due to its fast industrialization and the lack of stringent environmental legislation (Nguyen et al., 2021; Minh et al., 2021; Hsu & Bui; 2022)

4. CONCLUSION & FUTURE RESEARCH DIRECTIONS

This article summarizes the most important trends that have influenced the marketing philosophy in Vietnam's "new normal." More specifically, it has been shown beyond a reasonable doubt in the necessary study that there is a change in purchasing behavior: purchasers are opting for convenience, and the urge to buy things online and via e-commerce platforms is growing. In addition to concerns about health and the environment, cost and discounts may play a role in determining which products are purchased. In terms of corporate social responsibility (CSR), research shows that in the time known as the "new normal," community and societal tasks need to be performed to positively influence customers and clients. More specifically, the tragedies and difficulties brought on by the current epidemic season have strengthened people's interest in one another, and the most crucial part of society is moral values. Companies are now in a better position to quickly determine their route and provide a response to the question they presented at the beginning regarding their marketing campaign and corporate viewpoint. This is because companies now have access to more information. It is an appropriate response to the present climate in Vietnam to seek actual value following the "green pricing" policy, maintain a balance between one's revenue and expenditures, and exhibit concern for one's customers, society, and the environment.

On the other hand, one of the limitations of the research is that it does not cover all of the characteristics of customer-specific purchase intention that are relevant to the current circumstance. The guidance that is provided by relevant research will be of use to the business community in offering an enhanced direction. In addition, studies are essential in order to assess the situation and demonstrate that the changes in question are not only temporary.

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VALUE CO-CREATION IN ONLINE HEALTH COMMUNITY IN VIETNAM

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ABSTRACT

We recognize the shortcomings that still exist in the local health system and the benefits of the online healthcare community. We conducted this study to examine the influence of value co-creation on people's continued participation in the primary health care community. An online survey of 503 users in communities in Vietnam participated in two times. The results obtained from the PLS-SEM analysis method show that the continuous participation intention of users is directly affected by the co-creation of value. This result responds to include the stages of the Covid-19 epidemic but not the post-pandemic period. Our research will provide administrators of medical facilities with a better understanding of communication in the online environment, and the results help the state continue to improve self-care behaviors of people in Vietnam.

1. INTRODUCTION

A survey conducted by Herbalife Nutrition and Enteral Nutrition Council with 3000 participants in the Asia Pacific region showed that more than 94% of consumers in Vietnam are doing self-improvement with goals including physical health, nutritional health, and emotional and mental health. In this survey, Vietnamese people also have many lifestyle changes. For example, 51% of people eat healthier and add vitamins and minerals to the body, and 40% of respondents said they focus on comprehensive health regarding mental, physical, and social needs. According to another Nielsen study (2020), Vietnamese consumers have the most prominent global health concern, above all concerns about job safety, economy, inflation, and balanced life. More specifically, consumers in Vietnam have learned about nutritional products and added them to their diets in the correct dosages guided through online resources and consultation with doctors. On the other hand, when the Covid-19 epidemic raged and is now gradually under control, Vietnamese people had more and more concerns about health. These results show that Vietnamese people have been and are aware of taking care of their health.

With the rapid development of the information revolution and broader access to the World Wide Web (WWW), individuals are increasingly turning to the Internet to meet a variety of Information, communication and communication needs, and entertainment. Individuals use the Internet to expand their networks and update daily

Information. Besides, the Internet is an essential tool to connect with many individuals with low income and education and ethnic minorities to disseminate health information (Zarcadoolas, Blanco, Boyer and Pleasant, 2002; Brodie et al., 2000). The Internet enables online health communities (OHCs) to operate; through OHCs, doctors can share medical or healthcare knowledge with patients (Guo et al., 2017). OHC is online social-related health. OHCs provide participants with information sources shared by members regardless of geographical, temporal, or privacy constraints (Butler, 2001). OHCs offer patients and their families the means to learn about their illness, find and provide social support, and connect with others in similar circumstances (Van et al., 2013). These communities can be hosted on various technology platforms, from traditional newsgroups, blogs, social Q&A, and recent social networking sites. These platforms offer different user engagement experiences, but they essentially allow consumers with similar health interests or goals to connect, participate in discussions, and collaborative problem solving (Eysenbach, 2008). In contrast, to lean sources of Information, such as WebMD, Wikipedia, and health information sites, online health communities provide valuable informal Information, such as personalized health experiences, personalization, casual treatments, and personal success stories to share Information and build trust (Frost and Massagli, 2008). OHC has become one of the most important sources for finding and exchanging health-related Information, experiences, advice, support, and opinions (Atanasova, Kamin, Petrič, 2018).

Value co-creation is the definition that consumers use with service providers or other consumers to create benefits that users recognize during the consumption process (Nambisan and Nambisan, 2009; Vargo and Lusch, 2004). Because value is created as value-in-use by the user for the user, the user as an integrator of resources in the value-creating process can be viewed as a value co-creator (Edvardsson, Tronvoll, & Gruber, 2011; Grönroos, 2011). Co- value behavior is highly dependent on different individual experiences. Two types of online value co-creation behavior—namely, knowledge contribution behavior and online community citizenship behavior—are vital because they enable the community to accumulate resources and grow over time. Knowledge is critical to sustaining a virtual community (Wasko & Faraj, 2005), and many community members are no longer passive audiences but have become active co-creators of knowledge.

Combining the online healthcare community and self-care will help solve many of the problems that exist in healthcare today. The first is to minimize the overload from people's visits. At Viet Duc Hospital, patients often have to wait 30 to 76 minutes. Overcrowding in public hospitals and the trend of overseas medical treatment lead to about 400,000 Vietnamese people going abroad each year for medical treatment, equivalent to 2 billion USD per year. Statistics from the President of the Ho Chi Minh City Family Physicians Association show that, on average, Vietnam has only eight doctors per 10,000 people, much lower than other countries like Singapore and Malaysia, with 25 and 15 doctors per 10,000 people. Besides, complicated developments such as the current Covid-19 epidemic have caused fear and excessive anxiety on the part of the people, thereby promoting search behaviors about health issues and needs. Demand for health services also increased (Gong et al., 2020).

In China, Gong et al (2020) showed that the online hospital communities in this country have supported many epidemic problems so that China can prevent and control the Covid-19 pandemic. Besides social profit, in China, OHCs also provide patient economic gain to online doctors. These online economic benefits mainly include virtual gifts and bonuses from doctors and benefits derived from providing telephone consultations (Guo et al., 2017) . Developing an online healthcare community, especially an intention to continue to participate, is a matter of great concern to community administrators. The activities of OHC members can create economic value by reducing health care costs (Liu et al., 2020). Members can actively participate in and benefit from OHCs because suggested treatments, therapies, and advice can improve their overall well-being (Liu et al., 2020). In the online healthcare community, participants can share and exchange knowledge to solve their problems at home without having to go to the hospital to get help. When an online healthcare community develops, it will reduce the pressure and overload from upper-level hospitals in Vietnam and also help reduce the number of medical problems and excess costs. On the other hand, for business entities that are hospitals, medical facilities can effectively leverage these communities for their customers, helping increase service efficiency and revenue. That is why we also conducted this study to see the potential impact of value co-creation in the online healthcare community on people's ability to continue to participate. From there, make recommendations for more effective community governance for administrators and businesses in the healthcare industry, and have a basis for adjusting and coming up with appropriate operational strategies to dominate the potential market.

2. LITERATURE REVIEW

2.1. Innovation diffusion theories

The theory of innovation is most commonly used by researchers and is considered as the fundamental theory to explain the process by which an organization adopts and applies new technology. Dooley (1999) and Stuart (2000) mentioned that a number of fields such as science, politics, public health, media, history, economics, technology and education are perfectly appropriate to use. Rogers' theory underpins the study of technology diffusion and application. The theory of innovation developed by Rogers (1962; 2002) explains a wide range of ideas through the stages of application by different actors, including the following main groups:

Innovators: Those who are open to risk and the first to try new products.

Early adopters: Those interested in trying out new technologies and establishing their utility in society.

Early majority: This group of customers pave the way for innovative product usage within social trends and as part of the general community.

Late majority: This group of customers is also part of the general public and refers to the collection of early adopters that accept innovative products as part of their daily lives.

Laggards: Lagging customers lag behind the general community in adopting innovative products and new ideas. This is mainly because they are risk-averse and do it their way. The popularity of innovative products through social trends makes it impossible for them to function and work in their daily lives without it. As a result, they were forced to start using it.

In today's modern society, a new generation of customers has entered the market with technology based lifestyles usually from 18 to 30 years old. This group is known as "Digital Native" (Generation Z) or Millennials (Generation Y) grew up in an era of continuously advancing technology and saturated transmission environments. The action and behavior of the new generation of customers on the technology platform and the co-creation of value in online communities is a research direction that has received a lot of attention. Therefore, innovation theory is considered by many researchers to be the most suitable to measure and analyze the applicability of the technology in the educational environment.

2.2. Innovation diffusion theories

According to the Center for Generational Kinetics (2016), Knight (2014) and Mark

McCrindle (2020)[1], here's an overview of the five generations by birth year:

Generation Alpha: Born between 2010 and 2014.
iGen aka Generation Z: Born in 1996 or later.
Millennials aka Generation Y: Born between 1977 and 1995.
Generation X: Born from 1965 to 1976.

Baby Boomers Generation: Born from 1946 to 1964.

Traditionalists: Born 1945 or earlier.

Generations Y and Z are the more dominant Internet users of the five generations and their use is mainly for work and study needs (e-mail) or to socialize (Facebook). A study by Perez (2008) indicates that the majority of Generations Y and Z prefer to receive information in small pieces rather than long texts from different devices (such as cell phones, iPods, and computers). portable) upon receiving their latest wishes from the Internet. With the emergence of the world of pervasive technology, Gen Y and Gen Z have learned to multitask using technology to engage in other activities (Shatto & Erwin, 2016, 2017).

The term ―Digital Immigrant‖ refers to earlier generations of Baby Boomers (Prensky, 2001). Generations Silent and Generation X are likely exposed to the digital world unlike the latter (Howe, 2014; Prensky, 2001). Millennials own smartphones at an earlier age, so the time they spend on mobile apps far exceeds that of earlier generations (Suciu, 2016). The trend of millennials using smartphones, tablets, and social media has surpassed previous generations and is not limited to higher socioeconomic levels than groups. Collected data shows that more than 80% of young people from low socioeconomic classes have mobile phones (Lenhart et al., 2015). For millennials, learning is an active experience and is no longer classified as a passive learning approach from the past (Kramer, 2017; Shatto & Erwin, 2016, 2017). Moreover, they want to be motivated and get joy in life. They prefer to communicate quickly and effectively via email, social networking, or text messaging as opposed to traditional means of communication (Ayvaz, 2013; Kane, 2017).

If Generation Y is considered the first "global" generation with the development of the Internet, Generation Z has never experienced a period without the Internet, so their world has no boundaries between reality and reality. and virtual. Z is the true digital generation, the first generation to grow up connected to the internet, access to a huge amount of global information, and instantly connect with society, friends, organizations, and celebrities. They have never known a world where it is impossible to immediately connect and seek answers to the questions that arise in their heads. Smartphones are at the forefront of information gathering and their indispensable social network (Ozkan & Solmaz, 2015). For millennials, learning is participatory and involves action (Kramer, 2017; Shatto & Erwin, 2016, 2017). As for Generation Z, ―Growing up in a virtual cloud of technology with countless sources of information and digital interactions that have changed the way they think, communicate and learn‖ is a fitting description of this latest generation (Adamson et al., 2018). In addition, this generation's perception is strongly built on what they read on social media (Priporas et al., 2019). According to Priporas et al (2019), Generation Z is mobile and highly communicative on social media. The key to shaping their identity on social platforms is sharing and shaping their individual selves including their consumption behaviour. If Gen Z feels compatible with any experiment, they tend to share it with different communities. Generation Z consumers are practical and fast adopters (Ozkan & Solmaz, 2015). Therefore, generation theory, especially research focusing on generations Y and Z, is considered by many researchers to be the most suitable for analyzing technology applicability.

2.3. Value co-creation

"Co-creation is joint creation and evolution of value with stakeholding individuals, intensified and enacted through platforms of engagement, virtualized and emergent from ecosystems of capabilities, and actualized and embodied in domains of experiences, expanding wealth-welfare well-being" (Ramaswamy & Ozcan, 2014). Value co-creation is the target companies want to reach because through value co-creation, companies can understand customers or consumers and improve the front-end process to identify customers' needs (Varga & Lusch, 2014). The healthcare sector has been recognized as one of the aspects of value co-creation theory (McColl-Kennedy et al., 2009). Value co-creation behavior of OHC members can make economic value by reducing health care costs (e.g., patients see and compare their symptoms with others based on other members' posts or shares before going directly to the hospital) (Liu et al., 2020). Furthermore, based on the value co-creation behavior of community members, OHC creates social value by changing the approach to providing health and improving the welfare of society (Liu et al., 2020).

Participants in OHCs can generate new knowledge to improve health services (Dholakia et al., 2009), raise funds

and conduct research on specific diseases (Brainard, 2003), and address urban and rural health disparities through improved health capabilities (Goh et al., 2016).

Affective value relates to individual satisfaction, personal growth, and a sense of joy and pleasure when joining an online healthcare community (Georgi & Mink, 2012). In OHCs, experienced people often attend discussions to share their treatments with others (Camacho, Landsman, and Tremersch, 2010); the remaining members will receive helpful advice, knowledge, and guidance. OHC is "a social bridge" to meet individual and social needs; through OHCs, participants can share, express sympathy, and support other patients about knowledge (Apesoa-Varano et al., 2011, Liu et al., 2020). Affective value can inspire optimistic beliefs in patients and encourage them to face their disease's discomfort or recurrence (Schulz & Schwarzer, 2004). A user is satisfied with social value and functional benefits, which can lead to feelings of love, belonging, esteem, and self-actualization (Fiedler & Sarstedt, 2014; Kuo & Feng, 2013).

Thus, in this study, we propose the following hypothesis:

H1: Users' perceived functional value through interactions in an online health community can contribute to their perceived affective value.

H2: Users' perceived social value through interactions in an online health community can contribute to their perceived affective value.

2.4. Continuous participation intention

Intent to engage continuously comes from users receiving social interaction support in an online health community that keeps the community active (Apostolou et al, 2017; Song et al, 2018). Furthermore, ongoing engagement can also satisfy the social and emotional needs of users (Sun et al, 2014). Members of online communities provide support to each other, with support from health or work-related information (Lasker, Sogolow & Sharim, 2005). Social interaction has been identified as a key driver for continued participation in online communities (Fang & Neufeld, 2009; Zhang et al, 2013; Joyce & Kraut, 2006; Wu & Liu, 2007). Social interactions are understood as those interactions occurring between two or more individuals, in which each person is aware of his or her membership in the group and relationships with and with those in the group and within it. interaction mainly occurs through an Internet location to achieve shared goals (Bagozzi et al, 2007). Users receive social support through social interactions in online health communities. This support will include informational support, emotional support and companionship for the user (Bambina, 2007). Social interaction can also promote members' trust in potential benefits, which in turn encourages members to form long-term attachments to each other (Sassenberg, 2002).

Through social interactions, members obtain their desired emotional and informational benefits, which reinforce their intention to engage continuously in the community (Sangwan, 2005; Chen, 2007).

In the process of consuming services, Value co-creation means customers will be the value creators they want, and the organization will participate in interactive support to create a part of the value that customers receive (Grönroos, 2011). User-generated values in online healthcare communities include functional value (FV), emotional value (AV), and social value (SV). Users receive social support through social interactions in online health communities. This support will include (1) informational support, (2) emotional support, and (3) companionship for the user (Bambina, 2007). The online health community consists of individuals with common goals who access the community to gain knowledge, exchange, and collaborate in decision-making on their issues. In addition, communities often bring together people to act for a cause or to support other members (Preece, 2001). Members are often strangers to each other, they develop relationships and emotional attachment through interaction (Ridings et al, 2002; Gupta & Hee-Woong, 2007). Informational and emotional user interactions are important for retaining users in communities (Zhang, 2016). Community members who receive social and informational support from the community are found to be more likely to maintain long-term relationships with the community (Lin et al, 2017). Playfulness is believed to be important for the satisfaction and continued intention of online community users (Chiu et al, 2011; Chiang, 2013). It can be said that when users actively discuss, maintain interaction and contribute their opinions in communities, these actions of users benefit other members, like a loop, will be the ability of users to maintain long-term participation in the community (Ye et al, 2015; Lin et al, 2017). Therefore, user value co- creation in OHC will impact ongoing intention to participate. Therefore, the following hypotheses are put forward:

H3: Users perceive functional value through interactions in the online healthcare community resulting in continued intention to participate.

H4: Users perceive social value through interactions in the online healthcare community leading to continued engagement intent.

H5: Users perceive affective value through interactions in the online healthcare community leading to continued engagement intent.

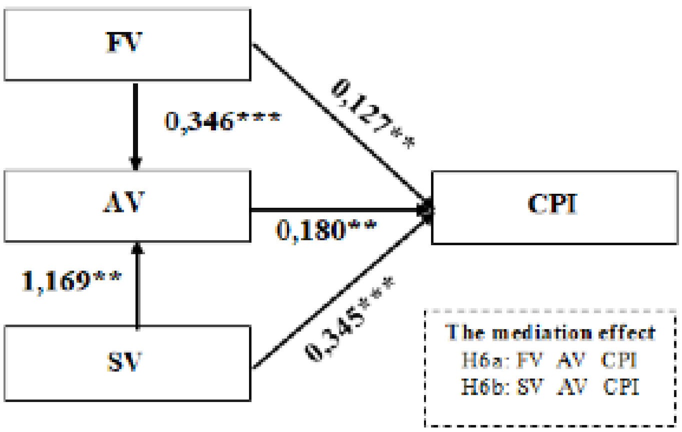

Figure 2.1. Research model

3. RESEARCH DESIGN AND METHODS

3.1. Survey design

This topic is a fairly new trend in the context of Vietnam, so it is very important to survey samples to ensure reliability. The situation of the Covid-19 epidemic was complicated, so initially, the research team used a convenient sampling method using a questionnaire designed in the form of a Google form. Then, the questionnaire was surveyed in the form of:

(i) Send via email, message via LinkedIn, Zalo,... directly to relatives and friends to conduct surveys.

(ii) Participate directly in the Fanpages of hospitals, or groups (groups) of the online healthcare community on social networking sites Facebook, Zalo, etc. such as Xom healthy, Support counseling F0,... or directly participate in online health care livestreams of hospitals (Ho Chi Minh City University of Medicine and Pharmacy Hospital, Pham Ngoc Thach Hospital, Hanoi Medical University...).

In order for the research sample to have good results, to ensure high reliability in online healthcare groups on these groups, the research team selects people who often interact, post, comment, share experiences... in the group to conduct messaging, get acquainted, create relationships, ask them to participate in interviews. If they agree, the research team will transfer the survey directly using the Google form tool through Messenger. In case, respondents do not clearly understand the question, the group will explain carefully and in detail for respondents to understand the content before answering the questionnaire. Sampling time period, the research team took specific samples from September 17, 2021 to November

29, 2021 with the result that the number of samples collected was 488 samples. After conducting the screening test, removing unsatisfactory samples (Respondents who responded "did not participate in the community" or answered only 1 answer) the group received 312 satisfactory research samples.

3.2. Measurement and instrumentation

Questionnaire is a tool to collect necessary data and put it into statistical analysis to serve the completion of research objectives. The main structure of the questionnaire in this study consists of three parts as follows. (1) The first part includes screening questions with nominal scale (―Are you participating in online healthcare communities?‖, ―Which of the following online healthcare communities are you currently participating in?‖). (2) The next part includes 12 questions and all items are scaled by 5-point from 1 (disagree) and 5 (totally agree). Value co-creation is widely defined as a consumer, together with a service provider or other consumers, to create value in the process of consumption, these activities also create many economic benefits (Nambisan and Nambisan, 2009; Vargo and Lusch, 2004; Liu et al., 2020). Values of users created in OHCs include Functional value, Social value, Affective value (Yan et al., 2016; Kuo et al., 2013; Lin et al., 2015). Functional value was measured by three items (e.g., it allows me to increase my knowledge of the disease through members' interactions?). Social value was measured by three items such as

―I feel connected through members' interactions in the online health community‖. Affective value was measured by three items (e.g., I get comfort and care from other members through interactions). Continuous participation intention is defined as when individuals perceive benefits from the organization, they will intend to participate in the civic behavior of the organization (Ye et al., 2015). Continuous participation intention was measured by three items such as ―I will continue participating in the community members' interactions‖ (Ye et al,. 2015; Fang et al., 2019). The final part, we included a number of relevant control variables. We asked participants to indicate their gender, age, salary (converted to USD), education, and participation's time in OHC (months).

4. DATA ANALYSIS AND RESULTS

4.1. Sampling and data collection To test our hypothesis, we collected data with a total of 448 samples, in which, 130 samples were rejected because the sample was unsatisfactory (responsive to the same judge), so the number of valid samples is 312. A total of 29.2% of the participants were male and 70.8% were female. Most of the interviewees are under the age of 30 (84.6%) and have a college/university degree (82.1%). The majority of survey respondents have an income of less than 5 million, accounting for 52.2%. Most of the participants in the health care community under 3 months accounted for the majority (43.35%) and from 3 months to 1 year (36.2%).

Table 4.1. Research sample characteristics

Statistics		Frequency	Percent (%)
Gender	Male	91	29.2
	Female	221	70.8
Age	Less than 30	264	84.6
	From 31 to 40	34	10.9
	From 41 or above	14	4.5
Education level	High school or below	25	8.0
	College/University	256	82.1
	Graduate school	31	9.9
Income	Less than 5.000.000 VND	163	52.2
	5.000.000 VND - 8.000.000 VND	64	20.5
	8.000.000 VND - 15.000.000 VND	54	17.3
	20.000.000 VND or above	31	9.9
Time into online healthcare communities	Less than 3 months	135	43.3
	3 months - 1 year	113	36.2
	1 year or above	64	20.5

Source: Calculated from survey data.

After collecting data from the survey, we proceed to include the data in descriptive statistical analysis. The study uses a 5 point Likert scale, so the minimum value is 1 and the maximum value is 5. The mean and standard deviation of each scale are shown in table 4.2 as follows.

Table 4.2. Descriptive Statistics

	Median	Minimum	Maximum	Mean	Std. Deviation
FV					
FV1	5.00	1	5	4.58	0.626
FV2	4.00	1	5	4.20	0.698
FV3	4.00	2	5	4.33	0.674
SV					
SV1	4.00	1	5	4.06	0.827
SV2	4.00	1	5	3.64	1.063
SV3	4.00	1	5	3.87	0.904
AV					
AV1	4.00	2	5	4.33	0.692
AV2	4.00	2	5	3.99	0.769
AV3	4.00	2	5	4.09	0.799
CPI					
CPI1	5.00	1	5	4.39	0.695
CPI2	4.00	1	5	4.08	0.818
CPI3	4.00	1	5	4.15	0.745

Source: Calculated from survey data.

Mean and Median are the two most common values in measuring concentration propensity. The Mean and Median represent the satisfaction or dissatisfaction of the majority of survey respondents. Based on table 3.2, it can be seen that FV1 has the largest mean value in the Functional Value. Specifically, it allows me to increase my knowledge of the disease through members' interactions who are highly appreciated by many users. Similarly, the variables SV1 in the Social Value, AV1 in the Affective Value, and CPI1 in continuous participation intention to join the group have the largest mean value, respectively. In general, all groups of variables are assessed at the average value from 3.64 to 4.58, so that in each group of measured variables, all are shown at the level of agree to totally agree. Standard Deviation is a measure of the dispersion of a data set. SD > 1 the higher the dispersion of the data and vice versa. In other words, SD < 1 means that the questionnaire has a low bias. Based on table 4.2, it can be seen that most of the scales with SD < 1 (0.626 - 0.90) of questionnaires have low deviation. It shows that the answers of the respondents do not differ too much.

4.2. Measurement

In our specific context, based on table 4.3 and 4.4, users intend to interact about their illness (FV1), the solution for curing their problems (FV2), and also consider the communication in general knowledge (FV3). Scale reliability is good (Cronbach's alpha = 0,839), and FV2, FV3 gets the highest in factor loading (0.800). The social value (SV) measures the ability to connect members in OHCs. SV1 detects for user's feelings when connecting with other members. The other two items detect the benefit of OHCs in expanding the user's social network (SV2) and making new friends with the same interests (SV3). Scale reliability is good (Cronbach ’s alpha = 0,872), and SV2 gets the highest factor loading (0.868).

Table 4.3. Convergent validity test result

LV	Indicators	Loading	AVE	CR	CA
	FV1	0.790			
Functional value	FV2	0.800	0,634	0,839	0,713
	FV3	0.800			
	SV1	0.765			
Social value	SV2	0.868	0,695	0,872	0,781
	SV3	0.865			
	AV1	0.762			
Affective value	AV2	0.868	0,675	0,861	0,761
	AV3	0.832			
	CPI1	0.742			
Continuous participation intention	CPI2	0.854	0,647	0,846	0,727
	CPI3	0.813			

Table 4.4. Factor loading

Construct (Rho)	Statements	Standard deviation	Factor loading
	FV1	0.652	0.790
Functional value	FV2	0.706	0.800
	FV3	0.711	0.800
	SV1	0.833	0.765
Social value	SV2	1.047	0.868
	SV3	0.941	0.865
	AV1	0.714	0.762
Affective value	AV2	0.813	0.868
	AV3	0.815	0.832
Continuous	CPI1	0.671	0.742
participation	CPI2	0.808	0.854
intention	CPI3	0.741	0.813

The affective value (AV) detects the experimental senses of users when they participate in the OHCs. The first motivation of users is that they participate in OHCs, looking for comfort and care from those interactions (AV1). Second, they seek happiness from those discussions in OHCs (AV2). Lastly, users feel familiar with others who face the same issues in OHCs, where they feel they belong (AV3). Scale reliability is good (Cronbach’s alpha = 0,861), and AV2 gets the highest factor loading (0.868). The last two variables are continuous participation intention (CPI), the scales reliability are good, respectively Cronbach’s alpha = 0,846.

4.3. Model measurement

According to the Fonell-Lacker technique, the square root of average extracted variance of the study construct matches the correlation values of respective constructs. Results in table 3.5 were presented displaying that correlation values of variables are less than the square root value of their separate variable. The Heterotrait-Monotrait Ratio (HTMT) test shows that all ratios are less than 0.85, confirming the discriminant of all latent variables (Hair et al., 2011). Besides that, the proportions of variance inflation factor (VIF) of all indicators are lower than 5, showing the minimum collinearity in every item of the structural model (Hair et al., 2011).

The results of Fornell and Lacker's criteria demonstrate that the square root of AVE (variable correlations) should be larger than the (partial) cross-loadings with all other constructs, assuring discriminant validity.

Table 4.5. Heterotrait – heteromethod ratio of correlations (HTMT)

	Affective value	Continuous participation intention	Functio nal value	Social value
Affective value				
Continuous participation intention	**0.445**			
Functional value	0.596	**0.376**		
Social value	0.391	0.564	**0.255**	

Table 4.6. Discriminant validity: Fonell – Lacker criterion

Construct	Affective value	Continuous participation intention	Functional value	Social value
Affective value	**0.821**			
Continuous participation intention	0.347	**0.804**		
Functional value	0.442	0.275	**0.796**	
Social value	0.323	0.428	0.199	**0.834**

4.4. Partial least square SEM and hypothesis testing

The results demonstrate that each hypothesis was supported. The hypothesis would have significance when its p-value is less than 0.05, but the effect is not strong. The p-value is less than 0.01 and 0,001, respectively, the highly significant and strong significant hypotheses. For example, the results in the table 4.7 shows that (a) functional value (β = 0.346, P-value = 0,000) and (b) social value (β = 1.169, P-value = 0,000) positively affect to affective value (H1 and H2 hypotheses are supported), the results of this study show that users feel familiar and close to the community when they receive values from the community (functional value, social value). Specifically, users will be affected by the fact that communities can function adequately with the original purpose of activities. In OHCs, members can exchange knowledge, creating a place to exchange treatment experiences with each other. Members' activities revolve around topics that allow the community to learn about many health issues, which helps many people overcome their current illnesses. And from supporting each other, sharing has also helped users in the community become closer, thereby becoming friends on social platforms.

The results in the table 4.7 shows that (a) functional value (β = 0.127, p-value = 0.012), (b) social value (β = 0.345, P-value = 0,000), (c) affective value (β = 0.180, P-value= 0,001) positively affect to continuous participation intention (H3, H4 and H5 hypotheses are supported), health topics will always be the focus of development by OHCs. Making users see the community as a powerful tool that can give them knowledge about health problems (their diseases and common diseases) make users more inclined to use it. Users will continue to participate in community interactions and contribute their experiences to discussions in the community; if they feel the community gives them social values. It means users can expand their relationships and have more friends after interaction-sharing activities. In addition, users are also willing to continue to use and contribute if the community can help users feel comfortable, close, and sympathetic from interactions with other community members.

Table 4.7. Direct effects in the model

The hipothesed path	β	t-values	p-values
Functional value → Affective value	0.346	0.00192	0.000
Social value → Affective value	1.169	0.00201	0.001
Functional value → Continuous participation intention	0.127	0.00214	0.012
Affective value → Continuous participation intention	0.180	0.00196	0.001
Social value → Continuous participation intention	0.345	0.00169	0.000

Table 4.8. R-Square

	R Square	R Square Adjusted
AV	0,276	0,270
CPI	0,245	0,241
FV	0,119	0,116
SV	0,228	0,225

4.5. Mediation effect analysis

Have a significant indirect effect when zero didn't include in the confidence interval (Nitzl, Roldan, and Cepeda-Carrion, 2016). Mediation effect analysis was conducted using the logic of Zhao, Lynch, and Chen (2010) and Hair et al. (2017). Table ... 6 shows mediating results, enabling us to calculate the ratio of the indirect-to-total effect (VAF value). VAF determines the extent to which the mediation process explains a dependent variable's variance (Hair et al., 2017). "As a rule of thumb, a

VAF value is classified in three different categories, i.e., VAF < 20%, ≥ 20% to ≤ 80% and > 80%; which indicate no mediation, partial mediation, and full mediation respectively" (Hair et al., 2017).

Table 4.9. Summary of mediating effect tests (multiple mediations).

Path	Total effect		Indirect effect				Mediation
	Coeff.	t-value	Specific path	P-value	Confident interval 97.5%	VAF	
FV → CPI	0.293	4.624	FV → AV → CPI	0.000	[0.079:0.185]	43.69	Partial mediation
SV → CPI	0.408	8.238	SV → AV → CPI	0.000	[0.137:0.287]	50.25	Partial mediation

Specifically, the results show that the direct relationship between FV and CPI is statistically significant (β = 0.293) and partly mediated by escapism. Since the bootstrap confidence interval does not include 0 and VAF = 43.69%, H6a is supported. Our results suggest that social value has a direct positive effect on the intention to continue using (β = 0.10), but this relationship is mediated partly by immersion (VAF = 50.25%), thus supporting H6b.

5. PRACTICAL IMPLICATIONS

This study provides results that help OHCs administrators better understand the value co-creation in OHCs, and the benefits when a community develops these values. If a community wants to maintain interactive activities and contribute ideas from members, OHCs must create functional, social value and affect value. To increase user intent, administrators need to develop many discussions, allowing users in the community to discuss issues related to knowledge and experience for the sake of users in their community. We hope that this sharing can help them solve their problems. In addition, in terms of social values, the community needs to make more efforts to create many exchanges from which users can expand their relationships and find new people. They can share the problems they face together. Finally, in terms of emotional value, community administrators need to make users in the community feel satisfied when participating in the exchange. That means users can get accurate answers to their questions, getting knowledge that they find helpful. When communities can develop the above factors well, users will continue to operate, interact, and contribute to the community.

6. LIMITATIONS AND FUTURE RESEARCH

During the course of this study, our team encountered certain limitations as follows:

For research purposes during the COVID-19 pandemic, the research team collected samples at the two biggest impact phases of the pandemic (Delta and Omicron variants) and experimentally showed that We know that the pandemic has an impact on the model, and to be more certain, when the pandemic stabilizes this study needs to collect samples again to test against a non-epidemic context.

The majority of survey participants are under the age of 30, this is the age group that has an advantage in using the Internet compared to other age groups in Vietnam, so it is more convenient for them to participate in the interview. Through the Google form, the results are still not generalizable, objective, and limited in the representation of users in online healthcare communities in Vietnam.

In addition, the research team also proposes future studies to develop in the following directions:

First, the sampling can use additional paid support tools such as Survey Viet, iPanelOnline, InfoQ, ... or take more samples in countries with cultural similarities such as China, Thailand Lan, ... to diversify the research sample, the research sample is more representative.

Second, further research should be carried out in the form of research in different provinces or different medical examination and treatment facilities with the aim of bringing about universal value in terms of geography, culture, and lifestyle. according to each region because each specific problem in the localities/health facilities will have different effects on the results and update new document values for future studies.

Third, future research can be expanded in combination with the management of medical facilities (in order to increase profits, revenue, ...) then further studies should expand the research model further. factors such as service satisfaction, loyalty to the online healthcare community.

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THE KEY TO DRIVING JOB PURSUIT INTENTION: THE ROLE OF ORGANIZATIONAL ATTRACTIVENESS AND ORGANIZATIONAL PRESTIGE

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ABSTRACT

Measures of organizational attraction are often used to have more indepth understanding about organizational choice. The purpose of this paper is to examine the relationship between the three components of organizational attraction (organizational attractiveness, or organizational prestige, and job pursuit intention) in the five selected companies as the most desirable places to work in Ho Chi Minh City, Vietnam. There were 150 respondents participated in the survey (in March, 2022) to evaluate the components of the organizational attraction at the company they want to work for. Research results with the support of SMART PLS, confirm the relationships between these components, and the results are consistent with the theory of reasoned action of Fishbein and Ajzen (1975). The paper helps recruiters in identifying important aspects to concentrate on in order for their business to become the top choice of potential candidates.

Keywords: Organizational attraction, organizational attractiveness, intention toward the company (job pursuit intention), organizational prestige

JEL Classification: M12

1. INTRODUCTION

In fact, to know if an organization is attractive to job applicants or not, the best way is to look at the number of applicants applying for that company, or that company is the last choice if the candidate has multiple choices. Therefore, employers are very interested in how to make their business more attractive in the eyes of potential candidates. A familiar way is that employers will look at the factors that determine the organizational attraction and then focus on those factors, especially in recruitment activities, to attract more potential candidates and to increase their opportunities of finding the best candidates.

The first study of organization choice was conducted by Vroom (1966), in which a single-item measure was used to assess the attraction of each hypothetical organization to potential job seekers. Singh (1973) applied information integration theory to organizational choice by using a single item to assess the acceptability of a job with the company. In the first study to assess organizational attraction using more than one single item, Fisher, Ilgen and Hoyer (1979) presented participants with four items of organizational attraction. Fisher's study served as the basis for subsequent studies on organizational attraction (Turbun et al., 1993; Honeycutt et al., 1997; Turban et all., 1998; Highhouse et al., 1998; Highhouse et al., 1999). These studies identify organizational attraction as having two components, one is general company attractiveness, and the other is intentions toward the company. Other measures of organizational attraction also include items to assess both general attitudes and specific intentions (Schwoerer et al., 1989; Rynes et al., 1993; William et al., 1994). Other studies have also added items that measure perceived prestige of a company, in addition to items of attitudes and intentions, to measure organizational attraction (Turban et al., 1996; Turban et al. al., 1998; Highhouse, Beadle, Gallo, 1998).

According to the study of Highhouse et al. (2003), it is proposed that the three components of organizational attraction are clearly separated and the intention towards to the company is mediating the relationship between the attractiveness and company prestige to the choice of organization. The results of the above study also suggest that the relationship between the three components of organizational attraction is consistent with the propositions of Fishbein and Ajzen's (1975) with the theory of reasoned action. Therefore, the aim of this paper is to examine the relationship of the components of organizational attraction as a predictor of follow-up behavior like organization pursuit. This paper will make important theoretical contributions such as reconfirming the foundation theories. Besides, this paper will help recruiters in enhancing the attraction of the organization in recruiting suitable personnel. More specifically, the objectives of this paper is: examine the relationship of the three components of organizational attraction as a predictor of organizational pursuit behavior. The rest of the paper will cover the following sections: theoretical basis, hypothesis development, research methods, data analysis, hypothesis testing, implications and conclusions.

2. LITERATURE REVIEW

2.1 Background theory

How to measure Organization attraction

According to Vroom (1966), organizational attraction measures the attractiveness of a company to potential job seekers, demonstrating the attitude towards a particular company. Later, Sign (1973) defined organizational attraction as the ability to accept a job with the company (in other words, how much do you want this job?), which is also an attitude assessment at the specific level of behavior in question (organizational choice). In the study by Fisher et al (1979), the authors measured the organizational attraction variable with four items: (a) “I am very interested in pursuing my application with this company if offered one,” (b) “I would be very willing to accept a job with this company if offered one,” (c) “I would really like to work for this company,” and (d) “I feel I know enough about this company to no longer be interested in it .” Subsequent studies have also used these baseline measures of organizational choice (such as Highhouse et al., 1999, 1998; Honneycutt & Rosen, 1997; Turban et al., 1998, 1993). Among the variables measuring Organizational attraction, items 3 and 4 are the evaluation of general company attractiveness, and items 1 and 2 are the evaluation of intentions towards the company. Other studies measuring organizational attraction have similar consistency, that is, including general attitudes and specific behaviors (Rynes et al., 1993; Schwoerer et al., 1989; William et al., 1994). With the studies of Highhouse et al. (1998), Turban et al (1996, 1998), another component is used to assess attitudes and intentions towards an organization, that is the perception of the company prestige. Company prestige is defined as the degree to which organizations are considered well-regarded, e.g. “This company has a reputation as being an excellent employer”, and reputable e.g. “I would find this company a prestigious place to work”. Company prestige is considered an important component of measuring organizational attraction. Research by Highhouse et al. (2003) confirms that three components of organizational attraction including company attractivess, intentions toward the company (job pursuit intention) and company prestige have reliable discrimination.

Theory of reasoned action of Fishbein and Ajzen (1975)

The relationship between attitude and behavior has received a lot of attention from the past to the present, especially when attitude is the basis or predictor for behavior. The fundamental theory on this issue and the basis for this study is Theory of reasoned action (TRA) of Fishbein and Ajzen (1975). This theory assumes that human behavior is the culmination of a rational cognitive chain. Collectively, the theory of reasoned behavior proposes that the most proximate determinant of behavior is the intention to engage in it and is a function of attitudes toward the behavior and subjective norms. Thus, attitudes influence behavior to the extent that they influence the intention to engage in that behavior. Intention also stems from the perception of the social relevance of the behavior. One description from the theory of rational action is the principle of correspondence (Ajzen & Fishbein, 1980). According to this principle, the attitude-behavior relationship is stronger to the extent that attitude and behavior are measured at the same specific level. For example, if one is interested in predicting absenteeism in an organization, it is better to assess attitudes towards absenteeism than to assess attitudes towards the organization.

Another implication of the theory is that the intention assessment predicts behavior better than the attitude evaluation intention. For example, if a researcher is interested in predicting turnover, it would be better to evaluate intention to quit than to evaluate commitment to the organization. The view that intention is better at predicting behavior than general attitude has been well supported by empirical research (see Kim & Hunter, 1993). In conclusion, The components of TRA are three general constructs: behavioral intention (BI), attitude (A), and subjective norm (SN). TRA suggests that a person's behavioral intention depends on the person's attitude about the behavior and subjective norms (BI = A + SN). If a person intends to do a behavior then it is likely that the person wi340

ll do it. Compared with the components to measure organizational attraction, there is similarity with the components of TRA, when organizational attractiveness is similar to attitude, intentions towards the company (job pursuit intention) is similar to behavioral intention and organizational prestige is similar to subjective norm (social norm) (Highhouse, 2003).

2.2 Hypothesis development

Organizational attractiveness

The organizational attractiveness is reflected in the actual thinking and sentiments of individuals about particular companies as potential places for employment. Its nature is passive as it does not necessarily imply that any actual behavior will be performed. This passivity allows individuals to be attracted to multiple companies simultaneously; more aggressive pursuit of the firm would require conserving resources and limiting possible possibilities (Barber, 1998).

Intentions toward the company (Job pursuit intention)

In contrast,intentions items refer to thoughts about a company that specifically imply further action. As such, intentions go beyond the passivity of corporate attractiveness to involve actively pursuing a job. Because they are more positive attitudes reflected in the attractiveness of the company, intentions will likely be limited to a small group of potential employers. However, like corporate attraction, intentions towards a company do not require external social reference (Highhouse, 2003).

Organizational prestige

The prestige items seem to be based on the perception of the social norm component of the theory of rational action. Social reference is the basis for building company reputation. A company is reputable if it inspires thoughts of fame and popularity in the minds of those who hear about it. This reputation reflects social consensus on the extent to which company characteristics are perceived as positive or negative. The standard quality of a company's reputation is the factor that distinguishes this variable from the organizational attractiveness or intent towards a company, both are more closely focused on an individual (Highhouse, 2003).

According to the research results of Highhouse et al. (2003), the relationship between the three components of attraction and job pursuit is consistent with the postulate of the reasoned action theory of Fishbein and Ajzen (1975). That is, intentions seem to mediate the effects of company attractiveness and prestige on organizational choice.

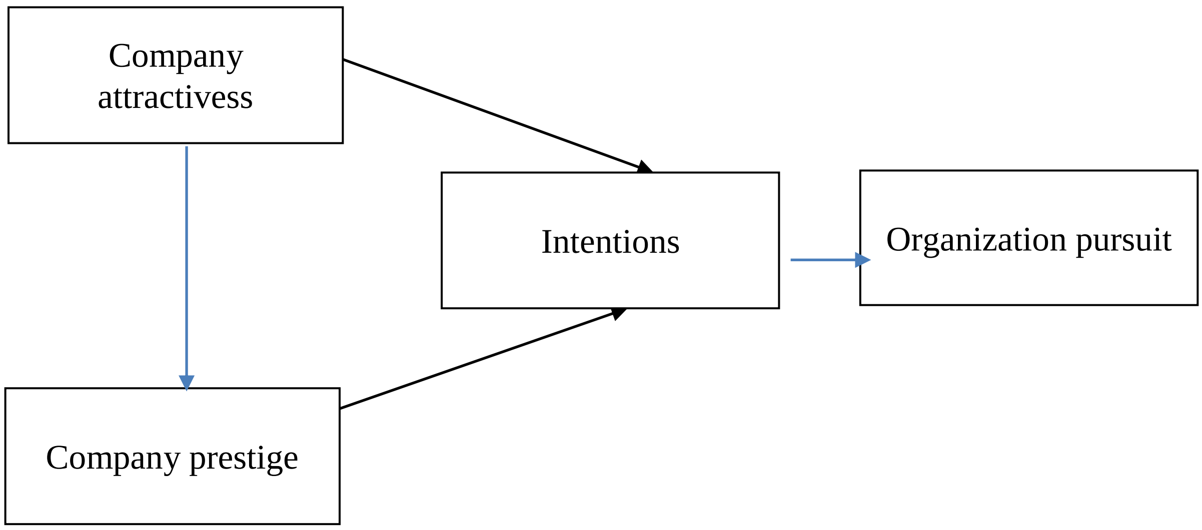

Figure 2.1 Research model of Highhouse et al. (2003)

Based on the research results of Highhouse (2003) and Theory of reasoned action (TRA), the authors proposes three hypotheses as follows:

H1: Organizational attractiveness has a positive effect on job pursuit intention of job applicant.

H2: Organizational attractiveness has a positive effect on organizational prestige.

H3: Organizational prestige has a positive effect on job pursuit intention of job applicant

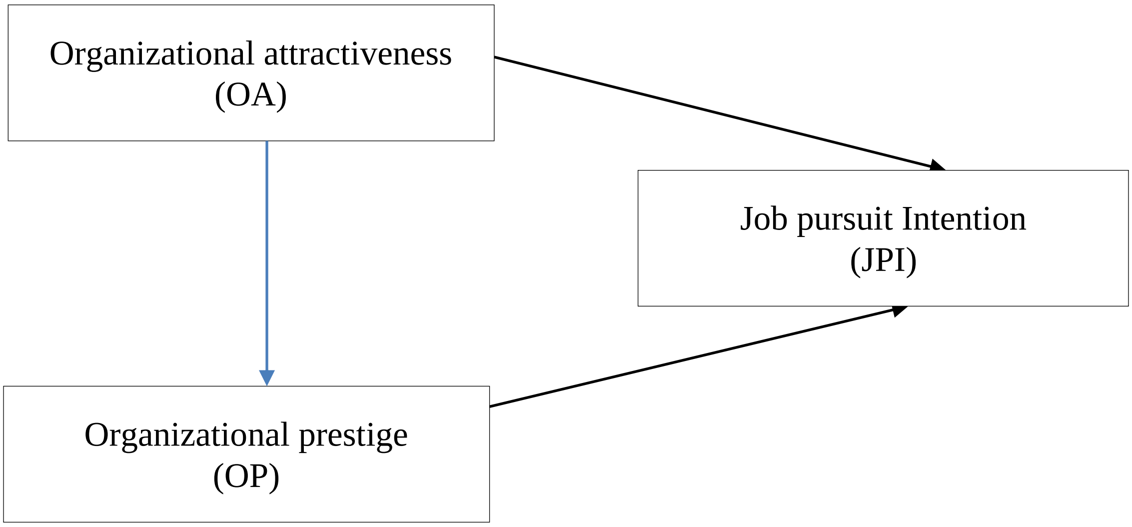

Figure 2.2: Research model of this study

3. METHODOLOGY

3.1. Research process

Firsly, we established the theoretical framework and draft questionnaires. From here, the research model was reviewed and revised. Secondly, we did a small survey, participants were 3rd, 4th year students or just graduated within 6 months, to identify companies that they are most interested in/or most known, and most desired to work with. The survey results have 22 people, including 17 women and 5 men, majors include International Business, Marketing, Human Resource Management, Restaurant - Hotel Management, Accounting, Finance - Banking , Sociology, English Language. And the 5 companies that are most interested in the companies listed in the survey include: Vinamilk, Vingroup, FPT, VNG, Novaland. Thirdly, based on the above survey results, the team designed the official questionnaire. We sent to 2 students and 2 lecturers from our Faculty for comments in order to adjust any misunderstanding or mistake in the questionaire. We continued to make official survey, answers were collected using a Google form survey and distributed through social media and email. The research results were analyzed using the PLS structural equation modeling (SEM), using bootstrap test to assess the validity of the model.

3.2. Survey

3.2.1. Sample design

According to Hair et al (2010), to conduct SEM analysis, the minimum sample size must be at least greater than the number of correlations in the input data matrix, with a ratio of 5-10 respondents per item. There are 15 items in the conceptual model, this means the appropriate sample size to use for SEM is between 175 and 150. The research group chose n = 150 using convenience sampling method. The target respondents are 2nd year students (College), 3rd year students (University), final year students, students who have just graduated within 6 months who are looking for a job or change jobs.

3.2.2. Survey design

The survey structure consists of two parts. The first part retrieves the respondents' demographic information while the second part consists of asking respondents to choose 1 Organization that they are most interested in or know about out of 5 enterprises (Vinamilk, Vingroup, FPT, VNG, Novaland) and measures their attitude to variable items (Organizational attractivenes, Job pursuit intention, Organizational prestige). To ensure validity, the questions were taken from previous researches and was translated to Vietnamese and quality checked by the supervisor of this thesis. Except for demographic questions, Likert 5-point scale ranging from 1"strongly disagree" to 5 "strongly agree" were used too measures all factor items. Empirical data were collected through a Google survey from February to March 2022.

The research items were based on:

Organizattional attractiveness. According to the paper of Highhouse et al. (2003), organization attractiveness have been assessed by five items designed to include content used in previous studies of organizational choice (e.g., Fisher at el., 1979; Turban, Keon, 1993), while still focusing on attractiveness rather than clear intentions for the company. These items refer to preliminary attitudes about the company as a potential place for employment.

Intention to pursue job (Job pursuit intention). Highhouse et al. (2003) assessed the intention to pursue the job with five items designed with a clear focus on the behavioral intentions of the participants in relation to the company. As with the previous scale, these items were selected and adjusted from previous research (e.g. Ployhart, Ryan, 1998; Rynes, Miller, 1983; Schwoerer, Rosen, 1989) with the consideration that they should reflects a futuristic approach to dealing with the company in the future.

Organizational prestige. Highhouse et al. (2003) measured a company's prestige with five items adjusted from a variety of sources (e.g. Highhouse at el., 1998; Turban at el., 1998) designed to focus on aspects of a business. Companies are subject to social influences, such as fame, popularity, and status.

Table 3.1 Constructs and items of the survey

Variable	Item	Questions	Authors
Organizational Attractiveness (OA)	OA1	For me, this company would be a good place to work.	Highhouse (2003), developed from Fisher et al., 1979; Turban, Keon, 1993
	OA2	I would not be interested in this company except as a last resort. (reverse scored)	
	OA3	This company is attractive to me as a place for employment.	
	OA4	I am interested in learning more about this company.	
	OA5	A job at this company is very appealing to me.	
Job pursuit intention (JPI)	JPI1	I would accept a job offer from this company.	Highhouse (2003), developed from Ployhart, Ryan, 1998; Rynes, Miller, 1983; Schwoerer, Rosen, 1989
	JPI2	I would make this company one of my first choices as an employer.	
	JPI3	If this company invited me for a job interview, I would go.	
	JPI4	I would exert a great deal of effort to work for this company.	
	JPI5	I would recommend this company to a friend looking for a job.	
Organizational Prestige (OP)	OP1	Employees are probably proud to say they work at this company.	Highhouse (2003), developed from Highhouse at el., 1998; Turban at el., 1998
	OP2	This is a reputable company to work for.	
	OP3	This company probably has a reputation as being an excellent employer.	
	OP4	I would find this company a prestigious place to work.	
	OP5	There are probably many who would like to work at this company.	

3.2.3. Analytical methods

Smart PLS 3 was used for analysis. First, the constructs were put into descriptive analysis to have an overall view of each items. Then, they are tested through Internal consistency reliability, convergent validity and discriminant validity for reflective measures, and convergent validity, collinearity and significance of indicators. Then, structural model evaluation was performed to test the hypothesis betwee the construct. The PLS-SEM analysis follows the steps suggested by Sarstedt et al. (2022)

4. RESULTS AND DISCUSSIONS

4.1 Results

4.1.1. Descriptive statistics

There are 7 demographic factors listed in the table below including gender, age, work experience, school attended/currently attended, major of study, current employment situation and businesses of interest or best known.

Table 4.1. Descriptive statistics

Characteristics		Amount	Ratio (%)
Sex	Male	41	27.3
	Female	109	72.7
Age	Under 20	3	2
	From 20 to 22 years old	135	90
	From 23 to 25 years old	10	6.7
	Over 25 years old	2	1.3
Work experience	No work experience	56	25.1
	Under one-year work experience	50	22.4
	Under one-year work experience	49	22
University/ Collge	Public	132	88
	Private	13	8.7
	International	5	3.3
Major	Marketing Management/ Retail/ Commerce	11	7.3
	Human Resource Management	34	22.7
	Hospitality Management	28	18.7
	Corporate Management	2	1.3
	International Business/ E-Commerce	16	10.7
	Auditing- Accouting	5	3.3
	Finance and Banking	45	30
	Economics, Business Administration	9	6
Current employment situation	Part-time employment	44	29.3
	Full-time employment	15	10
	Working part-time but taking a break due to the pandemic	18	12
	Working full-time but temporarily off due to the pandemic	2	1.3
	Jobless	71	47.3
The business that is most interested or known	Vinamilk	40	26.7
	Vingroup	56	37.3
	FPT	25	16.7
	VNG	14	9.3
	Novaland	15	10

Regarding gender, there were 109 female participants, 72.7% of the 105 respondents, while the male participation rate was 27.3%, leading to a gender disparity. By age, it is divided into 4 age groups: under 20 years old, 20-22, 23-25, 25 years old and older. The percentage of the age group from 20-22 years old accounts for 90%. Regarding the educational background, the proportion of candidates without working experience accounted for 45.3%, less than 1 year of experience accounted for 34.7% and more than 1 year of experience accounted for 20%. Based on the fields of the company, the survey respondents are distributed in many different fields, creating a diversity of research areas. Accounting for the highest proportion is the banking and finance sector accounting for 30%, followed by the field of human resource management accounting for 22.7%, the lowest rate is corporate governance with only 2 accounting for 1.3%. In addition, there are the fields of Marketing management, Restaurant-Hotel, International business, Accounting-Auditing, and business administration with 3.3%, 18.7%, 10.7%, 3.3%, 6% respectively.

4.1.2. The assessment of measurement model

We conducted the assessment of the measurement model through the application of SMART PLS 3.3.7 to test the multivariate relationship among observed and latent variables. This relationship would be presented through measurement indicators such as outer loadings, internal consistency reliability, average variance extracted (AVE), discriminant validity and model fit based on the research of Hair et al. (2017).

Outer loading

Outer loading is an important consideration to present how much each observable item contributes to the definition of latent variable. Concurrently, all items should gain 0.5 or higher and ideally 0.7 or higher (Hair et al., 2011). Table 4.2 will present the outer loading of measurement items ranging from 0.707 to 0.852. All items are higher than 0.7, which creates a strong correlation and contributes to the agreement of the latent variables.

Internal Consistency Reliability and AVE

Firstly, internal consistency reliability includes two reliability indicators such as Cronbach’s Alpha and construct reliability (CR). Cronbach’s Alpha is used to measure the reliability of each measurable item based on the correlation in a latent variable. Meanwhile, construct reliability calculates all items representing the same latent variables. Some researchers suggested that CR is considered as good reliability when gaining 0.7 or higher (Bagozzi and Yi, 1988; Hair et al., 2011; Henseler and Sarstedt, 2013). Table 4.2 shows that construct reliability ranges from 0.810 to 0.893, hence, it is completely good reliability and has the difference among observable items in all latent variables.

Secondly, average variance extracted (AVE) is an indicator of convergence that measures the amount of variance attributed to the construct related to the amount of variance due to measurement error (Azwa Ambad and Wahab, 2016). Hair et al. (2011) argued that an AVE of 0.5 or higher is considered as a good rule of thumb to create convergent validity. According to Table 4.2, all AVE of variables are from 0.570 to 0.700, to assure converegent validity.

Discriminant Validity

According to Hair et al. (2011), discriminant validity is the extent to which a construct is truly distinct from other constructs. Based on the traditional approach of Fornell and Larcker (1981), the square of AVE value of each latent variable is higher than any correlation among other latent constructs, the discriminant validity among latent variables exists.

Table 4.2. The result of outer loadings, internal consistency reliability, average variance extracted (AVE), discriminant validity

Outer loadings	JPI	OA	OP
OA1		0.715	
OA2		0.772	
OA3		0.783	
OA4		0.707	
OA5		0.792	
OI1	0.826		
OI2	0.822		
OI3	0.847		
OI4	0.852		
OI5	0.836		
OP1			0.767
OP2			0.776
OP3			0.764
OP4			0.756
OP5			0.808
Construct Reliability and Validity	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
JPI	0.893	0.921	0.700
OA	0.810	0.869	0.570
OP	0.833	0.882	0.600
Fornell-Larcker Criterion	JPI	OA	OP
JPI	0.837		
OA	0.791	0.755	
OP	0.721	0.684	0.775

Source: The statistical results are taken from SMART PLS, 2022

Model fit

Model fit in PLS – _SEM estimates based on explained variance and focuses on testing the overall fit of a hypothesized model structure with empirical data. (Hair et al., 2017). To evaluate the fit of the model, the writer will focus on analyzing standardized root mean square residual (SRMR), Chi Square (Chi2), normed fit index (NFI) and the root mean square residual covariance (RMStheta). First of all, SRMR is the difference between observable correlation and the model-implied correlation (Hair et al., 2017). Henseler et al.

(2014) indicated that the SRMR is a goodness of fit measure for PLS – _SEM to avoid model misspecification. The SRMR is considered as a good fit when a value is less than 0.08 (Hu and Bentler, 1999). Following, Chi2 is a statistical value to check the exact fit test and is calculated based on p – _value from the application of bootstrapping. However, Chi2 value does not provide necessary information to evaluate model fit, NFI is used to represent a fit measure. The NFI results range from 0 to 1 and are accepted when value gains above 0.9. Final value is RMStheta, which is the root mean square residual covariance matrix of the outer residuals and assesses effectively the reflective models (Lohmoller, 1989). According to Henseler et al. (2014), when RMStheta value is lower than 0.12, it will be concluded a well-fitting model.

From the result of Table 4.3, some values of model fits are calculated including SRMR = 0.075 (<0.08), Chi^2 = 238.643, NFI = 0.816 and RMS_{theta} = 0.172. Although NFI is lower than 0.9, and RMS_{theta} = 0.172 is higher than 0.12, they are approaching the standardized range. The result proves the appropriateness between some hypotheses of model structure and data that were collected from the respondents.

Table 4.3 The analytical result of model fit indices

Model fit	**Saturated Model**
SRMR	0.075
Chi-Square	238.643
NFI	0.816
rms Theta	0.172

Source: The statistical results are taken from SMART PLS, 2022

4.1.3. The assessment of structural equation models

Structural equation modeling (SEM) is a statistical model that is used to explain the relationship among multiple dependent and independent variables (Hair et al., 2006). The writers apply PLS – SEM on SMART PLS for testing the predictive power of the model and providing recommendations for practice in this research (Hair et al., 2021). Some standards such as the collinearity assessment (VIF values), the significance and relevance of path coefficients (p-values), the coefficient of determination (R^2) and the f^2 effect size will be analyzed to check hypotheses among constructs and evaluate the model's predictive power and explanatory power.

Collinearity assessment

Assessing collinearity issues will be implemented through the calculation of variance inflation factors (VIF) values to identify correlation matrix among independent variables and the strength of that correlation. The cause of multicollinearity is the inappropriateness of selecting independent variables and the errors of smaller sample sizes, which affects on not only predictive ability of the regression model but also on estimating the regression coefficients and their statistical significance tests (Hair et al., 2006). In order to check the multicollinearity in this model, the writers will evaluate both outer VIF values (the multicollinearity result among observable items) and inner VIF values (the multicollinearity result among latent variables) based on Hair et al. (2021)'s research. Particularly, collinearity does not exist if VIF <3, collinearity issues are usually uncritical if VIF is range from 3 to 5 and if VIF is 5 or higher, collinearity issues likely occur. According to the results from

SMARTPLS, inner VIF values and VIF values of 15 observable items are lower than 3, proving that multicollinearity issues don't happen.

The significance and relevance of path coefficients

The significance and relevance of path coefficients are evaluated to examine the relationship between latent variables based on bootstrapping. Hair et al. (2017) explained that in bootstrapping, subsamples are created randomly from the original data with replacement and there are at least 5000 bootstrap samples to conduct the analysis process.

The bootstrap routines provide the standard error of estimated coefficient, which helps determine the empirical p-value. In order to evaluate and conclude the relationship among dependent and independent variables, the writers will focus on the original sample and p-value. In particular, p-value is the probability of errors when rejecting a null hypothesis. Many researchers assumed that p-value should be lower than 0.1 (significance level = 10%), 0.05 (significance level = 5%) and 0.01 (significance level = 1%) to make the relationship under consideration significant (Hair et al, 2017). Besides, the original sample (β) is used to evaluate the strong or weak impact of independent variables on dependent variables.

The coefficient of determination (R^2)

According to Hair et al. (2017), R^2 value is a measure of the model's predictive power and represents the variance of independent variables explained for the independent variables. The R^2 value ranges from 0 to 1, with higher levels indicating higher levels of predictive accuracy. R^2 value of 0.25, 0.50, 0.75 represents respectively weak, moderate and substantial impact (Hair et al., 2011 and Henseler et al., 2009).

Effect size (f^2)

F^2 effect size is the size of path coefficients and is used to evaluate the rank order of the relevance of the predictor constructs in explaining a dependent construct in the structural model (Cohen 1988; Hair et al, 2017). The f^2 effect size and original sample are relatively similar, but f^2 value presents the influence level of independent variables on dependent constructs. According to Cohen (1988), If f^2 effect size of less than 0.02, there is no effect; If f^2 effect size is a range from 0.02 to 0.15, weak effect is existing; If f^2 effect size ranges from 0.15 to 0.35, the moderate effect happens and if f^2 effect size is 0.35 or higher, there is a strong effect.

Table 4.4. Result of structural equation model (SEM)

	Original sample (β)	P Values	F Square	R Square	
H1. OA -> JPI	0.559	**0.000**	**0.530**	0.686	*Supported*
H2: OA -> OP	0.684	**0.000**	**0.880**	0.468	*Supported*
H3: OP -> JPI	0.339	**0.000**	**0.194**		*Supported*

Source: The statistical results are taken from SMART PLS, 2022

Hypothesis testing

According to the results of the structural equation model from Table 4.4, the writers will conclude the relationship among latent variables based on some standards such as p – value, R^2 value and f^2 effect size.

Firstly, p – value will be used to evaluate whether a hypothesis is supported or rejected. Moreover, p - value is a 5% significance level, meaning that p – value is higher than 0.05 will be rejected to ensure the statistical significance.

Hypothesis 1: the statistical result indicates that company attractiveness have a positive impact on job pursuit intention (p=0.000 and β= 0.559).

Hypothesis 2: the statistical result presents that there is a positive and significant relationship between company attractiveness and company prestige (p=0.000 and β= 0.684).

Hypothesis 3: the statistical result presents that there is a positive and significant relationship between company prestige and job pursuit intention (p=0.000 and β= 0.339).

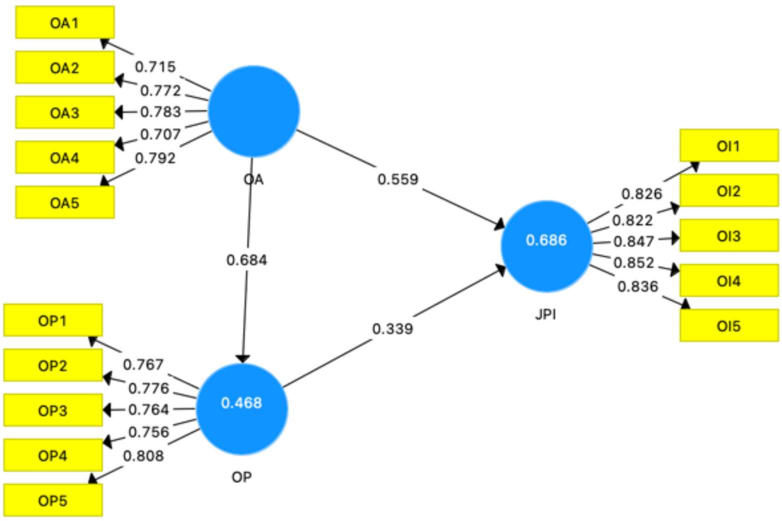

Figure 4.1. PLS-SEM result

4.2 Discussion

4.2.1 Theoretical/ practical implications

Theoretical implications

The study confirms the relations among the three components, the results are similar to those of Highhouse et al. (2003) and reconfirm the Theory of reasoned action, which emphasizes the relationship between organizational attractiveness, organizational prestige and job pursuit intention and the psychological process from attitude to intention. First of all, the study emphasized that organizational attractiveness maps onto the attitude component of TRA, and there is a strong relationship between attitude component and intention component when attitude is a good predictor of intention as TRA theory. The reality in Vietnam shows that young Vietnamese students are often very interested in a company with a certain reputation, some elements of the recruitment document can affect the company attractiveness and has a clear influence on the intention to pursue employment with the company. Secondly, the study emphasized that organizational prestige maps onto the social norms component of TRA theory, when the company is known as a prestigious place to work, the company's employees are proud to work at the company, many people want to work at that company, it will have a positive impact on the intention to pursue that company of the job applicant. Finally, organizational attractiveness has an impact on organizational prestige. The more attractive a company is in the eyes of many candidates, the more positive impact it will have on its reputation.

Practical implications

The practical implication of this study is given by a view that recruitment is a complex process in which job seekers are influenced by many sources. Furthermore, while some of these sources (e.g. advertising) are directly under the control of a company, others (e.g., trustworthiness) may be less so.

Prestige is one of the most important psychosocial factors in the art of management. It plays a huge role in the practical activities of the company, if the company has a high reputation, the greater the influence of the company, the more convincing it becomes for the candidates. If a company is not reputable, no candidate will be interested to learn and also will not work for that company. There are many ways to increase the credibility of the company. First, professional qualifications are the top prerequisite to create a company's reputation. Second, organizational capacity is an equally important factor that creates the reputation of an enterprise. An enterprise with good management capacity will create high operational efficiency of its employees. As the organization develops, new employees will reap many benefits. In other words, the reputation of the business must be formed in the organization.

Next, the attractiveness of the organization is also a factor affecting the candidate's intention to apply. Salary, bonus and recognition of the value of employees will be a way to increase the attractiveness in the hearts of candidates, a fair salary is a solid foundation for employees to contribute to the business. Time is also a motivation for employees to contribute, becoming a motivation for employees to work every day. The recognition of effort is also a reinforcement that the company always pays a certain attention to them, always observing and clearly seeing what they have contributed to the company.

4.2.2 Limitations and recommendations for further research

According to Theory of reasoned action (Fishbein et al.), the most exact determinant of behavior is a person's intention to engage in it and that intention is a function of attitude towards the behavior and subjective norms. Attitudes then influence behavior to the extent that they influence intentions for that behavior. Intention also derives from the perception of the social relevance of the behavior. Intentions also predict behavior better than general attitudes. Thus, according to the research results of Highhouse et al. (2003), they study the relationship between the 3 components of organizational attraction to organization pursuit behavior, which represents participants' choice provide their name and contact information in a request for additional information; and the results, intentions were a statistically significant pursuit of organization pursuit as reflected in participants' willingness to request further company information. The result of Highhouse et al. (2003) were also consistent with TRA theory, when intentions appeared to mediate the effects of company attractiveness and prestige on organizational choice. This study has not tested the above relationship, this is a limitation and also a recommendation for future studies.

5. CONCLUSIONS

The purpose of this research is to discover the relationship of three components of organizational attraction, including organizational attractiveness, organizational prestige and job pursuit intention, in the context in Ho Chi Minh City. In consideration with theoretical background, a research model was established with the three components and three hypotheses related to the relationship among variables. Concurrently, the online survey collected 150 respondents in Ho Chi Minh City to answer some demographic questions and 15 observable items. The data was utilized to analyze through SMART PLS to conclude the initial objectives. The results are consistent with previous studies, when organizational attractiveness and organizational prestige have positive influences on job pursuit intention, and organizational attractiveness have a positive influence on organizational prestige. Research results also support the Theory of reasoned action of Fishbein and Ajzen (1975). The research results have theoretical and practical implications for managers, as a candidate only intends to apply to a company if he/she finds that company really attractive and many others do agree with. The study also brings many implications for managers such as what factors to focus on to improve the organizational attraction, to attract more qualified and suitable candidates for the organization, to bring good business performance. The study also makes suggestions for future research.

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RECRUITMENT IN HUMAN RESOURCES MANAGEMENT OVER 30 YEARS OF RESEARCH OVERVIEW

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ABSTRACT

Research on recruitment in human resource management has developed over more than 30 years, from 1990 to 2021. In the initial years, there is a slight fluctuation in the number of research articles. However, it gradually increases in later periods, notably in the last two years, 2020 and 2021. Our study contributed to the body of knowledge on current trends in recruitment research for the human resources sector and other sectors from 1990 to 2021. Additionally, it provides related topics, references, authors, and journals explored in the articles. In accomplishing this, we analyzed 921 articles on the Web of Science published between 1990 and 2021 using the principal bibliometrics in conjunction with three auxiliary methods: bibliographic coupling, co-citation analysis, and keywords/co-occurrence analysis. Bibliographic coupling analysis of the synergies between institutions and countries reveals a significant contribution of the authors, it also shows a particularly notable contribution of the authors living in different countries, such as the US, UK, Australia, China, and Canada. Co-citation analysis found that the researcher with the most citations was Barney, who focused on the importance of an organization's internal strength. The results of the co-occurrence analysis show a crucial connection between recruitment and human resource management, performance, perception or systems. These findings are used to propose directions for further research in recruitment, such as the need for digital technology,and artificial intelligence.

Keywords: Recruitment; Human resource management; Bibliometric analysis; Trend.

1. INTRODUCTION

Recruitment is a key responsibility of Human Resource Department (Team, 2013). While Human Resource is involved in many areas, including employee engagement, employee development, regulatory compliance, data management, and many more, one of the primary areas of attention for HR is attracting, selecting, and onboarding qualified individuals for the firm. Any company's human capital is also a valuable asset because it plays a key role in increasing the value of all other assets (Sinha & Thaly, 2013). Companies that want to expand sustainably need a strong human resources team, a defined development strategy, and visionary leadership, so they require a capable human resource management division to build a good and effective workforce (Stone & Deadrick, 2015). In the human resource management process, which starts with the selection, recruiting, and testing of capabilities towards the process of enhancing the quality of human resources, they need to be organized and regulated as assets and resources enhance the effectiveness and caliber of personnel (Arifin, Raza, Saputra, & Puteh, 2020). French and Rumbles (2010) state that "the selection of people to serve as resources for businesses is a highly significant task, because success for a company is one of its most important components, and an organization wants to succeed. Human resources that are capable and efficient are essential for success. Thus, one of the most important and fundamental tasks in an organization is recruitment. Due of its importance, professionals from all around the world are spending more time researching recruiting. The fact that numerous pieces on this subject were published in renowned journals between 1990 and 2021 serves as confirmation. In 1994, National Organization Study discovered that newspaper recruiting ads and employee referrals were the most often used techniques. Nevertheless, online hiring practices including those utilizing social networks and electronic websites (E-cruitment), have been used more frequently and have gradually supplanted previous techniques in the following years. Additionally, the 4.0 industrial period, AI software and cloud systems (Big Database) are also being developed more and more. This software can help in discovering the most suitable individuals without having to worry about doing so time-consuming.

Around the world, recruitment topics are frequently studied such as recruitment through social networks by the authors Stone and Deadrick (2015); Larouche et al. (2021); Koch, Poljac, Müller, and Kiesel (2018). Authors such as Rozario (2019); Habib, Kamran, and Rashid (2015); Abraham et al. (2015) focused on the key aspects of leadership, management and people development, namely recruitment, and selection. Or the topic of electronic recruitment (E-recruitment) has also attracted many authors such as Arnett et al. (2019); Johansson and Herranen (2019); Madathil et al. (2018); Paramita, Lumbanraja, and Absah (2020); recruitment of migrant workers such as Hussein et al. (2011); Dipiro et al. (2014); Reproduction et al. (2016); Khatir et al. (2020) are also studied by the same authors and research groups perform. In Vietnam, the topics on recruitment focused on researching the recruitment situation at state enterprises or state organizations by authors such as T. T. Ư. Nguyễn (2020); Nam (2019); Nguyễn (2016); Vũ (2009); while authors such as Quân (2020); Nguyễn Thị Anh (2016) and a few other authors focused their research on methods and processes to improve recruitment in enterprises; in addition, there are several studies on the factors affecting specific recruitment brands by some authors such as Trang (2013); Nguyễn Thị Anh (2016); Tiến (2018); T. Đ. Nguyễn (2020); Nguyễn Thế Anh (2021).

From those sources, it can be observed that during the 1990–2021 era our team examined, there were an increasing number of articles on recruitment-related topics, and authors from other nations were focusing their research in these areasBut in each case, traditional research techniques were used, including data collection, observation, and quantitative survey-based study. No academic research has been able to provide the fullest view on the recruiting issue in human resource management.It will take a lot of time for researchers or those in need of knowledge on this subject to gather the required data. Our research conducted an analysis, a synthesis, and a conclusion to use the bibliometric technique to remedy the problem after realizing such a severe flaw. Using mathematical and statistical techniques to measure and assess academic literature has become standard practice across many fields (De Bellis, 2009). To provide accurate formal representations of scientific communication behavior for purposes of interpretation, evaluation, and management, the goal of this method is to study, quantify, and measure the manifestations of scientific communication. An efficient way for academics to get a broad overview of a certain subject without having to spend a lot of time looking up references coupled simultaneously with three minor techniques: bibliographic coupling, co-citation analysis and keyword co-occurrence. When two scientific papers reference one another and the same paper, the bibliographic coupling approach can reveal linked outcomes of the papers. The co-citation analysis method, in the meantime, will produce results on how frequently two independent documents are cited by a third document, thereby gauging the semantic similarity between documents based on citation connection. The degree of keyword co-occurrence will be displayed using the keyword co-occurrence approach to evaluate the status of scientific disciplines and assist in the planning of future research. As a result of the techniques our group employs, the issues our group previously discussed can be resolved, and further information, such as the number of articles, will be provided. Numerous nations and well-known authors often research this subject. The paper written by our organization can then swiftly and broadly supply the knowledge that researchers and academics need. This is also the reason why our team performs international research on the subject of hiring in human resource management, to add information and data to support hiring and other connected sectors mandarin.

2. LITERATURE REVIEW

2.1 Recruitment in human resource management (1990 – 2021)

Regulatory documents often make a distinction between formal and informal methods of recruitment. Accordingly, formal methods of recruitment include advertising in newspapers, Job Centers and other agencies, while referrals from existing employees or another word of mouth are considered informal methods (Watson, 1989). According to a 1994 NOS (National Organization Study) survey, newspaper job advertisements and informal recommendations from employees were the most frequently used methods of selecting candidates. In addition to the popularity of the above-mentioned traditional recruitment methods, the appearance of the first online recruitment method around 1995, has been predicted by many people that the use of the Internet in the field of recruiting use will increase significantly in the late 20th century (Parry & Tyson, 2008).

According to (Dhamija, 2012), human resource management is one of the fields that has undergone many technological advancements in recent years. The Internet has changed the entire operation of the human resources department. Also, the Internet has become a vital tool in electronic recruitment (Alsultanny & Alotaibi, 2015). From the mid-1980s early, the concept of e-recruitment began to appear in HR periodicals (Malik & Mujtaba, 2018). Any recruitment process that a business organization undertakes utilizing web-based technologies such as a company's public Internet or intranet is referred to as electronic recruitment, which includes the term web-based recruiting. We can use the terms online recruitment, Internet recruitment, and e-recruitment interchangeably (Kerrin & Kettley, 2003). Torres-Coronas and Arias-Oliva (2008) evaluated e-recruitment as one of the most effective e-commerce industry sectors for reaching a large number of potential job searchers. This group of authors also feels that online recruiting and selection has a bright future.

To stay up with the rapid pace of changes and market competition, businesses all over the world are attempting to tap into the immense potential that the Internet has to offer in practically every aspect of their operation, especially when it comes to the function of human resource management. However, because of the legitimacy of a personnel screening and other dangers, many firms avoid using social media or do not fully utilize the benefits it brings (Melanthiou, Pavlou, & Constantinou, 2015). Lewis and Maslin (2015) also recommended that electronic recruitment be considered as a complementary strategy to existing recruitment methods and as a practice-alternative tool for recruiting persons. They may utilize social networking sites like LinkedIn to filter profiles to locate candidates who are a nice choice for a specific job (Todua, Gagua, Maglakelidze, & Maglakelidze, 2015). Artificial intelligence is seen as a new trend in recruitment that will gradually replace old approaches for performing efficiently and fast in a rapidly changing environment. However, artificial intelligence is a relatively new topic that many organizations have not yet fully included in their hiring process Johansson and Herranen (2019). Besides, the applicant tracking system (ATS) assists

HR professionals in processing recruitment-related data, allowing them to work more conveniently and efficiently Todua et al. (2015); Tadić, Zečević, and Krstić (2014).

Although online recruitment methods are growing strongly in the selection process, traditional methods of recruitment are still used because of the unique benefits they bring. Online recruitment is still not regarded as the most optimal method of the recruitment process; many organizations frequently employ a combination of traditional and electronic ways to find capable people at the lowest possible cost.

2.2 Bibliometrics in human resource management

This study applies bibliometric analysis for our aims. A method that has been widely applied in each field of human resource management. Some studies using this method as research on human resource training (Danvila-del-Valle, Estévez-Mendoza, & Lara, 2019) or research on labor relationships and how Covid-19 affects labor market (Kataria, Kumar, Sureka, & Gupta, 2020), (Forsythe, Kahn, Lange, & Wiczer, 2020), (Bamieh & Ziegler, 2020), (Lemieux, Milligan, Schirle, & Skuterud, 2020); using the bibliometric of wages in human resource management (Mumu, Saona, Russell, & Azad, 2021); the link between social media channels and human resource management (Hosain, 2021); and the important role of human resource management in developing the measurement and management of organizational performance (Garengo, Sardi, & Nudurupati, 2021).

Through the process of searching and synthesizing articles applying the above-mentioned bibliometric method, it has been shown that since the 90s there have appeared articles on this method and until now it is still widely used and popularized by researchers. In general, these research articles have the same purpose of synthesizing and evaluating the effectiveness of fields in human resource management based on a large number of articles, authors, cities, or countries with many publications published in prestigious journals related to the field of human resource management. From there, it is possible to overview the efficiency and performance of scientific articles with similar content or co-citations. Then it can provide researchers, business organizations, and students with the most general overview of a certain field or topic in human resource management.

3. METHODOLOGY

3.1 Data collection

We used research article data from the Web of Science database which articles published between 1990 and 2021. The original search was restricted to publications with the terms "recruitment in human resource management" in the title, keywords, or abstract. Thus, we attempted to include all potential word combinations that might be used to study our subject. After conducting ongoing checks, we removed publications that were categorized under unrelated categories—mostly those from the biological medical fields. Then, we apply VOSviewer software as a tool to construct and graphically represent linkages as well as to perform out analysis based on the networks the research on the subject.

3.2 Bibliometric method

Bibliometrics is a mathematical and statistical tool for quantifying and assessing scholarly literature. It is widely employed in a variety of sectors (De Bellis 2009). The objective of this method is to analyze, quantify, and measure the manifestations of scientific communication to construct accurate formal representations of scientific communication behavior for interpretation, evaluation, and management. Temporal analysis, spatial analysis, and content analysis are examples of biometric analysis methodologies (Mohammadian & Bathaee, 2004). Biometric analysis of time frequently focuses on the evolution of research fields throughout time based on the quantity of publications, authors, and citations. Based on results published by governments and institutes, geographic analysis shows how the study regions are distributed globally. Unlike temporal and geographic analysis, content analysis looks for current hotspots based on the frequency of author keywords and subject distribution. (Zhang, Yan, & Du, 2015).

The use of bibliometrics to overview, map, and research publications or co-citations in various fields has been practiced for many years. Several articles have applied this method in different fields such as in the field of medicine that have analyzed a large number of medical scientific publications (Kokol et al., 2020), synthesizing, and analyze to get an overview of the characteristics of the social and humanities fields (Koon & Ho, 2021); analysis of scientific publications in the field of knowledge management (Islam & Widen, 2021) to identify changing trends in the construction sector (Bilge & Yaman, 2021); identify publishing and citation trends in library service quality (Farooq, Rehman, Ashiq, Siddique, & Ahmad, 2021) and an overview of publications, co-citations in the field of finance (Merigó, Gil-Lafuente, & Yager, 2015).

3.3 Bibliographic coupling

Bibliographic coupling describes how closely two articles are related when they both refer to the same another article (Ferreira, 2018). The higher the association between two articles, the better. There are many citations to other articles that the authors share (Weinberg, 1974). This is a potential method to be able to do more extensive research on standing research topics between present and future boundaries (Li et al., 2018). If a reference is cited a lot in scientific research articles, it proves that there are more and more scientific articles. Since then, the knowledge base of mankind has been increasingly developed.

However, bibliographic links can only aggregate recent articles, for older articles may not be able to aggregate. According to one newspaper, linking directories is very poor while the text and linking approaches seem better (Boyack & Klavans, 2010).

To be able to see the certainty between the links of the document. Bond angle (*C.A*) has been proposed as a measure of bond strength (Jarneving, 2007). The bond angle is represented as follows:

$$C.A = \frac{D_{ob}D_{oc}}{\sqrt{(D_{ob}D_{ob})(D_{oc}D_{oc})}} \quad (1)$$

D_{ob} and D_{oc} are the Boolean vectors of document *b* and document *c*, respectively. The cosine between two Boolean vectors, d_a, and d_b, is defined as the *C.A* and can be calculated from their scalar product (Gländzel & Czerwon, 1995).

$$C.A(d_a d_b) = \frac{d_a d_b}{|d_a||d_b|} \quad (2)$$

If two Boolean vectors are parallel, the *C.A* returns *1*; if they are rectangular, it returns *0*. If the angle between the vectors representing the documents does not exceed a set angle *(0-90)*, two papers may be considered to be associated with the same topic (Glänzel & Czerwon, 1995). Madsen et al. (2020) proposed a semi-arbitrary approach with a cut-off value of *0.5*, which equates to *60*, due to a lack of theoretical and empirical evidence for determining a coupling strength threshold.

3.4 Co-citation analysis

The frequency with which two distinct documents are cited by a third document is determined using co-citation analysis, which quantifies the semantic similarity of documents based on citation relationships (Shiau, Dwivedi, & Yang, 2017). In 1973, Small proposed in 1973 that co-citation analysis may reveal the main themes of scientific fields and establish a system of knowledge in those fields (Small, 1973). For instance, co-citation and cluster analysis techniques were used in 2010 to analyze literature on information systems from 1986 to 2005. And according to results, information systems papers can be classified into working groups and resource allocation, information systems strategy and commercial outcomes, development and rollout documents, and information systems documents.

Furthermore, due to the characteristics of co-citation analysis, many scholars use it to enhance the discovery of thematic and semantic similarities of the analyzed documents (Small, 1973) and (Shiau et al., 2017). In addition, this analytical method helps to explain the relationships between different fields, discovering these relationships can yield interesting results that other methods cannot detect (Wallin, 2005).

According to (Boyack & Klavans, 2010), the general process in co-citation analysis consists of the following four steps:

(1) establish a list of references

(2) determine how similar two references are by counting the number of co-citations,

(3) compute the reference's co-citation clusters using the same values,

(4) based on the locations of their references, partial assignment of recent papers (or research fronts) to co-citation clusters.

The first two steps, determining the reference set and calculating the similarity values, are detailed here. The co-citation similarities are calculated as follows:

- From the citation pairs in the list citation, the co-citation frequency, $C_{a,b}$ between reference pairs *a* and *b* is determined.
- Each co-quoted frequency has been modified using:

$$F_{a,b} = 1/\log(p(C_{a,b}+1)) \quad (3)$$

- From each $F_{a,b}$ value, the value *K50* (modified cosine) is derived as follows:

$$p(C_{a,b}+1) = C_{a,b}(C_{a,b}+1)/2 \quad (4)$$

$$K50_{a,b} = K50_{b,a} = \max\left[\frac{(F_{a,b}-E_{a,b})}{\sqrt{S_a S_b}}, \frac{(F_{b,a}-E_{b,a})}{\sqrt{S_a S_b}}\right] \quad (5)$$

- With

$$E_{a,b} = \frac{S_a S_b}{(SS - S_a)}, S_a = \sum_{b}^{n} F_{a,b}, b \neq a, SS = \sum_{a=1}^{n} S_a \quad (6)$$

The *K50* is different from most other metrics in that it is a relative measure minus the expected value. *E* is the expected value of *F* and varies with Sa. As a result, *K50* will only be favorable for interactions with the row and column sums of the matrix on the reference paper that are larger than anticipated. Also take note that while $E_{a,b} = E_{b,a}$, the variances in these values might be fairly big for the points of similarity at the journal level, even though they are frequently too minor to produce similarities at the paper level.

3.5 Keywords/ co-occurrence analysis

The co-occurrence analysis approach reflects the degree of keyword co-occurrence (Callon, Courtial, & Laville, 1991). Healey, Liederman, and Geschwind (1986) tested the effectiveness of co-occurrence maps to assess the status of co-occurrence of scientific fields as a tool for research planning. This approach enables the core content of the publications to be highlighted MacMahon et al. (2017); Danvila-del-Valle et al. (2019). Identify potential for publication or emerging research trends. The utilization of co-citations can help enhance understanding a field's growth and intelligence Bhagat and Chang (2015); MacMahon et al. (2017). However, temporary shifts in keyword usage can lead to some level of pre-existing uncertainty in the outcomes Leung et al. (2017).

Using a measure called association strength Eck and Waltman (2007); Van Eck (2006). The proximity index and the probabilistic affinity index are other names for these similarity measures. The similarity s_{ab} between two items *a* and *b* is calculated using binding strength as follows:

$$s_{ab} = \frac{c_{ab}}{w_a w_b} \quad (7)$$

The number of occurrences of items *a* and *b* are represented by c_{ab}. The total number of occurrences or co-occurrences of items *a* and *b* are represented by w_a and w_b. The similarity between items a and b is determined using (7), which is proportional to the ratio between the number of observed co-occursions of the two items (*a* and *b*) on the one hand and the number of observed co-occursions of the two items on the other hand. Under the assumption that the occurrences of items *a* and *b* are statistically independent, the co-occurrence of the two items is expected. We may explore the advantages of bond strength over other similar measurements in depth based on the research of Van Eck et al (2009).

Van Eck et al. (2007a) analyze the relationship between the VOS mapping technique to multidimensional scaling. Let n be the number of items. The VOS mapping technique's goal is to create a two-dimensional map in which the entries from items *1* to *n* are spaced so that the distance between any item *a* and *b* reflects the similarity of sab exactly. Items with high similarity will be placed close together, while items with low similarity will be far apart. The weight of their squared distances in the summing increases as the similarity between two items increases. The constraint is that the mean distance between two items should be equal to *1* to avoid low-value maps with all things in the same position. The objective function that is minimized is defined as follows:

$$E(y_1, ..., y_n) = \sum_{a<b} s_{ab} \left\| y_a - y_b \right\|^2 \quad (8)$$

Where the vector $y_a = (y_{a1}; y_{a2})$ is the position for item *a* in the two-dimensional map, $\|.\|$ represents the Euclidean norm. The objective function minimization is performed depending on the constraints.

$$\frac{2}{n(n-1)}\sum_{a<b}\|y_a - y_b\| = 1 \ (9)$$

It's worth noting that the constraint's distance $\|y_a - y_b\|$ isn't squared. The optimization problem that is bound to minimize (8) concerning (9) is solved numerically according to the above two formulas. The constrained optimization problem is turned into an optimization problem with no constraints.

The color of a point on the map in the normal density view Eck and Waltman (2007) is influenced by the item density of that site. Let $\bar{d}$ represent the average distance between the two items:

$$\bar{d} = \frac{2}{n(n-1)}\sum_{a<b}\|y_a - y_b\| \ (10)$$

The item density *D(y)* of a point *y=(y1;y2)* is determined in (11):

$$D(y) = \sum_{a=1}^{n} w_a K\left(\frac{\|y - y_a\|}{\bar{d}h}\right) (11)$$

That is, *K:* [0,∞) → [0, ∞) is a kernel function, *h>0* is a kernel width parameter, and w_a is the weight of item a, which is the total number of occurrences or co-occurrences of item a. K is not a non-increasing multiplier. The Gaussian kernel function is used by VOSviewer:

$$K(m) = \exp(-m^2) \ (12)$$

According to (11), the item density of a spot on the map is determined by the number of nearby items as well as their weight. The higher the density of things, the more adjacent items there are and the shorter the distance between them and the point of interest. Also, the density of objects increases as the weight of nearby items increases.

The item density of a spot on the map is used to compute the color strength of that point. *C(y)* color strength of β point *y* is defined as follows:

$$C(y) = 1 - \left(1 - \left(\frac{D(y)}{D_{\max}}\right)^{\beta}\right)^{1/\beta} \ (13)$$

Where *B > 0* is called the color transition and D_{max} is called the maximum item density:

$$D_{max} = \max_{y} D(y) \ (14)$$

The color strength $C_{(y)}$ of point *y* is seen as a straightforward transformation of the point's normalized item density $D(y)/D_{max}$. The density view has been modified to improve its aesthetic appeal. The color scheme is used to translate the color strength obtained in (13) to color. There are two color schemes available in VOSviewer. By default, the red-green-blue color scheme is used. The color red corresponds to the highest item density, while blue corresponds to the lowest item density in this scheme.

Each cluster's cluster density is determined separately for each place on the map. The cluster density of a point y for an item q is calculated as follows:

$$D_q(y) = \sum_{a=1}^{n} I_q(a) w_a K\left(\frac{\|y - y_a\|}{\bar{d}h}\right) (15)$$

where $I_q(a)$ is an indicator function equal to 1 if the item a belongs to cluster q and equal to 0 otherwise. In the cluster density view, the Gaussian kernel function in (12) is used in the same way as it is in the standard density view. After the item density is estimated, the color of a location on the map is determined in two processes. A color is assigned to each cluster. The colors of the clusters are combined in step one by computing a weighted average of the colors. The item density for the relevant cluster is equal to the color's weight (15). In the next phase, the color from step one is blended with the background color of the cluster density view. The color obtained in step 1 weights $C_{(y)}$, whereas the background color has a weights of $1- C_{(y)}$. As a result, the lower a point's total item density is, the closer the point's color is to the background color.

4. RESULTS

4.1 Number of articles published per year

The papers we analyzed were published between 1990 and 2021. Different periods can be seen in the following figure (**Figure 1**), which we establish for better analysis and discussion.

We noticed a sharp rise in the number of articles per year. There is the first period, from 1990 to 2002, when the number of articles about that were not research-focused, increased slightly and evenly. In particular, a point worth noting is, there were no articles on this subject in 1998. The sencond period, which lasted from 2003 to 2009, showed a marked growth in the quantity of articles. 14 articles were published in 2003, compared to 2003, the number of articles climbed by about four times by 2009 (50 articles). The third period, which occurred from 2010 to 2017, had seen a consistent fluctuation in the volume of articles. A clear evidence that the research area have entering the development stage is that, although the growth rate was lower than in the preceding era, it still reflects a substantial rise in the number of publications and a solid baseline of over 41 articles annually. The quantity of articles climbed greatly around this time in the latter era, from 2018 to 2021. Only 60 articles were published annually in 2018. However, there would be more than 100 papers published annually by 2020 and 2021. This rapid increase shows that recruitment in human resources is becoming more concentrated, and this field is gradually moving into a new developed stage of growth.

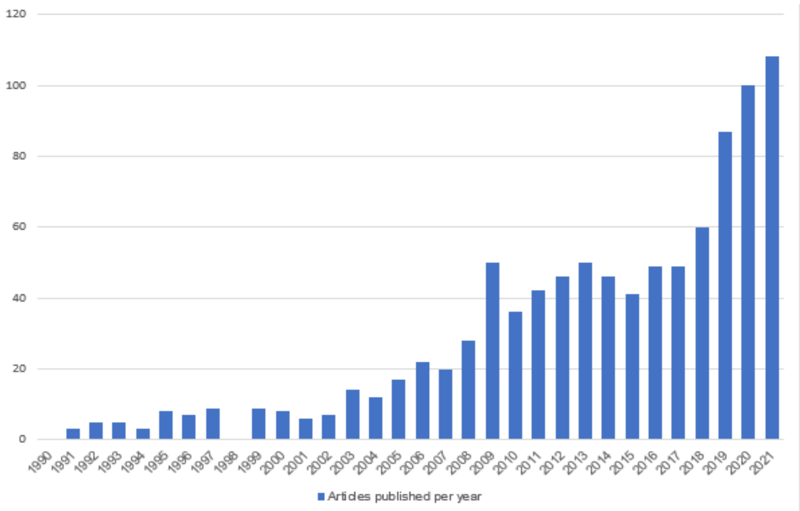

Figure 1. Number of articles published from 1990 to 2021

4.2 Country and language of publication

In this part, the author's affiliation such as countries are shown. The difference between the sizes of the circles indicates the number of articles published in each country. **Figure 2** reveals the authors' nationality and their connection to other authors with whom they have worked. Clusters of green, red, yellow, and blue are created by the linkages. The close proximity of these color-coded groups suggests that those nations within this category are closely cooperating. It displays the geographic and cultural enclaves surrounding the United States, the United Kingdom, some Asian or European nations, as well as the nations that serve as the source of their studies (Figure 2)..

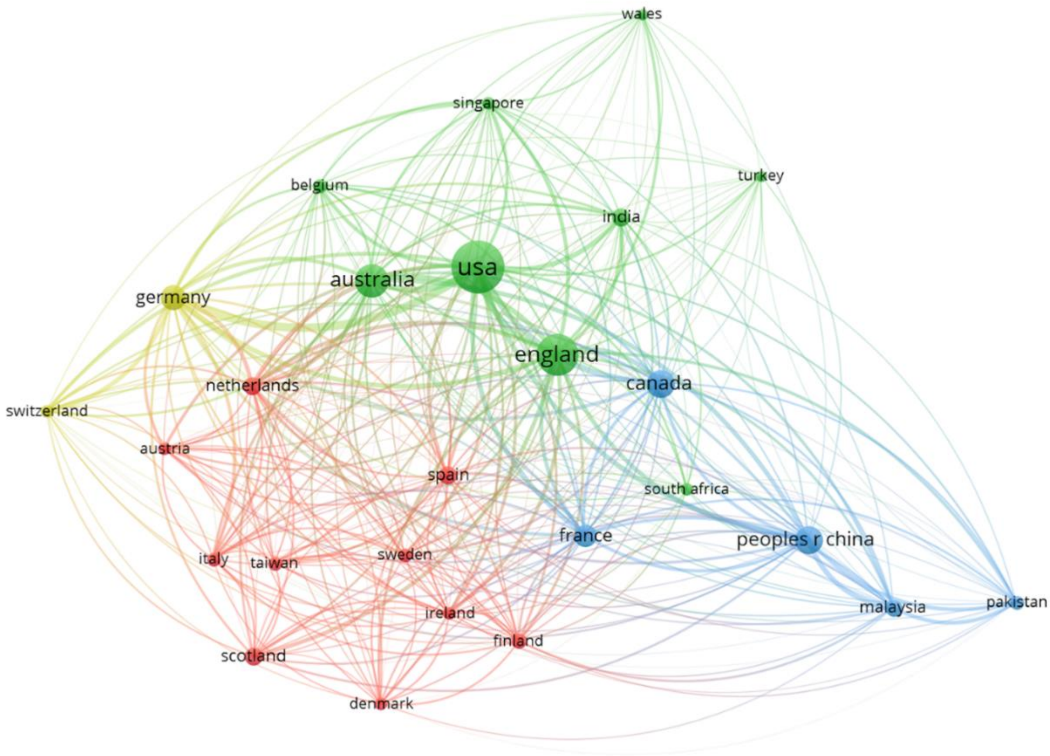

Figure 2. Country and language of publication

As according our research result, numerous countries publish articles on this subject. The United States and the United Kingdom published the most articles in **Table 1**. Consequently, English is used to publish the vast majority of publications (96%). Concentrating more publications on specific nations will enhance author collaboration as maximize and diversify the utilization of research resources. In addition, countries such as Australia, China, Canada and so on also have a significant number of articles related to recruitment issues. It highlights the expanding global interest in in-depth study on recruitment, demonstrating the significance of recruitment to an organization today and in the future.

Table 1. Number of articles published by count

Country	Documents	Country	Documents
USA	164	India	19
England	99	Malaysia	17
Australia	64	Finland	14
China	45	Italy	13
Canada	45	Taiwan	13
Germany	38	Belgium	12
France	30	Pakistan	11
Spain	21	Sweden	11
Netherlands	20	Switzerland	10
Scotland	20	Singapore	10

Source: Data is synthesized by VOSviewer

4.3 Journal productivity

The collected articles have been published in 263 journals. The results showed that the top 20 prominent journals, which have the biggest publishing in recruitments account for around 30.1% of the total amount of publications. **Table 2** displays a list of journals with the greatest number of papers on recruiting, Hirsch scores, and citation counts. One journal that specializes in researching topics relevant to recruitment is the International Journal of Human Resource Management, which has an impressive 81 papers. Human Resource Management and Personnel Review follow with 27 and 26 studies, respectively. Additionally, the H-index guarantee contributes to the improvement of these publications' ranks. Besides, articles published in the International Journal of Environmental Research and Public Health or the Asian Journal of Technology Innovation providing diverse aspects and novel topics in the field of recruitment are being published by several authors' research.

Table 2. List of journals with a large number of publications

No.	Journal	H-index	Documents	Citations	Total link strength
1	Expert Systems with Applications	207	4	201	183
2	International Journal of Human Resource Management	114	81	2000	6564
3	International Journal of Environmental Research and Public Health	113	6	10	244
4	Bmc Health Services Research	110	7	539	104
5	Human Resource Management	94	27	1417	3721
6	Human Resource Management Review	92	12	1420	2390
7	International Journal af Contemporary Hospitality Management	86	6	93	277
8	Sustainability	85	12	103	1431
9	Work Employment and Society	79	6	522	111
10	Human Resource Management Journal	77	15	120	1224
11	Journal af Nursing Management	76	9	90	50
12	Journal of Business and Psychology	75	5	48	1209
13	Personnel Review	71	26	439	1772
14	International Journal of Selection and Assessment	61	7	112	1091
15	Human Resources for Health	60	7	92	77
16	International Journal of Manpower	58	20	376	1351
17	Employee Relations	52	6	17	658
18	Public Personnel Management	43	11	62	154
19	Asia Pacific Journal of Human Resources	33	6	179	745
20	Asian Journal of Technology Innovation	14	4	22	89

Source: Data is synthesized by VOSviewer

The map in **Figure 3** helps visualize these findings in journals and categorize them. We conducted co-citation analysis for journals, which enabled us to discover articles that aided in systematizing the knowledge framework of the journals this topic and to create a map depicting the relationships between journals. The International Journal of Human Resource Management is mostly in the middle of the map due to its large amount of publications and citations. This core group is significant to journals from various disciplines, including psychology, safety, and policy, and particular journals are focused on them. Proximity indicates the degree of correlation of co-citations; that is, how the articles represent the relevant knowledge base for their studies. This enables us to see the fundamental body of knowledge that supports further investigation of the subject, and at the same time, the proximity is also a point of reference for a variety of perspectives.

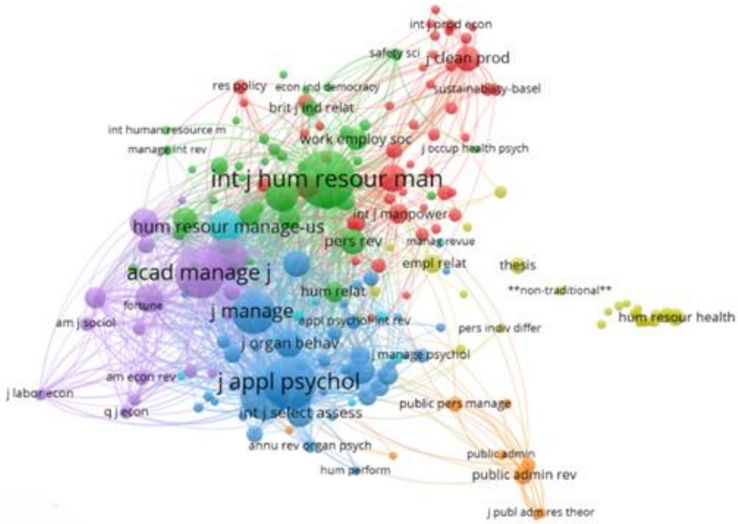

Figure 3. The graph shows the citation relationship of journals

4.4 Authors' productivity

There were 89 single authors in the sample of articles analyzed. **Table 3** shows the authors with the highest research performance. To categorize and understand their importance, we ranked them based on the h-index of each author (list on **Table 3a**) as well as the total number of publications (list on the **Table 3b**). We used both rankings because they offer different perspectives on the authors' contributions and can indicate collaboration in their research.

According to the h-index, authors like Dogan Gursoy and Charbel Jose Chiappetta Jabbour are at the top of the list. The studies of Dogan Gursoy, who has a background in the hospitality, tourism, and hospitality industries, focus on issues such as employee satisfaction, generational differences in values and working attitudes among frontline and service employees, drivers of employee engagement among hotel staff, and differences between supervisors and employees in terms of engagement, satisfaction, and intent to change jobs. Charbel Jose Chiappetta Jabbour discusses the connections between green HRM and sustainability, human resource-related topics, and workplace management. Obviously, Gursoy covers various concerns like attitude and job happiness, primarily in the hotel industry, while Jabbour's research concentrate on green management.

Articles published by James Arrowsmith achieved highly in both rankings, demonstrating the relevance of the author's research. The article studies the relationship between the human resource management (HRM) practices of subsidiaries in multinational corporations (MNCs), and the ability to absorb and transfer knowledge from other parts of the companies. MNC company is a primary reference. It should be precisely determined that a high ranking in this category reflects only the effort, devoted to the subject, and may not necessarily be related to the relevance it has achieved in the literature. This point will be explored in more detail later through cited references.

Table 3a. Statistical table of authors based on H-index

No.	Author	H-Index	Documents	Citations	Total Link Strength
1	Gursoy, Dogan	73	2	310	0
2	Jabbour, Charbel Jose Chiappetta	72	2	131	11
3	Bjorkman, I	53	2	129	2
4	Chien, Chen-Fu	46	2	226	4
5	Collings, David G.	45	2	975	3
6	Paille, Pascal	35	2	145	16
7	Chi, Christina G.	33	2	310	0
8	Shen, J	31	2	94	1
9	Arrowsmith, J	31	3	55	2
10	Nickson, Dennis	29	2	196	0
11	Forde, Chris	27	2	225	0
12	Williamson, Ian O.	24	2	103	7
13	Mackenzie, Robert	23	2	225	0

Source: Data is synthesized by VOSviewer

Table 3b. Statistical table of authors based on number of publications

No.	Author	H-Index	Documents	Citations	Total Link Strength
1	Carless, Sally A.		4	92	0
2	Arrowsmith, J	31	3	55	2
3	Gursoy, Dogan	73	2	310	0
4	Jabbour, Charbel Jose Chiappetta	72	2	131	11
5	Bjorkman, I	53	2	129	2
6	Chien, Chen-Fu	46	2	226	4
7	Collings, David G.	45	2	975	3

8	Paille, Pascal	35	2	145	16
9	Chi, Christina G.	33	2	310	0
10	Shen, J	31	2	94	1
11	Nickson, Dennis	29	2	196	0
12	Forde, Chris	27	2	225	0
13	Williamson, Ian O.	24	2	103	7

Source: Data is synthesized by VOSviewer

4.5 References analysis

There were 28351 references in our sample. The top citations are shown in **Table 4**.

Barney's research (1991) is the most cited and cited in 42 articles. This study assesses the link between an organization's resources and long-term competitive advantage. Barney (1991) suggested that four indicators have an impact on sustainable competitive advantage like value, rarity, imitation (History Dependent, Causal Ambiguity, and Social Complexity), and substitutability. This is considered an important reference because Barney is a great contributor to giving a view of internal resources and resources within a company.

Huselid (1995) believes that to improve the performance of an organization, it is necessary to use High-Performance Work Practices, including recruitment procedures, employee selection, remuneration, and a performance management system. In addition, this study predicts that the relationship of high formwork practices to organizational performance is mutually reinforcing.

Chapman and his colleagues (2005) studied the relationship between the factors that predict the attractiveness of the company (employer brand), and the intention to pursue, accept and choose the job for the employees. Research has also demonstrated that candidates are often attracted to organizational characteristics, employer behavior, recruitment process, and perceived organizational relevance before and after joining the organization.

Rynes et al. (1991) examined the relationship between recruitment activities and job choice in each candidate. Research reveals that recruitment plays a variety of roles in a candidate's decision.

It is noteworthy that the top citations in **Table 4** were mostly published before 2000, only 2 of those 16 citations were published after 2000. Articles published after 2000 were missing citations because of the lack of citations. Those articles are written in the construction phase or they are tending to explore new aspects. That makes their paper more cited and a sign that their research paper makes relevant contributions.

Table 4. Most cited articles

Article	Cities	Article	Cities
Barney J, 1991	42	Lepak Dp, 1999	24
Huselid Ma, 1995	39	Becker B, 1996	23
Chapman Ja, 2000	33	Macduffie Jp, 1995	20
Rynes Sl, 1991	31	Schneider B, 1987	20
Kristof Al, 1996	29	Ployhart Re, 2006	20
Podsakoff Pm, 2003	26	Highhouse S, 2003	20
Spence M, 1973	25	Rynes SL, 19911	20

Source: Data is synthesized by VOSviewer

Regarding co-citation analysis in recruitment-related literature, we studied articles that were cited at least 20 times to identify the core intellectual structure supporting research on the topic. recruit. As shown in **Figure 4**, a map showing the co-citation relationship of the references helps us visualize the results more clearly. To study the network of references, we performed the analysis of the main components in **Figure 4**.

According to **Figure 4**, there are two clusters consisting of two groups in red and green, showing that there are two factors that allow us to consider them as axes that shape the focus of the document research. Therefore, we studied the literature with a large proportion of each component.

The first component includes the studies of Huselid, Barney, and Lepak. Their articles are related to the relationship between human resources and work performanc. Based on the theory of human capital, there are four different recruitment methods to develop an organization's resources (Lepak & Snell, 1999). Besides, Huselid (1995) emphasizes the importance of developing human resources to promote job performance and enhance competitive advantage Barney (1991); Lepak and Snell (1999).

The second component shapes the importance of attracting candidates in organizations, through which they make speculations about new opportunities, and new recruitment methods for recruiting employees. In the face of competition for candidates and diversity in the workforce, Ployhart (2006) argues that traditional recruitment methods are important and should be maintained, however, this method does not bring strategic value. comb. Therefore, Ployhart (2006) has proposed a multi-level staffing model (Multi-level staffing model) as a mechanism for transmitting enterprise value such as promotion opportunities, and personal performance assessment tools to attract candidates. Research by Highhouse, Thornbury, and Little (2007) has given three measures in attracting employees to have a relationship in organizational pursuit behavior. In addition, Breaugh and Starke (2000) developed an organizational framework for the recruitment process, through theories of various domains, candidate attention, recruitment activities, and outcomes application results.

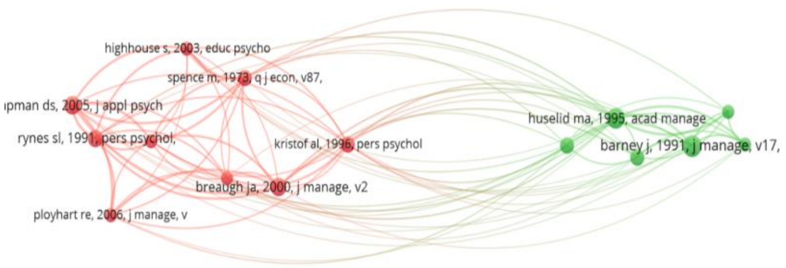

Figure 4. Co-citation relationship of the references

4.6 The topic of human resource recruitment

The researches of the papers in our sample used 2789 different keywords to categorize their investigations. **Figure 5** shows that 201 terms were called keywords at least five times. The size of the buttons in **Figure 5** shows the weight of each keyword. The spacing of words, and the lines show the relationship of each keyword. The two keywords recruiting (recruitment) and human resource management (Human resource management) appeared high ranked, additionally, performance also received high grades. It is obvious that the role of human resource management, performance, perception or systems because these research topics are related to the topic of recruitment.

In **Figure 5**, there are many clusters corresponding to many groups of related topics. The small size and distance between the values show that their research topic has a high degree of relevance relation to each other. Specifically, the red cluster with the highest value is the keyword recruitment, the values of which are employee, turnover, applicant attraction, people, web, and internet, respectively. For the blue cluster, including the highest value for performance, and the smaller values for culture, systems, and future. In general, the items in the cluster have a certain degree of relevance and are geared towards the topic of recruitment.

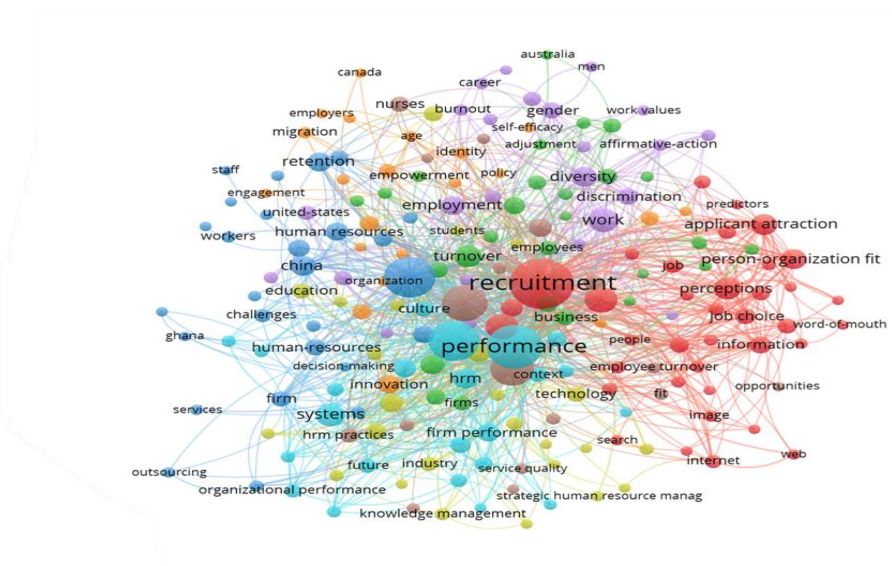

Figure 5. Co-citation map

Countries, where relevant cited references are published, are also significant, including China, Australia, the United Kingdom, Canada, and India. All keywords in the articles show that the documents focus on companies that specialize in employing workers.

5. CONCLUSIONS

Researchers have recently become interested in the topic of recruitment, but it took a long time as for recruitment field to grow and be recognized. In particular, there were 3 study stages on this subject in the more than 900 papers from 1990 to 2021 that research team synthesized and analyzed:

The first stage, recruitment began to take shape between 1990 and 2007, during which time was called seeding. From 2008 to 2017, which is significant development period with the comparatively high number of publications per year. And observed a rapid and consistent increase in the number of articles from 2018 to 2021.

For any new topic or research, these stages are common. This will provide a sufficient basis for further studies. Furthermore, it provides opportunities for other institutions or researchers to discover new topics or relationships and even new frameworks. When a certain topic reaches a stage where it can be considered stable, the intellectual foundation provides upon which to build robust, targeted research on other topics in the future.

In addition, studies are largely concentrated in the UK and USA. We believe that the concentration of research in these two countries has created the basis for in-depth research on this topic. Moreover, the international cooperation between countries has enriched this topic and opened up many new perspectives. Then, various geographical clusters will have different perspectives on this topic. It contributes to making the topic more and more consolidated and applied in practice.

The International Journal of Human Resource Management is the publication with the greatest number of publications on the subject of recruiting, according to statistical findings. It is also a vital journal, publishing articles that support the systematization of the knowledge framework of these subject journals.

Most of the topics of the documents are human resources and human capital. More than 28,000 references are providing a wide range of theories and perspectives related to the topics we research including recruitment, selection, candidate behavior, and recruiters. As such, they can provide contributions, providing approaches to the topic of recruitment. In this study, we found that experienced authors approached the topic with interrelated perspectives. Barney emphasized the importance of an organization's internal strength, and Chapman made a forecast to attract candidates.

Keyword analysis of the literature shows a strong connection with concepts related to human resources, continuous goal pursuit relationship with performance, employee selection, perception, and management. Other keywords reflect the main structure of the cited references.

Articles of Barney, Huselid, and Lepak have built the core values of resource development. Their studies have established theoretical foundations, exploring topics related to the relationship between human resources and job performance, long-term strategies, or their impact on human resource performance. These references demonstrate the relevance of our study to related studies. The concept of human capital is related to other relevant and fundamental studies. The link between human resource management and job performance to create competitive advantage has demonstrated the authors' interest in this topic. In addition, attracting talent also plays an important role in building the recruitment process. Accordingly, recruitment is considered one of the keys to creating human capital and has a significant impact on job performance.

We suggest three management implications based on the mentioned research findings to support future research on the recruitment field. First, our findings allow researchers to understand the boundaries and scope of current research in the field of recruitment. Therefore, researchers can use our results to focus attention on interesting and novel issues. Second, based on our team's research results, scholars can easily identify prominent researchers or organizations that are at the forefront of research on topics related to recruitment content so you can contact and create a partnership as potential collaborators, or offer guidance from them. Third, findings through co-citation analysis and bibliographic affiliation provide researchers with important information about compelling papers that can be considered the cornerstones of this research area. These quality articles can be used as a basis to promote more in-depth research into detailed areas of HR recruitment.

5.1 Limitations and future research

Firstly, in the process of extracting articles to run the data. We searched for articles with the keyword "recruitment in human resource management" the results were still muddled with information from other disciplines, particularly biology and medicine. Therefore, we spent a lot of time accurately filtering articles in the field of human resource management. In addition, in the process of running VOS viewer software, we also encountered many difficulties when the results overlapped and did not have a connection with each other. We had to filter many times to see the most obvious recruitment trends in human resource management.

Future studies on the recruitment aspect of human resource management may supplement the aspects we have already outlined. If future authors can study new, deeper theories about recruiment, especially in the aspect of recruitment through digital technology, artificial intelligence, they can do more analysis from the perspective of global. Finally, we suppose that our paper serves as one of the most crucial building blocks for helping present and future researchers develop their findings by giving them a more fundational understanding of the recruitment.

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FORECASTING TURNOVER INTENTION OF EMPLOYEES BY USING DATA MINING TECHNIQUES: EMPIRICAL FROM VIETNAM COMPANIES

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ABSTRACT

Employee turnover is a significant issue in knowledge-based businesses. An employee provide a competitive advantage to competing organizations. A firm must minimize employee attrition in order to remain in the market and retain its personnel. This article examines the employee attrition forecast model utilizing several Machine Learning approaches. Model outputs are then evaluated in order to design and test the optimum strategies for employee withholding at various stages of an employee's connection with a firm. This work has the potential to outline improved staff retention designs and improve employee satisfaction. This document combines and condenses the ability to benefit from knowledge and provide information-driven experiences, options, and projections. This not only increases the significant Human Resource (HR) cost, but also impacts the market value of an organization. Despite these facts and ground reality, there is little attention to the literature, which has been seeded to many misconceptions between HR and Employees. Therefore, the aim of this paper is to provide a framework for predicting the employee churn by analyzing the employee's precise behaviors and attributes using classification techniques.

Keywords: Turnover Intention, Machine Learning, Human Resource, Employee Attrition

JEL Classification: M12

1. INTRODUCTION

Each country desires to develop socioeconomic needs for resources such as natural resources, capital, science and technology, and people, with human resources being the most important factor. With the transition to a knowledge-based economy, as well as the trend of international integration and globalization, highly qualified human resources are critical to national competitiveness. Many countries in the twentieth century were poor in natural resources, such as Japan, but due to good human resource promotion, many achievements in socioeconomic development were made, and industrialization and modernization were completed. in a matter of decades. There is no denial that finding a well-trained and experienced employee is a challenging task for any organization, but replacing those employees is even more difficult. It not only raises the cost of Human Resources significantly, but it also has an impact on an organization's market value, which reflects the stability and loyalty of employees. If the turnover rate is more than the industry norms, the organization's human resource plan should be evaluated, reviewed, and adjusted as soon as possible. Job turnover not only heavily affects labor - intensive businesses, but many small and medium - sized enterprises (here on named SME) also suffer from turnover in a different way. For SME, loosing key staff is a deadly strike. The uncontrolled fluctuation raises the company's personnel costs, reduces business efficiency, and even has the potential to "destroy" the business. In fact, employee turnover does not happen overnight, it usually takes some time for the employees to come to the exit decision. In addition, employee attrition is clearly the key factor influencing the organization in many ways such as goodwill, revenue, and cost both in terms of time and money. The main objective of this research is to build reliable and accurate models that can forecast employees' exit intention. This can be conducted by determining the attrition status of the employee under review using appropriate data mining techniques.

Therefore, our research choose to find out if there is a possibility to predict the exit decision before it happens so that organization can take necessary measures to manage the situation. This study focuses on answering two questions. (1)What factors have a high impact on employee turnover. (2) What a reliable and accurate model is to forecast employees attrition.

The goal of this abstraction is to use Machine Learning algorithms to develop Predictive Analytics for HR in the event of employee turnover and to examine characteristics that impact employee attrition inside the firm. The goal is to test multiple Machine Learning algorithms and evaluate their performance on the company's data in order to select the best accurate model. Because the input for this modeling challenge involves structured data from several sources, data pre-processing will be necessary. It will include employee demographic information, and the outcome value will represent the likelihood of an employee leaving the firm. Precise forecasting of staff turnover will enable the firm to make strategic decisions about employee retention and take necessary steps. The terms "Data Science," "Data Analytics," "Predictive Analytics," "Predictive Modeling," "Data Mining," and "Machine Learning," for example, are nevertheless used ambiguously and interchangeably. " Data Science encompasses everything connected to data purification, processing, and analysis in order to extract insights and under stability information from data" (Dejaeger et.al, 2012). It integrates mathematical, statistical, and programming approaches. Data Analytics, on the other hand, focuses on drawing inferences from raw data. Big Data refers to massive amounts of data that cannot be stored or processed in a reasonable length of time utilizing standard innovations (Choudhary et.al, 2011)The research objective is forecasting the attrition of labor force/ employee in an organization which using well-known data classification techniques such as Logistics Regression, Support Vector Machine (SVM), Random Forest, Decision Trees, AdaBoost. The predictive attrition model not only helps in taking preventive measures but also makes better hiring decisions. The research sample is taken from the available Datasets, so it can only predict the attrition in a limited range. However, this system should be tested with other real-time data from several large organizations, it will give more specific insights. With these insights, we can create forecasting tools that help organization manage employee attrition which in turn reduce human resources cost and retain key staff. We used Human Resource Analytics Dataset of businesses in Vietnam. which contains information about 5000 employees of 250 companies and 11 variables about different employee information at work.

2. LITERATURE REVIEW

Theories of turnover intention

According to Sousa Poza and Henneberger (2004), turnover intention is a reflection of "the subjective possibility that an individual will change his/ her employment within a specific period of time", and is the reason for the actual exit. Turnover intention an intention to leave your current workplace and find a new one. Turnover intention is measured by whether an employee plans to leave their positions or by whether the organization plans to remove employees from positions (Chew, 2004).

Theories related to turnover intention

Social Exchange Theory

According to this theory, social exchange is a process in which the exchanger seeks to maximize revenues and reduce expenses (Kelly and Thibaut, 1969). Both tangible and intangible aspects are involved in this transaction. Every interaction between people at work is considered in a benefit-cost relationship. A person who pay a cost will expect a rewards adequate to what they have paid (Farmer and Fedor, 1999).

Equilibrium Theory

Adams (1963) introduced the concept of equity in an organization by comparing the ratio of output, such as salary, bonus, promotion, and inputs, such as qualification contribution, experience, the level of effort of employees in an organization. From his perspective, fostering equity inside the company will strengthen employees' connection, inspiration, and their satisfaction.

Theory of the relationship between work motivation and turnover intention

According to Olusegun (2012), extrinsic motivations like rewards, praise, and other forms of encouragement affect work motivation. In its turn, work motivation has a significant impact on the level of employee engagement with the company. Consequently, Olusegun (2012) argues that when extrinsic motivations like rewards, praise, and other forms of encouragement from an organization is overcome by that of another organization, work motivation is affected and the employees will desire to leave the organization.

Effect of turnover intention

Work environment

From a different point of view, working conditions are always concerned by employees because the working environment is related to personal wellbeing, and it plays crucial roles that helps complete their tasks well. It means that if the working environment is sufficiently concerned by the organization, the employees attitude toward work will improve, the satisfaction level of the employees will be higher, thereby it reduces the intention to stay with the organization instead of leaving it (Sell and Cleal, 2011).

Stress at work

The term "work stress" refers to how challenging it is for employees to carry out their duties. Employee behaviors are affected by stress because it affects employees' motivation, and consequently their performance. It is worth noting that When workers are under a lot of stress at work, they tend to consider quitting the job (Calisir, Gumussoy, Iskin, 2011).

Relations with colleagues

It is undeniable that employees who get along well with their colleagues do not feel bored when they arrive at work every day, they do their task more effectively, and they become more passionate about their work. Besides, receiving support from the supervisors, employees spend more efforts finishing their work, and they become more engaged with their organization. On the other hand, if disputes or conflicts exist in the workplace, communication with other employees will be dysfunctional, the employees will feel isolated and demoralized, and consequently, the exit intention will increase (Lee, Huang, Zhao, 2012).

Job satisfaction

According to Price and Mueller (1981), job satisfaction is defined as the extent to which employees have a positive affective feeling toward organization's tasks. In other words, job satisfaction is defined as employee happiness in various aspects of the work.

Training and development

Employees always seek learning and development opportunities so that they can progress in their career path. Competent employees often plan their career and lookout for learning and development opportunities that support their plan. If organization cannot offer learning & development opportunities besides given work position, employees will be demoralized and will be more probable to leave the organization.

Previous studies

Mikees et al. suggested to handle a large problem of customer churn in a business, particularly telecoms, by developing models using several approaches such as Classification for prediction, Clustering for detection, and Association for detection (M. Mitkees et. al, 2017). K. Dejaeger et al, 2017 developed a profit-centric performance in a retention effort by calculating the most profit using the best percentage with the highest estimated probability of customer attrition. L. Carlos et al. 2017 presented a methodology to predict college attrition for a persistent problem in Brazilian colleges. H2O software was employed as a data mining tool, and Deep Learning was used to anticipate dropout situations, as well as to detect student attrition patterns and to restart their studies by taking remedial actions.

Dolatabadi et al. 2017 said that even with an optimal low churn rate of 5%, the cost of a person leaving the business (assuming the firm is IT oriented) is around 1.5 times the yearly salary of an employee. As the organization shifts toward customer centricity, customer turnover is given special attention in this study. They employed SVM to forecast churn rate by developing an accurate and dependable prediction model.

Choudhary et al. 2011 provided another study in which they use a logistics regression approach using on demographic data from separated employees as well as current workers to construct a risk equation to predict employee turnover. Later, given the current set of data, this equation was used to assess attrition risk. Later, this equation was used to assess the probability of attrition with the present group of personnel. Following the estimation, a high risk cluster was discovered in order to determine the reasons, and an action plan was created to reduce the risk.

3. METHODOLOGY

This research tries to model each employee's likelihood of leaving the company using data from the HR Analytics Dataset. Using forecast results, management will be able to determine what causes employees to quit the organization, and what adjustments must be made to stop this from happening in the future.

Introduction to Machine Learning

A subfield of artificial intelligence (From here on called AI) is machine learning, the research field that enables computers to improve themselves using training data, or experience., A well trained machine learning model is capable of making predictions or decisions without additional coding. There are two issues that Machine learning often aim to solve, prediction and classification.

Machine learning is clearly effective in resolving many specific issues. For instance, machine learning can be trained to to categorize email messages as spam or not on their own. Statistical inference and machine learning are very similar in concept, despite different nomenclature. Furthermore, deep learning, a subset of machine learning, has recently been experiencing tremendous growth and outperformed conventional machine learning techniques. Statistics and machine learning are similar that they both base on data to derive insight. Machine learning, in contrast to statistics, focuses on the complexity of the algorithms used to carry out computations. NP - nondeterministic polynomial time issues are hard issues that cannot all be solved by statistical inference, machine learning intend to create workable approximation algorithms to solve these issues.

Introduction to Rapidminer

Rapidminer is the open source environment for machine learning and data mining, using The Java programming language. Rapidminer use Client/Server model, where server can be either on-premises, in the public cloud, or in a private cloud. Rapidminer provide Learning Schemas, models, and algorithms, which can be modified using R or Python programming language.

The R and Python programming languages can be added to to create Learning Schemas, models, and algorithms.

Algorithms in Data mining are divided into 2 types. First, Supervised Learning Algorithms: These are the algorithms that require an Output (or called a Label or Target). Some models of this algorithm can be mentioned as: Naïve Bayes, Decision Tree, Neural Networks, SVM (Support Vector Machine), Logistic Regression model. Second, Unsupervised Learning Algorithms: Algorithms that are not required to know the Output in advance but can look for patterns or trends without Label or Target, such as K-Mean Clustering, Anomaly models Detection, Association Mining. With Rapidminer, we can load and transform data (Extract, Transform, Load (ETL)); we can carry out data processing and data visualization; We can build forecasting models and statistical analysis; and we can evaluate and deploy data.

Logistics Regression Model

Logistic regression is a type of statistical analysis used to predict the outcome of a dependent variable based on previous observations, using functions called logit functions, which help infer relationships between dependent and independent variables by predicting the probability or chance of occurrence. Logistic functions (sigmoid functions) convert probabilities into binary values that can be further used for predictions.

- Binary logistic regression: The dependent variable has only two 2 possible outcomes/classes. Example: Male or Female.
- Polynomial Logistic Regression: Dependent variable has only two or 3 possible outcomes/classes without sorting. For example: Predicting food quality (Good, Great and Bad).
- Conventional logistic regression: The dependent variable has only two or more than 3 possible outcomes/classes with ordinal.

In case of logistic regression, the dependent variable y only has the states of "1" and "0". Output determines the chance of a continuous variable convert to one of these two states. If p is the likelihood that an event will occur, then 1-p is the likelihood that the event won't occur.

The logistic regression equation states: $\log\left(\frac{1}{1-p}\right) = a + bx + e$

SVM Model

SVM (Support Vector Machine) is a learning algorithm used in classification or regression problems. In fact, it is more capable in solving classification problems. In this algorithm, we graph the data as points in a n-dimensions space (where n is the number of features). All the input data will create a population in this n-dimensions space. We then perform a "hyper-plane" cut that divides this n-dimensions space into separate layers. In case of a 2-dimensions space, "Hyper-plane" is simply understood as a straight line that divide a plane into two separate parts.

Generalizing to multi-dimensional space, we need to find a hyperplane equation with the equation: $w^T X + B = 0$.

SVM is a highly generalized method which allow us to solve many types of identification and classification problems.

Random Forest model

Random forest is a supervised learning algorithm. As its name suggests, Random Forest uses trees as a basic components. A random forest is a collection of Decision Trees, each of which is selected by a random-based algorithm. Random Forest algorithm can be used for both Classification and Regression problems. It can work with missing data when the Forest has more trees, we can avoid Overfitting with the data set (can create models for categorical values). Random Forest works by evaluating many random decision trees and extracting the best result from the number of results returned.

Decision Tree Model

Decision Trees is a very powerful algorithm, capable of fitting complex data sets and has been applied to many aspects such as medical diagnosis and credit risk of loan records. Decision Trees consist of three main parts: a root node, leaf nodes, and branches. Firstly, the root node is the starting point of the decision tree and both the root, and the node contain the question or criteria to be answered. Secondly, the branch represents the results of the test on the node, and then the associated decision tree is grown incrementally. The final decision tree has two nodes; decision nodes and leaf nodes, which can handle both categorical and numerical data. Decision Trees is a very efficient and easy to understand classification method.

Algorithms related to Decision Trees:

ID3 (Iterative Dichotomiser 3) Algorithm: ID3 (J. R. Quinlan 1993) uses a fixed method of top-down search through the space of possible branches without backtracking. ID3 uses Entropy and Information Gain to build a decision tree.

C4.5 Algorithm: is an improved algorithm of ID3. In the ID3 algorithm, Information Gain is used as a measure. However, this method favors attributes with a large number of values and gives little consideration to smaller values. Therefore, to overcome the above drawback, we use the Gain Ratio measure (in algorithm C4.5) as follows:

First, we will normalize the Information gain with the split information value:

$$Gain\ ratio = \frac{Information\ Gain}{Split\ Info}$$

In which: Split Info is calculated as follows:

$$-\sum_{i=1}^{n} D_i * \log_2 D_i$$

Some other algorithms such as: CHAID algorithm is generate decision tree using chi-square test to determine optimal splits. The input target variables can be numeric (continuous) or categorical. Moreover, C&R algorithm is use recursive partitioning to split the tree. The target parameter can be numeric or categorical, MARS and Conditional Inference Trees.

AdaBoost Model

AdaBoost is the first successful boosting algorithm developed for binary classification which is the best starting point for understanding boosting. Most of the modern boosting methods build on AdaBoost, and the most worth noting method is the random gradient boosting machines. Algorithm AdaBoost:

AdaBoost is implemented using short decision trees. After the first tree is generated, the performance of the tree on each training instance is used to measure the attention of the next generated tree that should pay attention to each training instance. Training data that is difficult to predict has more weight, while those that are easy to predict have less weight. The models are created in sequential order, each update of the weights on the training instances affects the learning performed by the next tree in the sequence. After all trees are built, predictions are made for the new data, and the performance of each tree is measured by how it was on the training data.

Research Process

The research procedure is as following:

Step 1: Make a plan – Choose methods

Step 2: Design the study

Step 3: Prepare to conducting data collection

Step 4: Collect data

Step 5: Analyze the data

Step 6: Share and discuss analysis results

4. RESULTS & DISCUSSION

Data collection

The research team uses research data from the Human Resource Analytics Dataset of businesses in Vietnam. In fact, the secondary dataset contains information about 5000 employees from 250 different companies, consisting of 11 different variables for each employee. The information of the variables is described in the following table:

Table 1. Variables in the dataset

Variable name	
Satisfaction_Level	Left
Last Evaluation	Promotion
Number Project	Is Smoker
Average Monthly Hours	Department
Time Spend Company	Salary
Work Accident	

Data processing

After research team conducted the quick review, our research found that the variable "Is Smoker" (Is it a smoker?) was not significant during the analysis, so the team decided to remove this variable from the dataset used to run the data. Finally, the dataset used will include 10 variables, including 7 Arithmetic variables and 3 Categorical variables. While reviewing the data, the team removes or replaces lost or malformed data lines. After filtering the data, the sample size will be reduced to 5000 employees with 10 variables.

Discussions

There were 5 predictive models which our team ran: Logistic Regression, SVM, Random Forest, Decision Tree, AdaBoost to find the most suitable, most reliable model with the dataset to build an unemployment rate forecasting tool. The process of running the models is done on Rapidminer software. The research team that received the Random Forest model results had the highest Accuracy. This result shows that this model has high accuracy suitable for building a forecasting tool and conducting tests to determine which factors will have the most influence on an employee's turnover intention.

In addition, to find out factors that have a high impact on employee turnover, the team tested the correlation of pairs of variables in the data table. After performing the test, the team found that satisfaction_level, salary and work_accident were the three factors that had the highest impact on employee decline.

After testing all 5 models with the Dataset from Vietnam company, the performance for each model is as following:

Table 2. Comparasion results of Employee's turnover intention

Model name	Accuracy	Precision	Recall	F1 Score
Logistic Regression	78,60%	58,37%	35,15%	43,88%
SVM	94,77%	89,18%	88,83%	89,01%
Random Forest	98,60%	99,41%	94,68%	96,99%
Decision Tree	98,07%	96,45%	95,24%	95,84%
AdaBoost	93,36%	96,51%	93,36%	94,91%

First, the research team check the correlation of each pair of variables in the data table using the correlation matrix. The impact will be evaluate using RapidMiner. After performing the Import Data and the research team dragged the data into the Design panel, drag it to Res then Run the model. In the Operators dialog box select Correlation Matrix and drag it to the Design panel. Then click on Correlation Matrix to select the correlation attribute. In the Parameters box, click the attribute filter type to select the value type, then when the value type appears, select the type as numeric because the correlation is only applied to numeric or nominal label variables. Then will connect 3 output ports of Correlation Matrix to res, as shown below:

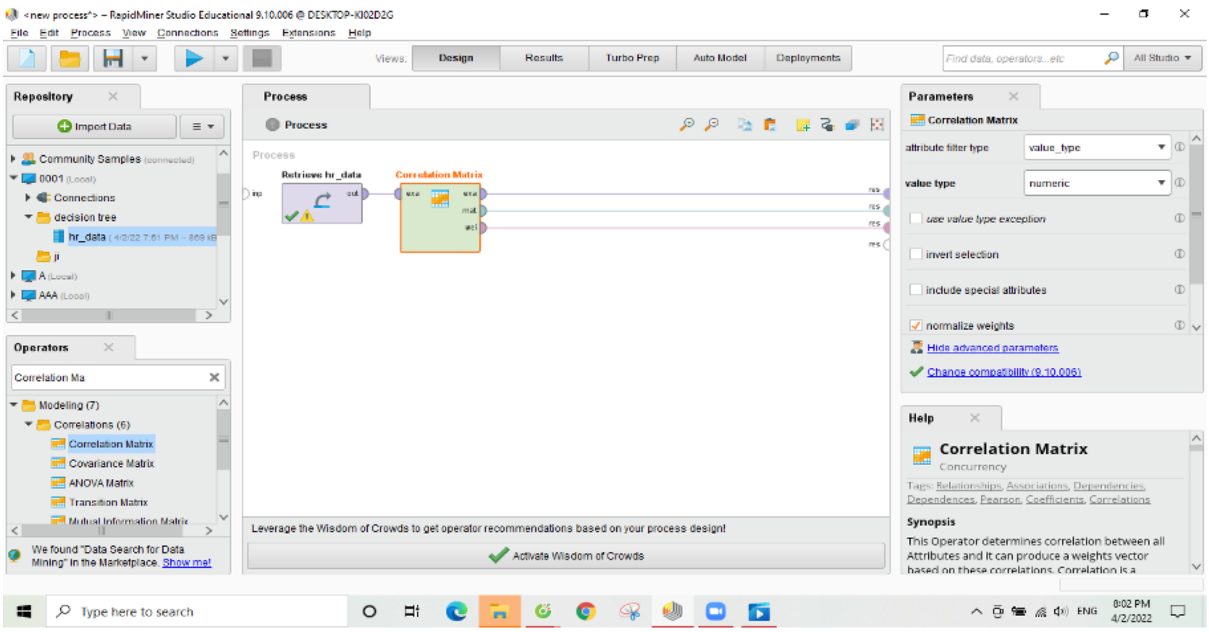

Figure 1. Model of Correlation Matrix

After completing the Design, click the Run box. The Data table is a table describing the correlation between variables:

As can be seen from Table 3, the group found that the Random Forest model is the most suitable with highest accuracy 0.986, highest precision 0.994, highest F1 Score 0.97, and second highest Recall 0.947. For this exit intention forecasting, Random Forest is the most suitable model. Therefore, the team decided to choose the Random Forest model to build a forecasting tool and conduct tests to determine which factors will have the most influence on the employee's turnover intention.

Table 3. Correlation between pairs of variables

	Satisfaction	Last Evaluation	Number Project	Average Monthly	Time Spend Company	Work Accident	Promotion
Satisfaction	1	0.105	-0.143	-0.019	-0.101	0.059	0.026
Last Evaluation	0.105	1	0.349	0.343	0.130	-0.007	-0.009
Number Project	-0.143	0.349	1	0.418	0.195	-0.005	-0.006
Average Monthly	-0.019	0.343	0.418	1	0.127	-0.009	-0.003
Time Spend Company	-0.101	0.130	0.195	0.127	1	0.003	0.068
Work Accident	0.059	-0.007	-0.005	-0.009	0.003	1	0.039
Promotion	0.026	-0.009	-0.006	-0.003	0.068	0.039	1

Below is the Matrix visualization - a heat chart showing the correlation (red for positive or direct correlation; yellow for no correlation).

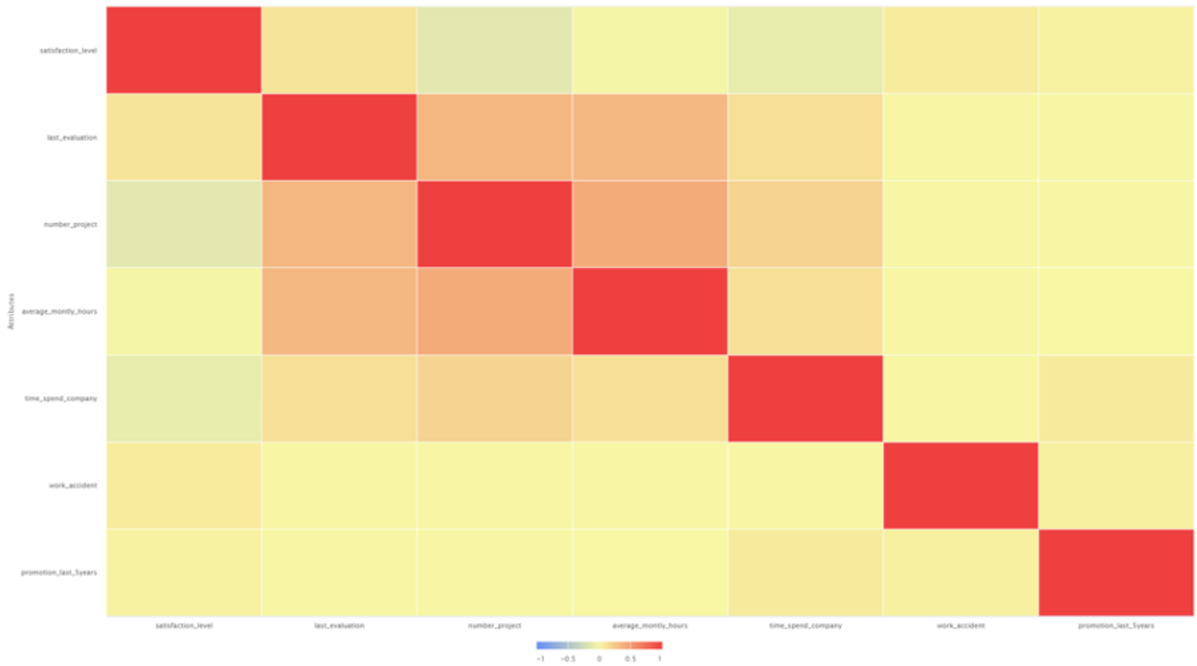

Figure 2. Heat chart showing correlation

The next step will be to calculate the weights of the attributes for the labels, to find the 3 weights of the variables that have the highest relevance to staff attrition. Click the Design box, then right-click on the Correlation Matrix and select Replace Operator, then select Feature of Weight then Modeling and finally select Weight by Correlation. Next connect 1 output port of Weight by Correlation and click the Run button to run.

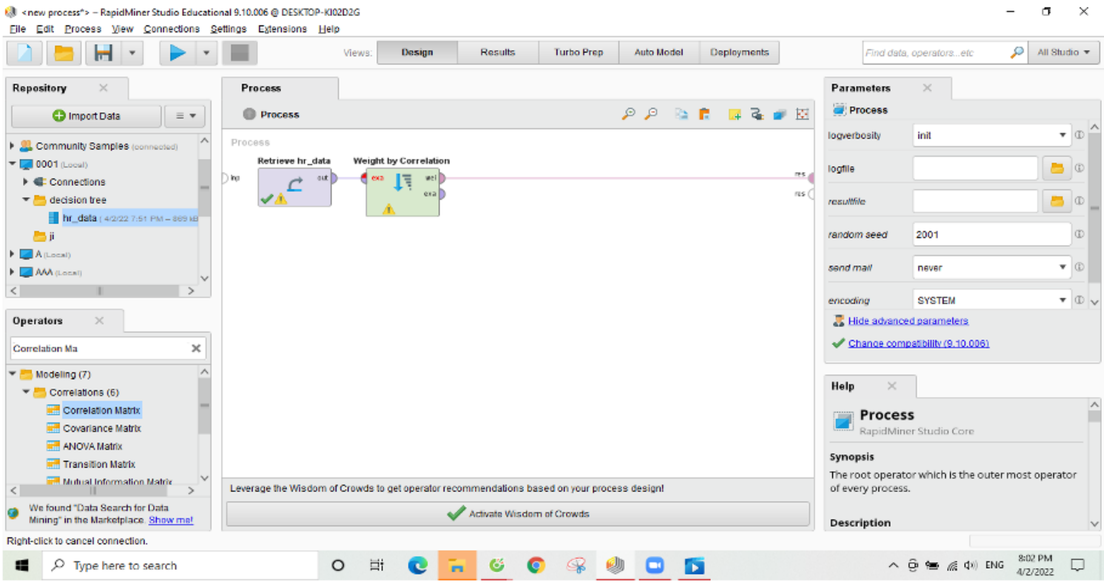

Figure 3. Correlation weight model

And in the Weight Visualizations dialog box, the following chart will be displayed:

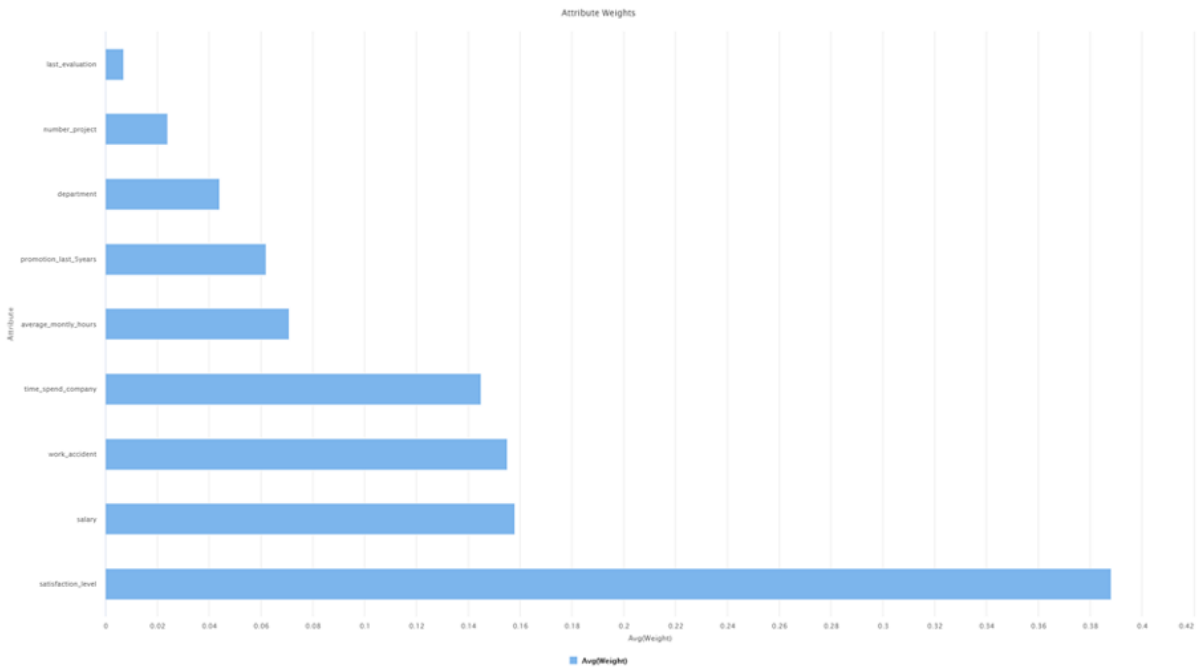

Figure 4. Column chart shows the correlation weight of the variable

Based on the graph, the three variables with the highest weights have been identified: satisfaction_level (0.388); salary (0.158); work_accident (0.155).

5. CONCLUSIONS

Industry 4.0 brings various progresses in improving and enhancing management effectiveness, especially in resource planning and management. For any organization, unmanaged employee turnover not only significantly increases the cost of Human Resources, but also affects the market value of the organization. With the development of Big Data, Machine Learning has become an effective tool for organizations and their management. Apply Machine learning into employee turnover management helps businesses reduce a part of the burden from leaving employees, helping businesses promptly make plans and budgets for employee retention, recruitment, training, etc. The above contents are detailed in introduction of the report that the group has made. This chapter also gives an overview of the topic, research direction and is the foundation for the implementation of the contents in the following chapters.

Second, the group reviews related theories, factors affecting the intention to quit, and previous studies on this issue. In addition, the team also briefly introduced the theory of Machine Learning, the RapidMiner prediction tool and the algorithm models used for prediction and evaluation in the report. Research methods, research procedures, used data sets and pre-design treatment are mentioned. In methodology part, we described in detail how to manipulate the RapidMiner predictor in each specific algorithm, from how to retrieve, process data, run steps, adjust the model to the complete model and the results of 5 algorithms for predicting the turnover intention that the team has deployed. The summary of the report, conclusions, implications for managers and the meaning and limitations of the study will be clearly stated in chapter 5.

Overall, the team's report provides a framework for accurately predicting employee turnover and identifying key factors in team exit decisions that have applied Machine Learning to testing. and evaluation. As a result, we have an overview of the employee's intention to leave, improving the decisive factors to retain talent in the current competitive HR era.

Academic implication

After testing 5 Logistic Regression, SVM, Random Forest, Decision Tree and AdaBoost models on the RapidMiner platform, the team obtained the highest Accuracy index in the Random Forest model. Specifically, Random Forest's accuracy level reached 98.60%, the team concluded that this is the most effective model to predict employee's exit intention. For the predictive model to become more reliable and applicable in practice, the dataset (and possibly the model) still needs to be supplemented and further tweaked to maximize accuracy.

For determining the factor that has the most influence on the employee's turnover intention, we tested the weight of the attribute variables compared to Left by Weight by Correlation and the obtained results are shown in Figure 4.30. According to data, three factors with the highest weight are satisfaction_level (0.388); salary (0.158); work_accident (0.155). The level of employee satisfaction is the main factor influencing their intention to quit, followed by two factors with a relatively small difference: salary and occupational accident. However, depending on the industry, business model, qualifications and awareness of employees, these factors can change the weight. This is a reference only after reviewing the available data set used by the team.

Management Implications

It seems that based on past data to know the employee turnover rate is useful and beneficial in future decision making. Based on this finding, managers can have tools to forecast the turnover rate in the future. By monitoring the input variables, organization can predict the futures issues, carry out preventive measures if necessary, and have more appropriate strategies and policies.

Not being able to monitor and forecast the turnover rate increases the possibility of losing workforce or talents. This leads to businesses spending a huge amount of money on hiring new employees and training them to work well. This affects the operational efficiency and profitability of the business. Moreover, new employees need a lot of time to adapt to the culture and understand the direction of the business.

In addition, a business with a high turnover rate can affect its brand. Most customers will prefer companies with good reputation in working environment and corporate social responsibilities. Having reasonable turnover rate can give you a good employer brand, though not for sure. But having high turnover rate will for sure ruin your employer image, which will affect your sales in short run.

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HOSPITALITY

THE RELATIONSHIP BETWEEN PERCEIVED VALUE, SATISFACTION AND LOYALTY OF CUSTOMERS TOWARDS HOTEL SERVICES IN VIETNAM

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ABSTRACT

This study aims to understand the customer's experiences and desires by determining the specific influence of perceived value, customer satisfaction, and loyalty towards hotel services in Vietnam. A structural equation modeling (SEM) approach is used to test the research model by conducting an online survey with 236 valid responses. The results show that customer satisfaction and perceived value have a direct positive impact on customer loyalty to the hotel. Especially, customer satisfaction experience has a strong impact on hotel services. Based on the results of the study, hotels should have suitable solutions to manage and develop their hotel business.

Keywords: Customer Perceived Value, Customer Satisfaction, Customer Loyalty, Hotel Services

1. INTRODUCTION

In Vietnam, the relationship between a perception of value, customer satisfaction, and customer loyalty has long been studied in different sectors of the service industry, especially in the hotel industry. Currently, Vietnam's tourism industry has shown signs of prosperity when it reopened to tourists after almost two years of being closed due to the impact of the COVID-19 epidemic. The number of visitors to tourist destinations around the world has greatly improved. The tourism industry is increasing day by day, and this has created motivation as well as opportunities for tourism service enterprises. After two years of being affected by the epidemic, the trend, as well as the needs of tourists to Vietnam, have also somewhat changed. A research survey on the relationship between perceived value, customer satisfaction, and loyalty toward hotel services in Vietnam will support hotel managers in the decision-making process.

The relationship between these factors affecting customer loyalty has always been interesting and studied a lot in the service industry. However, there have not been many specific research papers to choose the perceived value, satisfaction, and loyalty of customers to focus on research, but only based on cost types to evaluate hotel services. Its accuracy is not high and does not enrich the research paper. Therefore, we realize that there is a need for more research papers using perceived value, satisfaction, and loyalty as evaluation criteria in the service industry. From the results of the research paper on perceived value, customer satisfaction, and loyalty towards hotel services in Vietnam, managers, service businesses, specifically, the hotel industry will make the right and optimal decisions to improve the quality of business services, give customers a better experience, and bring more profits and reputation to hotels.

This study aims to analyze, clarify, and determine the specific influence of each factor, such as perceived value, customer satisfaction, and loyalty when experiencing hotel services in Vietnam; systematize the theoretical issues of perceived value, customer satisfaction, and loyalty, and analyze the relationship between these three criteria: perceived value, customer satisfaction, and loyalty. In addition, the study identifies the factors that create perceived value, customer satisfaction, and loyalty when using hotel services in Vietnam. From there, a number of solutions drawn from the research results are proposed to help hotel managers in Vietnam overcome the shortcomings and come up with appropriate and timely strategies to improve the service, creating competitive advantages over competitors as well as attracting and retaining customers to use the hotel's services.

Accommodation and hotel services that make customers satisfied are one of the important goals of service providers. Good reviews will help businesses do business more smoothly. Therefore, customer loyalty means a lot to the business. Once they are loyal customers, it is easier to serve them than new customers because the services will be according to schedule and also less demanding on the business. They will suggest ideas and products and services for the business and speak well for the business so that everyone knows. Loyalty is also considered to be a major contributor to the profitability of the business. Therefore, increasing loyalty will help the business thrive. In other words, customers also bring the existence of the hotel. Without them, it would not be possible to exist today. Therefore, building customer satisfaction and loyalty is a matter of great concern. Businesses that want to survive and develop long-term need to have loyal customers.

It is critical to developing experience authenticity for the service. Perceived value has a direct influence on satisfaction and plays an indirect role in the relationship between experience and satisfaction. Therefore, improving hotel services and providing better services to consumers is to strengthen the relationship between them and the hotel, which is to improve customer satisfaction and loyalty.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Customer Satisfaction and Aesthetics

Hypothesis 1a: Aesthetics has a direct positive influence on Customer Satisfaction.

With an increasing focus on aesthetics when it comes to customer travel experiences, scenery, cleanliness, and authenticity have a positive impact on customer satisfaction. The aesthetic aspect will also help businesses and companies to attract a large number of customers, so aesthetics have a positive impact on customer satisfaction (Monica A. Breiby & Slåtten, 2015)

2.2 Customer Satisfaction and Transaction

Hypothesis 1b: Transaction has a direct positive influence on Customer Satisfaction.

Transaction service on the level of integrated satisfaction within an integrated resort and their effects on customer satisfaction. (Wendy Gao & Lai, 2015)

2.3 Customer Satisfaction and Joy

Hypothesis 1c: Joy has a direct positive influence on Customer Satisfaction.

Research indicates that joy value has a direct positive impact on customer satisfaction. The pleasure factor is also important in determining customer satisfaction. (Kambiz & Saber, 2013)

2.4 Customer Satisfaction and Quality

Hypothesis 1d: Quality has a direct positive influence on Customer Satisfaction.

Quality is considered as a premise to measure customer satisfaction and retain them to stick with the business for a long time, in the questionnaires sent to survey takers, the value of quality has a direct positive impact on customer satisfaction. (Hussain, Al Nasser, & Hussain, 2015)

2.5 Customer Loyalty and Aesthetics

Hypothesis 2a: Aesthetics has a direct positive influence on Customer Loyalty.

The role of aesthetic value has a positive impact on customer loyalty. (Monica Adele Breiby & Slåtten, 2018)

2.6 Customer Loyalty and Transaction

Hypothesis 2b: Transaction has a direct positive influence on Customer Loyalty.

Transaction-specific satisfaction was significantly associated with customer satisfaction and location engagement with the exception of a positive experience. (Jianjun & Jia, 2022)

2.7 Customer Loyalty and Joy

Hypothesis 2c: Joy value has a direct positive influence on Customer Loyalty.

The relationship between joy has a positive effect on customer loyalty. (Lee & Kim, 2018)

2.8 Customer Loyalty and Quality

Hypothesis 2d: Quality has a direct positive influence on Customer Loyalty.

Quality value has a direct influence on overall customer satisfaction and has an indirect effect on customer complaint levels and customer loyalty. (Yu, Wu, Chiao, & Tai, 2005)

2.9 Customer Satisfaction and Customer Loyalty

Hypothesis 3: Customer Satisfaction has a direct positive influence on Customer Loyalty.

Customer satisfaction has a positive relationship with customer loyalty. (DAM & DAM, 2021)

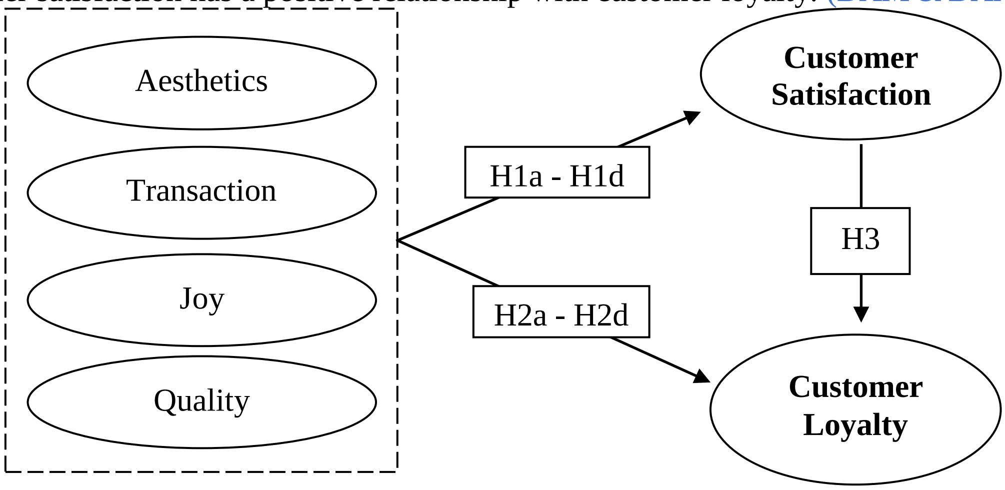

Figure 1. The research model about the relationship between the variables

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Survey design

In our research, we mixed research methods including qualitative, quantitative methods, and collect empirical data. The collected data was analyzed through the process of modeling the structure (SEM) on SmartPLS to study the relationship between the variable.

We tested the survey with 10 people in Vietnam, who were staying at hotels when traveling to assess data quality. They were asked to talk about their experience at the last hotel they were in. After that, the items were completely suited to survey the Vietnamese people and used in the final analysis. Then, we conducted an online survey to collect data from Vietnamese people within a week between May 26th, 2022 and June 2nd, 2022. The form of a survey was to use social networking sites as well as e-mail to reach people and get empirical data.

In the final study, a total of 403 questionnaires had been submitted and the survey response rate was 77% (n = 311). 75 invalid survey results, which had been removed because they didn't choose the hotel on their trip or they biased responses. The total number of the remaining 236 surveys was completed and accepted to use in the analysis.

3.2 Measurement Development

We based on the previous research of El-Adly (2019) which had the survey included a list of 33 items of customer hotel experience and identified the constructs that we consider important to develop the research with 21 items to describe the relation of the variable (Appendix 1). The survey table is measured by the Likert 5 - level scale, in which 1 - Strongly Disagree, 2 - Disagree, 3 - Neutral, 4 - Agree and 5 - Strongly Agree.

4. RESULTS AND DISCUSSIONS

This section describes the results of our research. The results of sample characteristics (Appendix 2) showed that, in terms of gender, male respondents accounted for 34.74% and 65.26% were female. The number of survey participants in the age group of 15-25 years old accounted for 92.79%, followed by the age group from 26-40 years old accounted for 5.08%, those in the age group accounted for 5.08% and people who over 40 years old accounted for the least number with 2.13%. In terms of the number of travel times in the year, the number of respondents who traveled once in the past year accounted for the most with 106 people, equivalent to 44.9%; followed by those who traveled 3 or more times accounted for 30.5%; the number of people who traveled twice or more was 56 people, accounting for 23.7% and only 2 out of 236 valid surveys did not travel in the past year, accounting for about 0.9%. In terms of affordability for travel, the level of 3-5 million accounts for the largest number with 51.27%; followed by less than 1 million with 40 answers, accounting for 16.94%; from 5-7 million accounts for about 15.67%; two levels from 7-10 million and over 10 million accounts for almost equal numbers with 8.47% and 7.65%. Finally, in terms of the number of times choosing a hotel for their trip, the number of people choosing to stay at a hotel once is the most with 101 answers, equivalent to 42.79%; the number of people choosing to stay at the hotel twice accounted for 30.5% and the number of people staying at the hotel 3 or more times accounted for 26.71%.

The results of the research paper drawn from 236 answers (after removing unsatisfactory answers from 311 answers) met the requirements of the sample size. Data is filtered and analyzed using SmartPLS software. The results of descriptive statistics show that the mean values of each variable are in the range of 4 (on a scale of 5). This has different meanings for each factor, but it can be seen that the average rating of the surveyors for factors related to hotel services in Vietnam is quite high. The minimum value of all variables is 1 (only the CS variable is 0); The maximum values of all variables are at the maximum of the scale. Most of the standard deviations are less than 1, which shows that the variation is quite small, most of the respondents have quite similar views on the question asked (the influence of factors on the perception of the problem) of customers when experiencing hotel services in Vietnam.

Based on the results of measuring R Square, it can be seen that both variables CL and CS have an impact on each other: R^2 of CL is 0.686 and R^2 of CS is 0826 (R^2 of both is greater than 0.5). The results of the F Square measurement show that the independent variables AE, J, TR have no impact on the dependent variable CL because f^2 of the above variables is 0. Variable Q has a weak effect on both CL and CS; variables J and TR also have a weak effect on variable CS because $0.02 < f^2 < 015$. Only variable AE has an average effect on variable CS because $f^2 = 0.192 < 0.35$ and CS has an average effect on variable CL with $f^2 = 0.194 < 0.35$.

The reliability of the data based on the results of Cronbach's Alpha analysis shows that all factors affecting the service have reliability greater than 0.7. Thus, the scale designed in scientific research is statistically significant and achieves the necessary reliability coefficient, specifically as in Table 1. Therefore, all the above factors are statistically significant and are used for analysis.

Table 1. The Validity and Reliability of Data

Constructs	Cronbach's Alpha (CA)	Composite Reliability (CR)	Average Variance Extracted (AVE)
AE	0.888	0.923	0.749
CL	0.910	0.943	0.847
CS	0.910	0.943	0.847
J	0.893	0.926	0.759
Q	0.913	0.939	0.794
TR	0.890	0.932	0.819

Analysis of the reliability of the variables measured in the model shows that the composite reliability of the variables is relatively high, from 0.923 to 0.943, which is all higher than the standard index of 0.7. This shows that the variables used in the measurement model have high reliability. All variables have convergent values greater than 0.5. The largest value is 0.847 for the two variables CL and CS. The smallest value is 0.749 of the variable AE.

The results of the analysis of the discriminant accuracy of HTMT and Cross-Loadings (Appendix 3) also show that almost all the correlation coefficients of the variables are less than 0.9; only pairs of variables Q-CS and pairs of variables TR-Q have correlation coefficients of 0.926 and 0.9, respectively. Thus, 4 out of 6 variables with good discriminant are AE, CL, CS and J; Q and TR are not distinguished because the value of the correlation coefficient is not satisfactory.

Table 2. Correlations of the Constructs and Square Root of AVE (HTMT)

	AE	CL	CS	J	Q	TR
AE						
CL	0.707					
CS	0.853	0.895				
J	0.753	0.757	0.899			
Q	0.748	0.840	0.926	0.879		
TR	0.735	0.766	0.898	0.817	0.900	

Most of the variables' VIFs are in the range of 3 to 5, which means that there is a possibility of multicollinearity. Especially, this coefficient between CS and CL is 5.733, so it is certain that multicollinearity will occur. However, the coefficient between TTMMM and the two variables CL and CS is only 2,492 and 2,091, respectively; multicollinearity will not occur.

The Chi-Square measurement results of the variables are 687,850 and the NFI measurement results of the variables are 0.859. Both of the above results are very good (Chi-Square > 20; NFI > 0.1). This model is very consistent with the survey results of factors affecting hotel services in Vietnam.

From comparing the p-value results obtained from the PLS-SEM structural model data in SmartPLS software, we obtained the table of results of testing the impact hypotheses set out in chapter 2 in the table below:

Table 3. Hypothesis Testing

Hypothesis	Path coefficient (ß)	t-value	p-value	Result
H1a: AE -> CS	0.264	5.33	0.000	Accept
H1b: TR -> CS	0.214	3.756	0.000	Accept
H1c: J -> CS	0.231	4.542	0.000	Accept
H1d: Q -> CS	0.309	4.742	0.000	Accept
H2a: AE -> CL	0.010	0.149	0.882	Reject
H2b: TR -> CL	-0.010	0.113	0.910	Reject
H2c: J -> CL	-0.019	0.239	0.812	Reject
H2d: Q -> CL	0.283	3.147	0.002	Accept
H3: CS -> CL	0.591	5.794	0.000	Accept

Based on the accepted or rejected hypotheses, we have the linear regression equation:

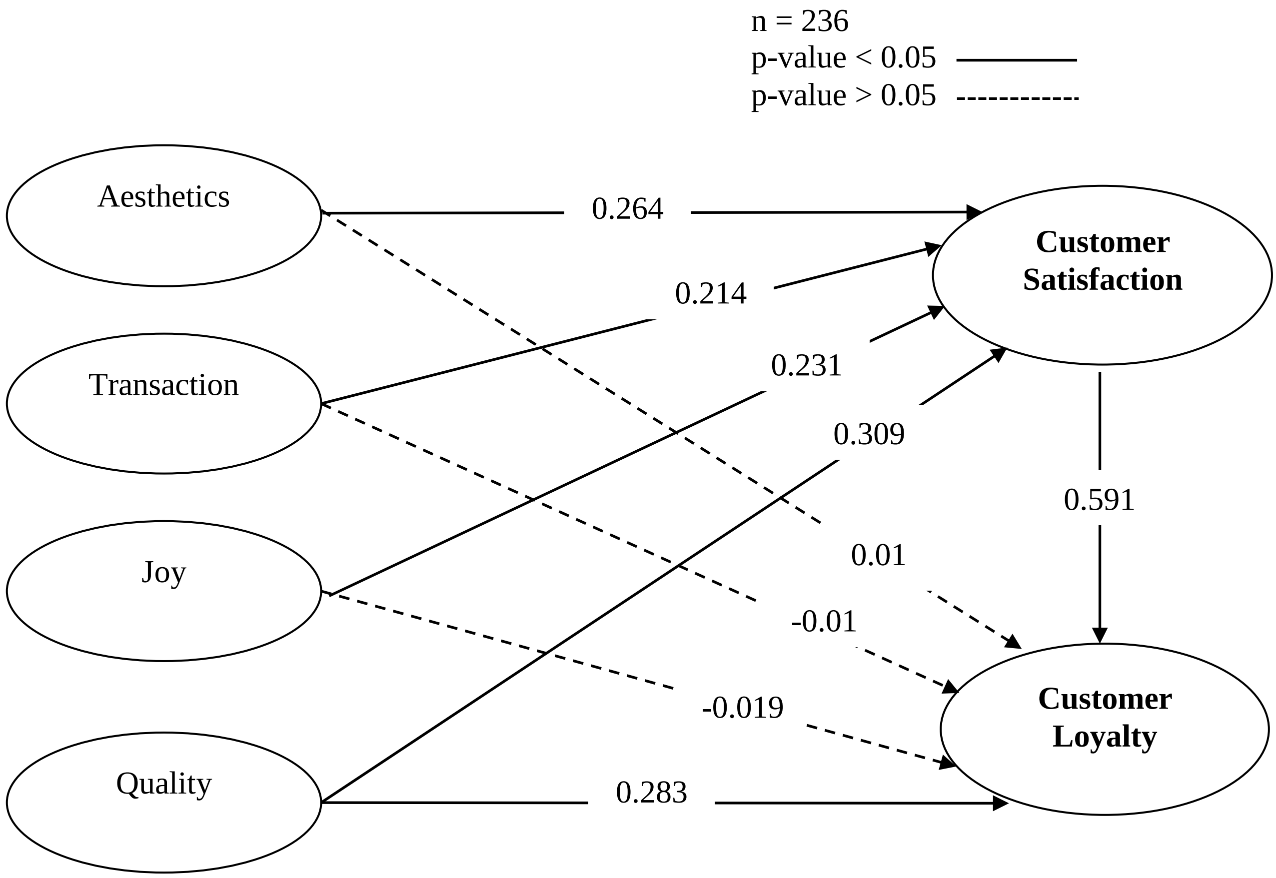

Figure 2. SmartPLS Results

With the above test results, the positive effects have the following meanings:

- AE increases by 1, then CL increases by 1%.
- AE increased by 1, CS increased by 26, 4%.
- CS increased by 1, CL increased by 59, 1%.
- J increases by 1, CS increases by 23, 1%.
- Q increases by 1, CL increases by 28, 3%.
- Q increases by 1, CS increases by 30, 9%.
- TR increases by 1, CS increases by 21, 4%.

Compared with all the results of the original Key Paper, such as all Cronbach's Alpha values, converged AVE values and discriminant values (HTMT) with the survey results we collected, we found that the reliability of Key Paper is higher and the hypothetical ability of Key Paper is also more probable because our HTMT result has only 4 standard variables while Key Paper's HTMT has only 7 standard variables.

Through the results of the survey in this study, our team realized that, in the Vietnamese market, customer satisfaction experience has a lot of impact on hotel services.

5. CONCLUSIONS

This study aims to show the relationship between perceived value, customer satisfaction, and loyalty to the hotel. Hotels understand the actual value of service providers more. They better know the wishes of customers to improve and meet their needs in the best way. When considering customer satisfaction, the research results show that satisfaction has a significant impact on the factors in the PLS model. Satisfaction has a direct and positive impact on loyalty. Therefore, when the level of satisfaction and loyalty increases, complaints are reduced, and the business is more and more known and developed. Four perceived values of quality, transaction, pleasure, and aesthetics have a weak impact on customer satisfaction, and three variables include: price, desired satisfaction, and detected reputation. It affects customer satisfaction. Meanwhile, quality has a weak impact on loyalty. On the other hand, price, transaction, pleasure, aesthetics, satisfaction, and reputation do not affect customer loyalty. In addition, satisfaction also has a positive effect on customer loyalty, with the intention of returning to the hotel.

Research the market and identify target customers from which to analyze demographic information, customer behavior, preferences, and see the number of customers in which group is required to easily build a business plan. hotel business with an effective development plan. Improve the quality of rooms and services, such as improving facilities and services to help customers have a great experience to retain customers. Diversifying products and services, adding additional services (expanding spa, gym,...). Invest in developing professional and professional training for employees such as communication skills, teamwork, foreign language skills, etc., contributing to the professionalism of the hotel and in the eyes of customers. When human resources develop well, it will create a sustainable and long-term competitive advantage over competitors. Customers who feel that the hotel is really prestigious and quality will visit many times in the future, helping businesses increase revenue.

The survey had 311 samples, but only 236 valid surveys were obtained because some non-traveling respondents had to be excluded and the survey was biased in evaluation. On the other hand, the survey results also have very few respondents over 40 years old, so the representativeness is not high. The study is complete but not yet addressed the business and leisure strategy, which may affect guests' assessment of self-satisfaction value. The star rating is also not considered when conducting the research; it can affect the perceived aesthetic value and reputation of the hotel. Future research should incorporate the purpose of stay and the hotel's star rating.

By expanding the research sample more widely and surveying subjects more comprehensively, it is possible for not only Vietnamese guests to stay but also foreign guests to stay at Vietnamese hotels. Learn and research other factors affecting customer satisfaction with service and quality. From there, there are solutions suitable for business management of hotel services. Research more on the purpose of staying in the hotel, such as business or extra services, as this also affects customer satisfaction and loyalty.

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APPENDIX

Appendix 1. Survey Instrument

Construct	Indicators	Items
Aesthetics (AE)	AE1	The appearance of the hotel was truly elegant.
	AE2	The interior of that hotel was very aesthetically attractive.
	AE3	The hotel's interior design was decorated artistically.
	AE4	The view from that hotel was fantastic.
Transaction (TR)	TR1	I felt really wise when I get a really special offer or discount at that hotel.
	TR2	I relish the thrill of finding a pricey room or service at a hotel that actually has a special price.
	TR3	I think my stay at that hotel is blessed when I find some bargains (e.g., special prices, offers, discounts, etc.)
Joy (J)	J1	For me, the atmosphere in the hotel affected my stay experience.
	J2	It was a pleasure to be in that hotel.
	J3	I was very happy during my time at that hotel because of the atmosphere there.
	J4	My staying time in that hotel was really interesting.
Quality (Q)	Q1	That hotel provided the highest service quality.
	Q2	The service quality of that hotel was always high.
	Q3	That hotel service was considered very reliable.
	Q4	That hotel is considered a 'Top Quality Hotel'.
Customer Satisfaction (CS)	CS1	The experience of staying at that hotel made me happy.
	CS2	My choice to stay at that hotel was wisdom.
	CS3	Overall, I felt satisfied about that hotel.
Customer Loyalty (CL)	CL1	I'd probably go back to that hotel in the future if I had the chance.
	CL2	I will stay at that hotel in the future.
	CL3	I'm willing to recommend that hotel to my friends.

Appendix 2. Respondent Demographics

Characteristics (n=236)		Number	Percentage (%)
Gender			
	Male	82	34.74
	Female	154	65.26
Age			
	15-25	219	92.79
	26-40	12	5.08
	40 or older	5	2.13
Travel frequency per year			
	Never	2	0.9
	Once a year	106	44.9
	Twice a year	56	23.7
	3 or more times a year	72	30.5
Payable for a trip			
	Under 1 million VND dong	40	16.94
	3-5 million VND dong	121	51.27
	5-7 million VND dong	37	15.67
	7-10 million VND dong	20	8.47
	More than 10 million VND dong	18	7.65
Frequency of booking a hotel for trips			
	Once	101	42.79
	Twice	72	30.5
	3 or more times a year	63	26.71

Appendix 3. Construct Cross-Loadings

	AE	CL	CS	J	Q	TR
AE1	**0.862**	0.518	0.627	0.536	0.538	0.530
AE2	**0.900**	0.563	0.715	0.654	0.613	0.583
AE3	**0.878**	0.583	0.691	0.573	0.645	0.621
AE4	**0.820**	0.538	0.623	0.553	0.539	0.526
CL1	0.606	**0.923**	0.769	0.651	0.700	0.634
CL2	0.554	**0.918**	0.711	0.653	0.691	0.619
CL3	0.596	**0.919**	0.768	0.594	0.726	0.652
CS1	0.738	0.754	**0.932**	0.776	0.803	0.763
CS2	0.672	0.726	**0.898**	0.710	0.765	0.766
CS3	0.711	0.770	**0.931**	0.756	0.769	0.702
J1	0.605	0.479	0.654	**0.787**	0.575	0.524
J2	0.537	0.604	0.687	**0.900**	0.709	0.645
J3	0.556	0.604	0.705	**0.891**	0.723	0.650
J4	0.639	0.688	0.776	**0.902**	0.763	0.717
Q1	0.642	0.660	0.752	0.712	**0.908**	0.719
Q2	0.610	0.677	0.736	0.721	**0.905**	0.708
Q3	0.625	0.717	0.828	0.751	**0.887**	0.775
Q4	0.529	0.677	0.692	0.660	**0.863**	0.687
TR1	0.635	0.597	0.744	0.666	0.735	**0.902**
TR2	0.567	0.621	0.714	0.632	0.742	**0.902**
TR3	0.576	0.655	0.735	0.691	0.729	**0.911**

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INFLUENCE OF SERVICE QUALITY AND ITS DIMENSIONS ON CUSTOMER PERCEIVED VALUE, SATISFACTION AND BEHAVIOURAL INTENTIONS IN KFC FAST-FOOD RESTAURANT IN DISTRICT 7 IN HO CHI MINH CITY

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ABSTRACT

In developed countries, the fast-food industry has developed very successfully and it has gradually been saturated. As a result, fast food restaurant owners are targeting markets in developing countries that promise a huge share of the revenue. Including Vietnam, specifically Ho Chi Minh City, a potential and promising market for investors. Therefore, it is important to identify the factors affecting the service quality of fast-food restaurants and its aspects to the perceived value, satisfaction and behavioral intentions of customers. This can help investors to capture the needs of customers and then develop further to meet and capture market share. The objective of this study is to determine the relationship of factors: Service Quality, Food Quality, Physical Enviroment Quality, Employee Service Quality, Customer Perceived Value, Customer Satisfaction, Behavioural Intentions.This study was analyzed based on 251 samples collected. The collected data are processed, omitted invalid samples and analyzed by SPSS software to test the hypotheses.

Keywords: customer perceived value, satisfaction and behavioural intentions

1. INTRODUCTION

The fast-food industry is one of the most promising industries in the word, which has generated more than $570 billion in revenue. To meet the need of convenience and to save time in today's hectic lifestyle, a mass of fast-food restaurants have been established, offering a variety of food that is stored with frozen, preheated or precooked ingredients and served to the customer in a packaged form for take-away, such as: fried-chicken, French fries, pizza, hamburger, ... This increases the growth of the global fast-food market. It is predicted that the global fast-food market will reach $931.7 billion by 2027, rising at a CAGR of 4.6% from 2020 to 2027 (Global Fast Food Market Worth $931 Billion by 2027 - Industry Assessment Featuring Auntie Anne's, Domino's Pizza, Dunkin' Brands Group, McDonald's, Yum! Brands and More, 2020).

Due to the fast-food restaurants in the developed countries has been at the saturation point, they have been attracted to and entered to the emerging countries, including Viet Nam and Ho Chi Minh City has been a potential place. According Department of Domestic Market (Ministry of Industry and Trade), in the past 8 years, they have licensed 148 foreign brands and trademarks into Vietnam, such as KFC, Loterria, Pizza Hut, The Pizza Company, Mc Donald's,… American chain KFC is the most frequently visited fast food restaurant chain, with 45 percent of respondents visiting its stores often, followed by Lotteria, accounted for 17 percent of 600 respondents and Pizza Hut and Mc Donald's both at 6 percent (Ho Chi Minh City-based market research firm Q&Me, 2020).

Entering to Vietnam market in 1997 with the first outlet in Ho Chi Minh City. Until now, Yum Brand has been owning over 140 KFC restaurants in more than 32 provinces/cities, of which over 30 outlets in Ho Chi Minh City. KFC's success was reflected in its 2019 sales of VND1.5 trillion (US$64.3 million), a 1.3 percent increase from the previous year. The majority of customers coming to this fast-food restaurant brand are the younger and working professionals at 20s – 30s years old, who has less time and need a fast and convenience meals. Therefore, fast-food restaurants play an important role in this hectic life so it creates a competitive market in fast-food restaurants in Vietnam. This requires these kinds of restaurants need to improve their services to keep the remaining customers and attract new ones.

Understanding the urgency of the topic, the authors decided to choose a research topic **"Influence of service quality and its dimensions on customer perceived value, satisfaction and behavioral intentions in KFC fast-food restaurants in District 7 in Ho Chi Minh City"** to identify how service quality affects customers. The study's findings provide restaurant owners and managers with a broad understanding of the factors that influence customers' perceived value, satisfaction, and behavioral intentions, as well as how to bring them together appropriately to improve the quality of restaurant service.

1.1. Research question

The research will answer these questions:

- How service quality, include in food quality, physical environment quality and employee service quality influence customer perceived value.
- Which are significant determinants of customer satisfaction and behavioral intentions.

1.2. Purpose of Research

This topic aims at the main research objectives of investigating the impact of the quality of fast-food restaurant service, including: food quality, physical environment quality and employee service quality influence customer perceived value, satisfaction and behavioural intentions.

1.3. Subjects and scope of Research

The research studies the effect of fast-food restaurant service quality and its three dimensions, including food, physical environment and employee service quality on customer perceived value, satisfaction and behavioural intensions.

The research is carried out by a survey of customers who have been experienced the fast-food restaurant service in Ho Chi Minh City.

1.4. Research significance and limitations

1.4.1. Research significance

Scientific significance: The research contributes to test the existing theoretical model and reaffirm the influence of fast-food restaurant's service quality on customers' perceived value, satisfaction and behavioral intentions in different circumstances and situations.

Practical significance: The research supports the fast-food restaurant owners and managers to identify how service quality dimensions affect customers, have an overview of the service quality at their restaurant to customers, analyze the strengths and weaknesses of service quality and know the different level of each customer's review of service quality. From there, it is possible to devise strategies to help develop restaurants, improve service quality and bring the best experience to customers.

1.4.2. Research limitation

The data was collected from online survey form (Google form), the participants might be affected by the objective factors, so that the result may not be completely accurate. Besides, because the limit of time carrying out survey, the study has not been analyzed each aspect of topic in depth.

Through chapter 1, the group briefly introduced about the fast food industry, the reason for choosing the topic. Chapter 1 also outlines the object, scope, research significance and research limitations. Then, the group will present the theoretical basis of the research.

2. LITERATURE REVIEW

2.1. Definitions and theories

2.1.1. Service Quality - SQ

According to ISO 9004, service is the result brought about by interactive activities between supplier and customer and thanks to the actions of the suppliers to meet the needs of customers". In draft DIS 9000: 2000, the definition of quality is given "Quality is the ability of the set of characteristics of a product, system or process to meet the requirements of customers and stakeholders". Therefore, the service quality, specifically in fast food restaurant, is the appropriate level of dining products to meet the guest's needs. Service quality is typically defined from the customers' viewpoint (Dumitrela, 2013) which is the difference between their expectations of the service offered and their perception of the actual service received (Yarimoglu E. , 2014). It is a critical success factor for service companies (Shin, 2019; Yusoff, 2010) specifically in restaurants (Gremler, 1996).

Restaurant service quality contains three critical factors, namely food quality, physical environment quality and employee services quality (Uolevi Lehtinen, 1991). (Chen, 2010) said that restaurant service quality plays a role as a predictor of customer perceived value and positively influences customer perceived value (Clemes M. G., 2011; Ha J. ,., 2013) and the three factors (food quality, physical environment quality and employee service quality) "are considered the attributes that customers use to evaluate perceived quality" (Ha J. ,., 2013)

The first study to measure the service quality was SERVQUAL by A. Parasuraman, V. Zeithaml & L. Berry in 1988. The SERVQUAL measures service quality based on perceptions by the customers using the service and is composed five dimensions: tangibles, empathy, assurance, reliability, and. In the next 4 years, Cronin and Taylor (1992) developed SERVPERF, which based on the structure and content of the SERVQUAL service quality scale. While SERVQUAL is measured by both expectations and perceptions, SERVPERF is only measured by guest's perceptions. Another study is DINESERV. Similarly, DINESERV was developed from the first scale, SERVQUAL and measures restaurant customers' expectations and perceptions of service quality.

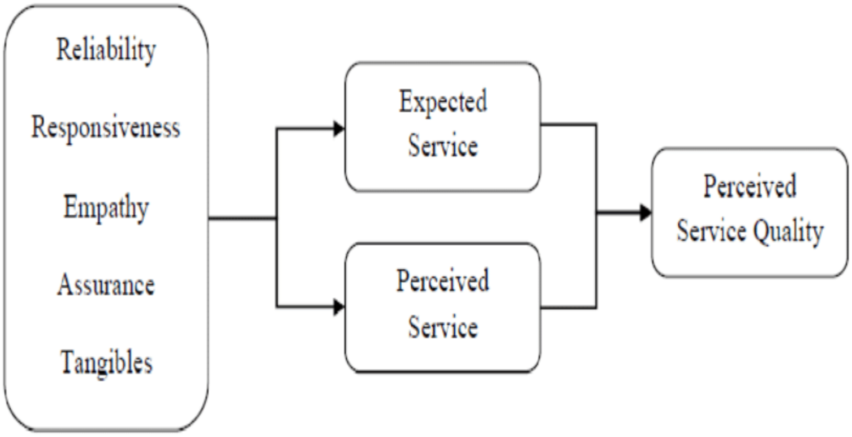


Figure 1. SERVQUAL model (A. Parasuraman, V. Zeithaml & L. Berry, 1988)

2.1.2. Food Quality - FQ

Food quality refers to the cleanliness, freshness, and healthiness of the food as well as the variety of foods available at a fast-food restaurant, and it is a major factor in customers' decision to choose one restaurant over another (Alonso, 2013; Serhan, 2019). It is because the customers go to a restaurant for dining needs, the quality of food is an extremely important factor in attracting new customers and maintaining them.

Furthermore, recent studies have identified food quality as the most important restaurant service quality dimension affecting a customer's selection process and quality perception (Kukanja, 2017; Shahzadi, 2018) and show that food quality has a major impact on customer perceived value (Ryu K. a., 2008).

2.1.3. Employee Service Quality – ESQ

An organization's service offerings include tangible and intangible components (Parasuraman, Reassessment of expectations as a comparison standard in measuring service quality: Implications for further research., 1995) which generally refers to employee service quality, such as their reliability, responsiveness, assurance, and empathy (Parasuraman, Servqual: A multiple-item scale for measuring consumer perc., 1988). Service quality delivered by restaurant employees is considered as a significant component in the restaurant dining experience (Andaleeb S. a., 2006). In the restaurant industry, "employee service quality" relates to the way of interpersonal service offered when they communicate with customers (Ha J. a., Effects of service quality and food quality: the moderating role of atmospherics in an ethnic restaurant segment, 2010) (through the knowledge and manner of the employees; and by employees' service of food as ordered, provision of prompt service and minimization of service failures) leading to enhancing levels of restaurant employee service quality result (Ryu K. L., 2012), improving customer expectations of product quality, and increasing customer's willing to purchase (Sweeney, 1997).

2.1.3. Physical Environment Quality – PEQ

Temperature, lighting, scent, noise, atmosphere, and music, according to (Hanaysha, 2016), are both tangible and intangible components within and outside the restaurant that are included in the definition of physical environment. He also suggested that a well-maintained physical environment can serve to maintain a restaurant's existing customer base, "customers use the physical environment in judging the quality of products or services" (Ha J. a., The effects of dining atmospherics on behavioural intentions through quality perception, 2012) as well as attract new customers. Consumer perceived value and competitive advantage can be created by creating a friendly and enjoyable dining environment for customers, and this has a positive impact on customer perceived value (Jalilvand, 2017) (Ryu K. L., 2012)

2.1.4. Customer Perceived Value - CPV

Consumer perceived value is the trade-off made by the customer between all benefits obtained from the business service and the sacrifices made by the customer to maximize the benefits (Slack, 2020) (Weinstein, 2020), (Dodds, 1985)'s research is that CPV focused on the quality–price relationship that customer derives value from the difference between commodity utility and the price paid. (Sanchez-Fernandez, 2007). Nonetheless, researchers argued that perceived value is a more complex construct than merely the trade-off between utility and price (Monroe, 1990)

In fast food industry, fast-food restaurant service quality dimensions are strongly positively linked to consumer perceived value (Carranza, 2018) (Clemes M. G., 2011) (Shahzadi, 2018).

2.1.5. Customer Satisfaction – CS

There are several customer satisfaction definitions; however, it is proposed that each concept contains three similar constituents: a response (emotional and cognitive), the response is directed toward a specific product or service, expectation, and consumption experience. etc., and the response takes place at a certain time (such as after consumption) (Giese, 2000).Customer satisfaction is described in this study as "the customer's response to the evaluation of the perceived different between prior expectations (or any standard of success) and the impact of fast-food restaurant service quality actual performance of the product as perceived after consumption." (Tse, 1988)

2.1.6. Behaviroual Intentions - BI

Repurchase, recommendation to others, loyalty, complaints, and price sensitivity are all aspects of behavioral intentions, according to (Zeithaml V. B., 1996). For this study, the concept "behavioural intentions" is defined that after a restaurant experience, customers will display optimistic behaviors such as repurchase from the restaurant, suggest and have positive word-of-mouth about the restaurant and resist price sensitivity and complaining behaviour (Sulaiman, 2013). In addition, (Kim, 2007) considered that coming back to the restaurant several times means the customers feel satisfied with the restaurant's service.

2.2. The Previous Studies

For the previous research, the researchers have determined that the choice and perceived value of the customer comes from a number of factors and those factors are very important that directly affect the choice and perceive value of customers. The studies have gathered a lot of different opinions about those factors and their influence on customers.

2.2.1. Research by Kim and Moon (2009)

Through a survey in the Banff Tourist Information Center in Alberta, Canada, two internship students majoring in hospitality management and trained and employed as data collectors showed respondents with a list of theme restaurants and asked them to choose one that they had enjoyed in the previous six months.. Research received 220 surveys and 208 surveys were used for final analysis.

The study report contains 21 items that measure the five components of servicescape and ten items that measure the three consequences of servicescape. Baker's (1986) scale, Wakefield and Blodgett's (1996) scale, and Bitner's (1990) scale are among the scales used to measure objects. Kim and Moon's study, which was based on Bitner's system of environmental perception, established a number of variables, including meal costs, prior consumer experience with comparable restaurants, restaurant credibility, location, and memorable advertisement, as well as appearance of other customers, employees and restaurant service.

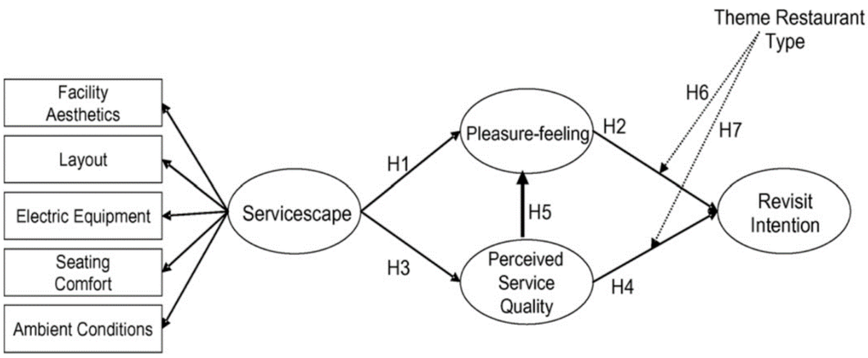


Figure 2. Study model of Kim and Moon (2009)

2.2.2. Research by Kafel and Sikora (2013)

In this research papper, the author used a means-end chain approach to define fundamental customer principles across three separate restaurant segments and respondents were asked about restaurant characteristics, consequences, and beliefs in this study. Customers are often influenced by other factors such as food quality, restaurant cleanliness, entertainment facilities, and the variety of dishes on the menu, according to research. In this report, Kafel and Sikora identified four major factors that influence consumer preference and perceived value which are: food, service, price, and value.

This research article has clearly shown what consumers expect when they eat in a restaurant. Restaurant owners may create successful marketing campaigns, such as commercials or promotions, that set them apart from competitors.

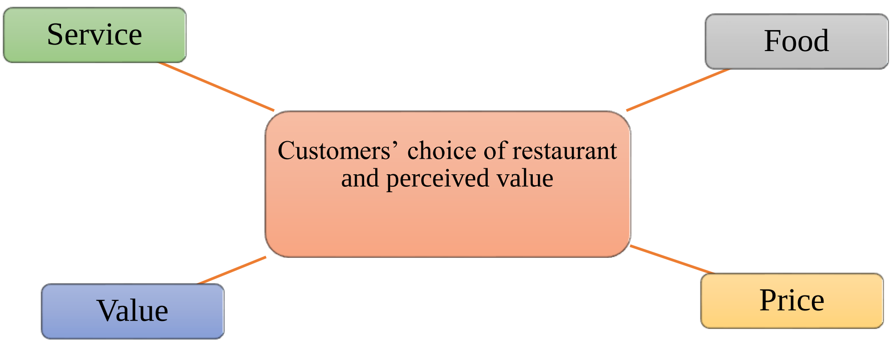


Figure 3. Study models of Kafel and Sikora (2013)

2.2.3. Research by Carranza, R., Diaz, E. and Martin-Consuegra (2018)

This study confirmed the existence of fast-food consumer loyalty and its reliance on fast-food service quality, which includes service quality, food quality, and store environment. This research also looked at the direct and indirect roles of constructs including satisfaction and trust in promoting loyalty in fast-food restaurants (FFRs).

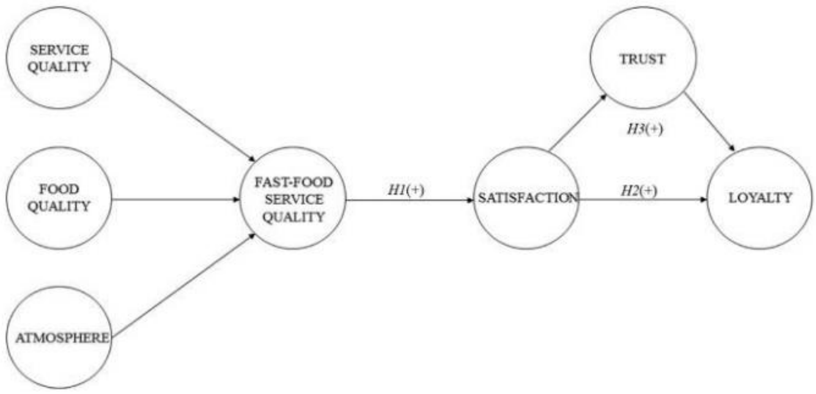


Figure 4. Study model of Carranza et al. (2018)

2.2.4. Research by Neale J. Slack (2020)

The author conducted a survey in an island nation of Fiji, an emerging economic area, of people who visit fast food restaurants in five central cities of Fiji to determine the impact of fast food restaurant quality on customer choice and behavior.

The research used descriptive and inferential analysis, as well as backward elimination multiple regressions, to evaluate the study's hypotheses. The author's questionnaire includes 2 parts of data, firstly, demographics (gender, age, total annual income, education level, time spent at a fast food restaurant, etc.) and second is the quality of the fast food restaurant's service and the perceptions of customers after using the restaurant's service. The questionnaire uses a 5-point scale Likert (1 - very dissatisfied, 5 - very satisfied) to show the level of customer satisfaction with the restaurant's services based on the actual values they perceive.

This research assists us in comprehending the combined impact of fast-food restaurant service quality dimensions, as well as the independent effect of these dimensions on the development of customer perceived value, satisfaction, and behavioral intentions.

The unique point of this study could show that customers prioritised fast-food restaurant food quality over physical environment quality, while employee service quality wasn’t significant to customers in determination of perceived value of a dining experience. The limitations of this study include the fact that it only looks at the impact of fast-food restaurant service quality and its three dimensions, and that consumer behavior can change in the future as a result of the numerous influencing factors.

This study just research about Fiji so it need to research more country and customer culture to get more accurate results about customer behavior. Because considering linear regressions are limited to evaluating constructs and relationships between constructs, it is also recommended that structural equation modelling be used for future studies to enable assessment of the reliability and validity of future model measures, and assessment of the moderating and mediating effects of variables.

2.3. Concept model

Based on the theoretical basis and accompanying documents of previous studies . The group found the research of Research by Neal J. Slack on “Influence of fast-food restaurant service quality and its dimensions on customer perceived value, satisfaction and behavioral intentions” to be relevant to the conditions in Vietnam and the factors outlined were comprehensively consistent with the theoretical basis that the group mentioned above. Therefore, the group decided to choose the research model of Neal J.Slack as the basis for building a research model on the relationship between 7 factors:

Table 1. Variables

No.	Variables	Coding	Hypothesis
1	Service Quality	SQ	+
2	Food Quality	FD	+
3	Physical Environment Quality	PEQ	+
4	Employee Service Quality	ESQ	+
5	Customer Perceived Value	CPV	+
6	Customer Satisfaction	CS	+
7	Behavioural Intention	BI	+

The concept model, Group will use in this report:

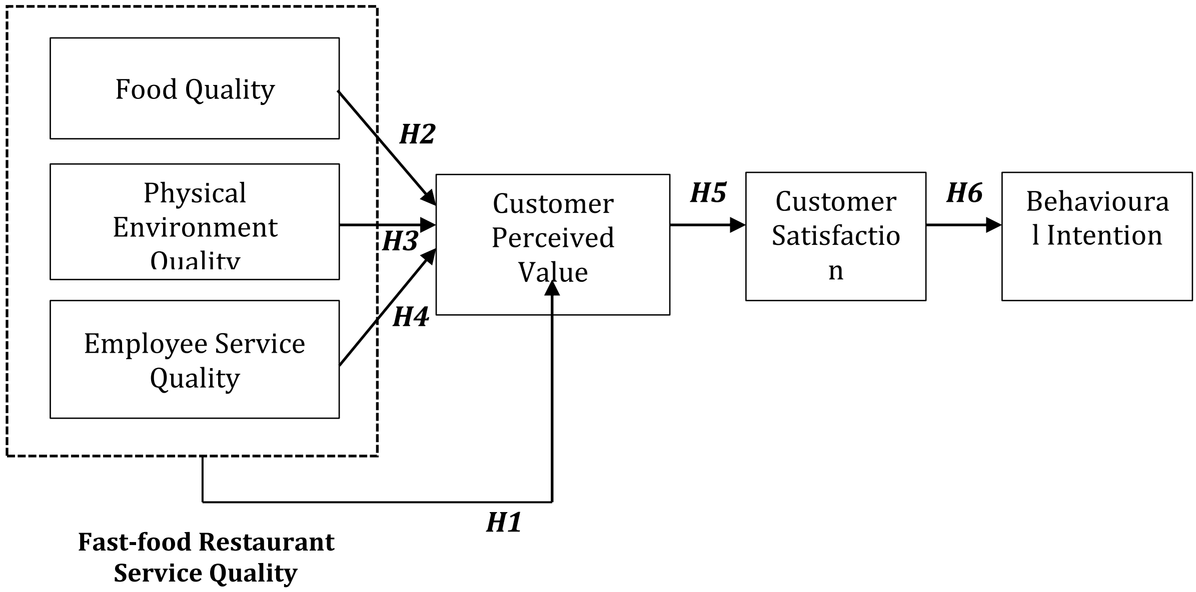


Figure 5. Concept Model

The following hypotheses were used in the study:

- *H1:* Each of the three fast-food restaurant service quality dimensions (food quality, physical environment quality and employee service quality) has a compound effect and each dimension contributes to a significant positive influence on customer perceived value.
- *H2:* Food quality has a significant positive influence on customer perceived value

- *H3:* Physical environment quality has a significant positive influence on customer perceived value.
- *H4:* Employee service quality has a significant positive influence on customer perceived value.
- *H5:* Customer perceived value has a significant positive influence on customer satisfaction.
- *H6:* Customer satisfaction has a significant positive influence on behavioural intentions.

In chapter 2, the group presented the concepts contained in the research paper and mentioned some previous studies by different authors. Since then, the group has selected a research model and proposed suitable hypotheses to solve the problems raised in chapter 1. Next, in chapter 3, the group will present the research implementation process, create a measurement, and research methods to find the results for the group's research paper.

3. METHODOLOGY

3.1. Method design

3.1.1. Research process diagram

Figure 6. Research Process Diagram

After studying the documents of previous studies, understanding the theoretical basis and completing the purposes in chapters 1 and 2, the group designed a questionnaire to prepare for the direct primary data collection process. This research inherits mainly from the research by Neale J. Slack et al. (2020). After the initial group discussion, we offered a preliminary scale. Initial measurement items in English, we've translated into Vietnamese thanks to supporting tools so that the survey participants can understand and do survey easily. The group carried out a survey at people who had experienced the service at KFC fast-food restaurant in District 7 in Ho Chi Minh City by sending questionnaires via Google Form. If they have experienced service in KFC outlet in District 7 at least once, they were asked to fill in the form and submitted to the investigator. The structured questionnaire included 2 sections. Section 1 contains 15 demographics items. Section 2 contains 25 items adapted from the survey instrument. The survey participants were asked to rate how they felt when the use fast-food restaurant using a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree").

The primary data collection is estimated to be done by the group within 3 weeks by sending the survey link to the survey subjects. The results of the group data obtained are put into the SPSS software to test Cronbach's Alpha, determine the reliability of the question, then we introduce the discovery factor EFA and finally we will test the hypothesis by Regression analysis.

3.1.2. Research process

3.1.2.1. Quatitative research

Quatitative research is carried out through surveys of subjects about the factors studied in the topic, predicting the relationship between factors according to the preliminary research scale.

The subjects of the group's research survey are mostly young people and students. They are experientialists, absorbing new things very quickly, having experienced many fast-food restaurants in the city, so they can give objective evaluations about the service quality of the restaurant.

Process group survey conducted in sequence:

- Approaching the survey object, presenting the reason and purpose of the survey
- Provide a questionnaire about service quality and how it affects the perceived value, satisfaction and behavioral intentions of customers towards fast-food restaurants.
- Collect opinions of survey participants about the questions, the language used in the survey, the number of variables in the survey
- Summarize the comments of the surveyors and then adjust them to suit the actual situation

The survey questionnaire was designed by the group to help survey takers better understand the impact of service quality and its dimensions on customer perceived value, satisfaction and behavioral intentions for fast-food restaurants. At the same time, it also collects comments on survey questions, from which the group can timely adjust the scale to obtain the most suitable primary data for the quantitative research process.

Through the survey process, the obtained results show that the survey participants mostly understood the content of the variables in the survey. However, there are also some comments that the above mentioned variables are somewhat general and need to be stated more clearly in order to be able to clarify the factors affecting customers. After the research process, the group still decided to keep 33 observed variables and all questions and variables were adjusted accordingly.

After collecting data and getting the results, the group proceeded to put it into SPSS software to analyze Cronbach's Alpha reliability, analyze EFA discovery factors, and do regression analysis to test the mentioned hypotheses in chapter 2 to find out the relationship between the factors.

For the study to be highly reliable, the calculation of sample size is a very important step. For the group's research paper, specifically the EFA exploratory factor analysis based on the study of Hair, Anderson, Tatham and Black (1998) gives a reference to the expected sample size. The group used a minimum sample size of 5 times the total number of observed variables. That is the appropriate minimum sample size for research using factor analysis (Comrey, 1973; Roger, 2006)

With the formula defined as: $n = 5 * m$

(where m is the number of questions included in the survey)

According to the above formulas, the minimum sample size of the group's research paper is: ***5 * 25 = 125***

(Food Quality: 6 variables, Service Quality: 4, Physical Environmental Quality: 4, Customer Preceived Value: 3 , Customer Satisfaction: 3 , Behavioural Intentions:5)

It is expected that the number of research samples to be collected is 251, after collecting enough, the group will clean the data by removing the incorrect and invalid survey questionnaires and bring the valid ones to continue the analysis data.

The sampling method used in the study is a random and convenient sampling method. Although, the sample generalizability of this method is not high, and surveyors may be affected by objective factors, but due to limited time, the group accepted the risk and mentioned this limitation into the Research Limitation of the topic in Chapter 1. This survey is taken from people who have experienced at KFC fast-food restaurants in District 7 in Ho Chi Minh City. After collecting data, the group checked and cleaned and analyzed using SPSS 26.0 software.

3.2. Scale

For this research paper, the group mentioned 6 factors included in the proposed research model including: Food Quality, Service Quality, Physical Environmental Quality, Customer Preceived Value, Customer Satisfaction, Behavioural Intentions. All scale variables of the above factors are measured using a 5-point Likert scale.

"Food Quality" scale (Neale J. Slack et al. (2020))

Table 2. "Food Quality" scale (Neale J. Slack et al. (2020))

Variables	Describe
FQ 1	The food at KFC fast-food restaurants was delicious
FQ 2	The food at KFC fast-food restaurants was nutritious
FQ 3	KFC fast-food restaurants offer a variety of menu items
FQ 4	KFC fast-food restaurants offer fresh food
FQ 5	The smell of fresh-food was enciting
FQ 6	The food presentation was visually attractive

"Service Quality" scale (Neale J. Slack et al. (2020))

Table 3. "Service Quality" scale (Neale J. Slack et al. (2020))

Variables	Describe
SQ 1	Employees served me food exactly as I ordered
SQ 2	Employees provided prompt and quick service
SQ 3	*Employees are always willing to help me*
SQ 4	Employees made me feel comfortable in dealing with them

"Physical Environmental Quality" scale (Neale J. Slack et al. (2020))

Table 4. "Physical Environmental Quality" scale (Neale J. Slack et al. (2020))

Variables	Describe
FEQ 1	KFC fast-food restaurants have attractive interior design and decor
FEQ 2	The background music was pleasing
FEQ 3	The dining areas are thoroughly clean
FEQ 4	Employee are neat and well dressed

"Customer Preceived Value" scale (Neale J. Slack et al. (2020))

Table 5 "Customer Preceived Value" scale (Neale J. Slack et al. (2020))

Variables	Describe
CPV 1	The KFC fast-food restaurants offer good value for the price
CPV 2	The KFC fast-food restaurant experience was worth the money
CPV 3	The KFC fast-food restaurant provides me great value as compared to other food options

" Customer Satisfaction" scale (Neale J. Slack et al. (2020))

Table 6. " Customer Satisfaction" scale (Neale J. Slack et al. (2020))

Variables	Describe
CS 1	I am satisfied with overall experience at KFC fast-food restaurants
CS 2	Overall, KFC fast-food restaurants put me in a good mood
CS 3	I really enjoy myself at KFC fast-food restaurants

"Behavioural Intentions" scale (Neale J. Slack et al. (2020))

Table 7. "Behavioural Intentions" scale (Neale J. Slack et al. (2020))

Variables	Describe
BI 1	I would like to come back to KFC fast-food restaurant in the future
BI 2	I would like consider revisiting KFC fast-food restaurants in the future
BI 3	I would recommend KFC fast-food restaurants to my friends and others
BI 4	I would say positive things about KFC fast-food restaurants to others
BI 5	I would encourage others to visit KFC fast-food restaurants

In Chapter 3, the Group has developed a research process diagram, presented detailed research methods, thereby completing the construction of a scale to prepare for the data collection process for this study. Following, chapter 4 we will present the results obtained from the study after the collected data have been processed with SPSS software.

4. RESULTS AND DISCUSSIONS

From the hypotheses and research models mentioned in Chapters 1 and 2, the group will use the regression method to give the results of the relationship between the factors: Food Quality, Service Quality, Physical Environmental Quality, Customer Preceived Value, Customer Satisfaction, Behavioural Intentions of people who have experienced at KFC fast-food restaurants in District 7 in Ho Chi Minh City.

4.1. Overview of the results of the analysis of the sample

Based on the research subjects and research design mentioned in the previous chapter. The group conducted a survey of people having experienced a KFC fast-food restaurant in District 7 in Ho Chi Minh City and after cleaning the data collected 251 survey questionnaires and met the minimum sample size to conduct data analysis and determine the scientific significance of this research paper.

As for the demographic part, through the results of the SPSS analysis, we can see that the percentage of male and females who participated in the survey is quite similar, in which male account for 45% and females account for 53.8%. Thereby, it can be seen that the group's research topic has a balanced participation in the sex ratio. This has great significance for the research topic for data analysis and research modeling.

Same as the research object mentioned in the previous chapter, the main object of the research is from young people who have experienced different fast-food restaurants with a

Frequencies

Statistics

Gender

N	Valid	251
	Missing	0

Frequencies

Statistics

Ages

N	Valid	251
	Missing	0

Ages

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 28	204	81.3	81.3	81.3
	29 - 38	19	7.6	7.6	88.8
	39 - 48	11	4.4	4.4	93.2
	49 - 58	7	2.8	2.8	96.0
	Above 59	10	4.0	4.0	100.0
	Total	251	100.0	100.0	

high percentage of people from 18-28 years old, accounted for the largest proportion with 81.3%, from 29-38 years old accounted for 7.6%, from 39-48 years old accounted for 4.4%, from 59 years old above accounted for 4%, and the age group from 49-58 years old accounts for the smallest rate of 2.8%.

As for the survey participants aged 18-28 years old accounted for the highest proportion, the survey respondents are also mainly students who are going to university and are financially dependent on their families. Attendance rate as well as income below 5 million also account for the highest percentage. The survey results were obtained, in which the proportion of people going to school accounted for 71.3%, people working accounted for 21.1%, the rest accounted for 7.6%.

The proportion of people with income below 5M accounts for 64.9%, from 5-10M accounts for 21.1%, from 10-20M accounts for 8%, from 20 above accounts for 6%.

Frequencies

Statistics

Average monthly income

N	Valid	251
	Missing	0

Average monthly income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 5 million	163	64.9	64.9	64.9
	From 5 to 10 million	53	21.1	21.1	86.1
	From 10 to 20 million	20	8.0	8.0	94.0
	Above 20 million	15	6.0	6.0	100.0
	Total	251	100.0	100.0	

Frequencies

Statistics

Career

N	Valid	251
	Missing	0

Career

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Work	53	21.1	21.1	21.1
	Studies	179	71.3	71.3	92.4
	Other	19	7.6	7.6	100.0
	Total	251	100.0	100.0	

4.2. Results of scale evaluation before EFA analysis

To evaluate the initial hypotheses, the group needs to test the scale through 2 steps: checking the reliability of the scale by Cronbach's Alpha coefficient, the total variable correlation coefficient and testing the value of the scale through exploratory factor analysis (EFA).

Cronbach's Alpha reliability coefficient is a coefficient that allows to assess the appropriateness when certain observed variables belong to a research variable. Specifically, the criteria in the reliability coefficient test are as follows:

- Cronbach's Alpha reliability coefficient:

  α >= 0.9: Very good factor scale

  0.9 > α >= 0.8: Good factor scale

  0.8 > α >= 0.7: Acceptable factor scale

  0.7 > α >= 0.6: Acceptable factor scale for new studies

  0.6 > α >= 0.5: Factor scale is not suitable

  0.5 > α: Factor scale is not suitable

- Total Correlation coefficient (Corrected Item - Total Correlation): for variable the degree of correlation between an observed variable in the factor and the other variables. The total variable correlation coefficient reflects the contribution of a particular observed variable to the value of the factor. The standard correlation coefficient of the total variable to evaluate the observed variable that contributes to the value of the factor is at >= 0.3. If < 0.3, it is considered to have no contribution and it is necessary to remove that observed variable from the evaluation factor.

Cronbach's Alpha coefficient if the variable is excluded (Cronbach's Alpha if Item Deleted): if the value of Cronbach's Alpha If Item Deleted > Cronbach's Alpha, the variable will be excluded from the evaluation factor.

The results of the analysis of the reliability of Cronbach's Alpha of the factors: Food Quality, Service Quality, Physical Environmental Quality, Customer Perceived Value, Customer Satisfaction, Behavioural Intentions. In the research paper, the group has met the requirements with the reliability of Cronbach's Alpha is > 0.6 and has met the EFA exploratory factor analysis standard.

- **Cronbach's Alpha of Food Quality**

The Food Quality factor has a Cronbach's Alpha is 0.836 and the Corrected Item-Total Correlation is both greater than the allowable standard of 0.3. In which, the smallest is 0.56 (FQ3) and the largest is 0.678 (FQ4). These variables used to explain in the scale are appropriate. Therefore, these component measures were all used in the subsequent EFA.

Reliability Statistics

Cronbach's Alpha	N of Items
.836	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
FQ.1	18.09	12.020	.610	.813
FQ.2	18.90	10.597	.607	.812
FQ.3	18.00	11.716	.560	.819
FQ.4	18.61	10.279	.678	.796
FQ.5	18.21	10.927	.636	.804
FQ.6	17.94	11.596	.600	.812

- **Cronbach's Alpha of Service Quality**

The Service Quality factor has a Cronbach's Alpha is 0.869 and the Corrected Item-Total Correlation is both greater than the allowable standard of 0.3. In which, the smallest is 0,666 (SQ1) and the largest is 0,761(SQ3). These variables used to explain in the scale are appropriate. Therefore, these component measures were all used in the subsequent EFA.

Reliability Statistics

Cronbach's Alpha	N of Items
.869	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SQ.1	11.39	5.183	.666	.854
SQ.2	11.67	4.781	.715	.834
SQ.3	11.57	4.463	.761	.816
SQ.4	11.65	4.637	.744	.823

- **Cronbach's Alpha of Physical Enviromental Quality**

The Physical Enviromental Quality factor has a Cronbach's Alpha is 0,835 and the Corrected Item-Total Correlation is both greater than the allowable standard of 0.3. In which, the smallest is 0,645 (FEQ3) and the largest is 0,683 (FEQ4). These variables used to explain in the scale are appropriate. Therefore, these component measures were all used in the subsequent EFA.

Reliability Statistics

Cronbach's Alpha	N of Items
.835	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PEQ.1	11.10	4.669	.665	.791
PEQ.2	11.23	4.514	.670	.788
PEQ.3	11.32	4.363	.645	.802
PEQ.4	10.92	4.630	.683	.783

- **Cronbach's Alpha of Customer Satisfactions**

The Customer Satisfactions factor has a Cronbach's Alpha is 0,841 and the Corrected Item-Total Correlation is both greater than the allowable standard of 0.3. In which, the smallest is 0,657 (CS1) and the largest is 0,739 (CS2). These variables used to explain in the scale are appropriate. Therefore, these component measures were all used in the subsequent EFA.

Reliability Statistics

Cronbach's Alpha	N of Items
.841	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CS.1	7.38	2.420	.657	.824
CS.2	7.42	2.220	.739	.745
CS.3	7.54	2.298	.720	.764

- **Cronbach's Alpha of Customer Percived Value**

The Customer Percived Value factor has a Cronbach's Alpha is 0,854 and the Corrected Item-Total Correlation is both greater than the allowable standard of 0.3. In which, the smallest is 0,719 (CPV2) and the largest is 0,40 (CPV3). These variables used to explain in the scale are appropriate. Therefore, these component measures were all used in the subsequent EFA.

Reliability Statistics

Cronbach's Alpha	N of Items
.854	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CPV.1	6.90	2.690	.734	.788
CPV.2	6.88	3.063	.719	.810
CPV.3	7.04	2.491	.740	.788

- **Cronbach's Alpha of Behavioural Intentions**

The Behavioural Intentions factor has a Cronbach's Alpha is 0,875 and the Corrected Item-Total Correlation is both greater than the allowable standard of 0.3. In which, the smallest is 0,616 (BI2) and the largest is 0,763 (BI3). These variables used to explain in the scale are appropriate. Therefore, these component measures were all used in the subsequent EFA.

Reliability Statistics

Cronbach's Alpha	N of Items
.875	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
BI.1	14.70	8.834	.673	.856
BI.2	14.79	8.743	.616	.869
BI.3	14.77	8.378	.763	.835
BI.4	14.85	8.121	.772	.832
BI.5	15.01	8.012	.707	.849

4.3. Exploratory Factor Analysis

After the scales in the research paper meet the requirements for reliability testing, the group will conduct EFA (Exploratory factor analysis). In this part, we will conduct exploratory factor analysis for the independent variables and exploratory factor analysis for the dependent variable (BI).

EFA (Exploratory factor analysis) is based on the relationship between measurement variables, before deciding to use EFA, we need to consider the relationship between these measurement variables. Using the correlation matrix, we can identify the degree of relationship between variables. If the correlation coefficients are less than 0.30, EFA will not appropriate (Hair et al. 2009).

Here are some criteria to evaluate the relationship between variables:

- Bartlett test:

Bartlett test is used to see if the correlation matrix is an identity matrix or not?. The unit matrix here is understood as a matrix with the correlation coefficient between the variables equal to 0, and the correlation coefficient with itself equal to 1.

If the Bartlett test has p<5%, we can reject the hypothesis H0 (the correlation matrix is the unit matrix), which means that the variables are related.

- KMO test:

KMO test (Kaiser - Meyer - Olkin) is an index used to compare the magnitude of the correlation coefficient between two variables Xi and Xj with their partial correlation coefficients.

Kaiser-Mayer-Olkin coefficient (KMO): is an index used to consider the appropriateness of factor analysis. A largKMO value (between 0.5 and 1) is a sufficient condition for factor analysis to be appropriate, but if this value is less than 0.5, factor analysis may not be suitable for data.

To use EFA, the KMO must be greater than 0.50

Kaiser (1974) suggested:

KMO >= 0.90: VERY GOOD

0.80 <= KMO < 0.90: GOOD

0.70 <= KMO < 0.80: OK;

0.60 <= KMO < 0.70: TEMPORARILY

0.50 <= KMO < 0.60: BAD

KMO < 0.50: NOT ACCEPTANCE

- Factor loadings

Factor loadings are simple correlation coefficients between variables and factors. This coefficient less than 0.5 in EFA will continue to be excluded to ensure the value of convergence between variables. The method of extracting coefficients is Principal components and the breakpoint when extracting factors with Eigenvalue greater than 1, the total variance extracted is equal to or greater than 50%. (Nguyen Dinh Tho, 2011)

- Eigenvalue

Eigenvalue: Represents the variation explained by each factor. And Factor Loadings (factor loading coefficients) are single correlation coefficients between observed variables and factors. If the load factor is larger, it means that the observed variable has a closer relationship with the factor.

Eigenvalue is a commonly used criterion to determine the number of factors in EFA analysis. With this criterion, only factors with Eigenvalue ≥ 1 are kept in the analytical model.

Eigenvalue: Represents the variation explained by each factor. And Factor Loadings (factor loading coefficients) are single correlation coefficients between observed variables and factors. If the load factor is larger, it means that the observed variable has a closer relationship with the factor.

4.3.1. Exploratory factor analysis for the independent variables

Based on the above mentioned KMO and Barllet test criteria, in this study we can see the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = 0.929 > 0.5, proving that that the data used for factor analysis are appropriate

Barllet's test result is 2544,839 with significance level sig=0.00<0.05, now we can reject hypothesis Ho: observed variables are not correlated with each other in the population. The hypothesis that the correlation matrix between variables is a identity matrix is rejected since it can be seen that the variables are correlated with each other and satisfy the factor analysis conditions.

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.929
Bartlett's Test of Sphericity	Approx. Chi-Square	2544.839
	df	136
	Sig.	.000

After analyzing EFA and removing unsatisfactory variables, we are left with 17 acceptable variables. Next, we perform factor analysis according to Principal components with Varimax rotation for the research paper. The results show that 17 variables are divided into 5 groups. The value of total variance extracted = 73.674% >50%, was satisfactory and it means that these 5 factors explain 73.674% of the variation of the data.

The Eigenvalues of the factors are all high (>1), the 5th factor has the lowest Eigenvalues is 0.715.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.523	50.133	50.133	8.523	50.133	50.133	3.369	19.815	19.815
2	1.245	7.325	57.459	1.245	7.325	57.459	2.830	16.649	36.464
3	1.035	6.085	63.544	1.035	6.085	63.544	2.718	15.990	52.454
4	1.007	5.925	69.469	1.007	5.925	69.469	2.109	12.409	64.862
5	.715	4.205	73.674	.715	4.205	73.674	1.498	8.812	73.674
6	.612	3.601	77.275						
7	.537	3.159	80.434						
8	.479	2.816	83.249						
9	.439	2.580	85.830						
10	.422	2.483	88.313						
11	.383	2.252	90.565						
12	.345	2.031	92.597						
13	.311	1.829	94.426						
14	.278	1.635	96.060						
15	.249	1.463	97.523						
16	.222	1.307	98.831						
17	.199	1.169	100.000						

Extraction Method: Principal Component Analysis.

Next is the factor matrix with Varimax rotation method:
The factor loading coefficients are all greater than 0.5, and there is no case that any variable uploads both factors at the same time with the load factor close to each other. Therefore, the factors ensure convergent and discriminant values when analyzing EFA. In addition, there is no mixing of factors, which means that the question of one factor is not confused with the question of the other factor. After factor analysis, these independent factors are kept unchanged, not increased or decreased by factors.

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
CPV.3	.856				
CPV.1	.723				
CPV.2	.692				
CS.3	.662				
CS.2	.575				
SQ.3		.833			
SQ.4		.765			
SQ.2		.712			
SQ.1		.635			
PEQ.4			.742		
PEQ.2			.741		
PEQ.1			.707		
PEQ.3			.616		
FQ.1				.754	
FQ.5				.714	
FQ.3					.784
FQ.6					.568

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

After analyzing EFA, there are still 5 independent factors including:

The first group of factors includes 5 variables:

- CPV 1: The fast-food restaurants offer good value for the price
- CPV 2: The fast-food restaurant experience was worth the money
- CPV 3: The fast-food restaurant provides me great value as compared to other food options
- CS 2: Overall, fastfood restaurants put me in a good mood
- CS 3: I really enjoy myself at fastfood restaurants

The second group of factors includes 4 variables

- SQ 1: Employees served me food exactly as I ordered
- SQ 2: Employees provided prompt and quick service

- SQ 3: Employees are always willing to help me
- SQ 4: Employees made me feel comfortable in dealing with them

The third group of factors includes 4 variables

- PEQ 1: Fast-food restaurants have attractive interior design and decor
- PEQ 2: The background music was pleasing
- PEQ 3: The dining areas are thoroughly clean
- PEQ 4: Employee are neat and well dressed

The fourth group of factors includes 2 variables

- FQ 1: The food at fast-food restaurant was delicious
- FQ 5: The smell of fresh-food was enciting

The fifth group of factors includes 2 variables

- FQ 3: Fast-food restaurants offer a variety of menu items
- FQ 6: The food presentation was visually attractive

4.3.2. Exploratory factor analysis for the dependent variable (BI)

After conducting EFA analysis for the dependent variable BI, including 5 variables. The analysis results show that the KMO value = 0.848 > 0.5 and through Barllet's test we can see that the variables in the population are correlated with each other with the coefficient sig = 0.000 < 0.05. It show that factor analysis to group variables together is appropriate.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.848
Bartlett's Test of Sphericity	Approx. Chi-Square	626.385
	df	10
	Sig.	.000

For the factor rotation matrix, all variables have the standard Factor loading coefficient, greater than 0.5 and no observed variables are excluded from the factor.

Component Matrix[a]

	Component 1
BI.4	.865
BI.3	.862
BI.5	.821
BI.1	.795
BI.2	.745

4.3.2. Mediator variable analysis (CS)

According to Baron & Kenny (1986), a variable is determined to play an intermediary role if it satisfies the following three conditions at the same time:

Condition 1: The independent variable has an impact on the intermediate variable ($a \neq 0$).

Condition 2: The intermediate variable has an impact on the dependent variable ($b \neq 0$).

Condition 3: When conditions 1 and 2 are satisfied, the presence of an intermediate variable will reduce the impact from the independent variable on the dependent variable ($c' < c$), where c is the regression coefficient from X to Y in the absence of the intermediate variable M.

To check whether an intermediate variable satisfies the above 3 conditions, we will perform 3 regressions as follows:

+ Single regression: X → M: To know whether the independent variable has an impact on the intermediate variable (condition 1). The expected result is that the sig t-test of variable X is less than 0.05

M = constant 1 + aX + e1

+ Multiple regression*: X, M → Y:* To know whether the intermediate variable has an impact on the dependent variable (condition 2). The expected result is that the sig t-test of variable M is less than 0.05

Y = constant 2 + c'X + bM + e2

+ Single regression: X → Y: To know if the presence of an intermediate variable reduces the impact of the independent variable on the dependent variable. The expected result is the coefficient $c' < c$

Y = constant 3 + cX + e3

If 1 of the above 3 conditions is violated, the variable M does not play an intermediary role in interfering with the impact from X to Y.

Total effect of X on Y: Total effect from X on Y (coefficient c)

Direct effect of X on Y: Direct effect from X on Y (coefficient c')

Indirect effect(s) of X on Y: Indirect effect from X on Y through M (product a*b)

In the Indirect effects section, we will evaluate whether there is an indirect effect or not based on the bootstrap confidence interval for the product a*b

+ If the bootstrap confidence interval a*b contains the value 0, we conclude that there is no indirect effect from X on Y

+ If the bootstrap confidence interval a*b does not contain the value 0, we conclude that there is an indirect effect from X on Y.

From the theory mentioned above, the research has taken the factor X4 (CPV) as the independent variable, X5 (CS) as the intermediate variable and the dependent variable as Y (BI), the team has analyzed and has the following results:

For the results of a Single regression from X4 to X5, we see that the Sig of variable X4 is less than 0.05, so it can be concluded that variable X4 has an impact on the intermediate variable X5.

```
OUTCOME VARIABLE:
 X5

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7618      .5804      .2256   344.3772     1.0000   249.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.3048      .1337     9.7602      .0000     1.0415     1.5681
X4            .6967      .0375    18.5574      .0000      .6228      .7706

Standardized coefficients
        coeff
X4      .7618
```

For the results of Multiple regression from X4,X5 to Y, we see that the Sig of variable X5 is less than 0.05, so it can be concluded that the intermediate variable X5 has an impact on the dependent variable Y.

```
**************************************************************************
OUTCOME VARIABLE:
 Y

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7745      .5998      .2058   185.8379     2.0000   248.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant      .9040      .1501     6.0214      .0000      .6083     1.1997
X4            .3210      .0554     5.7987      .0000      .2120      .4300
X5            .4535      .0605     7.4928      .0000      .3343      .5727

Standardized coefficients
        coeff
X4      .3596
X5      .4647
```

For the results of Single regression from X4 to Y, we see that the BootLLCI value is 0.2096 and the BootULCIT value is 0.4348 and the confidence interval is [0.4348; 0.2096], this range does not include the value 0. From that we can conclude that there is an indirect effect from X4 on Y through the variable X5 with an impact level is 0,3160

```
Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI       c_ps       c_cs
      .6369      .0396    16.0725      .0000      .5589      .7150      .8917      .7136

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c'_ps      c'_cs
      .3210      .0554     5.7987      .0000      .2120      .4300      .4494      .3596

Indirect effect(s) of X on Y:
       Effect     BootSE   BootLLCI   BootULCI
X5      .3160      .0574      .2096      .4348
```

From the above 3 results, we can conclude that variable X5 has an intermediary role from variable X4 to variable Y.

4.4. Multivariate regression analysis

The group has tabulated the correlation matrix between the variable Y (the dependent variable) and the independent variables. The results show that the correlation coefficient between variable Y and variables X1,X2,X3,X4,X5 is 0.709; 0.612; 0.624; 0.714; 0.739 and has a coefficient sig = 0.000 < 0.05. So, we can see that all 5 variables meet the conditions and are included for regression analysis.

Correlations

Correlations

		X	X2	X3	X4	X5	Y
X	Pearson Correlation	1	.655**	.638**	.741**	.756**	.709**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	251	251	251	251	251	251
X2	Pearson Correlation	.655**	1	.628**	.583**	.650**	.612**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	251	251	251	251	251	251
X3	Pearson Correlation	.638**	.628**	1	.628**	.691**	.624**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	251	251	251	251	251	251
X4	Pearson Correlation	.741**	.583**	.628**	1	.762**	.714**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	251	251	251	251	251	251
X5	Pearson Correlation	.756**	.650**	.691**	.762**	1	.739**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	251	251	251	251	251	251
Y	Pearson Correlation	.709**	.612**	.624**	.714**	.739**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	251	251	251	251	251	251

**. Correlation is significant at the 0.01 level (2-tailed).

After satisfying the conditions of the variables for regression analysis, we have the following results:

4.4.1. Model Summary Table

In this table we will pay attention to the value of Adjusted R Square, it reflects the influence of the independent variables on the dependent variable and the value fluctuates from 0 to 1. The more Adjusted R Square goes to 1, the study is better.

For this analysis we get the result Adjusted R Square = 0.628 (62.8%). That means that the 5 independent variables included affect 62.8% of the change in the dependent variable and the remaining 37.2% are due to variables outside the model and random error.

4.4.2. Anova Table

To build a multivariable regression model, we need to see if the model fits the data set through the value of Adjusted R Square but it should be noted that this only shows between the model we built for the set of data.

Therefore, we need to test F in the Anova table to check the fit of the calculated regression to the population. For the results of this study, we can see that sig = 0.000 < 0.05, so this linear regression model is suitable for the population.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.797[a]	.636	.628	.43556	2.066

a. Predictors: (Constant), X5, X2, X3, X4, X

b. Dependent Variable: Y

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	81.061	5	16.212	85.454	.000[b]
	Residual	46.481	245	.190		
	Total	127.541	250			

a. Dependent Variable: Y

b. Predictors: (Constant), X5, X2, X3, X4, X

4.4.3. Coefficients Table

The first is the t-test Sig value for each independent variable, sig less than or equal to 0.05 means that the variable is significant in the model, otherwise sig greater than 0.05 that independent variable should be removed. The analysis results show that there are 2 variables X2 and X3 with sig > 0.05. After eliminating all ineligible variables, we get 3 satisfactory variables X1,X4,X5.

Next is the normalized regression coefficient Beta, among all the regression coefficients, the independent variable with the largest Beta has the most influence on the change of the dependent variable. From the obtained results, we can see that the variables X4 and X5 have the largest beta coefficients and they are the two variables that have the most influence on the variable Y (BI).

Finally, the VIF value is used to check for multicollinearity. Theoretically, VIF < 10 will not have multicollinearity. For this research topic, the obtained results do not have multicollinearity phenomenon.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	.421	.175		2.405	.017		
	X	.210	.073	.193	2.876	.004	.330	3.032
	X2	.110	.056	.110	1.965	.051	.478	2.093
	X3	.095	.059	.092	1.591	.113	.449	2.229
	X4	.213	.058	.239	3.655	.000	.349	2.864
	X5	.270	.069	.276	3.880	.000	.293	3.407

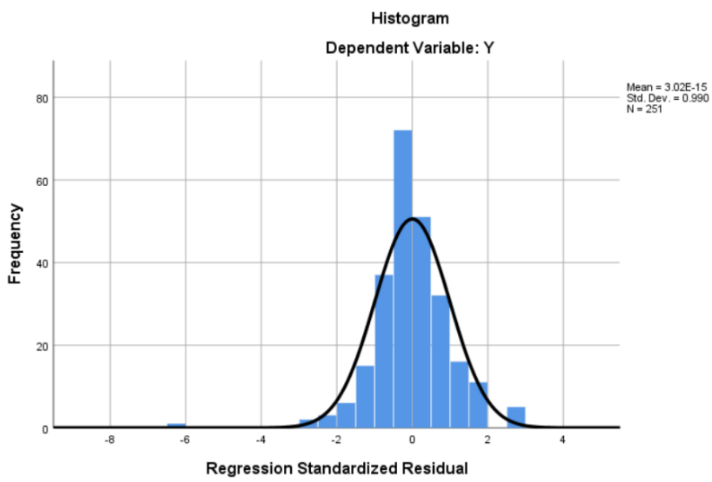
a. Dependent Variable: Y

Unnormalized regression equation: Y= 0,421 + 0,193X1 + 0,239X4+ 0,276X5

Normalized regression equation: Y= 0,193X1 + 0,239X4+ 0,276X5

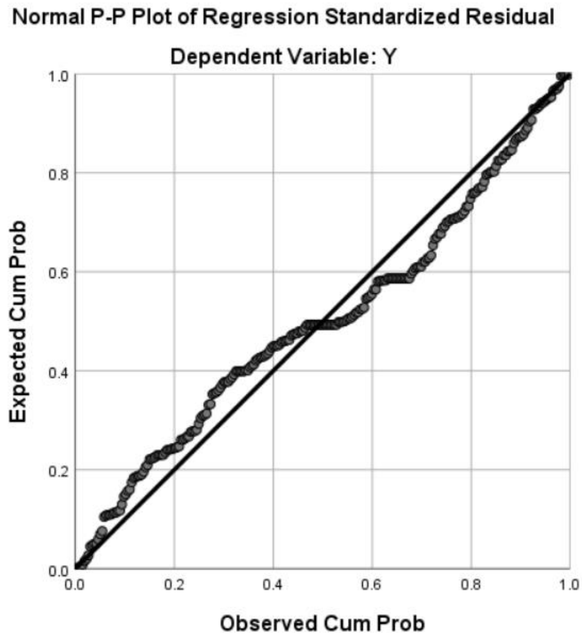
4.4.4. Normalized residual frequency chart (Histogram)

Charts



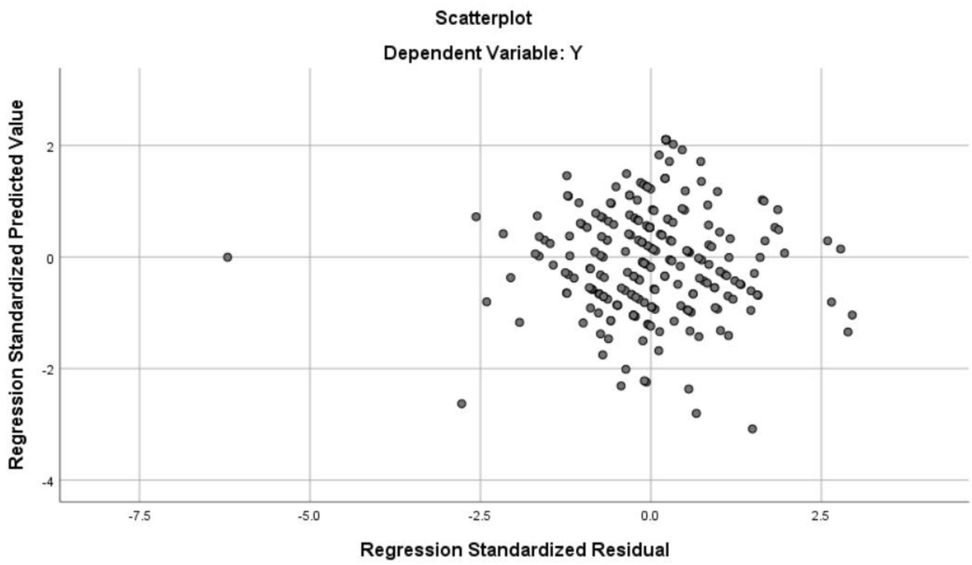
From the graph we can see a normal distribution curve is superimposed on the histogram. This curve is bell-shaped, which is consistent with the graph of the normal distribution. Avarage Mean is close to 0, standard deviation is 0.990 close to 1 so the residual distribution graph is approximately standard. Thereby it can be concluded that the assumption of normal distribution of residuals is not violated.

4.4.5. Normalized Residual Chart (Normal P-P Plot)



Same as the Histogram chart, the Normal P-P Plot is also used to check and identify the violation of the assumption of the normalized residuals. Theoretically, the dots centered in the form of a diagonal should not violate the regression assumption of the residual normal distribution. From the analysis group chart, we can see that the dots are concentrated into a diagonal line, so the assumption of the normal distribution of the residuals is not violated (same result with Hisogram chart).

4.4.6. Tests the assumption of linear contact (Scatter Plot chart)



For the Scatter Plot chart, if the distribution points of the residuals have the following forms: Parabolic graphs, Cubic graphs, .. or other types of graphs that are not straight lines, the data of the study violates assumptions linear contact. If the assumption of a linear relationship is satisfied, the residuals will oscillate around 0 coordinate line and do not scatter too far. For this analysis chart, we can see that the normalized residuals are distributed centered around the zero line, so the assumption of linear relationship is not violated.

4.5. Analyze the difference between the values of qualitative variables and quantitative variables (Anova, T - test)

After checking and satisfying all the requirements mentioned above, the group will continue to test the attachment of variable Y according to demographic characteristics

T-Test

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Y	Male	113	3.6265	.80468	.07570
	Female	135	3.7719	.61870	.05325

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Y	Equal variances assumed	5.459	.020	-1.606	246	.109	-.14530	.09046	-.32347	.03286
	Equal variances not assumed			-1.570	207.749	.118	-.14530	.09255	-.32776	.03715

Firstly, we will test the attachment of variable Y to the gender part. According to the obtained results, we can see that Levene's Test sig coefficient = 0.02 < 0.05, the variance between the 2 genders is different, we will use the equal variances not assumed Sig T-Test value with Sig = 0.118 > 0.05. We conclude that there is no statistically difference in behavioral intentions of people of different genders.

Oneway

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Y	Based on Mean	1.649	4	246	.163
	Based on Median	1.171	4	246	.324
	Based on Median and with adjusted df	1.171	4	213.191	.325
	Based on trimmed mean	1.562	4	246	.185

ANOVA

Y

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.689	4	.672	1.324	.261
Within Groups	124.852	246	.508		
Total	127.541	250			

Next we will test the difference by age. In the Test of Homogeneity, the Sig values of Levene's Test are all > 0.05, so the Anova results are usable. We can see that the Sig in the Anova table = 0.261 > 0.05. Thus we conclude that there is no statistically difference in behavioral intentions of people of different age groups.For chapter 4, the group described the results from the analysis of the data and variables in the research paper. So, we has theoretically tested the results and most of them are consistent and statistically significant. Next, the group will mention about the administrative implications of appropriate policies, comments on the research results.

5.CONCLUSION

From the results of the research paper, the group will make comments on the research results and policies to help investors and owners of fast food restaurants develop.

5.1.Administrative implications

The results of the research analysis show that there are 3 factors affecting and related to the behavioral intention of customers when using fast food restaurants, including Food Quality, Customer Perceived Value and Custumer Sastisfaction. In which, the CS factor will have the greatest influence on the BI factor when you want to increase Behavioral Intentions of customers in fast-food restaurants, it is necessary to increase customer satisfaction, and if you want to increase CS, it is necessary to increase CPV for the fast-food restaurant by increasing the quality of the fast-food.

Also according to the research results, there are 2 factors PEQ and SQ that are not statistically significant, so they have been excluded from the research model.

The group's research results are based on the author's research model (Neale J. Slack) and it have different results from the study. Due to being made in a different environmental, specifically in Ho Chi Minh City, Vietnam. From that, it can be seen that depending on the culture and conditions of the people of each country, there will be different research results. The group's research paper still has many limitations, so we encourages other studies to add research variables and hypotheses to help this study become perfect and this research paper also help investors, owners of fast-food restaurant have the right judgment to develop the fast-food restaurant market in Vietnam.

5.2. Policies

After having comments on the research results, the group proposed a number of policies to help businesses and fast-food restaurant owners develop their restaurants

Through the assessment mentioned above, FQ is the final factor that helps fast-food restaurants increase customer behavioral intentions. The group recommends that restaurant owners and investors should focus on the quality of fast-food:

- Need to diversify the menu, maybe add some traditional Vietnamese dishes to the restaurant's food list.
- Research some more nutritious food to be able to sell to customers.
- Maintain good quality of food to be able to retain old customers and attract new customers.

The restaurant environment and service quality in fast food restaurants of the study may still be inaccurate because the situation of the Covid-19 epidemic in Vietnam is still complicated, so restaurants need to reduce physical environmental factors and service quality inside fast-food restaurants. It can help fast-food restaurant owners save costs and maintain the restaurant through the time of the epidemic.

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THE AWARENESSES OF YOUNG CUSTOMERS OF EWOM CREDIBILITY: A CASE OF FOOD & BEVERAGE INDUSTRY IN VIETNAM

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ABSTRACT

This research was conducted to examine the trustworthiness of young consumers towards eWOM in the food and beverage industry in Vietnam. Accordingly, authors sent a survey to more than 400 customers in Vietnam and received 259 responses. The study aimed to assess whether the three independent variables (homophily, authority and interestingness) have a significant positive indirect effect on eWOM credibility, as mediated by source trustworthiness. The results of this study also confirm that issue, specifically, the two factors Homophily and Authority have a positive influence on customer trust. In addition, the research results also show that demographic factors such as gender, age, occupation and income have no controlling effect on customer trust.

Keywords: authority; homophily; interestingness; source trustworthiness; ewom credibility.

JEL Classification: L31, M80

1. INTRODUCTION

Word-of-Mouth (WOM) is a type of buzz marketing, which could turn viral if the message is appropriate and catchy enough to attract the customer's attention. With the advance of technology, eWOM (Electronic Word-of-Mouth) is more and more influential to customers because, through the internet, customers can access hundreds, thousands of posts or reviews that exist on the Internet. Today, customers tend to care more about people's opinions than just believing an advertisement. This is also known as 'social proof'. eWoM has a significant influence on consumers' purchasing decisions. But one of the downsides of eWoM is that they don't know who is behind the viral information and is it trustworthy? It is for this reason that our team decided to research issues related to the credibility of eWOM through the food and beverage (F&B) industry.

For a long time in the world, starting in the Middle Ages, inns, eateries and pubs have been indispensable in any land. The new F&B concepts evolved in the early 19th century when Nicholas Appert invented canned food and Louis Pasteur invented the "Pasteurisation" (pasteurization technique). From this point on, food can be preserved, stored and used for a long time, the new F&B industry thrives. Currently, the F&B market in Vietnam is certifying the strong development of service shops. Over the years, many experts predict that with the growth momentum, each year the growth rate of the F&B market in Vietnam is about 18%. F&B is considered as one of the 3 fastest growing groups in 3 years, joining here with the power to increase strength.

Right now, the F&B business is one of the hot enterprises. Since the F&B business is a subsystem in the help business, it can do numerous branches, multi-division in a wide range of fields. The variety of the calling as well as the variety of the working environment just as the office that faculty can work in the F&B business ... These days, so the quantity of cafés is expanding, prompting intensity. rivalry in the economy is progressively high. Throughout the long term, this number has expanded quickly and altogether. In when coffee shops have such a large number of decisions, tasty and modest business food simply doesn't appear to be sufficient.

Up to 2020 there are 540,000 restaurants in Vietnam, of which 430,000 are small stores, 70,000 are fast food restaurants, 22,000 coffee shops and more than 80,000 stores. The restaurant is invested and developed. In recent years, the industry's revenue tends to increase. According to statistics from Statista F&B in Vietnam in 2019, it reached the mark of 200 billion USD, up 3.4% compared to the figure in 2018 and it is predicted that by 2023, the revenue could double to approximately 408 billion USD. In 2020, the F&B industry projects a growth rate of 5-6% in the period 2020-2025. Big brands occupying the largest market share in the F&B industry are Golden Gate, Redsun, Starbuck, McDonald's, Subway, Domino's Pizza, Burger King, …

Vietnam has just been honoured to receive the award "Asia's Leading Culinary Destination 2019" at the 26th World Travel Awards - World Travel Awards and is being nominated as the World's Leading Destination for Food. According to Mr Chu Hong Minh, Chairman of the Vietnam Restaurant Association (RAV), the Vietnamese culinary industry has experienced remarkable growth during the past 5 years, represented by the number of restaurants, cafes, pubs and bars increased markedly, especially in the major cities of Hanoi, Ho Chi Minh City, and Da Nang. Vietnam's food and catering (F&B) market are also continuously attracting investment from businesses and the entry of a variety of global business chains. According to data from Statista, revenue from the F&B market in Vietnam in 2019 could reach 200 billion USD, up 34.3% compared to 2018. It is predicted that by 2023, the revenue of this industry can more than double to approximately 408 billion USD. Along with the growing middle-class population, estimated to reach 45 million by 2025, the F&B market continues to become an attractive piece of cake for investors.

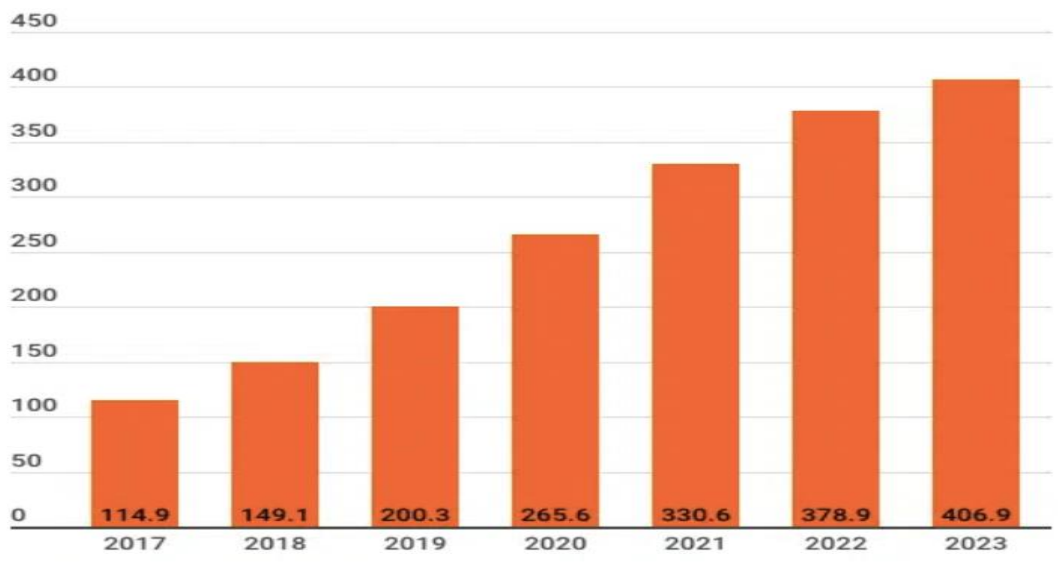

Figure 1. ***F&B industry revenue in Vietnam (unit: billion USD)***

Source: Statista (2019)

Notwithstanding the solid turn of events, the F&B business is additionally confronting a few challenges, for example, The reason for the troubles of all ventures by and large and the F&B business specifically is the Covid-19 pandemic. On account of this pandemic, numerous shortcomings of the F&B business have been uncovered, particularly identified with coordination administrations, circulation, human asset the board ... The Covid-19 pestilence did 85 % of organizations have issues identified with dispersion: bundling increments quickly, yet the stock isn't sufficient to expandability to satisfy the need while eateries are shut, diminishing utilization of drinks. Plus, after the pandemic occasion, entrepreneurs in the business had a cerebral pain in issues: premises, staff, charges, and income. The solid drop in the number of clients during the flare-up has influenced the above issues. Plainly since the Lunar New Year, the number of guests diminished by 30-half, prompting a sharp decrease in income of 79-80% including little cafés.

2. LITERATURE REVIEW

2.1. Homophily

According to McGuire (1985); Brown, Broderick, and Lee (2007), Homophily is described as a person's propensity to interact and bond with others who share similar features and are idiosyncratic. People form bonds with the person who is similar to them (Adams 2012). Reagans (2005) have mentioned that "They like to associate with and befriend people who lead similar lifestyles to them so they are more inclined to share common hobbies and concerns". " Relationships and social societies are commonly formed in identified interest, so homophily is more able to impact the convincing mechanism of eWOM communication" stated Chu and Kim 2011. Based on the source-attractiveness model, homophily in social networks can be assumed that also has important implications for the reliability rating of online recommendations (Lis 2013).

2.2. Authority

Authority specifies the extent to which consumers will be convinced that the eWOM is due to a product or service reviewer's ability to alter the WOM recipient's motivation for activity, by Enoch (2014). Though the structure of the source agency appears to be related to the source expertise, it contingents on the utilization of actual product/service, with the reviewer's opinion or raking depended on the experience about direct consumption - was further stated by Martin and Lueg (2011, 3). The collaboration capabilities of the social network have made evaluating source authority simpler. Social media entitle peer-to-peer reliability reviews easier through rankings and comments on reviews and suggestions. Consumers now can conveniently verify positive or negative ratings generated by a reviewer or suggestion as well as the quantity and worth of posts reviewed by that reviewer or source (Ku, Wei, and Hsiao 2012). Bearden, Netemeyer, and Teel (1989) say that "other people's influence" is the biggest influence on people's buying decisions. Research by Lee and Ma (2012) mentioned that consumers consider the recommendations of online eWom reviewers as a useful source of information because consumers are often susceptible to interpersonal influence.

2.3. Interestingness

Interestingness is referred to as the capacity to attract and catch the attentiveness of WOM searchers and collectors (Huang et al. 2011; Rieh 2002) Consumers are constantly bombarded and overwhelmed with web promotional clutter and user-generated content as networking and information technology advances (Carson 2005; Leboff 2011). Generation Y consumers are currently browsing through the abundance of eWOM to find a subject that piques their interest and piques their curiosity to limit their time waste and remove unnecessary details. The quality of eWOM that is compelling, insightful, diverse, surprising, fascinating, and that is prominently featured, as shown by the number of views and likes, are more likely to be read and exchanged than content that is not prominently featured (Adams 2011). Consumers will be willing and receptive to a message, which makes them more willing and able to deliver the message content if it is a message that can appeal to consumers (Mills 2012). De Vries, Gensler, and Leeflang (2012) have said that interesting reviews and posts will make consumers more positive about it than boring posts. According to this argument, Generation Y consumers consider interestingness to be of primary importance, and their adoption and transfer both have the effects of interest (Huang et al. 2011).

2.4. Source trustworthiness

In terms of source trustworthiness, reviews and their feedback are considered trustworthy if the information given is accurate and delivered openly and truthfully (Hovland, Janis, and Kelley 1953; Lis 2013). Reviewers will still need to persuade their followers that they had no other reason for sending the letter (Willemsen 2012). Hautz et al., 2014 support this viewpoint, pointing out that web communications shared by corporations are viewed sceptically, while personally generated messages conveying the source's perspective are viewed as more trustworthy.

The literature also states that homophily, authority and interestingness will affect online sources' trustworthiness (Willemsen 2013, 62; Pan, Vorvoreanu and Zhou 2014) and that if users perceive the source to be untrustworthy, they will not find more details (Lo 2014)

2.5. EWOM Credibility

WOM communication has been studied for over half a century as a research subject. The fact that WOM contact is thought to be the most powerful medium of communication in the marketplace has piqued people's interest in it. Consumer expectations and attitudes toward organizations and their brands are significantly influenced by word-of-mouth contact (Bansal and Voyer, 2000; Allsop, Bassett, and Hoskins, 2007; Moran, 2007; Kelly 2007; Turner and Shah 2014). eWOM refers to "any positive or negative comment made about a product or business by future, current, or former consumers that is made accessible to a large number of people and organizations over the Internet" (Hennig-Thurau et al. 2004). In essence, eWOM refers to online customer-to-customer C2C conversations. The majority of eWOM supporting websites, however, allow the sender's identity to be hidden, which is a detractor of eWOM reputation. Although sender motives are usually thought to be altruistic rather than aimed at exploiting fellow customers (Phelps et al. 2004), consumers must self-assess the essence of both the message and its sender to determine the authenticity of the plethora of knowledge available (Leonard-Barton 1985).

Various studies have been performed since the introduction of the WOM definition to gain a better understanding of the conventional mode of WOM communication. These studies can be roughly divided into three broad categories, according to De Bruyn and Lilien, 2008. The first line of inquiry centred on the factors that affect consumers' willingness to inform others about marketplace products they have personally encountered. Intensive satisfaction or disappointment (Anderson 1998; Bowman and Narayandas 2001; Maxham and Netemeyer 2002), product originality (Bone 1992), and the customer's loyalty to the organization (Dick and Basu 1994; Wangenheim and Bayón 2004), according to Kimmel and Kitchen (2014). The second line of inquiry has been to learn more about why consumers choose WOM contact over structured knowledge sources when making purchasing decisions. According to Kimmel and Kitchen (2014), the factors discovered include a lack of product awareness (Furse, Punj, and Stewart 1984; Gilly et al. 1998) or the need to make a high-risk decision. According to Kimmel and Kitchen (2014), the antecedents of WOM control include awareness of the source (Bansal and Voyer 2000; Gilly et al. 1998), the strength of the social relationship (Brown and Reingen 1987), and the degree of similarity between the consumers' demographic variables (Brown and Reingen 1987).

With the introduction of the Internet in the 1990s, the WOM medium shifted from physical face-to-face communication to electronic media communication, resulting in online word of mouth (also known as eWOM) (Litvin, Goldsmith, and Pan 2008; Chu & Kim, 2011). The focus of eWOM has moved from individual characteristics and conversation partners to online groups with common community characteristics, where the message content takes precedence (Brown, Broderick, and Lee 2007; Berger and Schwartz 2011). Since an expert opinion can be accessed electronically, the message content has the potential to be more reliable (Brown, Broderick, and Lee 2007). As a result of advancements in information and communication technology, the communication landscape for consumers has changed and improved (Allsop, Bassett, and Hoskins 2007). Emails, company-sponsored message boards, chat rooms, Internet discussion pages, customer review sites, and news groups are just some of the ways eWOM contact can take place in this online world (Vilpponen, Winter, and Sundqvist 2006; Litvin, Goldsmith, and Pan 2008). As a result, eWOM incorporates a wide range of media outlets, the most common and readily available of which is social media (Zhang et al. 2010). Social media is a verb, writes Agresta, 2011. It's the act of creating and publishing content in any of the following hosted environments: online, mobile, interactive, or unnamed'. The ‘emergence of Internet-based social media has made it possible for one person to connect with hundreds or even thousands of other people about products and the companies that supply them, according to Mangold and Faulds (2009). As a result, social media has significantly increased the importance of consumer-to-consumer interactions (Mangold and Faulds, 2009). Because of its low cost of access and knowledge sharing, social media has enabled eWOM to spread on an unprecedented scale (Huang et al. 2011). Consumers now can respond to messages and discuss their thoughts among themselves, giving them the power to make or break brands (Gillin 2008; Smith, Wollan, and Zhou, 2011). As a result, due to the importance of online communication, researchers have shifted their attention from conventional WOM to eWOM to gain a better understanding of this emerging phenomenon. Studies on the factors that contribute to eWOM (Hennig-Thurau et al. 2004; Ho and Dempsey 2010), as well as the effect of eWOM on product sales (Chevalier and Mayzlin 2006; Liu 2006), consumer merit and loyalty (Gruen, Osmonbekov, and Czaplewski 2005), and the success of new product releases (Gruen, Osmonbekov, and Czaplewski 2005 (Clemons, Gao, and Hitt 2006). Li and Wang, 2013 cite a variety of studies that look at how eWOM influences customer decision-making in different product categories (Clemons, Gao, and Hitt 2006; Chevalier and Mayzlin 2006; Dellarocas, Zhang, and Awad 2007). Other research (Hennig-Thurau et al. 2004) have led to a better understanding of why users may like to share their views on social media sites. A preliminary cross-cultural analysis involving social relationship variables was also performed between the United States and China (Chu and Choi 2011). However, further research is needed to gain a better understanding of the techniques that could affect eWOM communication in the fast-food industry. Here are some studies and additions to the definition of Ewom over time and this aims to synthesise the various eWOM credibility stimuli into one framework. The framework is guided by the overarching domains of source and message credibility.

3. METHODOLOGY

3.1 Research Model and Hypotheses

3.1.1. Research Model

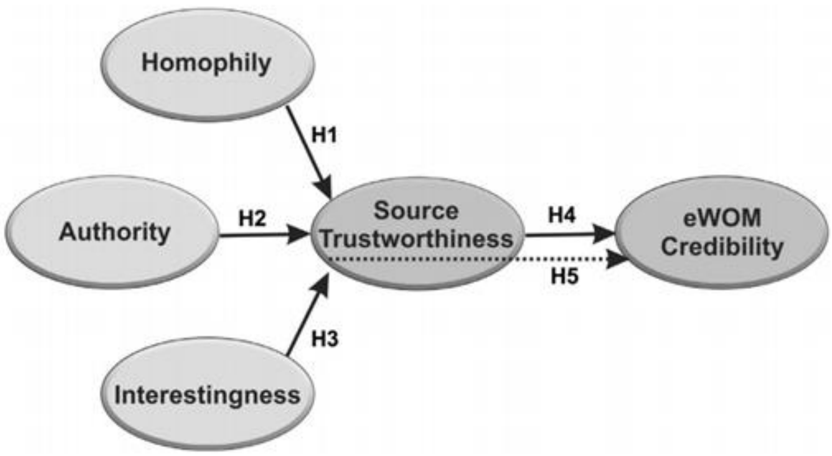

Figure 2. Proposed research model

Based on the above theory and the research "Factors influencing Generation Y consumers' perceptions of eWOM credibility: a study of the fast-food industry" (Shamhuyenhanzva et al, 2016), research model is presented by the authors as in Figure 2 to apply the questionnaires to customers experienced the service in Vietnamese F&B industry.

To be sure of the author's theoretical model is suitable for the working environment in the F&B industry in the city or not. The authors held a group discussion on the observed variables in the model, with qualitative research results using a highly consensus group discussion method.

In particularly:

- Homophily variance: measured based on 05 observational variables based on the studies of McGuire (1985), Reagans (2005), Brown, Broderick, and Lee (2007), Sweeney, Soutar, and Mazzarol (2008), Chu and Kim (2011), Adams (2012) and Lis (2013).

- Authority variance: measured based on 04 observational variables based on the study of Huang et al. 2011, Martin and Lueg (2011), Enoch (2014), Ku, Wei, and Hsiao (2012) and Lis (2013).

- Interestingness variance: measured based on 05 observational variables based on the studies of Adams (2012)

- Source trustworthiness variance: measured based on 05 observational variables based on the studies of Hovland, Janis, and Kelley (1953), Willemsen (2012) and Lis (2013).

- eWOM credibility variance: measured based on 04 observational variables based on the studies of Cheung et al. (2009), Fan and Miao (2012) and Lis (2013).

3.1.2. Hypotheses

• Hypothesis 1 (H1): Homophily direct positive impact on Source Trustworthiness.

• Hypothesis 2 (H2): Authority direct positive impact on Source Trustworthiness.

• Hypothesis 3 (H3): Interestingness direct positive impact on Source Trustworthiness.

• Hypothesis 4 (H4): Source trustworthiness direct positive impact on eWOM credibility.

• Hypothesis 5 (H5): The mediating effect of source trustworthiness on the positive relationship between the independent variables such as homophily, authority, interestingness and eWOM credibility.

3.2. Procedures and sample

3.2.1. Procedures

There were two primary stages to the research study:

The preliminary investigation is conducted in two parts during the first phase: the first step employs qualitative approaches with group discussion to alter the nuclear scale and factors in the star research model. additional perfection; The second phase entails conducting a preliminary quantitative survey by interviewing 35 guests at a random hotel in order to assess the reliability of the scale. The next crucial step of the official 400 sample survey will be started after 35 test samples are available, and the author will rely on the findings to confirm the feasibility scale in practice.

In the second phase, quantitative techniques are used to execute formal approaches. Surveys were used to gather data for the quantitative study, and respondents in Vietnam. The analysis of the SPSS 20 and Smart PLS data, along with the formulation of closing remarks and study conclusions, constitute this paper's final stage.

The basic PLS-SEM algorithm (Lohmöller 2013) is divided into two stages. The scores of the latent constructs are calculated in the first stage using a four-step method. The final estimates of the outer weights and loadings, as well as the structural model's path coefficients, are calculated in the second step. Since the iterative PLS-SEM algorithm calculates the coefficients for the partial ordinary least squares regression models in the measurement models and the structural model, the path modelling procedure is called partial. When a formative measurement model is used, a multiple regression model is calculated with the latent construct as the dependent variable and the allocated indicators as the independent variables (outer weights computation). When a reflective measurement model is thought, on the other hand, the regression model uses single regressions with each predictor as the dependent variable, while the latent construct is always the independent variable (computation of outer loadings).

To calculate the structural model relationships' estimates, the final latent construct scores are used to run ordinary least squares regressions for each construct (path coefficients). Most PLS-SEM software packages (for example, SmartPLS) provide a graphical user interface for creating models and implementing the basic PLS algorithm for model estimation.

At the same time, the data is also processed with SPSS 20 software to measure the statistically significant differences of factors such as age, gender, income and frequency of purchases in one week that have an impact on the customer trust.

3.2.2. Sample

It is critical to gather suitable examples so the logical outcomes are dependable. The bigger the example size, the more exact and compelling the consequences of examination are for the most part. In any case, analysts couldn't study test measures that were excessively huge because of time and monetary requirements. Thusly, specialists have made recipes to work with precise example determination.

As of now, two equations are usually used to decide the fitting example size:

Hair, Anderson, Tatham, and Black (1998) directed examination on prescient example sizes. Subsequently, the base example size is multiple times the complete number of factors found. This is a reasonable example size for factor examination (Comrey, 1992). 5 * m = n. As per this equation, the example size for the exploration paper is n = 5 * 23 = 115.

The recipe n = 50 + 8 *m (m: number of independent variables) is utilized to decide the base example size to be acquired (Tabachnick and Fidell, 1996). The example size for the exploration paper is n = 50 + 8 * 5 = 90, as per this recipe.

For those above reason, authors sent a survey to more than 400 customers in Vietnam and received 259 responses. Additionally, a cross-sectional analysis was carried in around Vietnam to answer the study's purposes and the study's hypotheses. The target population included all the customers that visited the market leaders in the F&B sector in Vietnam. Our team chose google form as the data collection method. Data is collected through Internet surveys using the Facebook application. The reason we use google forms instead of using survey paper is to increase the area of contact with the surveyors while saving time. the costs and risks of paper surveys are reduced. In addition, the surveys we post on food and beverage forums help us identify the right respondents and they will spend their attention and understanding about the topic that we are investigating.

4. DATA ANALYSIS

The total number of sample collected in online survey was 259. Table below shows the result of descriptive analysis.

Table 1. Distribution of respondents based on demographic characteristics

		Frequency	**Valid percent (%)**
Gender	Male	103	39.8
	Female	153	59.1
	Others	3	1.2
Age	18 - 22	215	83
	22 - 26	31	12
	26 - 30	13	5
Occupation	Student	194	74.9
	Employee	59	22.8
	Other	6	2.3
Income	< 5 million	175	67.6
	5 - 15 million	57	22.0
	15 - 25 million	16	6.2

		Frequency	**Valid percent (%)**
	> 25 million	11	4.2
Frequency	1 – 2 times a week	189	73
	3 – 4 times a week	43	16.6
	Everyday	27	10.4

Source: Processing from author's survey data

Reliability testing

To ensure accuracy for further analysis sections, research data should be checked for the quality of observation variables and research models. The latent variables in the research model are made into observed variables in the form of a cause indicator variable (Reflective indicators). Therefore, the observed variables have a relationship with each other and affect each other, to check the suitability of these factors, we check the outer loadings index.

Table 2. Conformity results of factors

Latent variables	Observed variables	Outer Loandings
Homophily (H)	H1	0.735
	H2	0.754
	H3	0.804
	H4	0.732
	H5	0.773
Authority (A)	A1	0.845
	A2	0.827
	A3	0.892
	A4	0.863
Interestingness (I)	I1	0.862
	I2	0.870
	I3	0.858
	I4	0.870
	I5	0.828
Source Trustworthiness (S)	S1	0.882
	S2	0.883
	S3	0.879
	S4	0.908
	S5	0.868
eWOM Credibility (C)	C2	0.892
	C3	0.895
	C4	0.880

Source: Processing from author's survey data

The relevance of the factor is shown by the value of the index outer loadings greater than 0.7 (according to Joe et al (2011). That means the variable H1, H2, H3, H4, H5 of the Homophily variable has an outer loading value of 0.735, 0.754, 0.804, 0.732, 0.773, all greater than 0.7, so it is considered valid. Similarly, from the variable A1 to A4 in the variable Authority, from the variable I1 to I5 in the variable Interestingness, from the variable S1 to S5 in the variable Source Trustworthiness and from the variable C1 to C4 in the variable eWOM Credibitily all have values above 0.7, so they are all counted. valid and retained, no variables have outer loadings below 0.7. The results of outer loadings after removing the variable will be presented in Table 3.

Table 3. Loadings, VIF, AVE and Composite Reliability indicators after variables have been eliminated

Variable name	The scale	Outer Loadings	VIF	AVE	Composite Reliability
Homophily (H)	H_1	0.735	1.666	0.578	0.872
	H_2	0.754	1.799		
	H_3	0.804	1.811		
	H_4	0.732	1.634		
	H_5	0.773	1.817		
Authority (A)	A_1	0.845	2.096	0.734	0.917
	A_2	0.827	1.981		
	A_3	0.892	2.874		
	A_4	0.863	2.510		
Interestingness (I)	I_1	0.862	2.701	0.735	0.932
	I_2	0.870	3.084		
	I_3	0.858	2.807		
	I_4	0.870	2.879		
	I_5	0.828	2.438		
Source Trustworthiness (S)	S_1	0.882	3.055	0.781	0.947
	S_2	0.883	3.109		
	S_3	0.879	2.925		
	S_4	0.908	3.863		
	S_5	0.868	2.909		
eWOM Credibility (C)	C_2	0.892	2.251	0.789	0.918

Source: Processing from author's survey data

Internal Consistency Reliability is measured by the Composite Reliability index (according to Joe et al. (2011). Internal homogeneity reliability is a factor to consider the consistency of items in the same variable, i.e. to determine whether measures in the same hidden variable are compatible with each other (Hair et al.,2013). According to Joe et al. (2011), the level of consistency of items in the same variable is shown when the value of the Composite Reliability index is greater than 0.7 (a value of 0.6-0.7 is acceptable in the survey study). probe). Therefore, we conduct the Composite Reliability index analysis to consider internal homogeneity reliability through table 3. Based on the results of table 3, the Composite Reliability index of all variables is greater than 0.7, in which the variable S has the highest index of 0.947, that is, the consistency and compatibility level in the observed variables S higher than the remaining variables H, A, I, C.

Validity testing

- **Convergent validity**

According to Hair et al. (2013), the assessment of convergent validity aims to test the extent to which a scale positively correlates with alternative measures in the same variable. To calculate this level, we evaluate through the AVE index (Average Variance Extracted), the variables are considered convergent when the appropriate value is greater than 0.5 (Joe et al., 2011). Therefore, if the AVE of the variable is less than 0.5, then the variable will be considered to be excluded from the research model. The AVE index is presented in Table 3.

From Table 3, it can be seen that all the AVE indexes of the variables are greater than 0.5, showing that all variables have acceptable and valid convergence values. In which, the variable eWOM Credibility with AVE index of 0.789 is the largest, showing that the observed variables in this variable have better convergent values than in the remaining variables, and the variable has the lowest convergent value among the variables. is a Homophily variable with AVE equal to 0.578 but still greater than 0.5, so the variables are eligible to continue the analysis in the next factors.

- **Discriminant validity**

According to Hair et al. (2013), the discriminant value assessment aims to test the degree of difference of one variable from the other variables, considering the degree of correlation of the variables with each other and whether each index is different. represents the characteristic of an individual variable. That means that the loadings coefficient in the observed variables of each variable should be higher than the loadings coefficient in the remaining variables in the same row, aka the loadings index in each variable must be higher than its cross-loadings (Joe et al., 2011).

To consider the discriminant level and representativeness for each variable, the results of data analysis in Table 4 will be presented:

Table 4. Cross-loading coefficients of factors

	A	C	H	I	S
A1	**0.845**	0.553	0.654	0.634	0.601
A2	**0.827**	0.495	0.623	0.676	0.559
A3	**0.892**	0.522	0.656	0.657	0.621
A4	**0.863**	0.504	0.590	0.669	0.593
C2	0.525	**0.892**	0.617	0.525	0.731
C3	0.556	**0.895**	0.613	0.433	0.715
C4	0.534	**0.880**	0.645	0.480	0.675
H1	0.521	0.525	**0.735**	0.593	0.510
H2	0.616	0.477	**0.754**	0.579	0.527
H3	0.650	0.532	**0.804**	0.585	0.601
H4	0.471	0.579	**0.732**	0.393	0.569
H5	0.537	0.554	**0.773**	0.501	0.564
I1	0.666	0.411	0.549	**0.862**	0.517
I2	0.695	0.481	0.617	**0.870**	0.587
I3	0.694	0.545	0.644	**0.858**	0.604
I4	0.646	0.422	0.574	**0.870**	0.575
I5	0.586	0.445	0.589	**0.828**	0.518
S1	0.616	0.713	0.638	0.639	**0.882**
S2	0.619	0.726	0.628	0.554	**0.883**
S3	0.578	0.712	0.641	0.522	**0.879**
S4	0.589	0.692	0.672	0.590	**0.908**
S5	0.661	0.674	0.651	0.589	**0.868**

Source: Processing from author's survey data

From the results of Table 4, we can see that in the variable A- Authority, the outer loadings of A1, A2, A3, A4 are 0.845, 0.827, 0.892, 0.863 respectively, which are larger than the cross-loadings of this variable. Similarly, in the variable C2, C3, C4 respectively 0.892, 0.895, 0.880 are larger than the cross-loadings of this variable. At the same time, in the variable H-Homophily, I-Interestingness, S-Source Trustworthiness all have outer loadings greater than its cross-loadings coefficient. Therefore, the variables A, C, H, I, S all have high discriminatory value, the degree of correlation between variables is low, and each variable represents only one factor.

To ensure the accuracy of the discriminant value of each variable, we conduct discriminant analysis through the AVE index and LVC-Latent Variable Correlations index. The discriminant value of the factor is evaluated by comparing the square root of AVE and LVC, in which the square root of AVE for each factor must be greater than the correlation coefficient, then the model has a suitable discriminant value. with the research model (Fornell

& Larcker criteria, 1981; Joe et al., 2011). Therefore, after testing the discriminant value through outer loadings and cross-loadings, we continue to analyze through the AVE and LVC indexes in Table 5.

Table 5. The discriminant value of factors according to Fornell & Larcker criteria

	A	**C**	**H**	**I**	**S**
A	**0.857**				
C	0.605	**0.889**			
H	0.736	0.703	**0.760**		
I	0.768	0.539	0.695	**0.858**	
S	0.693	0.796	0.731	0.655	**0.884**

** The value in bold is the square root of AVE*

Source: Processing from author's survey data

According to the results from Table 5, we can see that the square root of AVE is larger than LVC, so according to the criteria of Fornell & Larker, the discriminant value of the model is confirmed, the research sample meets the discriminant of the model factors in the research model.

In addition, we also check the VIF (Variance Inflation Factor) of the prefixes to see the multicollinearity system in the model study. Hair et al. (2013) examine multisystem phenomenon based on numerical VIF, accordingly, this index must be less than 5 to have no community polylinearity. Based on the results in Table 4.3, all the VIF values of the prefixes are less than 5, of which the largest VIF value is 3,863 of S4 variables. The lowest is 1,634 of the H4 variable and that would indicate has no line up to the current object is not be in the data research model.

5. RESULTS AND DISCUSSIONS

The defined population factor is used to evaluate the structural model and to help measure the accuracy of the model. This coefficient is calculated as the square of the correlation between the actual and predicted values of the structure of the hidden variables. According to Joe et al. (2011), the R Square value is measured at each level of 0.75 in turn; 0.50 and 0.25 represent the explanatory level of the variables, respectively, with the meaning of high, medium and low explanation, respectively.

Table 6. Overall coefficient value R Square

Dependent variable	R Square
C	0.634
S	0.597

Source: Processing from author's survey data

From Table 6, it can be seen that the R Square index in variable C is 0.634, which means that the explanatory level of the independent variables and the intermediate variable to the relative variable C is in the range from medium to high, similarly, the R-index Square in variable S is 0.597 ie the level of explanation in the independent variable to the variable S is at the average level. Next, to test the reliability of the hypotheses, that is, we conduct an analysis to test the Path coefficients of the variables to test the hypothesis.

The partial least squares structural equation model (Partial Least Squares SEM or PLS-SEM for short) does not test whether the path coefficient is statistically significant or not, because PLS-SEM There is no assumption of a normal distribution for the data. Therefore, to evaluate the importance of the path coefficient need to use bootstrapping to check.The bootstrap procedure was used for the purpose of calculating the standard error of the estimated coefficient for the purpose of testing statistical significance. A bootstrap is an approach that takes random samples from the data and uses these samples to estimate the model path multiple times under the variation of the data (Hair et al., 2013). The minimum number of bootstrap samples is 5,000 and the number of cases should be equal to the number of observations in the original sample. The bootstrap process generates T-statistics to test the model's path significance. In this study, we used 300 data points over 5000 samples taken from the original data to calculate T-values to test the structural path significance. When the relationships are in the 95% confidence interval, ie statistically significant 0.05, the T-value (T-statistics) need $\geq$ 1.96 to be satisfactory. Specifically, the t-values for the two-tails test have values of 1.65 (significant level = 10 percent), 1.96 (significant level = 5 percent) and 2.58, respectively. (significant level = 1 percent) (Joe et al., 2011).

First, we need to test the P-value to test the hypotheses and evaluate the reliability of these hypotheses. According to Hair et al. (2013), the higher the P-value, the lower the reliability of the hypothesis, values less than 0.05 are considered appropriate to evaluate the value of the research model. At the same time, we check the Effect Size f square index, which is understood to evaluate the R2 coefficient when an independent variable is removed and consider the importance of that independent variable with the dependent variable. belong. According to Cohen (2010), this index measures the impact of the independent variable on the dependent variable according to the levels of low, moderate and strong effects, with f square values of 0.02, 0.15 and 0.35, respectively. , where if the effects have f square less than 0.02, it can be concluded that the effect is very little or no effect.

Table 7. P-value and T Statistics

The impact	**T Statistics**	**P Values**	**F Square**
A -> S	2.665	0.008	0.061
H -> S	5.735	0.000	0.208
I -> S	**1.842**	**0.066**	**0.035**
S -> C	27.640	0.000	1.792

Source: Processing from author's survey data

Based on the results in Table 7, we can see that the P values of the impact of the Interestingness variable on the Source Trustworthiness variable (0.066) is greater than 0.05 and the T statistics is less than 1.96, so it can be concluded that the hypothesis H3 cannot be trusted. On the contrary, the remaining 3 P values are all less than 0.05 and the remaining T statistics are greater than 1.96, so it can be concluded that hypothesis H1, H2 and H4 can be trusted. Among the accepted hypotheses, the impact of Homophily on the Source Trustworthiness variable is the largest with the index of 5,735 and the impact of the Authority variable on the Source Trustworthiness variable is the smallest at 2,665.

Regarding the level of impact of the Authority variable on the Source Trustworthiness variable, the f square index of 0.061 is greater than 0.02 and less than 0.15, which proves that variable A after removing the scale has a low impact on variable S. Next is the degree The impact of Homophily on Source Trustworthiness has a moderate effect with an f square index of 0.208. Finally, with the f square index of 1,792, the impact of the Source Trustworthiness variable on the eWOM Credibility variable is very high (greater than 0.35).

Next, the relationship of both direct and indirect effects will be presented, in which the path coefficients, standard deviations and T statistics values will be analyzed in Table 8.

Table 8. T Statistics values, path coefficients, and standard deviations of variables

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics**	**P Values**
A → S	0.248	0.243	0.093	2.665	0.008
A → S→ C	0.197	0.194	0.073	2.686	0.007
A → C	0.197	0.194	0.073	2.686	0.007
H → S	0.436	0.438	0.076	5.735	0.000
H → S→C	0.347	0.350	0.066	5.289	0.000
H → C	0.347	0.350	0.066	5.289	0.000
I → S	**0.162**	**0.165**	**0.088**	**1.842**	**0.066**
I → S→C	**0.129**	**0.132**	**0.070**	**1.837**	**0.066**
I → C	**0.129**	**0.132**	**0.070**	**1.837**	**0.066**
S → C	0.796	0.797	0.029	27.640	0.000

Source: Processing from author's survey data

Based on the results in table 8, we can see that the T Statistics values of the direct and indirect relationships are all greater than 1.98; except for the case of I → C and I → S all have T Statistics < 1.98. Besides, we also see that P Values of direct and indirect relationships are less than 0.05; except for the case of I I → C và I → S where the P-Value is greater than 0.05. Specifically, in hypothesis H1: (H) positively affects (S) because T Statistics is 5.735 and Path Coefficients is 0.438. Similar in hypothesis H2: (A) positively affects (S) with the value of T Statistics is 2.665 and Path Coefficients is 0.243. In hypothesis H3: (I) affects (S) has a T Statistics of 1.842 and Path Coefficients of 0.165, in this case, the relationship from I → S has T Statistic less than 1.98 and P-Value greater than 0.05, so it is inferred. This relationship does not exist. In hypothesis H4: (S) has a positive effect on (C) has a T Statistics of 27,640 and a Path Coefficients of 0.797. In hypothesis, H5a: (H) positively affects (C) has a T Statistics of 5.289 and a Path Coefficients of 0.350. In hypothesis H5b: (A) positively affects (C) has T Statistics of 2.686 and Path Coefficients of 0.194. H5c: (I) affects (C) has a T Statistics of 1.837 and a Path Coefficients of 0.132, in this case, the relationship from I → C has T Statistic less than 1.98 and P-Value greater than 0.05, so the relationship should be inferred. This system does not exist. In summary, hypotheses from H1 to H5b are reliable and accepted, except for the case of H3, H5c which is unreliable and rejected.

Table 9. Results of testing the research hypotheses.

Hypothesis	Content	Results
H1	Homophily direct positive impact on Source Trustworthiness	Accept
H2	Authority direct positive impact on Source Trustworthiness	Accept
H3	Interestingness direct positive impact on Source Trustworthiness	Rejected
H4	Source Trustworthiness direct positive impact on eWOM Credibility	Accept
H5a	Homophily direct positive impact on eWOM Credibility	Accept
H5b	Authority direct positive impact on eWOM Credibility	Accept
H5c	Interestingness direct positive impact on eWOM Credibility	Rejected

Source: Processing from author's survey data

Based on the results of Table 9, hypotheses H1, H2, H4, H5a, H5b are accepted because the results of data analysis have been presented in sections 4.2, 4.3, 4.4 and 4.8. However, the hypothesis H3 and H5c were rejected because the Interestingness factor has no impact on the Source Trustworthiness factor as well as the eWOM Credibility factor.

6. CONCLUSIONS

This study was conducted with the aim of examining the impact of Homophily, Authority and Interestingness on Source Trustworthiness and eWOM Credibility in the field of F&B in Vietnam City. The results of this study also confirm that issue, specifically, the two factors Homophily and Authority have a positive influence on customer trust. Based on the results in Table 4.7, we can see that the P values of the hypotheses are all less than 0.05, except for the hypothesis Interestingness(I) which has an impact on Source Trustworthiness(S), so it can be concluded that Hypotheses H1, H2, H4 can all be trusted, that is, two independent variables (Homophily and Authority) have a positive impact on the dependent variable. The H3 hypothesis is nonexistent. The results of the impact analysis are presented specifically as follows:

First, in the Authority factor (A), there is a relatively low to moderate level of impact on Source Trustworthiness when customers buy F&B products (0.061), that is, when customers rely on the Authority factor, it is weak. This factor affects the final confidence after the purchase is complete is 6.1% compared to other factors d. Martin and Lueg (2011, 3) indicate that although the concept of source rights seems to be connected with source knowledge, it is dependent on the actual use of the product and service, with comments or ratings by the users. raters based on direct consumption-related experiences. This factor is evaluated through 4 observed variables: Often persuaded to choose a specific fast-food outlet because a well-known blogger/reviewer has recommended it, motivated to try a different outlet because a knowledgeable reviewer/blogger recommended it, influenced to use a different fast-food outlet by a well-known blogger/reviewer, social media reviews by authoritative bloggers have influenced intentions to purchase at certain fast-food outlets

Secondly, in the Homophily (H) factor, there is a moderate degree of impact on the Source Trustworthiness when the customer buys the products of the F&B industry (0.208), that is, when the customer relies on the Homophily factor, this factor affects to final trust after the purchase is completed is 20.8% compared to other service factors. This factor is evaluated through 5 observed variables: Feeling of belongingness when browsing through fast-food virtual communities/blogs, virtual fast-food communities and blogs represent like-minded individuals with similar interests to the respondent, favouring of online fast-food review sites on social media because a wide range of people are represented, strong association with people who are more like the respondent when browsing for fast-food information on social media, preferring to communicate with people who have the same ideas when getting information on fast food via social media.

Third, the Interestingness factor (I) doesn't impact Source Trustworthiness when customers buy products of the F&B industry. Based on Table 4.7, we can see that the large P-value of 0.05 and the small T statistics of 1.98 infer that the relationship between the two factors Interestingness and Source Trustworthiness does not exist. This relationship is evaluated through 5 observed variables: More likely to use fast-food outlets which have received positive reviews on social media, preferring to read fast-food reviews which have generated a large number of likes, Attracted to fast-food reviews which have a large number of views, good ratings/positive reviews influence the choice of which fast-food outlet to use, more than willing to try mentioned fast-food outlet(s) with positive reviews.

Finally, in the Source Trustworthiness factor (S), there is a very high degree of impact on eWOM Credibility when customers buy products of the F&B industry (1,792), that is, when customers rely on Source Trustworthiness, this factor affects The impact on final reliability after the purchase is complete is 179.2% compared to other service factors. This factor is evaluated through 5 observed variables: Trust online fast-food reviews via social media, trust information that consumers generate on social media sites, trust information provided by fast-food retailers on their social media brand-related pages/virtual communities, trust information provided by virtual communities/blogs, trust information provided by well-known bloggers/reviewers

In addition, the research results also show that demographic factors such as gender, age, occupation and income have no controlling effect on customer trust. However, the factor of purchase frequency has an impact on customer's trust in eWOM (sig. ≤ 0.05). Specifically, the higher the frequency of purchases, the higher the customer's reliability. Therefore, to consider the trust of customers in eWOM, it is also necessary to consider the frequency of purchases.

In summary, after analyzing data on descriptive statistics, measurement models, structural models, one-factor variance ANOVA and testing the research hypotheses, we will continue to give the following results. The thesis for the research paper, as well as based on the research results to provide managerial implications to propose for businesses operating in the field of F&B, and finally, to highlight the limitations of the research and direction. future research to overcome limitations in the current study.

Limitations and future research

First, the limited scope of the study, the small scale of only 259 samples, did not cover many subjects because our group currently has limited time and funds to increase the survey subjects and do the research. Due to the abundance of survey results, the data analysis results are not highly objective but still ensure the quality of the survey samples. In future research, our team will overcome the limitations of this study by expanding the survey scale and diversifying the list of survey subjects to get more objective results, and at the same time adding other diverse and rich analytical perspectives on the same topic.

Secondly, due to the limited geographical area of the survey, our team only focuses on surveying young people who are living, studying and working in Vietnam. Therefore, the survey results are not universal and widespread. In addition, our team found that with the scope and area in only one city, which was not surveyed, it was also an obstacle to receiving comments through the sample. Surveys have also become more limited. In the next study, sampling on a larger geographical area and surveying subjects in many different regions will increase the feasibility of the study, which is something that our team will do to be able to do. get more people's opinions on the topics our team researches.

Finally, the present study only focuses on the issue of perceptions of young consumers under the age of 30 about the credibility of eWOM in the F&B industry, thus creating an age restriction of the competitors. Currently, the target group of 30-40 years old also uses a lot of services in many F&B industries. Because we do not miss this target group, in the future we will expand the age range more. To survey more fully and critically. So, in the future, research will cover more diversity and complete. In summary, with the above limitations, our team will try to overcome and develop future research so that the research results are more applicable and meaningful.

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