



TRƯỜNG ĐẠI HỌC FPT

**FACTORS AFFECTING UNIVERSITY CHOICE
OF HIGH SCHOOL STUDENTS IN VIETNAM DURING
THE COVID-19 PANDEMIC**

Bachelor of Business Administration Thesis

Supervisor

NGUYEN THI LUU

Group members

Pham Thi Phuong - HS130252

Nguyen Thi Thanh - HS130183

Tran Nguyen Ngoc Anh - HS140285

Nguyen Thi Phuong Anh - HS140122

Nguyen Thi Minh Phuong - HS130117

Ha Noi, December 2021

ACKNOWLEDGEMENTS

After studying at FPT University Hanoi, our knowledge has been applied in practice. We conducted our graduation thesis to synthesize our knowledge and understanding with the topic: "Factors affecting university choice of high school students in Vietnam during the Covid-19 pandemic". The completion of the work is not only accomplished by one individual, but also by the combination of the whole team and associated with the help of many others. During the research process, we have received a lot of enthusiastic guidance from the instructors, the school and enthusiastic help from many high school students.

With all our gratitude, we would like to thank Dr. Nguyen Thi Luu for being extremely dedicated and meticulous in guiding us throughout the research period. Despite her busy work, she still spent a lot of time with us so that we could complete our graduation thesis well. Once again we would like to thank you and wish you much success and happiness.

We would like to thank the teachers in the Faculty of Business of FPT University for teaching us so that we have the knowledge to apply in our graduation thesis and also the reality.

Thank you to all our friends and high school students who helped us in collecting data for our research. Their opinions and views are a valuable source of material to help us achieve our research's necessary objectivity.

Due to the limited level of research and a number of objective reasons, despite our best efforts, our report still has limitations and shortcomings. We look forward to receiving the attention and contributions of teachers to make our project more complete.

Wishing you all the best in your future endeavors.

We sincerely thank you!

Ha Noi, December 2021

Pham Thi Phuong

Nguyen Thi Thanh

Nguyen Thi Phuong Anh

Tran Nguyen Ngoc Anh

Nguyen Thi Minh Phuong

TABLES OF CONTENTS

TABLES OF CONTENTS	3
LIST OF TABLES	7
LIST OF FIGURES	8
EXECUTIVE SUMMARY	9
CHAPTER 1: INTRODUCTION	10
1.1. Research background and reasons to choose the topic	10
1.1.1. Practical problem	10
1.1.2. Theoretical problems	12
1.2. Research questions and research objectives.....	13
1.2.1. Research questions.....	13
1.2.2. Research objectives.....	13
1.3. Research method	13
1.4. Research contributions	14
1.4.1. Theoretical contributions	14
1.4.2. Practical contributions	14
1.5. Outline of the research	15
CHAPTER 2: LITERATURE REVIEW	17
Chapter Overview	17
2.1. An overview of the education system	17
2.1.1. The structural framework of the national education system.....	17
2.1.2. The concept and characteristics of higher education service.....	19
2.1.2.1. The concept of higher education.....	19
2.1.2.2. Characteristics of higher education service	20
2.1.3. High school students and customers in university training	21
2.1.3.1. High school students	21
2.1.3.2. Customer in university training	22
2.2. The application of marketing approaches	23
2.2.1. Choice theory	23
2.2.2. Theory of reasoned action (TRA).....	24
2.2.3. Black Box Model	25
2.2.4. Marketing Environment.....	27
2.3. Review of related literature	29

2.3.1. Review of foreign models.....	29
2.3.1.1. The research model of Chapman (1981).....	29
2.3.1.2. The research model of Toit and Cosser (2002).....	31
2.3.1.3. The research model of Ming (2010)	32
2.3.1.4. The research model of Clayton (2013)	33
2.3.2. Review of domestic models.....	34
2.3.2.1. The research model of Tran and Cao (2009)	34
2.3.2.2. The research model of Nguyen, Huynh X. and Huynh T. (2011)	35
2.3.3. Comparisons of foreign and domestic models.....	36
2.3.4. Review of the Covid-19’s effect on education	37
Chapter summary	37
CHAPTER 3: THEORETICAL FOUNDATION AND HYPOTHESIS	
DEVELOPMENT	39
Chapter Overview	39
3.1. Theoretical Foundations.....	39
3.2. Hypothesis development	41
3.2.1. Student Characteristics	41
3.2.2. Significant People	41
3.2.3. University’s Academic Reputation.....	42
3.2.4. University’s Financial Support	42
3.2.5. University’s Facilities and Resources.....	44
3.2.6. University Efforts to communicate with students.....	45
3.2.7. Moderating variable - Covid 19 pandemic	45
Chapter Summary.....	49
CHAPTER 4: METHODOLOGY	50
Chapter Overview	50
4.1. Research design and research process.....	50
4.2. Sample and data collection.....	51
4.2.1. Sample	51
4.2.2. Data collection	52
4.3. Measures	52
4.3.1. The “Student Characteristics” scale.....	52
4.3.2. The “Significant People” scale	53
4.3.3. The “University’s Academic Reputation” scale	53

4.3.4. The “University’s Financial Support” scale	54
4.3.5. The “University’s Facilities and Resources” scale	54
4.3.6. The “University Efforts to communicate with students” scale.....	55
4.3.7. The dependent variable	56
4.3.8. The “Covid” scale.....	56
4.4. Analysis procedure.....	56
4.4.1. Descriptive statistics	56
4.4.2. Reliability test with Cronbach’s Alpha.....	57
4.4.3. Exploratory factor analysis (EFA).....	57
4.4.4. Pearson correlation analysis.....	59
4.4.5. Regression analysis.....	59
4.4.5.1. Testing of main effects	59
4.4.5.2. The testing of moderating effects	61
Chapter Summary.....	61
CHAPTER 5: RESULTS	62
Chapter Overview	62
5.1. Descriptive Statistics.....	62
5.2. Reliability test	67
5.2.1. The Students Characteristics scale.....	68
5.2.2. The Significant People scale.....	68
5.2.3. The University’s Academic Reputation scale.....	69
5.2.4. The Financial Support scale.....	70
5.2.5. The Facilities and Resources scale	71
5.2.6. The University Efforts to Communicate with Students scale.....	72
5.2.7. The Students’ University Choices scale	72
5.3. Exploratory factor analysis (EFA)	73
5.4. Pearson Correlation Analysis	79
5.5. Linear Regression Analysis	81
5.5.1. Main effects	82
5.5.2. Moderating effects	83
Chapter Summary.....	85
CHAPTER 6: DISCUSSION AND CONCLUSION	87
6.1. Summary of research results	87
6.2. Discussion of research results	88

6.2.1. Main Effects.....	88
6.2.2. Moderating Effects	91
6.3. Research implications	93
6.3.1. Theoretical implications	93
6.3.2. Practical implications.....	93
6.4. Recommendations for universities' marketing strategies	94
6.5. Limitations and suggestions for future research	99
6.5.1. Limitations	99
6.5.2. Suggestions for future research.....	99
6.6. Conclusion	99
REFERENCES.....	101
APPENDIX.....	111

LIST OF TABLES

Table 4.1: Scale for Student Characteristics	52
Table 4.2: Scale for Significant People.....	53
Table 4.3: Scale for University’s Academic Reputation	53
Table 4.4: Scale for University’s Financial Support.....	54
Table 4.5: Scale for University’s Facilities and Resources	54
Table 4.6: Scale for University Efforts to communicate with students	55
Table 4.7: Scale for the dependent variable.....	56
Table 4.8: Scale for Covid	56
Table 5.1: Descriptive Statistics of gender	62
Table 5.2: Descriptive Statistics of class	62
Table 5.3: Descriptive Statistics of timestamp	63
Table 5.4: Descriptive Analysis	63
Table 5.5: Shortened table: Descriptive Statistics	65
Table 5.6: Reliability Statistics - the Student Characteristic scale	68
Table 5.7: Item-Total Statistics - the Student Characteristic scale	68
Table 5.8: Reliability Statistics - the Significant People scale	68
Table 5.9: Item-Total Statistics - the Significant People scale	69
Table 5.10: Reliability Statistics - the University’s Academic Reputation scale	69
Table 5.11: Item-Total Statistics - the University’s Academic Reputation scale	69
Table 5.12: Reliability Statistics – the University’s Financial Support scale.....	70
Table 5.13: Item-Total Statistics - the University’s Financial Support scale	70
Table 5.14: Reliability Statistics - the University’s Facilities and Resources scale	71
Table 5.15: Item-Total Statistics – the University’s Facilities and Resources scale	71
Table 5.16: Reliability Statistics - the Efforts to communicate with students scale.....	72
Table 5.17: Item-Total Statistics - the Efforts to communicate with students scale.....	72
Table 5.18: Reliability Statistics - the Students’ University Choices scale	72
Table 5.19: Item-Total Statistics - the Students’ University Choices scale.....	73
Table 5.20: KMO and Bartlett's Test - Independent variables.....	73
Table 5.21: Total Variance Explained - Independent variables.....	74
Table 5.22: Rotated Component Matrix - Independent variables.....	75
Table 5.23: KMO and Bartlett's Test - Dependent variables	78
Table 5.24: Total Variance Explained - Dependent Variable.....	78

Table 5.25: Component matrix - Dependent variable.....	78
Table 5.26: Mean, standard deviation, and correlations	79
Table 5.27: Results of regression analysis	81
Table 6.1: Results of testing hypotheses.....	87

LIST OF FIGURES

Figure 2.1: Structural framework of the national education system (Prime Minister, 2016)	18
Figure 2.2: Theory of reasoned actions (Fishbein and Ajzen, 1975).....	25
Figure 2.3: The model of buyer behavior (Kotler et al., 2018)	26
Figure 2.4: Factors influencing behavior (Kotler et al., 2018)	26
Figure 2.5: Buyer decision process (Kotler et al., 2018).....	27
Figure 2.6: Major Forces in the Company’s Macroenvironment (Kotler et al., 2018).....	28
Figure 2.7: The research model of Chapman (1981).....	31
Figure 2.8: The research model of Joseph Sia Kee Ming (2010)	32
Figure 2.9: The research model of Clayton (2013).....	33
Figure 2.10: The research model of Tran Van Qui and Cao Hao Thi (2009).....	35
Figure 2.11: The research model of Nguyen Minh Ha et al. (2011)	36
Figure 3.1: Proposed Research Model.....	49
Figure 4.1: Research Process	51
Figure 5.1: Interaction plots of University's Financial Support, Covid-19 pandemic, and Students’ University Choices.....	84
Figure 5.2: Interaction plots of University's Effort to communicate with students, Covid-19 pandemic, and Students’ University Choices	85

EXECUTIVE SUMMARY

Introduction: The most significant decision a high school student makes is which university to attend. This decision directly affects their lives in the coming years as well as their future. In particular, the Covid-19 pandemic, which broke out in 2019, has influenced and changed many aspects of life, including students' decisions. The goal of this study is to find out the “factors influencing high school students’ decisions to choose a university” in the Covid-19 pandemic.

Purpose: The goal of this study is to find out and determine the “factors affecting university choice of high school students” in Vietnam and the impact of Covid-19 on the link between those factors and the decision to choose a university. From that, the study proposes some constructive solutions for universities, advice for students and directions for further research.

Methodology: In this research, a quantitative method was adopted. A standard questionnaire was used to collect the required data. The research uses a non-probability sampling method. Information was collected by a survey including 597 valid samples from high school students in grades 10 to 12 at various high schools in Viet Nam.

Results: The study found that various factors such as financial support, significant people, university’s academic reputation, facilities and resources, and efforts to communicate with students are the key elements influencing students’ university choices. And during the Covid-19 situation, higher education institutions should consider more about financial support and communication efforts to students in the marketing strategies.

Implications of the study: This research provides implications for universities to acknowledge when developing and designing the admission process, as well as being theoretical implications for future research.

CHAPTER 1: INTRODUCTION

1.1. Research background and reasons to choose the topic

1.1.1. Practical problem

The Ministry of Education and Training (2020) states that by the end of 2020 Vietnam has 237 universities, including 172 public universities and 65 non-public universities. The quantity of public universities is increasing, as well as the number of universities in general. The Ministry of Education and Training has also issued an official letter permitting universities to freely enroll students using their own methods, such as aptitude assessment exams or academic transcripts, without government approval. As a result of this tendency, universities have changed to adapt to a more competitive environment by improving educational services (Mok, 2007). Higher education is also regarded to be a commercial sector that contributes to the country's overall economy. As a result, universities are fiercely competing with each other and attracting students to enroll each year would be a difficult task for any university that does not have an effective marketing strategy.

Many reports show that a large number of high school students in Vietnam have yet to decide on the major or training institution to which they will take the entrance exam. The Nhan Dan Newspaper (2021) conducted a survey and found that more than 60% of students said that they do not receive career counseling after graduating from high school or before applying for university admission. As a result, many students lack knowledge about their chosen profession. After graduation, it is difficult for students to find jobs or work in the opposite direction. Besides, universities cannot recruit suitable students. Therefore, the most basic purpose of this study is to identify and evaluate the influence of the main variables on the choice of the university of high school students.

In addition, The World Health Organization (WHO) first declared Covid-19 a global pandemic causing health emergencies in January 2020. Since its discovery in Wuhan, China, the virus has been found in several nations across the world, as well as in all of Vietnam's provinces. According to Our World in Data (2021), the illness has sickened about 259 million individuals. "More than 80 nations have blocked their borders to anyone arriving from infected countries, forced businesses to close, instructed their populations to quarantine themselves, and closed schools to an estimated 1.5 billion children in the affected countries" (Weiss et al., 2020).

The authors therefore also take into consideration the Covid-19 pandemic which has been substantially impacting the education of pupils worldwide. Vietnam has more than 2,6

million high school pupils from 2019 to 2020 (moet.gov.vn, 2021), and all 63 provinces and cities throughout the nation have allowed students to skip school due to the health damage caused by Covid-19. This implies that during the Covid-19 pandemic, all high school students in Vietnam will be impacted by school closures. According to Simon Burgess and Hans Henrik Sievertsen (2020), the global shutdown of educational institutions will cause severe delays (and perhaps inequity) in student learning, as well as interruptions in internal audits if schools have to cancel or replace public certification tests with an inferior alternative method. Indeed, instead of going to school, students must stay at home and learn online using smart devices. A study by Unicef (2020), titled "Distant Learning and Accessibility" highlights the constraints of distance learning while also highlighting significant educational inequities. According to the research, at least one-third of global children, or around 463 million children, are not obtaining distance education as a result of school closures, which is a concerning scenario, but it might be considerably worse. Even if families have gadgets and an Internet connection at home, children are unlikely to be able to learn remotely if they are required to do chores, are discouraged from studying, or lack the support necessary to learn from them. It is obvious that the Covid-19 pandemic has created a slew of learning challenges for pupils.

The Covid-19 pandemic has raised severe worries about a whole generation of children and teenagers' mental health. According to preliminary findings from an international poll of children and adults performed by Unicef and Gallup in 21 countries, which are featured in the State of World Children's Report 2021, as a rule of thumb, one out of every five respondents aged 15-24 who responded to the study indicated they were bored or had little interest in doing anything (Unicef, 2021). It has been three years since the outbreak of the Covid-19 pandemic, which has had a significant impact on the living conditions and mental health of young people. According to the latest data from Unicef (2021), at least 1 out of every 7 children globally is directly affected by the blockades. More than 1.6 billion children suffer certain losses in education. Disruptions in life, education, and entertainment as well as concerns about family income and health are leaving many young people in a state of fear, anger, and uncertainty about the future.

The General Statistics Office (2021) stated that the average income of employees in the third quarter of 2021 is significantly lower than that of the second quarter of 2020 (5.2 million VND compared to 5.5 million VND), and that is the lowest average income of employees in the past 10 years. In addition, due to the complicated developments of the fourth Covid-19 pandemic in several areas, especially in key economic provinces and cities,

the labor and employment situation in 2021 has worsened. The number of people with jobs fell sharply compared to the same period the previous year, the unemployment and underemployment rates reached an all-time high. The average monthly income of employees decreased significantly compared to the same period last year. This directly affects household income.

With all the above-mentioned information, this study attempts to determine the “factors affecting the decision to choose a university of high school students” and examines whether the relationship between these factors and the “decision to choose a university of high school students” is affected by Covid-19 or not.

1.1.2. Theoretical problems

Regarding the diversity of universities as well as the importance of students' university choice, there have been many domestic and foreign studies on school choice decisions conducted from different perspectives. Many studies have identified and evaluated the impact of factors affecting students' decisions to choose a school. Through many studies, students' personal relationships or social networks have been evaluated as one of the factors that influence “the decision to choose a university” (Harpenau 1992; Hachmeister et al. 2007; Obermeit 2012). Or do factors such as individual characteristics and characteristics of schools and their efforts to communicate with students influence their “decision to choose a university” (Chapman 1981; Ming 2010; Tran and Cao 2009).

However, from the perspective of students who are customers of universities, the research on this topic is still limited, especially in Vietnam. In addition, the environment is one of the important factors affecting customer behavior as well as the marketing activities of enterprises (Kotler et al., 2018). The outbreak of the Covid-19 pandemic from 2019 until now has had a strong impact on the economy, culture, society, education, etc. Due to the great transformation of factors in the external environment, the topic of this study was decided to be “Factors affecting university choice of high school students in Viet Nam during the Covid-19 pandemic” in order to determine “the factors affecting the decision to choose a university of high school students” and at the same time assess the impact of the changing environment due to the Covid-19 pandemic on the relationship between these factors and high school students' decision to choose a university.

1.2. Research questions and research objectives

1.2.1. Research questions

In order to fill in the gap in the literature and address the research problem, this thesis seeks to answer the following questions:

Research question 1: What factors affect “high school students’ decision to choose a university” in Vietnam?

Sub-question 1: Whether or not *students’ characteristics* affect “student’s decision to choose a university”?

Sub-question 2: Whether or not *significant people* affect “students’ decision to choose a university”?

Sub-question 3: Whether or not *universities’ characteristics and communication effort* affect “students’ decision to choose a university”?

Research question 2: What is the extent to which the Covid-19 pandemic moderates the relationship between such factors and students’ university choice?

Research question 3: What recommendations could be suggested for universities to improve and develop their marketing strategies?

1.2.2. Research objectives

In order to answer the above research questions, this study will assess and evaluate the importance of “factors influencing high school students’ decision to attend a university” in Vietnam.

The following objectives are expected to be achieved:

Firstly, exploring the internal (i.e., student characteristics) and external factors (i.e., significant people, and university characteristics and communication effort) that influence “university choice of high school students” in Vietnam during the Covid-19 pandemic.

Secondly, determining the effect of the Covid-19 pandemic on the direction and strength of such relationships.

Thirdly, proposing suggestions for universities to improve marketing strategies.

1.3. Research method

This study was conducted to determine the factors affecting the “decision to choose a university of high school students” in Vietnam and the moderating effect of the Covid-19 pandemic on such causal relationships. The data used for the model is collected through an

online survey on Facebook. The survey was conducted among high school students in Vietnam from October 29, 2021 to November 9, 2021. The research subject is students studying in high school ranging from 15 to 18 years old in Vietnam. The authors believe that the time when “high school students make the decision to choose a university” can span over three years of high school, not just 12th graders. The study only surveyed high school students, not free candidates. After conducting data collection, the authors obtained 597 valid samples convenient for research.

The data was analyzed through main steps: preliminary assessment of the scale by Cronbach's alpha reliability coefficient method and exploratory factor analysis (EFA), then testing the Pearson correlation between variables, finally testing the hypotheses regarding the main effects and the effect of the moderating variable by using the linear regression analysis.

1.4. Research contributions

1.4.1. Theoretical contributions

The results of this study are expected to yield some theoretical contributions. Firstly, this study has integrated existing studies in the literature, constituting an extensive review of both foreign and domestic models. Secondly, marketing perspective is applied in this study. Students' choice of university is viewed from a marketing perspective. Students are considered customers of the university, and the “students’ choice of university” is the same as the customer choosing the service, thereby finding out the factors affecting this choice. Thirdly, although there have been previous studies looking at factors influencing students' university choices, in the context that the Covid-19 pandemic has profoundly affected many aspects of society, such as the economy, environment, education, etc. The link between these factors and the decision to choose a school may change. This study will add to a better knowledge of the subject. Last but not least, research on this topic in Vietnam is limited to case studies in a few universities or small areas. Therefore, our research paper generalizes to Vietnamese students.

1.4.2. Practical contributions

Based on the research results, make suggestions and recommendations to educational institutions in counseling and orientation to create the best conditions for high school

students in Vietnam in choosing a university. In addition, the results of the study also serve the university's admissions plans to come up with attractive marketing strategies.

According to the research, the authors mention oriented solutions that can contribute to attracting new students to universities based on a marketing perspective by segmenting students according to need groups and applying strategies marketing 4Ps.

The authors discovered that while today's high school pupils value university education, they are still confused and lost. As a result, we've come up with a few options to make it easier for students to pick a school: It is necessary to spend time learning about your own interests; it is possible to share with those who have had previous experiences through practical experiences in order to select the appropriate university; it is necessary to clearly understand the characteristics of a career such as accounting, communication, and so on, what to study and do in the future to have certain visions of a career. Each high school student must calculate his or her own optimal economic problem based on the cost-benefit connection. Taking a look at the financials, it's clear that future employment prospects play a big part in deciding which institution to attend. Students will be in a better mood and have more confidence in choosing the proper university as a result of their improved understanding.

1.5. Outline of the research

The research includes 06 chapters as follows:

Chapter 1: Introduction. This chapter discusses the rationale for selecting the topic, the practical requirement of the study, as well as the theoretical necessity of the subject, explicitly expressing the purpose, questions, objects, scope, and research methodologies.

Chapter 2: Literature Review and Theoretical Framework. This chapter reviews an overview of the Vietnamese educational system, related foreign and domestic models, as well as some theories from marketing approach perspectives.

Chapter 3: Theoretical Foundations and Hypotheses Development. This chapter presents the theoretical foundations and develops hypotheses to propose the research model for this study.

Chapter 4: Methodology. This chapter introduces the approach and tools and procedures related to data collection. It also previews methods for data analysis.

Chapter 5: Results. This chapter introduces participants' profiles and presents results.

Chapter 6: Discussion and Conclusion. This chapter summarises the research,

discusses the findings and proposes some recommendations for higher institutions in the marketing strategies. The discussion covers research implications, limitations and direction to conduct future studies.

CHAPTER 2: LITERATURE REVIEW

Chapter Overview

Chapter 2 aims to review existing studies and developed theories related to our topic to assess the extent to which the discussion has reached so far. This chapter consists of three main parts. The first part introduces the education system. The next section is to review some related research in Vietnam and internationally. The third part is an introduction to some theories related to the decision to choose a school.

2.1. An overview of the education system

2.1.1. The structural framework of the national education system

The institutional structure of Vietnam's national education system comprises formal education and continuing education (Prime Minister Decision, 2016).

The national education system's education and training is broken down into four levels: pre-school education including kindergartens; general education encompassing elementary, lower secondary, and higher secondary schools; vocational education including elementary, intermediate and college; and higher education including undergraduate, master's, and doctorate degrees.

Decision 1982/QĐ-TTg specifies the national qualification framework in conjunction with Decision 1981/QĐ-TTg. The document stipulates 8 levels of national qualifications, including: “Level 1 - Elementary 1, Level 2 - Elementary 2, Level 3 - Elementary 3, Level 4 - Intermediate, Level 5 - College, Level 6 - Bachelor, Level 7 - Masters and Level 8 - Ph.D.” (Prime Minister's Decision, 2016).

The standards of output (including knowledge, skills, degree of autonomy and responsibility expected of graduates of the training faculty) and minimum learning volume correspond to each level. Learners who successfully finish the training program and satisfy the graduation requirement for each level of study will be awarded a "certificate", a "diploma", a "degree of associate", a “degree” (i.e., "university degree", "master's degree", and "doctoral degree") for the first, the second, the third and the fourth level, respectively. Credits are used to compute the study volume unit. The following is a schematic of the Vietnamese education system's framework:

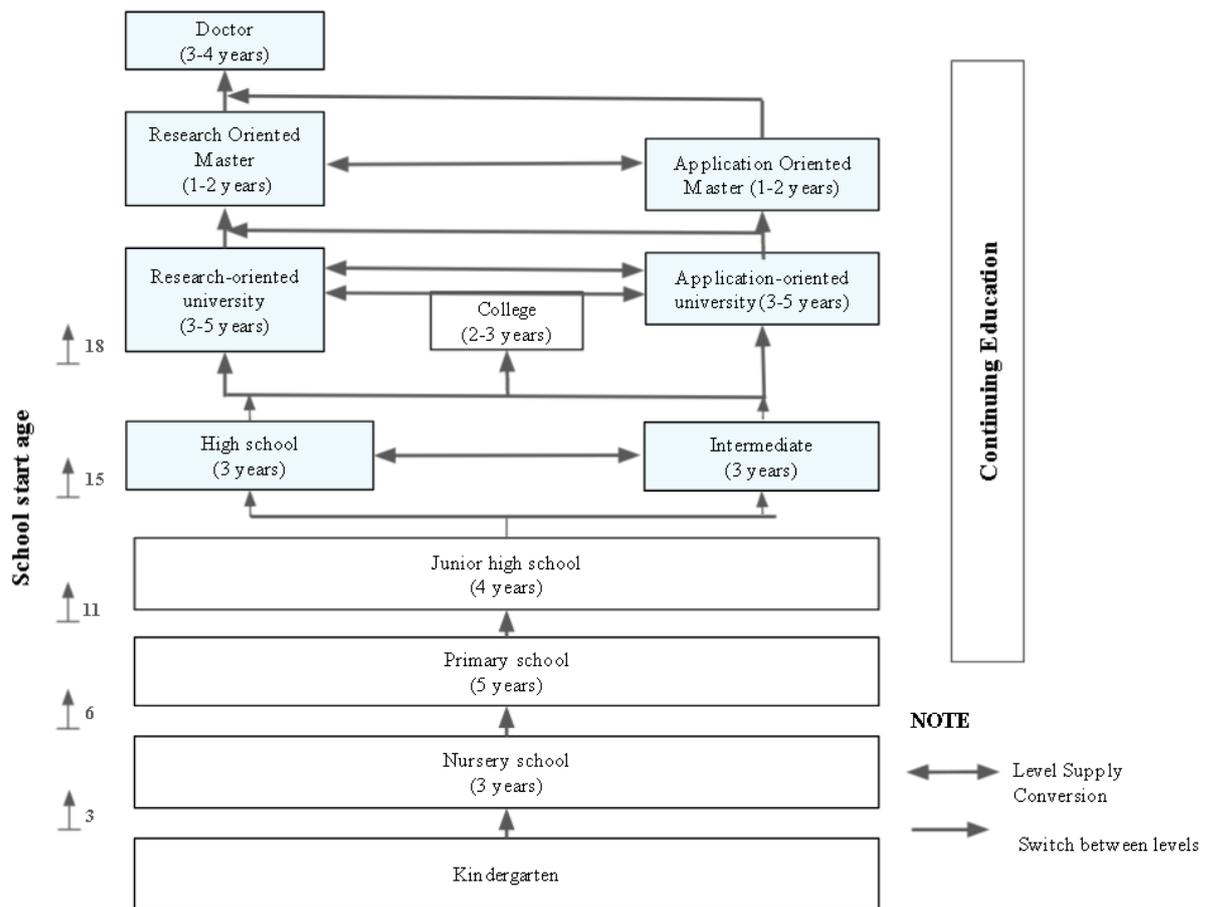


Figure 2.1: Structural framework of the national education system (Prime Minister, 2016)

Education and training based on the basics of the structure of the national education system have been fundamentally and comprehensively renewed. The decision also lays out the admission requirements, study time, and post-study learning options for all levels and degrees of training.

Xuan Trung (2016) mentioned a new point in the project on the structure of the national education system, this educational system is designed to make it easier for learners to move around the system. It also creates conditions for learners to easily switch between training programs and levels (with or without additional conditions), and people have the opportunity to accumulate knowledge and learn for the rest of their lives. At the same time, it ensures conformity with common global educational categorization systems and the comparability of credentials and degrees.

This national education system and national credentialing framework are thought to have used international education stratification norms effectively, particularly the segmentation of schooling into two education streams: general - academic and vocational - professional education, while also demonstrating that vocational education as a level of the

educational system, as defined by the Law on Vocational Education, is inappropriate (Lam, 2017).

It takes three years to complete the upper secondary level, from 10th to 12th grade. The identification of specialized directions for high school pupils also demonstrates segregation in high school education. College/university or vocational education options are available to high school graduates.

Higher education is divided into two categories: research and application, and it lasts between three and five years. The following is the definition of the university as defined by Clause 8, Article 4 of the Law on Higher Education (2012): A university is defined as a higher education establishment that includes both universities, as well as affiliated scientific research institutes in various professional fields, organized into two levels for training degrees of higher education. This study focuses on universities and formal university training institutes, excluding colleges.

2.1.2. The concept and characteristics of higher education service

2.1.2.1. The concept of higher education

According to Barnett (1992), there are 4 most commonly used concepts in higher education:

Higher education is considered as a production line whose output is high-quality human resources. It can be understood that higher education is a factory where students are the products that are trained to meet the needs of the market. From that, it can be understood that the university environment is the "input" to receive human resources and then foster and develop to contribute to the promotion of the industrial and commercial economy.

Higher education is also about training human resources to become a future research career. Higher education will build a methodical system of teaching in order to train real young researchers by different methods, cultivating new knowledge more deeply.

Higher education is an organization with effective teaching management. It is used today because they believe that this is the core value for knowledge by teaching methods. Therefore, the university will strictly manage to improve the quality rate and the percentage of students who complete it.

Higher education is also a platform to promote success and development opportunities for learners in the future. Since then, higher education is considered as a new and best opportunity in the journey of acquiring knowledge, experience and knowledge to challenge individuals to develop more by studying regularly.

The concepts mentioned above show the connection, making it clear that higher education is an opportunity and the first step for each student's personal development by studying and practicing regularly.

2.1.2.2. Characteristics of higher education service

Certain concepts of services, as well as trade in services and service suppliers, are clarified in the Vietnam-US trade agreement of 2000. Services are defined as including any service in any sector, other than services provided in the exercise of Government authority is any service provided on a non-commercial basis and without competition with one or more service suppliers. The provision of a service is called a service trade and anyone who performs the provision of a service is called a service provider. According to this approach to education in general, higher education, in particular, is a type of service delivery.

Moreover, Ostrom et al. (2011) and Mazzarol (1998) define higher education as a type of service, and by Khanna et al. (2014), it should be examined as a service that provides experience elements called experiential service. As a result, higher education can be seen as a service in which the emphasis is on the consumer's experience when interacting with an organization instead of on the functional advantages associated with the goods and services offered (Voss and Zomerdijk, 2007). Therefore, university activities are fully equipped with the specific characteristics of services: invisibility, inseparability between supply and consumption, inequality in quality, inability to store, and inability to transfer ownership (Zeithaml et al., 1985).

Invisibility: It is understood that the training programs in the school are intangible because students will not be able to foresee or imagine and also cannot evaluate the quality after learning.

Inseparability between supply and consumption: the process of teaching and learning occurs simultaneously at a certain place and time.

Inequality in quality: programs will not be able to be delivered as goods as they are produced. It is difficult for schools to test the quality of learning according to a uniform standard. The perception of quality of students will be strongly influenced by the skills and attitudes of the lecturers. All activities of the lecturers will be able to change at different times depending on the environment, object, etc. So it is very difficult to reach a consensus on the quality of teaching on a certain day or a certain time.

Inability to store: learning programs can only be provided to learners for the time they are provided, so they cannot exist or be stored.

The inability to transfer ownership: If the student has decided to participate in the training program, the student is only entitled to participate in the study and enjoy the benefits that the school brings for a certain period of time but cannot be transferred to anyone.

2.1.3. High school students and customers in university training

2.1.3.1. High school students

The General Statistics Office of Vietnam (2019) states that high school students are individuals between the ages of 15 and 18 who attend high schools from 10th to 12th grade. This is also the period of growth and physical, psychological, and psychological perfection, which has a direct impact on their decisions, including their choice of education.

High school students' learning activities: in high school, the curricular structure for teaching and learning through separate blocks is used. When students reach the tenth grade, they start their own learning activities in high school for 3 years with the fixed group of subjects that they choose. Furthermore, according to Ministry of Education and Training laws, students can apply to universities, colleges, and intermediate schools based on university examinations. The university test blocks are separated into majors based on the interests and talents of the candidates. Furthermore, because high school students have had a rich life experience, they understand the necessity of deciding on a career path after graduation. As a result, learning attitudes shift and subjects become more selective. High school pupils' interest in studying develops in tandem with their job goals (Nguyen, 2006). Students excel in topics that are related to their strengths, as well as their preferred major, school, and employment in the future.

Lam (2013) also generalized several notable psychological features of high school pupils in her study:

The development of self-consciousness: Self-consciousness is a broad psychological concept that encompasses a person's sense of self, sense of identity, and self-image. High school students frequently evaluate themselves in two ways: by comparing their expectations to the outcomes obtained, and by comparing the opinions of others around them about themselves.

The formation of professional consciousness and preparation for the future: high school students' job choices are intimately tied to their entire life plans and ambitions. Furthermore, the feeling of vocation and future job choice clearly demonstrate the orientation of high school students' personality values.

The establishment of a worldview and social positivity: High school pupils' social

positivity is formed quite early. Their engagement in practical tasks is facilitated by academic and social activities. This aids high school pupils in developing healthy social and moral attitudes.

Besides, there is the emergence of career patterns among high school pupils. The necessity for young people to pick a future social position for themselves, as well as the strategies to achieve that social position, has emerged. Career trends have the dual impact of encouraging and restricting activity. The career tendency is more evident and consistent at the conclusion of the school year. Many teenagers understand how to relate their own physical, psychological, and intellectual characteristics to the demands of their chosen job.

Muller (2003) also stated that at this age, high school students show a good level of intellectual growth and reasoning. They also have the capacity to select the appropriate vocation on their own (Le, 2001). As a result, high school students can clearly understand the benefits of decisions, what they want, what needs they have, and how to assess alternatives, toward appropriateness and maximizing their strengths and skills (Ginsberg et al., 1951). This is completely true of the decision to choose a university, meaning that high school students can be aware of the importance and expected benefits of this decision.

2.1.3.2. Customer in university training

As the number of universities continues to grow, more and more universities are being forced to work harder and fight for students' attention. Each institution organizes enrollment operations in order to acquire a sufficient number of students to fill the available entrance quotas each year. There have long been complicated roles and relationships between students and universities.

Any person who provides a service is defined as a service supplier in the Vietnam-US trade agreement (clauses 7 and 9, articles 11, chapter III), and any person who receives or utilizes a service is defined as a service consumer. Customers, according to Maguad (2007), are those who are recipients or beneficiaries of the outcomes of work efforts, as well as those who make purchases of goods and services. In business, Phillip (2011) defines stakeholders as persons or groups of people who have the ability to influence and affect companies in order for them to achieve their objectives. Students (current students and graduates), parents and families, local community organizations, society, government, agency owners, employees, local authorities, and present and potential employers are some of the stakeholders in the field of higher education (Aldridge and Rowley, 1998).

Ostrom (2011) stated that students are the organization's core customers because they

are the ones who receive the most direct service from the organization. In addition, Deming (1986) discovered that an organization's important client is the end-user of its service or product. In higher education institutions, students are customers since they are receivers of the labor efforts of the institution of higher education, as well as beneficiaries of the service provided by the higher education institution.

So universities retain the features of a business or service organization, with students serving as the primary customers of these institutions. As presented by Kotler (2000), the managerial orientations derived from the marketing concept that places the student/customer at the center of the business are as follows: the role of the university is to be clear about who its students are, investigate their wants and needs, and design courses to meet those needs and wants. Service providers are universities that understand their customers' demands and take greater measures to address those needs as a result of the research they conduct.

2.2. The application of marketing approaches

2.2.1. Choice theory

Choice theory or decision-making can be approached from a variety of perspectives in domains such as economics, culture, social science, psychology, and education.

Economics plays a significant part in human behavior in the study of economics. People are motivated by money, the potential for profit, the costs and benefits of choosing before making a decision, and the fact that they cannot have everything they want; they must choose (Crossman, 2010). This means that before making a decision, people weigh the options, potential costs, and benefits of each option (Browning, 2000). Human behaviors are calculated and personal, according to this view, and each individual is an investment. According to Becker (1993), the most essential feature of the amount invested in human capital, as well as the investment in education, is its profitability or rate of return. As a result, while deciding on a university, variables connected to the cost of attendance are a major consideration.

In terms of society and culture: cultural capital is a set of traits that an individual possesses, such as knowledge, behaviour and personality, and it takes time to acquire from parents or through learning; it is personal property and a part of one's habits (Bourdieu, 1986). Diverse beginning points and timeframes for transferring capital to children are different because of the differences in family cultural and economic capital, and as a result, children will build capital in different ways. Many years ago, culturally wealthy parents

invested in their children's cultural capital, and college education is required in the family. Parents with little cultural capital, on the other hand, are unaware of the importance of learning and lack the financial resources to support their children's continued education (Häuberer, 2011). Furthermore, “social capital refers to the total of actual or potential resources associated with having a long-term network of more or less formalized mutual acquaintance and recognition ties” (Bourdieu, 1986). The amount of social capital possessed by a given actor is determined by the extent of the network of connections that he can effectively deploy, as well as the amount of capital (economic, cultural, or symbolic) that each of the people possesses, in which he is connected with someone (Bourdieu, 1986). In conclusion, surrounding variables and personal qualities typically impact people while making decisions based on cultural capital and social capital. This indicates that individual university choice decisions are made based on the inherent features of each individual, such as interests, abilities, aptitudes, capacities, etc., and the influences of the social network surrounding the individual, such as grandparents, parents, etc.

Choice theory is a psychology of internal control that explains why and how people make choices that affect the path of life. According to Glasser (1999) in the field of education, the choice theory is a full change from common sense to what individuals hope will become common sense in the future. He also claimed that every human action has a purpose and that every human action at the moment is the optimum choice for satisfying at least one or more of the following needs: survival, affection, power, freedom, and fun (Glasser, 1999). The desire to learn, live, and experience university life primarily motivated five basic demands of students that university must meet to be the university that students attend. The university that best serves the demands of students has a higher chance of being chosen.

2.2.2. Theory of reasoned action (TRA)

Ajzen and Fishbein originated the notion of reasoned action in 1967, and it has been tweaked and expanded since then. Consumer patterns are the best predictors of consumption behavior, according to the TRA model. The following are the components of the TRA model:

Attitude toward behavior is an individual's positive or negative thoughts about doing a task are expressed, which may be quantified using a mix of belief strength and evaluation. They may intend to engage in the behavior if the outcome is personally beneficial.

A subjective norm is described as an individual's understanding that a behavior should or should not be performed, based on the individual's essential references. Subjective norms

may be measured across people related to customers, it is established by “normative views about behavior expectations and personal motives to act in line with those expectations”.

Behavioral intention is a type of thought that assesses a person's subjective competence to undertake a specific action. Individual attitudes regarding activities and subjective standards determine this.

Behaviors are observable activities performed by an entity that is determined by behavioral intents.

According to the reasoned action theory model, behavioral intention drives conduct, and intention is influenced by an individual's attitude toward the activity as well as subjective standards around the execution of those activities. In this case, behavioral intention is influenced by attitude and subjective norms.

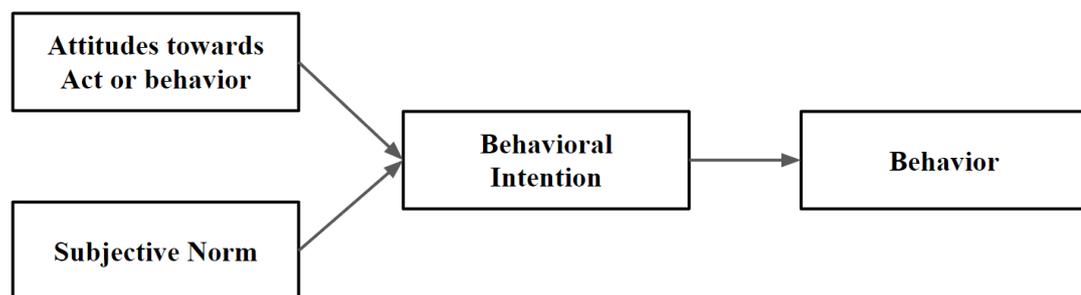


Figure 2.2: Theory of reasoned actions (Fishbein and Ajzen, 1975)

2.2.3. Black Box Model

Consumer behavior is complex, according to Kotler et al. (2002), since the human mind includes as many interacting neurons as the leaves in the Amazon rainforest, and how customers choose between various items is influenced by a range of enticing elements. Engel et al. (1995) described consumer behavior as the actions of persons directly engaged in the acquisition, use, and disposal of economic products and services, as well as the decision processes that precede and decide these actions. While Solomon et al. (2006) stated that consumer behavior is the study of the processes by which people or groups choose, acquire, utilize, or discard items, services, ideas, or experiences in order to meet wants and desires.

Kotler's Black Box model represents the consumer's thinking and how it responds to marketing activities. It is an effective model for comprehending consumers, asking the right questions, and choosing how to affect them. The model highlights both the traits of the customer that determine how he or she sees and responds to stimuli, as well as how the decision-making process affects their behavior.

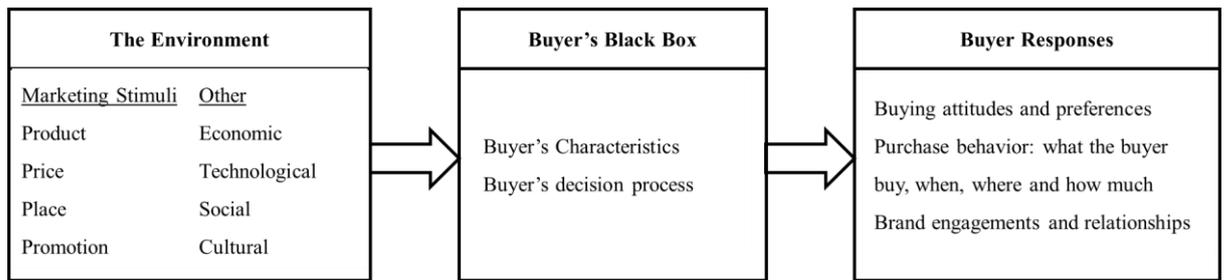


Figure 2.3: The model of buyer behavior (Kotler et al., 2018)

The concept describes what influences customer choices as the "black box", which includes a multitude of elements that reside inside the buyer's mind. The black box is an imperceptible process that results in the consumer's ultimate choice. Customer behavior is largely determined by their own cultural, social, personal, and psychological traits.

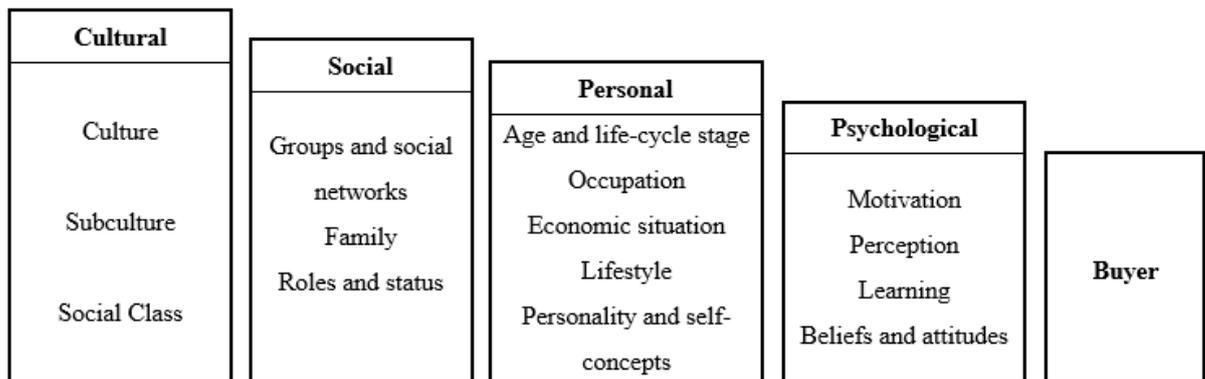


Figure 2.4: Factors influencing behavior (Kotler et al., 2018)

Culture is a significant influence in shaping how activities are carried out and how an individual behaves. Culture may be classified in a variety of ways, including East-West culture, regional culture, religion, ethnicity, conventions, and habits. Each culture has unique qualities and ideals that have an effect on the surrounding environment, consumer attitudes, and behaviors. In general, culture has resulted in the development of norms of behavior, standards, methods for users to get information, and distinct methods for dealing with and resolving issues.

Social variables may influence the black box of customers in two ways: directly and indirectly, through eliciting a variety of attitudes and reactions. People are undergoing a constant transformation as a result of society. Family, friends, and relatives are all examples of social variables. When recommending, the family branch will be prioritized in the purchase process. Members develop a strong sense of community. The family function is often invoked in consumer product, health, and education purchase choices. Furthermore, purchasing decisions are influenced by traditions and lifestyles.

Individuals' behaviors are shaped by a variety of constitutive elements, including their age, gender, employment, financial capability, lifestyle, and personality. Their activity was driven by personal purchasing reasons in order to fulfill a need.

Maslow's pyramid of needs model may help explain consumer psychology in the black box. Additionally, it might be personal views about the product or the facts provided to determine if it is excellent or terrible from a personal standpoint.

Consumer purchasing has been significantly impacted by buyers' cultural, social, personal, and psychological characteristics. Although marketers cannot influence the majority of these variables, they must take them into account.

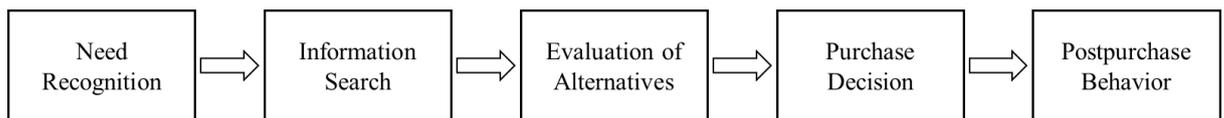


Figure 2.5: Buyer decision process (Kotler et al., 2018)

Additionally, the buyer decision process is included in the black box, as customers identify issues they have to address and analyze how a purchase decision could help them solve them.

A five-step process outlines the steps a customer takes while making a buying decision. Once the procedure has begun, a prospective buyer may cancel at any point before completing the actual purchase. This process summarizes the steps individuals take when they make a concerted effort to educate themselves about their alternatives and choose a product. Especially in the case of the first time people purchase a product or when purchasing high-priced, long-lasting things they do not purchase regularly.

For many items, buying behavior is routine: buyers identify a need and then meet that need by repurchasing the same brand, the cheapest brand, or the most convenient alternative, depending on their own evaluation of trade-offs and value. In many instances, purchasers have gleaned knowledge from prior experiences about what would best meet their goals, allowing them to skip the second and third stages of the process. If anything significant changes (pricing, product, availability, or services), purchasers may re-enter the complete decision process and examine other brands.

2.2.4. Marketing Environment

According to Kotler et al. (2018), “the macroenvironment includes demographic, economic, natural, technological, political, and cultural variables” that play an important role

in creating the marketing environment as external factors that influence the marketing department's ability to develop and maintain successful interactions with target customers.

Furthermore, these factors in the macroenvironment cannot be controlled; the shifting of these factors produces new business environments for organizations/enterprises and necessitates the adaptation of business operations to these new business environments. As a result, marketers must be on the lookout for environmental trends and opportunities, as well as businesses may change their strategy to meet new difficulties and possibilities in the industry by doing thorough research into the environment.

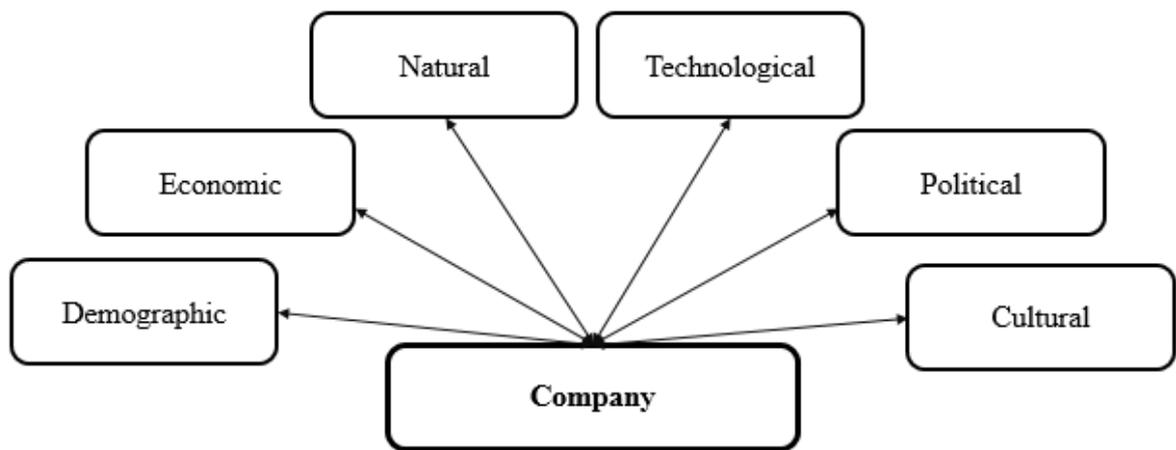


Figure 2.6: Major Forces in the Company's Macroenvironment (Kotler et al., 2018)

For marketers, the demographic context is critical, since the population is the driving force behind the market. The results of the above demographic research can be used to predict future product demand and determine a more accurate direction for a business's product or service marketing strategy.

Economic elements are included in the economic forces that influence customers' buying power and how they spend it. Economic variables may have a significant impact on consumer spending and purchasing behavior. Major economic determinants such as saving and spending habits, cost of living, interest rates, and income all have a significant influence on the marketplace. Businesses may benefit from this shift in the environment based on economic predictions.

The natural environment encompasses both the physical environment and natural resources that marketers need as inputs or that are impacted by marketing activity. At the most fundamental level, unanticipated physical environment changes, ranging from weather to natural catastrophes, may have an impact on businesses and their marketing strategy. While businesses cannot avoid natural disasters, they should be prepared to cope with them.

Marketers should be aware of some patterns occurring in the natural world.

This refers to the context in which new technologies are used. Every technological change in the business system affects marketing. Many new items are created to replace old ones, altering the cost of manufacturing and worker productivity, thereby changing the nature of competition. In summary, marketers must comprehend how new technology may meet human demands.

The legal and political environment has a significant impact on marketing choices. This environment is shaped by laws, government agencies, and pressure groups, all of which exert influence and bind all organizations and individuals in society. Since then, legalization has aided in protecting firms from unfair competition, consumers from unethical trade practices, and the broader interests of society.

A culture's fundamental cultural values are reflected via its relationships with oneself, people, institutions, society, nature, and the universe. This needs managers to understand how cultural values evolve over time in order to develop suitable marketing practices.

The marketing environment is passively accepted by most businesses and they don't try to change it. However, some other businesses also adopt a proactive approach to the marketing environment by creating and shaping new industries.

2.3. Review of related literature

2.3.1. Review of foreign models

2.3.1.1. The research model of Chapman (1981)

According to Chapman's (1981) study article "Students' College Choice Model," students' choice of institution is influenced by two components including groups of individual characteristics and groups of external characteristics. Individual student characteristics include socioeconomic status, preferred degree of education, academic proficiency in high school, and aptitude. The external elements were classified into three categories: significant persons, school features, and the university's communication activities with students.

The relevance of socioeconomic status is expressed in many ways, depending on the findings of individual student characteristics. Students attend the university at varied rates, depending on their socioeconomic position, and students are also dispersed differentially across different sorts of universities. In higher-income families, students are more likely to attend private institutions, and in lower-income families, students are more likely to attend

public colleges. Furthermore, family income is a key factor in determining socioeconomic position. It has a direct influence on university choice because it interacts with the cost of educational institutions and financial aid.

The next factor is aptitude, which influences success and performance on aptitude tests for college admissions. Universities employ aptitude and achievement as a criterion for evaluating candidates. Furthermore, students frequently select institutions that match their talents, i.e., universities that have students with similar abilities. High school success is also thought to play a role in college selection, with students of similar skills generally choosing universities with similar students.

Level of educational aspirations/expectations: Both levels of educational aspirations and educational expectations influenced the student's college plans. They do, however, function in various ways. The term "expectation" relates to what a person expects to do or achieve in the future, and it involves estimates of reality and future performance. Wishes or wants that indicate an individual's ambitions for the future are referred to as the expected level of education. The degree of education and educational aspirations have an impact on university selection.

Significant person: When it comes to picking a university, friends' opinions and family's opinions and suggestions heavily influence students. This group's impact manifests itself in three ways: through remarks that shape students' expectations at that university, direct counsel on where to go to college, and in the case of close friends, the location of these college buddies will affect the student's selection.

University characteristics: location, pricing, campus atmosphere, and training programs are given as relatively stable university attributes in this paradigm. In the near run, these features tend to define the institution. Students who live in places with a high concentration of institutions are less likely to travel far to attend the university than students who live in remote areas with few options. Highly competent students with minimal financial need look at a greater selection of universities than less talented students who need financial aid. Cost is most likely a major factor in a student's college selection. Students often pick among several institutions based on their family's finances. Students at private institutions commonly consider cost as a key issue in their choice to attend a school. Financial assistance is one of the most extensively explored aspects of selecting a university. If financial constraints prevent a student from attending college, financial help is supposed to expand the student's academic options.

Available programs: students pick institutions where they feel they will be able to

receive the courses they need to continue their studies or find work after graduation. Indeed, the most essential aspects that students seek when choosing a college are the courses provided and the advantages they obtain from those courses.

College efforts to communicate with students: in response to the university's attempts to engage with students, students who want to continue their education at that institution are more likely to actively seek information about that institution. Similarly, admissions officials' trips to high schools and college visits were determined to be the most successful admissions activity. Chapman also looked into the precise impact of existing college admissions criteria. He believes that university admission documents should be given special consideration since they play such an essential role in the “student's decision to choose a university”. When it comes to understanding the content of the material supplied, the complexity level of these papers will be a huge hurdle for pupils.

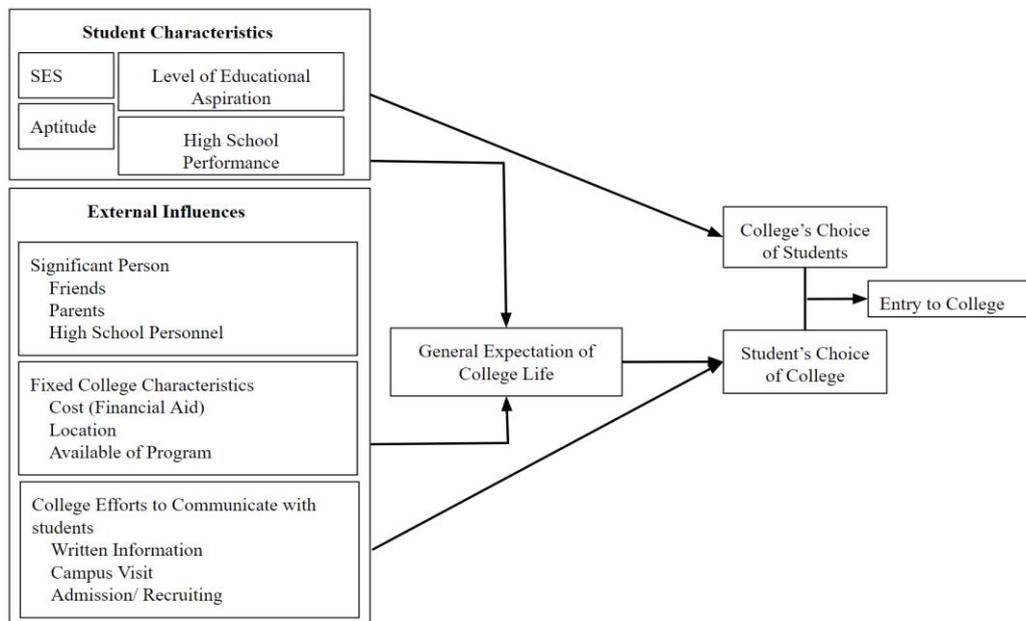


Figure 2.7: The research model of Chapman (1981)

2.3.1.2. The research model of Toit and Cosser (2002)

Cosser and Toit used Chapman's (1981) model with minor modifications to examine the impacts on students' university choice in a variety of emerging nations, including South Africa and India of 12th-grade students. The study by these two authors considers ten factors, including the institutional reputation, the faculty reputation, school reputation, faculty reputation, good dormitory, available sports facilities, the possibility of a scholarship, the ability to study via correspondence, convenient location, low tuition fee, relationship with relatives and friends' suggestions. These ten elements are classified into two categories

based on their impact on high school students' college selection. One set of criteria reflects the school's characteristics, while the other set reflects external impacts.

2.3.1.3. The research model of Ming (2010)

Ming (2010) presented two types of elements influencing students' university selection decisions. It is a set of variables determined by the university, such as location, training program, reputation, facilities, and cost of study. Internships, financial assistance, and work possibilities are available, as are parts of student engagement activities such as advertising, admissions reps, high school exchanges, and campus visits. According to research findings, there is a positive connection between where you live and the college you choose. Students will be interested in picking university presidents who have handy transit options. Study curricula and university selection choices have a good association. University reputation and university selection choices have a good association too. Facilities, which include educational facilities such as classrooms, labs, and libraries, have a favorable link with university choosing selections. Cost and college selection choices have a positive relationship. Financial assistance and college selection choices have a positive relationship. Job possibilities and college choice selections have a good association. Students sometimes make college decisions based on career chances for college graduates. Advertising and college selection choices have a positive association. University representatives visiting high schools and university selection choices have a positive relationship. University visits and college selection choices have a positive correlation.

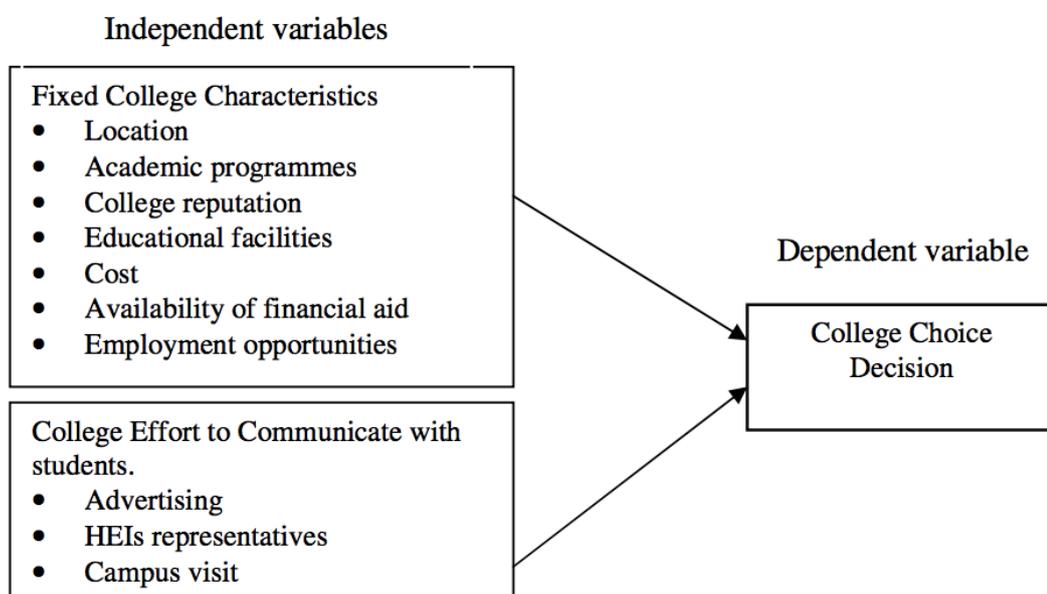


Figure 2.8: The research model of Ming (2010)

2.3.1.4. The research model of Clayton (2013)

The goal of Clayton's research paper: factors and influences that contribute to high-achieving high school students' universities choice decisions were to learn more about how high school students are highly motivated to navigate in the process of searching for a college and finally decide to attend a particular educational institution. It looks at how the reputation of a school influences the search process, as well as how students think about the effect of others in their lives, such as family, instructors, and friends. In the last weeks of their senior year, the college exploration questionnaire (CEQ) was sent to students participating in AP or Honors programs at three private and one charter school in southern Indiana. The CEQ evaluated the importance of several academic and non-academic components of college to students. It also identifies the top three factors that impact whether students attend public or private colleges. According to a survey of 114 students, 67% plan to attend public school, and 33% plan to attend private school. The reputation of the academic program was cited by both groups as the most important reason in their decision to attend a certain college. When the data is examined more closely, it becomes clear that students choose private institutions because some academic factors related to academic quality and values promoted by the college are given more importance: student-faculty ratio, international concentration in curriculum, and learning support services. Furthermore, students attending public universities found that cost, as well as location, winning sports programs, and their friends' impressions of university, played a larger role in their ultimate decision.

Students choose public and private institutions with varying degrees of relevance based on criteria such as the school's reputation, according to this survey.

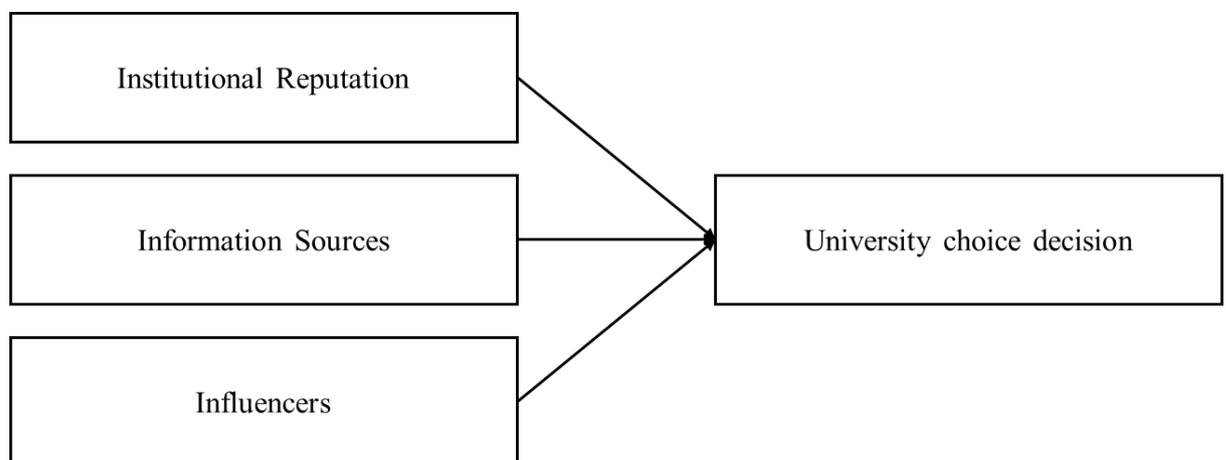


Figure 2.9: The research model of Clayton (2013)

2.3.2. Review of domestic models

Due to the fact that each country's economic, cultural, and social systems are unique, the factors influencing students' choices may differ. Regarding Vietnamese context, the characteristics of the education system are uniformly managed in terms of educational goals, programs, and contents; regulations on examinations, enrollment, and diplomas and certificates; focus on quality management of education; assigning and decentralizing education management, and strengthening the autonomy and self-responsibility of educational institutions as well. Thus, in this section, the authors will examine some models in the Vietnamese context.

2.3.2.1. The research model of Tran and Cao (2009)

Tran and Cao (2009) did research on this subject in order to determine and assess the impact of several factors on high school students' university decisions. During the 2008-2009 academic year, the researchers used a survey approach to gather data from 12th-grade students at five high schools in Quang Ngai. The analysis of 227 valuable responses reveals that there are five factors influencing university decision-making in order of importance (from strong to mild impact): factors of future job opportunities, factors of information available when choosing a university, factors of individual students, factors of other important individuals who influence student decisions, and factors of fixed characteristics of a university. The authors have made a number of recommendations based on the findings of this study to assist schools and educational organizations in implementing practical actions to methodically orient and create the ideal environment for high school students to select the best school possible. However, due to sample size and research scope constraints, when replicated in its entirety, this model answers only 21.5 percent of the research topic.

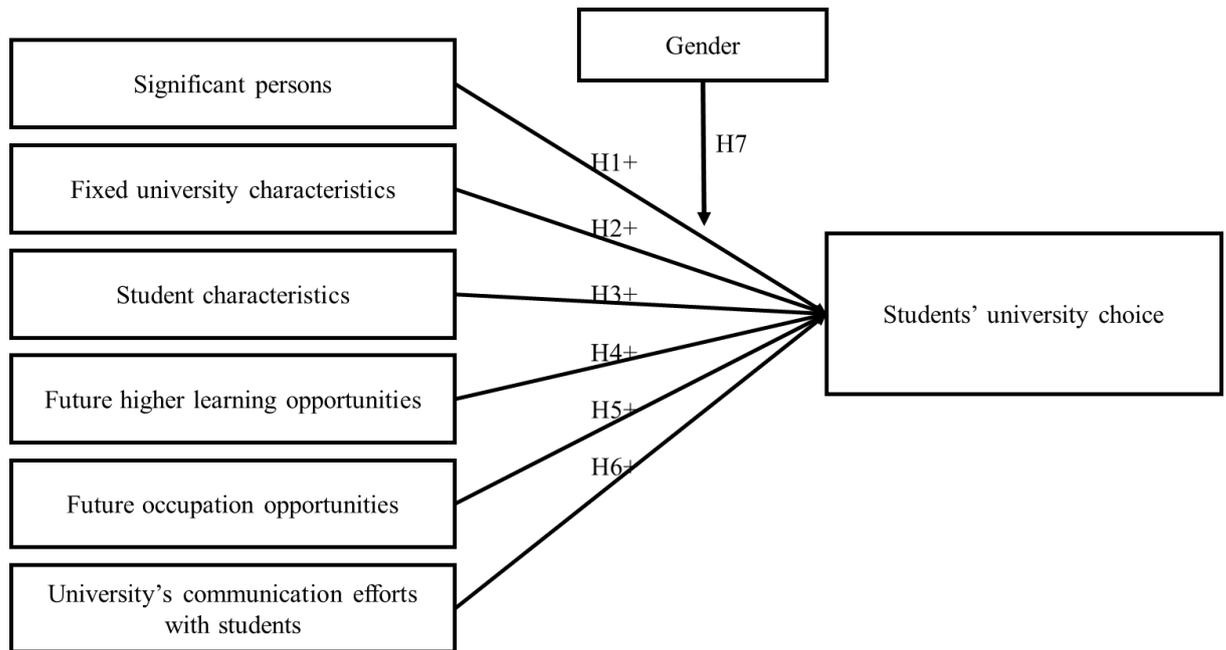


Figure 2.10: The research model of Tran and Cao (2009)

2.3.2.2. The research model of Nguyen, Huynh X. and Huynh T. (2011)

Nguyen et al. had developed the research model to study the factors influencing students to choose Ho Chi Minh City Open University based on some research models with certain components changed to meet the survey objects, who are first-year students of 3 majors: Economics - Business Administration, Science and Technology, and Humanities and Social Sciences at Ho Chi Minh City Open University. The model consists of five factors: relative people, university characteristics, students' own characteristics, future work factors, and factors of efforts made by the university to deliver information to high school students. The study included both qualitative and quantitative methods of collecting data. After conducting preliminary discussions and interviews to adjust the survey questionnaire appropriately, the author conducted a quantitative study with a sample of 1894 students, revealing that seven factors influence students' decision to study Ho Chi Minh City Open University includes: the school's effort to transmit information to students who are about to graduate from high school, the quality of education, the students' characteristics, factors of future jobs, their ability to enter the school, their family members and non-family members. Furthermore, the study demonstrates the different levels of influence of factors on students based on their geographic area, order of desire to attend the institution, and present major. This finding aids in the development of the university's marketing strategy for enhancing admissions policies and processes. However, because the survey participants are first-year students, their perceptions of variables influencing school choice may alter before and after

becoming an official student.

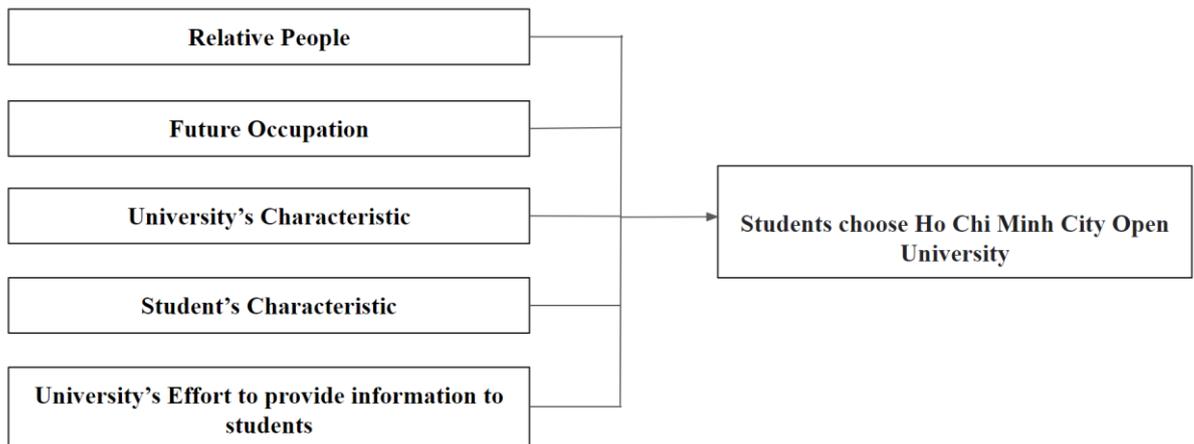


Figure 2.11: The research model of Nguyen et al. (2011)

2.3.3. Comparisons of foreign and domestic models

Summary from a review of domestic and foreign studies shows that, from the perspective of high school students, there are many factors that affect their decision to choose a university. Foreign studies are often approached from a marketing, economic, and social perspective while in domestic studies, the authors often divide them into groups of subjects to conduct research. The studies in Vietnam have not yet systematically studied the theories, referring to the theoretical framework, and have not been able to apply the behavioral intention theoretical model or theories in marketing to research this issue. Besides, quantifying the “factors affecting high school students’ decision to choose a university” in research in Vietnam is still limited.

Therefore, a review of studies shows that the group of high school students is the target group that needs to be studied from a specific approach. Because they have enough knowledge, information and time to think seriously and choose the correct university that they attend. Especially in the situation that the education industry is affected by the Covid-19 pandemic. The Covid-19 pandemic has had a major impact on schooling globally and in Vietnam in particular. Basically, adapting to the situation by means of online training has certain impacts on “high school students’ decision to choose a university”. Therefore, in the current context, Vietnam urgently needs a suitable model and the study's findings will be valuable to both universities and high school students themselves, reference when making selection decisions.

2.3.4. Review of the Covid-19's effect on education

The coronavirus (Covid-19) pandemic is spreading rapidly. Education, like all other sectors, is affected at all levels. According to UNESCO, almost 1.6 billion students and pupils have been affected worldwide as of April 8, 2020; 188 countries have been forced to close schools nationally, impacting 91.3 percent of all students globally. The abrupt closure of schools, colleges, and institutions has caused major disruptions in teaching and learning.

According to Vietnam FES (2020), all 63 provinces and cities in Vietnam have allowed pupils to stay at home as of April 8, 2020. To prevent the spread of coronavirus, Vietnam began implementing social distancing on a statewide basis on April 1, 2020; people are recommended to stay at home. The coronavirus causes a number of difficulties for Vietnam's education and training systems. With schools closed as a result of the coronavirus pandemic, educational institutions and instructors are faced with a significant challenge: which is how to connect with students.

The Ministry of Education and Training had to restructure the exam schedule and evaluate the quality of education at all levels. As a result, the Ministry has issued a Decision amending and supplementing the school year time plan framework for preschool education, general education, and continuing education, delaying the end of the previous school year until July 15, 2020; and moving the National High School Exam from August 8 to November 8, 2020. The system of domestic and non-public educational institutions has actively implemented online teaching and training, and e-learning to reduce crowding and limit the spread of disease in the community. The closure of schools and the introduction of online learning from home due to the Covid-19 pandemic has impacted students' academic performance as well as their mental health (Kim et al, 2020; Nestour et al., 2020). Some training schools have preferred policies that cut tuition costs by 15-20% for all students in order to share the burden with students, contribute to the resolution of societal issues, and alleviate difficulties for students, students, and parents. However, educational institutions affected by the Covid-19 outbreak face several challenges, significant damage, and other unforeseeable bad consequences.

Chapter summary

The content of chapter two delves into clarifying the theoretical bases related to the “factors affecting the decision to choose a school of high school students”. Firstly, the authors present an overview of the national education system in Vietnam to clarify the

concept and characteristics of higher education, the benefits of going to university; high school students and customers in university training. Secondly, the authors present national and international case studies on university choice decisions also Covid-19' effects on education. Thirdly, the authors present some theories from marketing approach including choice theory, theory of reasoned action (TRA), Black Box model and theory of marketing environment. These theories clearly present the theoretical content of the concept of the factors, the research model of the theory.

CHAPTER 3: THEORETICAL FOUNDATION AND HYPOTHESIS DEVELOPMENT

Chapter Overview

Chapter three discusses the proposed research model for this study. The theoretical foundation will inherit and develop the studies and hypotheses presented in the literature review section. Subsequently, the research hypotheses were developed based on the theoretical foundations, and then the authors will propose the research model.

3.1. Theoretical Foundations

In this thesis, the authors integrate and synthesize the previous research models and theoretical bases to develop a model of the “factors affecting students’ decision to choose a university” for the specific case of Vietnamese high school students in the Covid-19 pandemic. Although a single previously developed model could hardly provide a full theoretical foundation for our research, integration of such models could serve as a helpful guide. In the following part, this research is going to justify the theoretical foundation which would be followed by the development of our research model.

Firstly, the “Students' College Choice Model” developed by Chapman (1981) is employed. The model has been widely applied by researchers worldwide as a guide for the topic area. Particularly, Wagner et al. (2009); Joseph and Joseph (1998, 2000); Ming (2010) learn from Chapman’s model while examining the factors influencing university choice in Southeast Asian countries such as Indonesia and Malaysia. Given that Vietnam's higher education system shares many parallels with Indonesia and Malaysia, in this study, the authors also consider Chapman's research model as one of the theoretical grounds. Accordingly, the “factors affecting students’ decision to choose a university” focus on two groups namely personal characteristics, external characteristics, and in the proposed research model, they are separated into specific factors are individual characteristics of students, significant people, characteristics of the university, efforts in the communication of the university with students. Besides, the TRA model is applied to build research models. According to Ajzen and Fishbein (1975), a behavior-oriented attitude is defined as a person's general opinion of whether to approve or disapprove of a particular behavior. In this study, it can be explained as high school students' feeling of university characteristics through the amount of information that students have. Since then, the university's characteristics factor has been divided into three independent factors: University’s Financial Support ,

University's Academic Reputation, and University's Facilities and Resources. In addition, the subjective norm in the TRA model is a person's perception of what most important people to this individual think he or she should or shouldn't do (Ajzen and Fishbein, 1975). In this case, the subjective norm is understood as the significant people that are parents, siblings, etc. Moreover, according to Chapman (1981), significant people are also one of the "factors affecting students' decision to choose a university".

Secondly, the authors consider the correlation between the "decision to attend a university of high school students" and the buying behavior of consumers. Kanji and Tambi (1999) concluded the study that students are considered customers when they enter into an economic agreement in the purchase of educational services. Therefore, the authors apply the Black Box model to build the research model to get a better understanding of "factors affecting the decision to choose a university of high school students". Kotler's Black Box proposes that "cultural, social, personal, and psychological variables" all have a significant impact on consumer purchasing. From students' perspective as customers, it demonstrates that factors belonging to the social and personal characteristics of students influence school choice decisions. It supports hypothesizing students' characteristics and significant people affecting students' university choices.

The marketing environment is also applied to building research models. There are six factors in the macro-environment including demographic/demographic characteristics, economics, natural environment, technology, politics, culture. In which natural environmental factors are unexpected changes in the natural environment such as sudden changes in weather, climate, natural disasters, pandemics, etc., which have a strong impact on businesses and marketing activities, more broadly it is the impact on factors in the macro-environment and the microenvironment. In this study, the natural environmental factor is understood as Covid-19. Therefore, Kotler's theory of the marketing environment is used in this study to hypothesize the Covid-19 moderator variable.

As a result, the research model is built with 6 independent variables serving as the factors affecting high school students' university choice, namely the characteristics of students, significant people, the university's financial support, university's academic reputation, facilities and resources, and efforts to communicate with students. Particularly, the moderating effect of the Covid-19 pandemic would be considered. Details of hypothesis development would be presented in the following part.

3.2. Hypothesis development

3.2.1. Student Characteristics

Chapman (1981) asserted that the individual factors of students is the first factor that greatly influences their “decision to choose a university”. In this factor, the inner ability and interests of students are the two factors that obviously impact on making a decision of choosing a future university. Besides, the factors of student’s giftedness and the expectation of educational attainment also positively affect the dependent variable.

Moreover, Hossler (1984) published research that the ability to perceive one's own limitations, whether or not they do well in a major according to their forte, will determine the degree of certainty that they will register for the exam university that specializes in that training. Manski and Wise (1983) shared the research results that in “students’ decision to choose a university”, choosing the right major plays a very important role.

Based on four factors in the individual characteristic of students: interest of students, student’s ability, student’s giftedness, and the expectation of educational attainment, hypothesis H1 can be stated as followed:

H1: Students’ characteristics are positively related to high school students’ decision to choose a university.

3.2.2. Significant People

Parents are an important factor in guiding a student's university choice. Baharun (2006) concludes that “advice and recommendations from family is the most important factor while advice from friends is the second”. Cabrera and Nasa (2000) together with Sewell and Shah (1978) agree that parental encouragement and students' academic ability are the two prerequisite factors affecting a “student's choice of university”.

Manski and Wise (1983) argue that peer choices have a significant impact on school choice decisions. Ceja (2006) also conducted research and came to the conclusion that although it is parents who pay for college fees and solve financial problems, it is the siblings in the family who give advice for the students. This mainly occurs in families with children who are already students. According to Hossler, Schmit and Vesper (1999), the studying college ambitions of students with siblings in college are more likely than those without siblings in college. Hayden (2000) shared the view that the opinions of siblings and students studying at the school have a great influence on students' decision to choose a school. Both studies by Joseph (1998, 2000) show that the advice of others (parents, friends, siblings, etc.)

has a profound impact on students making a decision of choosing a university. In studies in Vietnam, some research also found similar conclusions, for example, affirming that students' decision to choose a school is positively impacted by the advice of people around (Tran and Cao, 2009). Mai and Thorpe (2015) also agree that advice from relatives, high school teachers, and friends positively influences students who are making “decisions to choose university”.

Besides it, the authors admit that deciding to choose a university has important implications for individual students and their families. Therefore, the advice of those around is meant to motivate, encourage students to increase their tendency to choose a certain university and vice versa. The hypothesis H2 can be stated as followed:

H2: Significant people is positively related to high school students' decision to choose a university.

3.2.3. University's Academic Reputation

A university's reputation can be understood as an individual's set of beliefs about a university (Arpan et al., 2003). College reputation includes students' opinions, views, and impressions of the school they desire (Kotler and Fox, 1995). The university's reputation is also recognized by the way students perceive and perceive the university's academics, the importance of maintaining academic values and preserving the principles of quality education (Kotler and Fox, 1995). A university's academic reputation plays an important role in positioning an institution, with survey responses from high school seniors showing that the majority of respondents think that the academic reputation of the university is important to them in themselves and very important in their graduate career (Michael and Maureen 2008). Burn et al. (2006), and Clayton (2013) all found that a school's academic reputation is an essential element in deciding a student's choice of school. Students aspire to study at prestigious institutions. Furthermore, studies conducted by Joseph and Joseph (1998, 2000) found that a university's academic reputation is an important factor influencing high school students' choice of university. Based on the factor group "Reputation of the university", hypothesis H3 is stated as follows:

H3: University's academic reputation is positively related to high school students' decision to choose a university.

3.2.4. University's Financial Support

According to the conclusions about the impact of cost on “students' choice of

university” it is very diverse. Quigley et al. (2000) found that large tuition reductions have many advantages, meaning that the cost of higher education will be a competitive factor and promote school choice behavior.

This is consistent with the results obtained by Govan et al. (2006); Hoyt and Brown (2003) when observing the influence of grants and scholarships on students' decision to choose a school. Beneke and Human (2010) comments that financial aid was only the fifth factor in research in South Africa. Fokskett et al. (2006) study in the UK that the financial aid cost policy has such a strong influence that it completely changes or even reverses the intention to choose a school of students. Yusof et al. (2008) state that financial support is one of the four most important factors influencing university choice.

If the student receives a loan or scholarship, it will attract the student to choose the university (Manski and Wise, 1983).

According to the study, Joseph and Joseph (2000) said that the factor of study cost has the third most important influence in making the decision to choose a school in studies in New Zealand (1998) and Indonesia (2000). Wagner (2009) and Ming (2011) conducted in Malaysia also have the same conclusion that cost is the biggest and most significant influencing factor on the intention of students to choose a school there.

Recent research by Mai and Thorpe (2015) also suggested that cost is the third most important factor that affects the decision to choose a school in Vietnam. The author believes that the trend of increasing tuition fees at universities will directly affect students' decision to choose a school. Schools that have the advantage of low costs and good student support policies are expected to attract more students to enroll.

Therefore, the studies in the world or Vietnam on the relationship of cost with students' decision to choose a school have many different conclusions, but they all agree highly on the relationship of these two variables.

According to Jackson's (1986) study, it was concluded that the cost of the study was a negative influence on the choice of university while the financial aid to reduce the cost was a positive influence. Therefore, it can be seen that the cost of study plays a very important role and has a great influence on “the student’s decision to choose a university”.

Therefore, the following hypothesis is proposed:

H4: University’s Financial Support is positively related to high school students’ decision to choose a university.

3.2.5. University's Facilities and Resources

According to Joseph and Joseph (1998, 2000), facilities and resources include the circumstances of facilities and resources (lecturers) to completely satisfy learning demands and create a learning environment. Students will find it easy to learn, enjoy themselves, and participate in extracurricular activities at the school. Physical and intangible aspects are present in university facilities. It's not only the physical attributes that make a facility distinctive; it's also the cultural characteristics that identify it. To put it another way, facilities and resources include everything from the location of the school to the extracurricular activities and the high-quality teaching staff on hand to help students succeed. Academic activities, scientific research, and student extracurricular activities are all supported by services. Many studies have also shown a link between university facilities and resources and the decision to attend one.

Through a two-year survey of students from many universities, Price et al. (2003) found that students' perceptions of university amenities are one of the key factors in their decision to enroll to find the reasons students pick a certain university. Bowers and Pugh (1973) discovered that students consider campus social life an important part of their educational experience. Financial reasons, location, and academic reputations were all essential to parents, whereas social and cultural variables were crucial to children. Previous research has clearly established that the quality of lecturers and specialists, as well as the learning environment, influence the decision to attend a certain school (Krampf and Heinlein 1981; Mazzarol 1998). According to Banwett and Datta (2003), students "vote with their feet" based on their lecture experiences and are more likely to enroll in an optional module taught by a teacher who is thought to be competent at teaching. The location of the school has a significant impact on university selection (Wajeeh and Micceri, 1997). Furthermore, numerous studies were required to address the question of physical facilities for learning and the link between facilities and education, based on the idea that learning may occur in any setting (Beynon 1997; Earthman 2002; Earthman and Lemasters 2011).

Joseph and Joseph (1998, 2000) investigated this problem using the same model in two cultural contexts, namely New Zealand and Indonesia. The findings show that these two countries have vastly different levels of influence variables on higher education choices. However, in both nations, perceptions of facilities and resources are major variables influencing high school students' school choices. Furthermore, Wagner et al. (2009) discovered a favorable association between perception of facilities and resources and intention to enroll in a Malaysian secondary school. Mai and Thorpe (2015) found that the

impression of facilities and services is the most significant factor influencing the decision to attend a university in Vietnam. As a result, one of the aspects that students evaluate while selecting a university is facilities and resources. Students want to learn in a secure, comfortable setting that satisfies all of their educational and living needs, as well as be taught by qualified teachers. As a result, hypothesis H3 is proposed as follows:

H5: University's Facilities and Resources are positively related to high school students' decision to choose a university.

3.2.6. University Efforts to communicate with students

Research by Chapman (1981) has emphasized that communication efforts in universities are an important factor influencing students' decision to choose a school. Universities communicate with students using experiential activities and this is also intended to improve the school's image to students. Along with strategies to attract students such as scholarships, study abroad, advertising through social and cultural activities or sports to attract the interest of students and students' families.

According to research by Hossel and Gallagher (1987) also said that participation in school activities or referrals is also a factor affecting students' decision to choose a school.

In another aspect, Chapman (1981) also suggested that the quantity and quality of documents in the school are also factors affecting students' decision to choose a school. Because the decision to choose a school is an incomplete decision on the part of the student, the University is always ready with the information available in documents such as on websites: Website, page or flyers or The introduction handbook will be a great support to help make a big impact on the “student's decision to choose a university”.

Based on elements of the “university's communication efforts” with students, along with visits, orientation to introduce the school overview, scholarships, interesting programs, etc. along with the Full information about the information provided by the school in the available documents will contribute to attracting students to choose the school as hypothesis H6 is stated as follows:

H6: University efforts to communicate with students is positively related to high school students' decision to choose a university.

3.2.7. Moderating variable - Covid 19 pandemic

This research was carried out when the Covid-19 pandemic came out, and it has resulted in a great deal of change in people's lives. Covid-19 is generally recognized as one

of the most alluring challenges and sad tragedies of the twentieth century, after World War II (Gautam, 2020). It is also obvious that measures taken to prevent the spread of the illness create a lot of discomfort in people's lives. Economic disruptions may occur in a variety of ways as a result of a pandemic. Apart from the effect of mitigating measures, human behavioral changes such as fear-induced aversion to work environments and public gatherings are a significant cause of economic loss (Jamison et al., 2017). Furthermore, according to the International Labor Organization, the global unemployment rate will be 5.7 percent in 2022, with an estimated 205 million people jobless throughout the globe, which will continue to be greater than the pre-Covid estimates of 187 million people unemployed in 2019 (International Labor Organization, 2021). For the first nine months of 2021 in Vietnam, according to the General Statistics Office (2021), the total number of jobless persons of working age reached more than 1.3 million, a rise of 126.5 thousand people when compared to the same time the previous year. According to the United Nations Educational Scientific and Cultural Organization, the closing of educational institutions has had a negative impact on more than 1.5 billion students throughout the world (UNESCO, 2020). Furthermore, during the Covid-19 pandemic, all nations for whom comparable statistics were available saw a rise in the rate of teleworking, although that magnitude of the increase varied greatly (OECD, 2021). To meet the real scenario, teleworking and remote learning are implemented in a variety of ways. In Vietnam, the arrangement of online education is likewise utilized in a flexible manner. Since Covid-19, the use of language apps, online tutoring, video conferencing technology, and e-learning software has increased dramatically. Our capacity to cope with large-scale disasters has been put to the test by the present pandemic catastrophe.

The Covid-19 pandemic is still wreaking havoc on people's lives and livelihoods throughout the world. As a result of the public health catastrophe and economic destruction people are now witnessing, whole sectors and organizations have been thrown into chaos. It is also the cause of the largest educational disruption in history, with governments around the world suspending face-to-face teaching in universities, affecting around 95% of the world's student population (United Nations, 2020).

When asked if Covid-19 had influenced their preparation, desire, or capacity to attend a higher education institution, a substantial number of students said that it had affected their emotional and mental preparedness for the experience (Kim et al., 2020). Additionally, according to Eyles et al. (2020), missing school time might have a negative effect on students' educational outcomes and future well-being. Nestour et al. (2020) provide an early

example for Senegal, where remote learning is seen from a more negative perspective: the majority of pupils are either not participating in any educational programs, studying alone, or doing exercises prescribed by their parents; with less than 5 percent of pupils completing assignments assigned by lecturers and fewer than 1 percent of pupils completing online courses. Furthermore, a portion of students are likely to experience depression during the Covid-19 pandemic season, necessitating the provision of psychological support services (Asanov et al., 2021). Individual students will experience alterations as a result of Covid-19. Besides, as a result of the Covid-19 lockdown, which has enabled them to stay at home 24/7, around 88 percent of the students report that they feel better connected with their families (Kant, 2020). And “the school closures substantially increased the time that parents, especially mothers, spend with their children” (Baxter et al., 2020).

The research of Kim et al. (2020) on Covid-19 and higher education enrolment demonstrates that the choice to attend a university has shifted as a consequence of Covid-19. To begin, students' top-choice institutions are shifting, 44% of students who altered their first-choice school said that they did so in order to attend a school with cheaper tuition. Additionally, the survey advised that credit financing, deadlines, eligible problems, and eligible expenditures, combined with linkages to a straightforward application site, should be examined since students are more worried about costs as a result of Covid-19's financial effect.

According to Kedraka and Kaltsidis (2020), the impact of the Covid-19 pandemic forced all universities around the world to change their training structure from face-to-face education to applying online teaching and learning. This has a direct impact on students. However, from another perspective, this is an opportunity for universities to improve teaching and learning with digital technologies. In other words, to optimize the distance learning experience of students, universities need to make investments in digital infrastructure.

One strategy to slow the spread of the Covid-19 pandemic is to restrict travel and contact. This, however, results in a lack of engagement between institutions and students. Kim et al. (2020) emphasized students' desire for interaction with schools. On the topic of a remote semester, 52% of students said talks with faculty regarding academic majors or remote learning would improve their perception of a school, 42% wanted clear communication and feedback from the school, and 25% wanted to witness an online class. So schools should take a far more proactive role in communicating with students at various touchpoints.

To deal with the coronavirus pandemic, education leaders are also quickly adapting to the pandemic by switching to distance learning. However, they are confronted with a new problem: enrollment during the pandemic. A survey by Turk et al. (2020) showed that during Covid-19, about three-quarters of the principals of universities and colleges identified the enrollment rates of summer or fall as one of their most critical concerns.

This shows that the Covid-19 pandemic has a strong impact on university enrollment. The effects of determining factors on students' university choice could be changed upon the pandemic going on. As a result, the authors hypothesize the following:

H1.1: Covid-19 would moderate the relationship between student characteristics and their university decision.

H2.1: Covid-19 would moderate the relationship between significant people and students' university decision.

H3.1: Covid-19 would moderate the relationship between university's academic reputation and students' university decision.

H4.1: Covid-19 would moderate the relationship between university's financial support and students' university decision.

H5.1: Covid-19 would moderate the relationship between university's facilities and resources and students' university decision.

H6.1: Covid-19 would moderate the relationship between university's efforts to communicate with students and students' university decision.

Therefore, figure 3.1 presents the proposed research model.

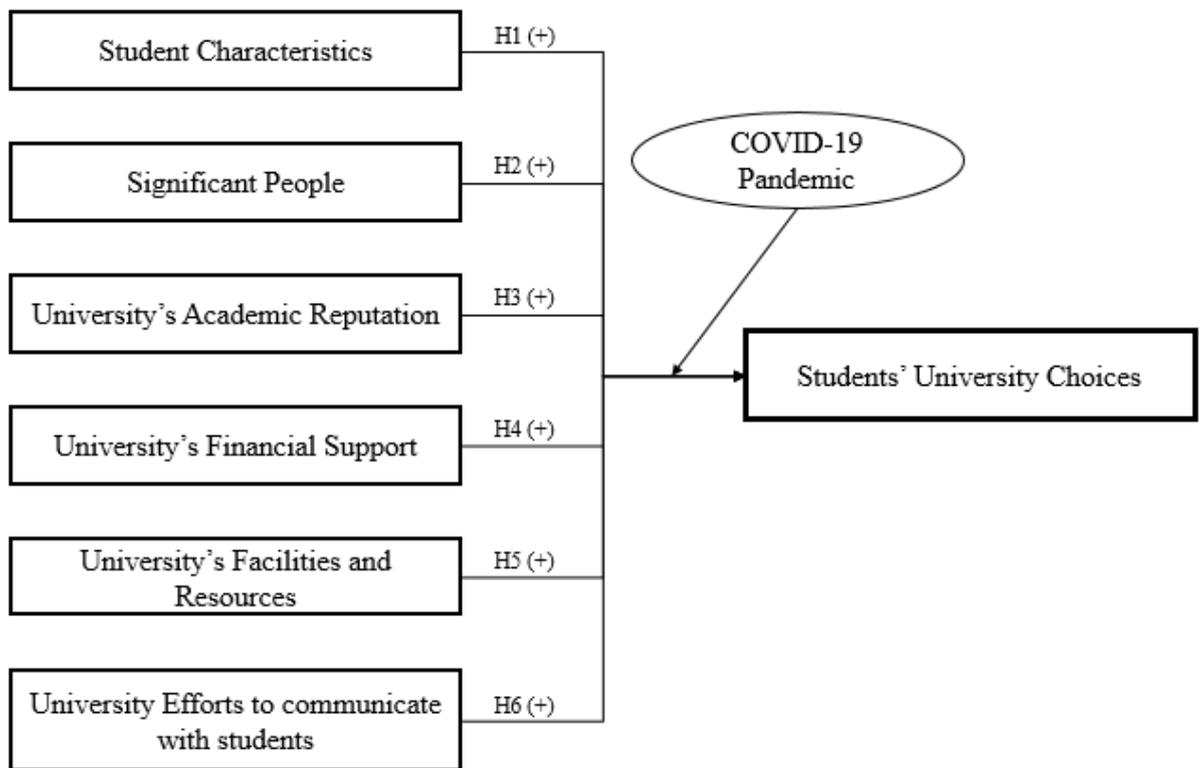


Figure 3.1: Proposed Research Model

Chapter Summary

Chapter three has delved into clarifying the theoretical foundations and research model of “factors affecting the decision to choose a university of high school students”. Based on the original theory and research overview, the author has built a research model for the thesis consisting of six independent variables, including student characteristics, significant people, university’s academic reputation, university’s financial support, university’s facilities and resources, and the university's efforts to communicate with students; one moderating variable is the Covid-19 pandemic, and one dependent variable is students’ university choice.

CHAPTER 4: METHODOLOGY

Chapter Overview

On the basis of the proposed research model, chapter four presents how to design and implement scales for the variables in the research model, process as well as methods of data collecting and analysis.

4.1. Research design and research process

To collect and analyze survey data, determine the impact level of factors, and evaluate and test hypotheses, this project employs quantitative research. The project's overall research focuses on high school students across the country, with the goal of achieving the project's research goal despite limited financial resources, time, and information.

The focus of this thesis is on quantitative research with the aim of assessing the reliability of the scale, testing the research model and testing the research hypotheses, and at the same time evaluating the influence of the variables “factors influencing students’ decision to choose a university”. These research results are the basis for assessing the current situation and proposing solutions. Collecting research data by survey questionnaire with sample size $n=636$. To carry out the research, the authors have built a questionnaire to investigate and collect data, standardize the language to ensure that the questions are clear, not confusing, suitable for the respondents as well as adjust the way to get the data to ensure the most convenient for the respondents but still meet the information requirements of the thesis. The study uses the sampling method: non-probability sampling with convenient sampling types. Then, the study used SPSS 25 software to analyze the data. “Preliminary assessment of the reliability and value of the scale by Cronbach's Alpha reliability coefficient and exploratory factor analysis EFA”. Next, the scales are used in Pearson correlation analysis and linear regression analysis to test the “factors affecting students’ decision to choose a university”, thereby calculating the importance of each factor. Finally, a moderator variable analysis was performed to determine whether it changed the strength and type of the relationship between the factors influencing the university choice decision and the university choice decision. Figure 4.1 summarizes the research process.

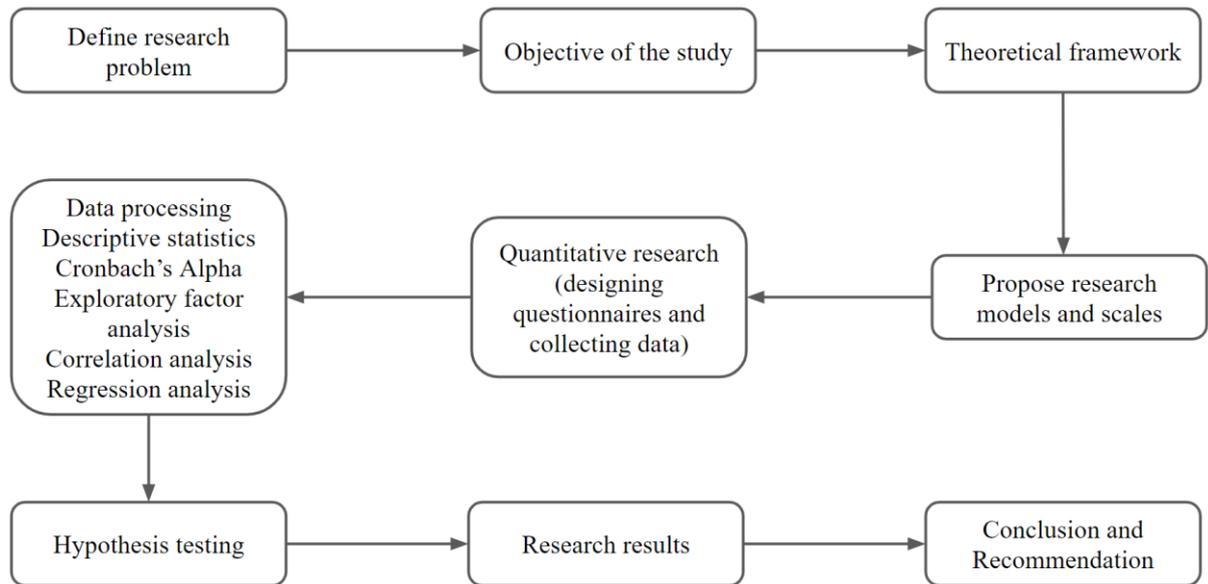


Figure 4.1: Research Process

4.2. Sample and data collection

4.2.1. Sample

Non-probability sampling, such as convenience sampling, is used to gather information about the population. In terms of sample size, there is currently no consensus on how to determine sample size in order to ensure the study's reliability. For example, according to Comrey and Lee (1992), sample sizes with sample opinions of “100 = bad, 200 = fair, 300 = good, 500 = very good, and 1000 or more = excellent”. Other researchers (e.g., Bollen, 1989; Hair et al., 2006) use the rule of multiplying 5, which states that the number of observed variables multiplied by 5 equals the minimum sample size needed to ensure the study's reliability.

Gorsuch (1983) suggested that at least 200 observations be required for EFA exploratory factor analysis. Tabachnick and Fidell (1991) recommend $n = 8k + 50$ as a sample size for regression analysis (where k is the number of independent variables in the model). To put it another way, according to Harris (1985), the number of variables in the model should be $104 + m$ (where the number of independent and dependent variables is the number of m) or $50 + m$ (where the number of independent and dependent variables is the number of m) if $m < 5$.

In this study, there are 28 observed variables involved in the factor analysis. According to Hair et al. (2006), the required number of samples would be 140. On the other hand, the formula of Tabachnick and Fidell (1991) would lead to $n \geq 98$ (with $k = 6$), and Harris (1985) to $n \geq 112$ (with $m = 8$). In this study, time capacity and accessibility allowed us to

obtain 636 responses through the survey, achieving the sample size which satisfies all the thresholds suggested by previous authors mentioned above. Details of the questionnaire used for the survey and the data collection process will be discussed in the following part.

4.2.2. Data collection

In order to collect data for the research, the authors design a questionnaire that proposes questions to determine factors affecting the university choice of high school students in Vietnam. Following the reference to prior research' scales, our questionnaire is divided into four sections. First of all, we have a screening question in the survey since our target audience in this research is high school students in Vietnam. As a result, if responders are not high school students, the survey will be terminated. Therefore, the authors eliminated 39 invalid responses and the final sample size was 597. The second section is about personal information and it consists of three questions regarding the personal information and one question of perceived impact of COVID-19 of those who take part in the survey. The third section discusses students' perceptions of some of the internal and external factors that influence their university choice. It contains a total of 25 questions constructed on a 5-point Likert scale, including 4 questions about student characteristics, 4 questions about significant people, and 17 questions about university characteristics, which are reputation (3 questions), financial support (4 questions), facilities and resources (7 questions), and the communication efforts (3 questions). The last section consists of three questions about their certainty in choosing a university.

Due to the complicated nature of the Covid-19 pandemic in Vietnam, data for this study were gathered by sending an online survey to high school student groups on the social networking platform Facebook from October 29 to November 9, 2021.

4.3. Measures

4.3.1. The “Student Characteristics” scale

The scale of student characteristics is based on the research of Chapman (1981). The scale contains 4 items, represented by Student_Characteristics_1 to Student_Characteristics_4 (Table 4.1).

Table 4.1: Scale for Student Characteristics

Questions	Item Code
-----------	-----------

1. Your aspirations (interests) influence your decision to choose a university.	Student_Characteristics_1
2. Your academic strengths affect your decision to choose a university.	Student_Characteristics_2
3. Your aptitude affects your decision to choose a university.	Student_Characteristics_3
4. Your educational expectations influence your decision to choose a university.	Student_Characteristics_4

4.3.2. The “Significant People” scale

This study uses the scale of Chapman (1981) which contains 4 items represented by Significant_People_1 to Significant_People_4 (Table 4.2).

Table 4.2: Scale for Significant People

Questions	Item Code
1. Your parents influence your decision to choose a university.	Significant_People_1
2. The brothers/sisters who were or are currently studying at the university have an influence on your decision to choose a university.	Significant_People_2
3. Friends influence your decision to choose a university.	Significant_People_3
4. Homeroom teachers, career teachers influence your decision to choose a university.	Significant_People_4

4.3.3. The “University’s Academic Reputation” scale

In this study, the 3-item scale of Wagner et al. (2009) is used to measure the university’s academic reputation factor (Table 4.3).

Table 4.3: Scale for University’s Academic Reputation

Questions	Variables Code
-----------	----------------

1. The school has an academic reputation.	Academic_Reputation_1
2. The school has a prestigious and quality program.	Academic_Reputation_2
3. The school has programs of study that are recognized by individuals and organizations.	Academic_Reputation_3

4.3.4. The “University’s Financial Support” scale

In this study, the author inherits and uses the scale of Ming (2013) including 4 items to measure the university’s financial support (Table 4.4).

Table 4.4: Scale for University’s Financial Support

Questions	Item Code
1. The university has reasonable tuition fees.	Financial_Support_1
2. A university with a reasonable cost of living.	Financial_Support_2
3. The university has many financial support policies (scholarships, grants, etc.).	Financial_Support_3
4. The university has a flexible fee (tuition) system.	Financial_Support_4

4.3.5. The “University’s Facilities and Resources” scale

According to Joseph and Joseph (1998, 2000), facilities and resources include conditions of facilities and resources to fully meet the learning needs and create a favorable environment for students to be able to study and participate in extracurricular activities.

Wagner et al. (2009) inherited all 7 scales and carried out research to prove the accuracy in Malaysia. For education in Malaysia, Indonesia and Vietnam, there are some certain similarities, so the author used a 7-item scale of Joseph and Joseph (1998, 2000) (Table 4.5).

Table 4.5: Scale for University’s Facilities and Resources

Questions	Item Code
-----------	-----------

1. The school has an ideal location.	Facilities_Resources_1
2. The school has an environment that encourages learning for students.	Facilities_Resources_2
3. The school has facilities and equipment for students to rest and relax.	Facilities_Resources_3
4. The school provides students with a desirable social life.	Facilities_Resources_4
5. The school has the necessary resources to meet the learning needs of its students.	Facilities_Resources_5
6. The school has a safe and clean learning environment.	Facilities_Resources_6
7. The school has a team of high quality teachers.	Facilities_Resources_7

4.3.6. The “University Efforts to communicate with students” scale

The scale of university effort to communicate with students was developed based on research by Chapman (1981), Ming (2010), and Le and Khuc (2020). It contains a 3-item scale which is encoded as Communication_Efforts_1 to Communication_Efforts_3 (Table 4.6).

Table 4.6: Scale for University Efforts to communicate with students

Questions	Variables Code
1. The school has recruitment and career counseling activities.	Communication_Efforts_1
2. The university organizes campus tour visits for high school students.	Communication_Efforts_2
3. The school implements advertisements that provide complete and detailed information through the media.	Communication_Efforts_3

4.3.7. The dependent variable

In this study, the author uses the scale of Ajzen (1991) and adjusts it to suit the research problem. With the dependent variable, the author inherits a 3-item scale of Ajzen (1991). Specifically, the dependent variable consists of a 3-item scale which is stated in Table 4.7.

Table 4.7: Scale for the dependent variable

Questions	Variables Code
1. I will attend X university in the near future.	University_Choice_1
2. I intend to choose X university to study.	University_Choice_2
3. X university will be my decision.	University_Choice_3

4.3.8. The “Covid” scale

This study uses the scale of Tull et al. (2020) with a 5-point Likert type scale to measure the impact of Covid 19 on each individual according to their own perception (Table 4.8).

Table 4.8: Scale for Covid

Questions	Variables Code
To what extent has the situation associated with COVID-19 affected your life?	Covid

4.4. Analysis procedure

4.4.1. Descriptive statistics

Descriptive statistics are used to describe data analysis, display or summarize data in a meaningful way so that, for instance, patterns can emerge from the data. However, descriptive statistics do not allow to draw conclusions beyond the data we have analyzed or to draw conclusions about any hypothesis we may have come up with. So it's simply a way to describe our data. Common statistics for determining the center of distribution include the mode, mean, and median. Mode is the value that occurs most often in a distribution. The mean value in a set of ordered observations. The mean is equal to the sum of the values in a distribution divided by the total number of values.

The average value will be calculated by the software in many ways and using the sum of the numbers in the available series.

The standard deviation is a measurement in statistics calculated as the square root of the variance that determines the difference between each data point and the mean.

The minimum and maximum values are an indicator of whether observations are accurate.

4.4.2. Reliability test with Cronbach's Alpha

After completing the data collection, conduct a review of the survey questionnaires to remove those that did not pass. Next, encrypt, enter and clean data with SPSS 25.0 software. Then proceed to analyze the data through the following steps:

“Cronbach's Alpha is a statistical test of the rigor (the capacity to explain a research idea) of a collection of observed variables”. The Cronbach's Alpha coefficient is used to determine the rigor of a set of observed variables. There is a wide range of values for Cronbach's Alpha coefficient in the range [0,1]. The larger this coefficient is, the more correct it is (the more reliable the scale is). Although this is true, it isn't totally accurate. Cronbach's Alpha value is too high (about 0.95), indicating that many variables on the scale are similar, it is known as scale overlap (Nguyen, Hoang and Chu 2008) states that “Cronbach's Alpha coefficient is from 0.8 to close to 1: a very excellent scale, from 0.7 to close to 0.8: a good scale, and from 0.6 or more: qualifying scale”. Many academics believe that Cronbach's Alpha coefficient of 0.6 or above is appropriate if the topic being examined is novel to participants in the study environment Cronbach's Alpha (Nunnally 1978; Peterson 1994; Slater 1995).

But according to Nunnally et al. (1994), Cronbach's Alpha coefficient does not suggest which variables should be deleted or retained. For this reason, in addition to Cronbach's Alpha, the correlation coefficient of the total variable (which excludes those whose correlation is less than 0.3) is also used, and the criteria for selecting the scale are only used when it has alpha reliability of 0.6 or above (Nunnally and Bernstein, 1994).

4.4.3. Exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) is used for testing if a group of variables can be reduced or not and it is used to evaluate the scale value (unidirectionality, convergence, and discriminant value). Factor analysis is used in this study to combine the observed variables

into particular factors that assess the research ideas' qualities. Exploratory factor analysis (EFA) has some criteria below for choosing and using variables including:

Using the KMO coefficient (Kaiser-Meyer-Olkin) is a way of determining if a factor analysis is suitable or not. As a prerequisite for factor analysis to work, it is necessary that the KMO value is greater than 0.50 ($0.5 \leq \text{KMO} \leq 1$). As long as this number is below 0.5, it seems that the factor analysis does not conform (Hoang and Chu, 2005).

It is necessary to determine whether or not the observed variables in the factor are correlated with one another by performing Bartlett's test of sphericity. When Sig. less than 0.05, the Bartlett test is statistically significant. If this test yields statistical significance (Sig. less than 0.05), it indicates that "the observed variables are correlated with one another within the factor". Hypothesis H_0 is rejected (correlation matrix is a unit matrix).

A popular criterion for determining the number of components in an EFA study is the Eigenvalue. Only factors with Eigenvalue ≥ 1 are included in the analytical model when using these criteria.

EFA goodness of fit was expressed as a Total of Interpreted Variance (total extracted variance) value of 50% or more. This number reflects how many extracted components are condensed and how many observed variables are lost when the variation is set to 100%.

Factor loading, also known as factor weight, is a measure of the degree to which an observable variable is correlated with a factor. The correlation between the observed variable and the factor is a strong link when the factor loading coefficient is high and vice versa. Hair et al. (2009) states: "Factor loadings more than 0.3 are deemed minimal, greater than 0.4 are considered significant, and greater than 0.5 are considered practical". Additionally, Hair et al. (1998) advocate the following: "Choosing a factor loading criteria greater than 0.3, the sample size should be at least 350; if the sample size is less than 100, researchers should choose a factor loading standard greater than 0.55 (usually 0.5); and if the sample size is less than 50, you should choose a factor loading standard greater than 0.7".

However, with the same sample size, the conventional value of Factor Loading should be considered. The factor weight level required for the observed variable to be statistically significant varies significantly with each sample size interval. The sample size in this research is rather big ($n=636$), and multivariate regression analysis is performed after EFA. As a result, the authors will retain scales with a Cronbach's Alpha value of 0.6 and will exclude observed variables with a variable correlation - total less than 0.3. The authors use the principal component extraction approach with Varimax rotation to exclude observed

variables with a Factor Loading value less than or equal to 0.5 or to extract into other factors if the difference in Factor Loading weight across factors is less than or equal to 0.3.

4.4.4. Pearson correlation analysis

The Pearson correlation coefficient (symbol r) measures the degree of linear correlation between two variables. “The purpose of running the Pearson correlation is to test the strong linear correlation between the dependent variable and the independent variables”. Because the condition for regression is first to be correlated. Next is to identify the problem of multicollinearity when the independent variables are also strongly correlated. Signs of multicollinearity will be considered when doing regression analysis (VIF coefficient test).

The first is to evaluate the Sig value. if the value of sig is less than 0.05, comment on the correlation coefficient Pearson (r). This is a sign to check whether the correlation between two variables is significant or not as follows: If Sign is less than 0.05, the correlation is significant; if Sig is greater than 0.05, the correlation is not significant.

“Pearson correlation coefficient (r) fluctuates in the continuous range from -1 to +1”:

- A correlation coefficient of 0 (or near 0) indicates that the two variables are unrelated.
- A coefficient of -1 or 1 denotes an absolute link between the two variables.
- The correlation coefficient is negative ($r < 0$), indicating that as x rises, y falls (and vice versa, when x decreases, y increases).
- $r > 0$ indicates a positive correlation between the two variables, that is, if the value of one increases, the value of the other will increase.

4.4.5. Regression analysis

4.4.5.1. Testing of main effects

Finally, we perform linear regression analysis. This part includes 2 main parts, analyzing the factors affecting the dependent variable and the moderating effects of universities choice (the main effects).

Most studies have to test hypotheses about the relationship between two or more variables, including one dependent variable and one or more independent variables. When just one independent variable is present, the model is referred to as Simple Linear Regression (SLR). When two or more independent variables are included, the model is referred to as Multiple Linear Regression (MLR). Multivariable regression enables the authors to determine the extent to which each component contributes to the change in the dependent variable.

Our study uses multivariate regression analysis, with regression equation on the research sample:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_nX_n + \varepsilon$$

Inside,

Y: dependent variable

X, X1, X2, Xn: independent variable

β_0 : regression constant

$\beta_1, \beta_2, \beta_n$: regression coefficient

ε : remainder

The multivariate regression equation applied to the study, presented as follows:

$$\text{University_Choices} = \beta_0 + \beta_1\text{Student_Characteristics} + \beta_2\text{Significant_People} + \beta_3\text{Academic_Reputation} + \beta_4\text{Financial_Support} + \beta_5\text{Facilities_Resources} + \beta_6\text{Communication_Efforts} + \varepsilon$$

It is necessary to pay attention to the significance of the indicators in the research model of the authors.

“The adjusted R Square and R² (R Square) values indicate the independent factors' effect on the dependent variable” (the decision to choose a university). These two values' variation is between 0 and 1. The closer the model is near 1, the more meaningful it is. On the other hand, the model's meaning decreases as it approaches zero. More precisely, if it is between 0.5 and 1, the model is acceptable; if it is less than 0.5, the model is inappropriate.

The Durbin – Watson (DW) value is used to determine the autocorrelation of first-order sequences. “DW's value ranges from 0 to 4”. If there is no correlation of adjacent errors, the value will be close to 2. If the value is near 4, the error components are negatively correlated; if the value is near 0, the error components are positively connected. There is a very high chance of first-order sequence autocorrelation in the scenario when DW is less than 1 and more than 3.

The F test's Sig value is used to evaluate the regression model's fit. If the sig. value is less than 0.05 in the ANOVA table, Multiple linear regression model, and suitable data set (and vice versa).

The significance of the regression coefficients is tested through Sig. value of the coefficients table. “There is an effect of the independent variable on the dependent variable in a case of sig value not equal to or greater than 0.05”.

“Multicollinearity is checked through variance inflation factor (VIF)”. According to Hoang Trong and Chu Nguyen Mong Ngoc (2005) multicollinearity occurs if VIF is greater

than 10. However, in practice, the VIF value is often compared with 2. “If VIF is smaller than 2, multicollinearity will not happen between the independent variables and vice versa”.

4.4.5.2. The testing of moderating effects

According to Baron and Kenny (1986), a moderator variable is a variable that changes the strength and form of the relationship between independence and dependence. There are many ways to handle the moderator variable, but in this study, the method chosen is mean centering to avoid multicollinearity. In the mean center technique, a new variable is created by subtracting the mean value of the variable itself. Besides, the implementation of the "centering" technique does not change the standard deviation, as well as the correlation coefficient of the independent variables with each other and between the independent and dependent variables before and after "centering". Analysis of the moderator variable by mean centering technique is done through the following steps:

Step 1: Calculate the average score of the independent variable and the moderator variable

Step 2: Normalize the independent variables and the representative variable (subtract the mean calculated from step 1)

Step 3: Create an interactive variable by multiplying the independent variable and the normalized moderator together

Step 4: Run hierarchical regression. If sig. of the interaction variable < 0.05 , indicating that the variable plays a moderating role.

Chapter Summary

Chapter 4 describes the foundations of creating a survey and the research methods used in the process of carrying out the thesis. Quantitative research uses a sampling method with the tool of a questionnaire processed by SPSS software. The official study was carried out with a sample size of 636 high school students in Vietnam. After cleaning, the data will be entered into the software and evaluated for the reliability of the Cronbach Alpha scale, EFA, and correlation analysis, regression analysis, moderating effects, and hypothesis testing. All the steps taken during the research are explained in detail in this chapter.

CHAPTER 5: RESULTS

Chapter Overview

The findings of the analysis will be presented in this chapter, together with comments and evaluations of those results in the context of the model.

5.1. Descriptive Statistics

The results of collecting survey questionnaires for high school students across the country resulted in 636 responses, of which 597 were valid for research use. The following are characteristics of the survey sample:

Table 5.1: Descriptive Statistics of gender

GENDER		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	145	24.3	24.3	24.3
	Female	433	72.5	72.5	96.8
	Other	19	3.2	3.2	100.0
	Total	597	100.0	100.0	

Based on the survey results, the majority of survey respondents are female with 433 students accounting for 72.5%, 145 male respondents accounting for 24.3% and the number of people choosing the other gender is 19 accounting for 3.2%.

Table 5.2: Descriptive Statistics of class

CLASS		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10th graders	143	24.0	24.0	24.0
	11th graders	91	15.2	15.2	39.2
	12th graders	363	60.8	60.8	100.0
	Total	597	100.0	100.0	

The topic focuses on finding out the factors affecting the choice of university, so our research subjects are high school students from grades 10 to 12 across the country. It can be seen that the survey respondents are mainly 12th graders with 363 students and accounting for 60.8%, 10th graders had 143 students participating, accounting for 24%, while 11th graders participated the least with 91 students, accounting for 15.2%.

Table 5.3: Descriptive Statistics of timestamp

TIMESTAMP		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 10th grade	104	17.4	17.4	17.4
	In 10th grade	135	22.6	22.6	40.0
	In 11th grade	176	29.5	29.5	69.5
	In 12th grade	182	30.5	30.5	100.0
	Total	597	100.0	100.0	

The timestamp is the time that students made the university choice decision. The study focused on “factors that influence high school students' university choice”, so below we've compiled information on when students start choosing a school for more insight. Regarding the time to decide to choose a university, based on the frequencies obtained in the table above, it shows that the number of students who make the decision to choose a university before 10th grade is 104 students, accounting for 17.4%, in 10th grade is 135 students, accounting for 22.6%, in grade 11th is 176 students, accounting for 29.5% and in grade 12th is 182 students, accounting for 30.5%. In general, this result is quite even because each option has more than 100 students.

Table 5.4: Descriptive Analysis

	Minimum	Maximum	Mean	STd. Deviation
Covid	1	5	3.22	1.160

Student_Characteristics_1	1	5	3.65	1.257
Student_Characteristics_2	1	5	3.97	.990
Student_Characteristics_3	1	5	3.28	1.263
Student_Characteristics_4	1	5	3.92	1.060
Significant_People_1	1	5	2.95	1.307
Significant_People_2	1	5	2.39	1.233
Significant_People_3	1	5	2.26	1.134
Significant_People_4	1	5	2.48	1.261
Academic_Reputation_1	1	5	3.55	1.170
Academic_Reputation_2	1	5	3.90	1.029
Academic_Reputation_3	1	5	3.65	1.051
Financial_Support_1	1	5	3.92	1.068
Financial_Support_2	1	5	3.52	1.103
Financial_Support_3	1	5	4.01	1.066
Financial_Support_4	1	5	3.81	1.175
Facilities_Resources_1	1	5	3.48	1.195
Facilities_Resources_2	1	5	3.48	1.217
Facilities_Resources_3	1	5	3.28	1.112
Facilities_Resources_4	1	5	3.78	1.088
Facilities_Resources_5	1	5	3.64	1.120
Facilities_Resources_6	1	5	3.74	1.071
Facilities_Resources_7	1	5	3.22	1.066

Communication_Efforts_1	1	5	3.43	1.156
Communication_Efforts_2	1	5	3.39	1.197
Communication_Efforts_3	1	5	3.28	1.184
University_Choices_1	1	5	3.46	1.020
University_Choices_2	1	5	3.51	1.021
University_Choices_3	1	5	3.46	.999

N = 597

Table 5.5: Shortened table: Descriptive Statistics

Variable	Question	Mean
Student_Characteristics_1	Your aspirations (interests) influence your decision to choose a university.	3.65
Student_Characteristics_2	Your academic strengths affect your decision to choose a university.	3.97
Student_Characteristics_3	Your aptitude affects your decision to choose a university.	3.28
Student_Characteristics_4	Your educational expectations influence your decision to choose a university.	3.92
Significant_People_1	Your parents influence your decision to choose a university.	2.95
Significant_People_2	The brothers/sisters who were or are currently studying at the university have an influence on your decision to choose a university.	2.39
Significant_People_3	Friends influence your decision to choose a university.	2.26

Significant_People_4	Homeroom teachers, career teachers influence your decision to choose a university.	2.48
Academic_Reputation_1	The school has an academic reputation.	3.55
Academic_Reputation_2	The school has a prestigious and quality program.	3.90
Academic_Reputation_3	The school has programs of study that are recognized by individuals and organizations.	3.65
Financial_Support_1	The university has reasonable tuition fees.	3.92
Financial_Support_2	A university with a reasonable cost of living.	3.52
Financial_Support_3	The university has many financial support policies (scholarships, grants, etc.).	4.01
Financial_Support_4	The university has a flexible fee (tuition) system.	3.81
Facilities_Resources_1	The school has an ideal location.	3.48
Facilities_Resources_2	The school has an environment that encourages learning for students.	3.48
Facilities_Resources_3	The school has facilities and equipment for students to rest and relax.	3.28
Facilities_Resources_4	The school provides students with a desirable social life.	3.78
Facilities_Resources_5	The school has the necessary resources to meet the learning needs of its students.	3.64
Facilities_Resources_6	The school has a safe and clean learning environment.	3.74
Facilities_Resources_7	The school has a team of high quality teachers.	3.22
Communication_Efforts_1	The school has recruitment and career counseling activities.	3.43

Communication_Efforts_2	The university organizes campus tour visits for high school students.	3.39
Communication_Efforts_3	The school implements advertisements that provide complete and detailed information through the media.	3.28
University_Choices_1	I will attend X university in the near future.	3.46
University_Choices_2	I intend to choose X university to study.	3.51
University_Choices_3	X university will be my decision.	3.46
Covid	To what extent has the situation associated with COVID-19 affected your life?	3.22

The results of descriptive statistical analysis have statistical criteria with the main items: variable, mean, min, max, deviation. This is also the main goal in descriptive statistics.

The above descriptive statistics table shows that the observed values of most of the survey variables have values above 3, also known as above average on the 5-point scale of Likert scale in addition to variables such as Significant_People_1, Significant_People_2, and Significant_People_3 which have values less than 3. This indicates that the majority of survey respondents agree with the survey items. Besides, We can observe from the statistics table that the survey item with the lowest value is Significant_People_3 (mean = 2.26) while the survey variable with the highest score is Financial_Support_3 equal to 4.01.

5.2. Reliability test

Cronbach's Alpha is used to assess the scale's dependability, ensuring that the variables are useful in data analysis. The results of Cronbach's Alpha test for the following independent variables are assessed as being qualified for EFA exploratory factor analysis through 2 main criteria including: "Cronbach's Alpha coefficient is greater than or equal to 0.6, less than 0.95" and "total variable correlation coefficients of the observed variables are greater than 0.3". Cronbach's alpha reliability of each independent variable is analyzed as shown below.

5.2.1. The Students Characteristics scale

Table 5.6: Reliability Statistics - the Student Characteristic scale

Cronbach's Alpha	N of Items
.730	4

Table 5.7: Item-Total Statistics - the Student Characteristic scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Student_Characteristics_1	11.17	6.509	.559	.647
Student_Characteristics_2	10.85	7.965	.488	.690
Student_Characteristics_3	11.55	6.359	.584	.631
Student_Characteristics_4	10.90	7.799	.465	.700

According to the results, Cronbach's Alpha coefficient is 0.730 which is greater than 0.6, less than 0.95. And for all observed variables, the total correlation coefficient is greater than 0.3, and Cronbach's Alpha coefficient if item deleted is less than Cronbach's Alpha coefficient. Therefore, the scale is satisfactory and all observed variables in this scale are kept to conduct EFA analysis.

5.2.2. The Significant People scale

Table 5.8: Reliability Statistics - the Significant People scale

Cronbach's Alpha	N of Items
.759	4

Table 5.9: Item-Total Statistics - the Significant People scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Significant_People_1	7.13	8.837	.465	.754
Significant_People_2	7.70	8.510	.575	.692
Significant_People_3	7.82	8.628	.637	.663
Significant_People_4	7.60	8.449	.563	.699

The test results show that Cronbach's Alpha coefficient is 0.759 which is greater than 0.6, less than 0.95. And for all observed variables, the total correlation coefficient is greater than 0.3, and Cronbach's Alpha coefficient if item deleted is less than Cronbach's Alpha coefficient. Therefore, the scale is satisfactory and the authors keep all observed variables in this scale to conduct EFA analysis.

5.2.3. The University's Academic Reputation scale

Table 5.10: Reliability Statistics - the University's Academic Reputation scale

Cronbach's Alpha	N of Items
.866	3

Table 5.11: Item-Total Statistics - the University's Academic Reputation scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Academic_Reputation_1	7.56	3.684	.736	.825
Academic_Reputation_2	7.21	3.958	.816	.750

Academic_Reputation_3	7.46	4.248	.693	.857
-----------------------	------	-------	------	------

As seen above, the Cronbach's Alpha coefficient for this scale is 0.866 (greater than 0.6, less than 0.95). Additionally, the correlation coefficient for all observed variables is greater than 0.3, and the Cronbach's Alpha coefficient if item deleted is smaller than the Cronbach's Alpha coefficient. As a result, the scale is adequate, and all observed variables are retained for EFA analysis.

5.2.4. The Financial Support scale

Table 5.12: Reliability Statistics – the University's Financial Support scale

Cronbach's Alpha	N of Items
.860	4

Table 5.13: Item-Total Statistics - the University's Financial Support scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Financial_Support_1	11.35	7.882	.784	.789
Financial_Support_2	11.75	8.166	.689	.828
Financial_Support_3	11.25	8.069	.746	.805
Financial_Support_4	11.45	8.211	.614	.862

With the above results, Cronbach's Alpha coefficient is 0.860 (greater than 0.6, less than 0.95), and the total correlation coefficient is larger than 0.3. The test findings indicate that the observed variable Financial_Support_4 has Cronbach's Alpha coefficient if Item Deleted equal to 0.862, which is greater than the Cronbach's Alpha coefficient. However, the total correlation coefficient of the variable is 0.614, much more than 0.3, and the

Cronbach's Alpha value is even bigger than 0.8. Thus, it is unnecessary to delete the Financial_Support_4 variable in this case.

For the rest, Cronbach's Alpha coefficient if item deleted is less than Cronbach's Alpha coefficient. The scale is satisfactory, all observed variables are retained for EFA analysis.

5.2.5. The Facilities and Resources scale

Table 5.14: Reliability Statistics - the University's Facilities and Resources scale

Cronbach's Alpha	N of Items
.890	7

Table 5.15: Item-Total Statistics – the University's Facilities and Resources scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Facilities_Resources_1	21.14	27.255	.696	.872
Facilities_Resources_2	21.13	27.671	.641	.880
Facilities_Resources_3	21.34	27.751	.715	.870
Facilities_Resources_4	20.84	28.068	.704	.871
Facilities_Resources_5	20.98	27.788	.704	.871
Facilities_Resources_6	20.88	28.242	.700	.872
Facilities_Resources_7	21.39	28.903	.639	.879

The results of the test reveal that Cronbach's Alpha coefficient is 0.890, which is higher than the standard value of 0.6, less than 0.95. Furthermore, the total correlation coefficient is larger than 0.3 for all observed variables, and the Cronbach's Alpha coefficient if item deleted is smaller than the Cronbach's Alpha coefficient for all observed variables. As a

result, the scale is satisfactory, and the authors decide to maintain all of the observed variables on this scale for the purposes of conducting EFA analysis.

5.2.6. The University Efforts to Communicate with Students scale

Table 5.16: Reliability Statistics - the Efforts to communicate with students scale

Cronbach's Alpha	N of Items
.831	3

Table 5.17: Item-Total Statistics - the Efforts to communicate with students scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
Communication_Efforts_1	6.66	4.579	.694	.762
Communication_Efforts_2	6.70	4.267	.738	.717
Communication_Efforts_3	6.81	4.673	.640	.815

Cronbach's Alpha coefficient of this scale was found to be 0.831, higher than 0.6. Moreover, total correlation coefficient for all observed variables is larger than 0.3, and the Cronbach's Alpha coefficient if item deleted is less than the Cronbach's Alpha coefficient. As a result, the scale is satisfactory, and all observed variables are retained for EFA analysis.

5.2.7. The Students' University Choices scale

Table 5.18: Reliability Statistics - the Students' University Choices scale

Cronbach's Alpha	N of Items
.835	3

Table 5.19: Item-Total Statistics - the Students' University Choices scale

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha if Item Deleted
University_Choices_1	6.97	3.217	.707	.732
University_Choices_2	6.92	3.256	.692	.748
University_Choices_3	6.97	3.454	.645	.794

With the above results, Cronbach's Alpha coefficient is 0.835, greater than 0.6; Total correlation coefficient is more than 0.3; and Cronbach's Alpha coefficient if item deleted is less than Cronbach's Alpha coefficient. The scale is satisfactory, the authors keep the observed variables to conduct EFA analysis.

Conclusion: In general, the findings of the Cronbach's alpha reliability test indicate that all scales used in this study are trustworthy and appropriate for use in EFA analysis.

5.3. Exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) for the independent variable:

The results of Cronbach's Alpha analysis show that there are 25 observed variables belonging to 6 scales of “factors affecting the decision to choose a university of high school students”. Through the Cronbach Alpha coefficient, all 25 observed variables are suitable for exploratory factor analysis. The results of exploratory factor analysis (EFA) showed that:

Table 5.20: KMO and Bartlett's Test - Independent variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.888
Bartlett's Test of Sphericity	Approx. Chi-Square	7509.064
	df	300
	Sig.	.000

According to table 5.20, the coefficient KMO = 0.888 ($0.5 \leq \text{KMO} \leq 1$), sig = 0.000 (sig < 0.05), so the data used for factor analysis is suitable.

Table 5.21: Total Variance Explained - Independent variables

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	8.187	32.749	32.749	8.187	32.749	32.749	4.309	17.235	17.235
2	2.247	8.986	41.736	2.247	8.986	41.736	2.909	11.635	28.870
3	1.942	7.766	49.502	1.942	7.766	49.502	2.462	9.850	38.720
4	1.725	6.902	56.404	1.725	6.902	56.404	2.382	9.528	48.248
5	1.347	5.389	61.793	1.347	5.389	61.793	2.363	9.452	57.700
6	1.190	4.761	66.553	1.190	4.761	66.553	2.213	8.853	66.553
7	.871	3.486	70.039						
8	.832	3.329	73.368						
9	.651	2.603	75.971						
10	.622	2.486	78.458						
11	.568	2.270	80.728						
12	.523	2.091	82.819						
13	.518	2.070	84.889						
14	.454	1.815	86.704						

15	.437	1.749	88.452
16	.377	1.506	89.959
17	.366	1.465	91.424
18	.339	1.354	92.778
19	.314	1.258	94.036
20	.301	1.203	95.238
21	.291	1.166	96.404
22	.276	1.103	97.507
23	.228	.912	98.419
24	.213	.851	99.270
25	.183	.730	100.000

With criteria eigenvalue greater than 1 and do factor analysis according to Principal components with Varimax rotation. The findings display that there are 6 factors that were extracted, and these 6 factors summarize the information of 25 observed variables included in EFA in the best way. The total variance that these 6 factors extracted is 66.553% > 50%, and the 6 extracted factors explain 66.553% of the data variation of 25 observed variables participating in EFA.

Table 5.22: Rotated Component Matrix - Independent variables

	Rotated Component Matrix					
	1	2	3	4	5	6
Student_Characteristics_1					.759	
Student_Characteristics_2					.666	
Student_Characteristics_3					.795	

Student_Characteristics_4		.602
Significant_People_1	.644	
Significant_People_2	.765	
Significant_People_3	.814	
Significant_People_4	.736	
Academic_Reputation_1		.820
Academic_Reputation_2		.824
Academic_Reputation_3		.736
Financial_Support_1	.774	
Financial_Support_2	.724	
Financial_Support_3	.783	
Financial_Support_4	.745	
Facilities_Resources_1	.731	
Facilities_Resources_2	.684	
Facilities_Resources_3	.784	
Facilities_Resources_4	.727	
Facilities_Resources_5	.732	
Facilities_Resources_6	.680	
Facilities_Resources_7	.715	
Communication_Efforts_1		.777
Communication_Efforts_2		.816
Communication_Efforts_3		.773

The results of the rotation matrix show that 25 observed variables form 6 factors like the theoretical model, all observed variables have factor loading coefficient greater than 0.5 and there are no bad variables.

- The first component (1) is measured by: Facilities_Resources_1, Facilities_Resources_2, Facilities_Resources_3, Facilities_Resources_4, Facilities_Resources_5, Facilities_Resources_6, Facilities_Resources_7 and the authors interpret component (1) as “University’s facilities and resources”

- The second component (2) is measured by: Financial_Support_1, Financial_Support_2, Financial_Support_3, Financial_Support_4 and the authors interpret component (2) as “University’s financial support”

- The third component (3) is measured by: Significant_People_1, Significant_People_2, Significant_People_3, Significant_People_4 and the authors interpret component (3) as “Significant people”

- The fourth component (4) is measured by: Academic_Reputation_1, Academic_Reputation_2, Academic_Reputation_3 and the authors interpret component (4) as “University’s academic reputation”

- The fifth component (5) is measured by: Student_Characteristics_1, Student_Characteristics_2, Student_Characteristics_3, Student_Characteristics_4 and the authors interpret component (5) as “Student characteristics”

- The sixth component (6) is measured by: Communication_Efforts_1, Communication_Efforts_2, Communication_Efforts_3 and the authors interpret component (6) as “University’s efforts to communicate with students”

In summary, the variables and scales are linked since the factor loading coefficients are all bigger than 0.5, and there is no instance in which the variable loads both factors at the same time with loading coefficients that are near to each other. As a result, while assessing EFA, the components assure convergence and discriminant validity. Furthermore, there is no factor mixing (the question of this factor is not confused with the question of the other). As a result, these factors are left constant after exploratory factor analysis for independent variables, there are not increased or decreased by factors.

Exploratory factor analysis (EFA) for the dependent variable

“Students’ University Choices” is the dependent variable in the model and is measured by 3 items. After running the exploratory analysis for the dependent variable, the obtaining results are shown below.

Table 5.23: KMO and Bartlett's Test - Dependent variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.715
Bartlett's Test of Sphericity	Approx. Chi-Square	657.996
	df	3
	Sig.	.000

According to table 5.23, the coefficient KMO = 0.751 ($0.5 \leq \text{KMO} \leq 1$), sig = 0.000 (sig < 0.05), so the data used for factor analysis is appropriate.

Table 5.24: Total Variance Explained - Dependent Variable

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.223	74.098	74.098	2.223	74.098	74.098
2	.437	14.553	88.652			
3	.340	11.348	100.000			

Table 5.25: Component matrix - Dependent variable

	Component
	1
University_Choices_1	.876
University_Choices_2	.868
University_Choices_3	.838

Table 5.24 and table 5.25 showed that there is a factor extracted at an eigenvalue equal to $2.223 > 1$. This factor explains 74.089% of the data variation of 3 observed variables participating in EFA.

Conclusion: The EFA factors analysis results show that all observed variables meet the criteria and will be kept in the research model.

5.4. Pearson Correlation Analysis

Pearson correlation results are shown in the Correlations table. The Pearson Correlation coefficient shows the correlation level between the model's variables. Specifically in this study is the correlation between the dependent variable *University Choices* and the independent variables: *Student Characteristics*, *Significant People*, *Academic Reputation*, *Financial Support*, *Facilities Resources*, *Communication Efforts*. At the same time, the authors also analyzed the relationship between the independent variables to check whether there is any correlation between these variables. Multicollinearity occurs when two or more independent variables in the regression model are highly correlated.

In table 5.26, Pearson Correlation is the Pearson correlation coefficient (r), Sig (2-tailed) is the sig value assess whether the Pearson correlation coefficient is statistically significant or not, N is the sample size.

Table 5.26: Mean, standard deviation, and correlations

Variables	1	2	3	4	5	6	7
1. University Choices							
2. Student Characteristics	.391**						
3. Significant People	.381**	.176**					
4. Academic Reputation	.500**	.352**	.278**				
5. Financial Support	.501**	.328**	.180**	.528**			
6. Facilities Resources	.512**	.379**	.288**	.436**	.523**		
7. Communication Efforts	.467**	.333**	.332**	.388**	.376**	.495**	
Mean	3.4785	3.7060	2.5209	3.7035	3.8170	3.5162	3.3629
SD	.87222	.85423	.94077	.96361	.92624	.87320	1.01923

N = 597; ** $p \leq .01$; * $p \leq .05$ (two-tailed)

Based on the above table, it can be seen that Pearson's correlation test of six independent variables *Student Characteristics*, *Significant People*, *Academic Reputation*, *Financial Support*, *Facilities Resources*, *Communication Efforts* with dependent variable *University Choices* have the sig all less than 0.05 so the correlation coefficient r is statistically significant.

Checking the correlation between the independent variables showed that the variable *Financial Support* has a high correlation with the variable *Academic Reputation* (r equal 0.528), the variable *Facilities Resources* has a high correlation with the variable *Financial Support* (r equal 0.523). About whether there is a possibility of multicollinearity. This question will be answered based on the VIF coefficient in the regression analysis.

Conclusion: The results of the Pearson correlation analysis show that the independent variables have a clear correlation with the dependent variable *University Choices*. The results of the Pearson correlation analysis show that the independent variables have a clear correlation with the dependent variable *University Choices*. However, To make sure that multicollinearity does not occur, the Pearson correlation coefficient in this step along with the VIF index in the linear regression analysis are used to give the most accurate assessment of multicollinearity.

5.5. Linear Regression Analysis

Table 5.27: Results of regression analysis

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Independent var.								
Student Characteristics	.123*** (.035)	.122*** (.035)	.124*** (.035)	.122*** (.035)	.122*** (.035)	.121*** (.035)	.121*** (.035)	.123*** (.035)
Significant People	.181*** (.031)	.180*** (.031)	.177*** (.031)	.180*** (.031)	.180*** (.031)	.176*** (.030)	.177*** (.031)	.176*** (.031)
Academic Reputation	.176*** (.035)	.175*** (.035)	.176*** (.035)	.175*** (.035)	.176*** (.035)	.182*** (.034)	.180*** (.035)	.171*** (.034)
Financial Support	.196*** (.037)	.196*** (.037)	.198*** (.037)	.197*** (.037)	.201*** (.037)	.205*** (.037)	.200*** (.037)	.200*** (.037)
Facilities Resources	.163*** (.040)	.162*** (.040)	.159*** (.040)	.161*** (.040)	.166*** (.040)	.164*** (.039)	.160*** (.040)	.162*** (.040)
Communication Efforts	.144*** (.032)	.144*** (.032)	.145*** (.032)	.144*** (.032)	.140*** (.032)	.142*** (.032)	.146*** (.032)	.151*** (.032)
Moderating var.								
Covid-19 effects		.015 (.023)	.019 (.023)	.015 (.023)	.017 (.023)	.018 (.023)	.013 (.023)	.017 (.023)
Interaction term								
Student Characteristics × Covid			.048 (.027)					
Significant People × Covid				.013 (.024)				
Academic Reputation × Covid					.050 (.023)			
Financial Support × Covid						.095** (.023)		
Facilities_Resources × Covid							0.41 (.027)	
Communication Efforts × Covid								.089** (.022)
N	597	597	597	597	597	597	597	597
R squared	0.448	0.447	0.449	0.447	0.449	0.455	0.448	0.455
F	81.676***	69.951***	61.664***	61.145***	61.717***	63.289***	61.507***	63.084***

Note: *** p < 0.001; ** p < 0.01; * p < 0.05 (two-tailed). Standard errors are in parentheses

5.5.1. Main effects

After analyzing the correlation between variables, the authors performed a linear regression analysis method to check the fit of the model. The adjusted R-squared coefficient reflects the degree of interaction between the independent variable and the dependent variable. Based on the results of table 5.27, the adjusted R-squared value of 0.448 shows that the independent variables included in the regression analysis affect 44.8% of the variation of the dependent variable *University Choices*, and 55.2% is due to out-of-model variables and random error.

Besides, the Durbin-Watson value to evaluate first-order series autocorrelation. “The value of DW = 1.987 ranges from 1.5 to 2.5, so the results do not violate the assumption of first-order series autocorrelation” (Yahua Qiao, 2011).

Table 5.27 shows that the Sig value of all variables is less than 0.05, showing that the dependent variable is statistically influenced by all 6 independent variables, which means that 6 hypotheses are accepted. The VIF index of the variables *Student Characteristics*, *Significant People*, *University's Academic Reputation*, *University's Financial Support*, *University's Facilities and Resources*, *University's Effort to communicate with students* is 1.261, 1.174, 1.571, 1.650, 1.706, 1.484 respectively. To sum up, testing the hypothesis about multicollinearity (correlation between independent variables) by considering “the value of the variance inflation factor (VIF) is less than 2, there is no multicollinearity”.

Thus, the unnormalized regression equation is presented as follows:

$$Y = .310 + .125X1 + .168X2 + .159X3 + .185X4 + .162X5 + .123X6$$

The normalized regression equation is shown below:

$$Y = .123X1 + .181X2 + .176X3 + .196X4 + .163X5 + .144X6$$

Where,

Y: Students' university choices

X1: Students characteristics

X2: Significant people

X3: University's academic reputation

X4: University's financial support

X5: University's facilities and resources

X6: University's effort to communicate with students

Through the standardized regression equation presented above, the *Financial Support* factor ($\beta=0.196$, $\text{sig}<0.001$) has the strongest impact on “high school students' decision to

choose a school”, followed by the following factors: *Significant People* ($\beta=0.181$, $\text{sig}<0.001$), *Academic Reputation* ($\beta=0.176$, $\text{sig}<0.001$), *Facilities and Resources* ($\beta=0.163$, $\text{sig}<0.001$), *Effort to communicate with students* ($\beta=0.144$, $\text{sig}<0.001$) and lowest impact are *Student Characteristic* factors ($\beta=0.123$, $\text{sig}<0.001$).

It also means that if the value of the independent variable *University's Financial Support* increases by 1 unit, the dependent variable *Students' University Choices* increases by 0.196 units. The same goes for all the remaining 5 independent variables.

In summary, the research results have shown a complete scale for the topic "Factors affecting the decision to choose a university of high school students" including 6 factors: "*Student Characteristics*", "*Significant People*", "*University's Academic Reputation*", "*University's Financial Support*", "*University's Facilities and Resources*" and "*University's Effort to communicate with students*" with the 28 observable variables.

5.5.2. Moderating effects

To test the difference in the influence of factors on the decision to choose a university according to the moderator variable – Covid-19, the authors ran an analysis of the moderator variable and the results showed that the moderator-Covid19 affects only two relationships including the relationship between *University's Financial Support* and *Students' University Choices* ($\text{sig} = 0.017 < 0.05$), the relationship between *University's Effort to communicate with students* and *Students' University Choices* ($\text{sig} = 0.024 < 0.05$) and the remaining relationship have no statistical significance (table 5.27). To sum up, in the following 6 hypotheses, only hypothesis H4.1 and hypothesis H6.1 are supported.

H1.1: Covid-19 would moderate the relationship between student characteristics and their university decision.

H2.1: Covid-19 would moderate the relationship between significant people and their university decision.

H3.1: Covid-19 would moderate the relationship between academic reputation and their university decision.

H4.1: Covid-19 would moderate the relationship between university's financial support and their university decision.

H5.1: Covid-19 would moderate the relationship between facilities and resources and their university decision.

H6.1: Covid-19 would moderate the relationship between university's efforts to communicate with students and their university decision.

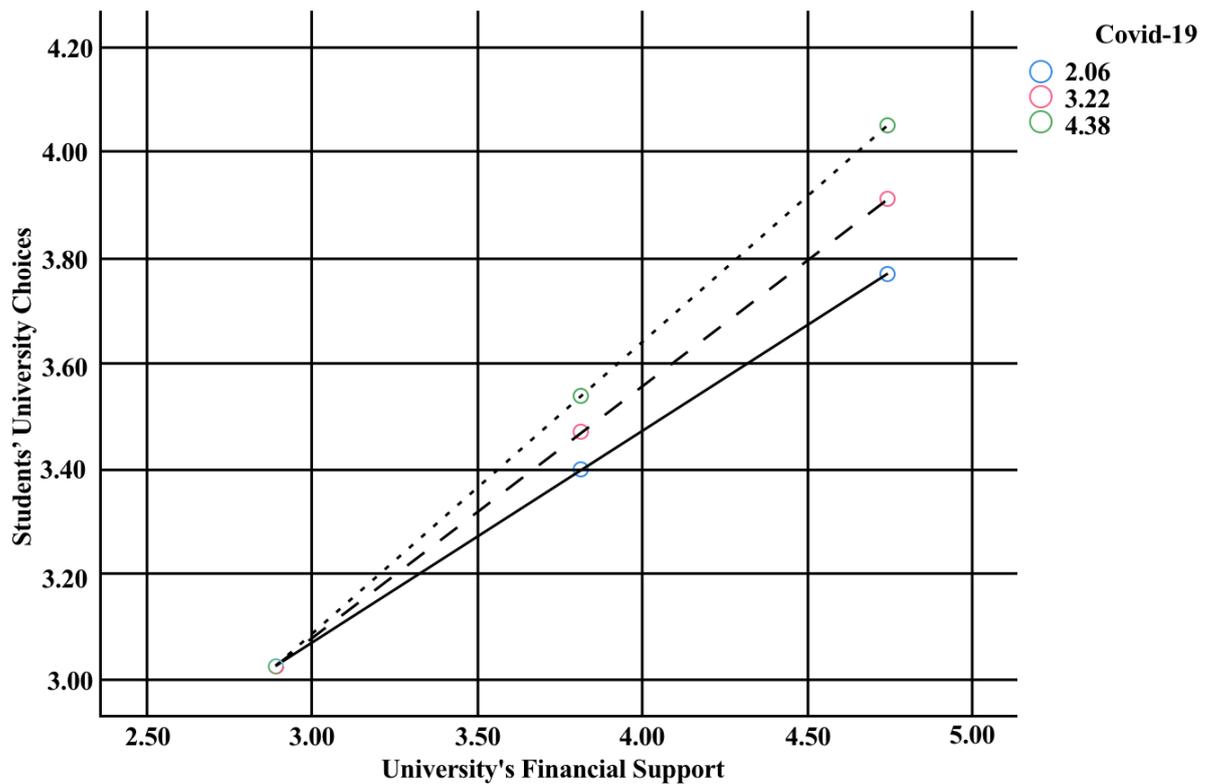


Figure 5.1: Interaction plots of University's Financial Support, Covid-19 pandemic, and Students' University Choices

Because interaction plotting is important for interpreting interaction effects, we learn from Long and Freese's (2001) to plot the interaction figures using one standard deviation below the mean, the mean, and one standard deviation above the mean to represent low, average and high levels of the pandemic effect. Figure 5.1 and Figure 5.2 illustrate the moderating effect of the Covid-19 on the relationship between *University's Financial Support* and *Students' University Choice*, and between *University's Communication Effort* and *Students' University Choice*, respectively.

As shown in Figure 5.1, the three Covid lines representing the relationship between the *University Choices* and *Financial Support* tend to slope up. Particularly, the lines get steeper at the higher level of Covid-19: the green line is the steepest, the pink line is the second steepest and the blue line is the least steep. The plots indicate that the financial support of a university has a stronger effect on the probability of its being chosen by a student when the influence of Covid-19 on the student's life is stronger. The stronger the student affected by Covid-19, the greater the impact of the cost support on the decision to choose a university.

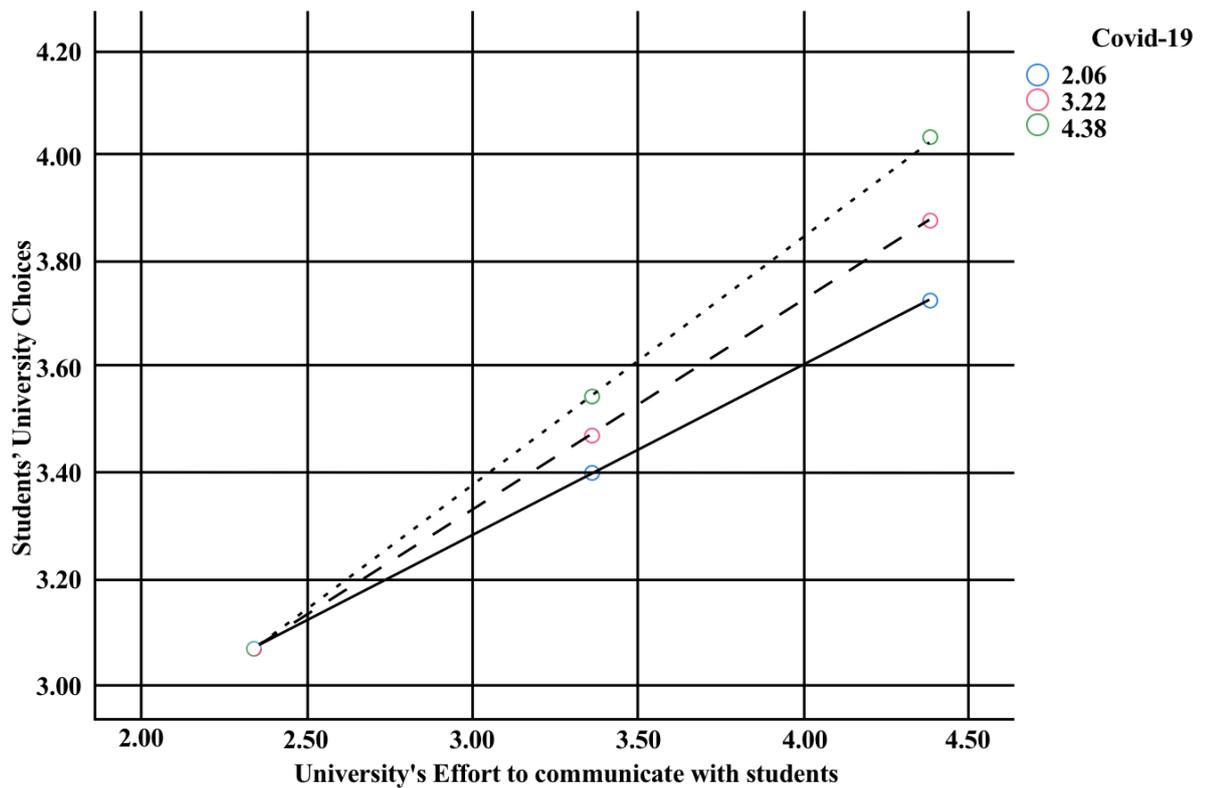


Figure 5.2: Interaction plots of University's Effort to communicate with students, Covid-19 pandemic, and Students' University Choices

As shown in Figure 5.2, the three Covid lines representing the relationship between the *University Choices* and *University's Effort to communicate with students* tend to slope up. Particularly, the lines get steeper at the higher level of Covid-19: the green line is the steepest, the pink line is the second steepest and the blue line is the least steep. The plots indicate that the effort to communicate with students of a university has a stronger effect on the probability of its being chosen by a student when the influence of Covid-19 on the student's life is stronger. The stronger the Covid-19 affected students, the greater the impact of university communication efforts on high school students' decisions to choose a university.

Chapter Summary

Chapter 5 presents fully and in detail the research results of the thesis. Accordingly, the collected data was processed by SPSS software. The first is sample descriptive statistics. This result gives an aggregate view of the number and proportion of different groups in the sample. The next step is to evaluate the scale using the reliability assessment of Cronbach Alpha and exploratory factor analysis. Then, using Pearson correlation analysis to know the

correlation level between the model's variables. Finally, linear regression analysis is used, and the results show that hypotheses H1, H2, H3, H4, H5, H6, H4.1, and H6.1 are supported, while hypotheses H1.1, H2.1, H3.1, and H5.1 are rejected. The next chapter is about the summary of research results, discussion, and conclusion.

CHAPTER 6: DISCUSSION AND CONCLUSION

6.1. Summary of research results

This study has completed the exploration and examination of “factors affecting the students' decision to choose a university during the Covid-19 pandemic”. On the basis of research models in and in the past abroad and in the current educational context of Vietnam, the authors have proposed research models and hypotheses. To test the relevance of these hypotheses, the authors surveyed high school students by creating an online survey and collecting 597 valid samples.

The research results show that the “factors affecting high school students' decision to choose a university” during the Covid-19 pandemic include 6 factors and a standardized beta coefficient showing the degree of influence - the importance of these factors. Factors arranged in descending order are: *University's financial support* ($\beta = 0.185$, sig<0.001), *Significant people* ($\beta = 0.168$, sig<0.001), *University's facilities and resources* ($\beta = 0.162$, sig<0.001), *University's academic reputation* ($\beta = 0.159$, sig<0.001), *Student characteristics* ($\beta = 0.125$, sig<0.001), *University's efforts to communicate with students* ($\beta = 0.123$, sig<0.001). In addition, the moderating variable Covid only affects two relationships: *University's Efforts to communicate with students* and *Students' University Choices* ($\beta = 0.024$, sig<0.05); *University's Financial Support* and *Students' University Choices* ($\beta = 0.018$, sig<0.05).

Compared with the results of previous studies, the above factors are similar to the research results of Kee Ming (2010); Chapman (1981), etc. Therefore, there is a basis to confirm the results of this study are reliable.

Table 6.1: Results of testing hypotheses

Hypothesis	sig.	Result
H1: “Student characteristics” are positively related to “high school students' decision to choose a university”.	sig < 0.05	supported
H2: “Significant people” is positively related to “high school students' decision to choose a university”.	sig < 0.05	supported
H3: “University's academic reputation” is positively related to “high school students' decision to choose a university”.	sig < 0.05	supported

H4: “University’s Financial Support” is positively related to “high school students’ decision to choose a university”.	sig < 0.05	supported
H5: “University’s Facilities and Resources” are positively related to “high school students’ decision to choose a university”.	sig < 0.05	supported
H6: “University Efforts to communicate with students” is positively related to “high school students’ decision to choose a university”.	sig < 0.05	supported
H1.1: Covid-19 would moderate the relationship between student characteristics and their university decision.	sig > 0.05	rejected
H2.1: Covid-19 would moderate the relationship between significant people and their university decision.	sig > 0.05	rejected
H3.1: Covid-19 would moderate the relationship between academic reputation and their university decision.	sig > 0.05	rejected
H4.1: Covid-19 would moderate the relationship between university’s financial support and their university decision.	sig < 0.05	supported
H5.1: Covid-19 would moderate the relationship between facilities and resources and their university decision.	sig > 0.05	rejected
H6.1: Covid-19 would moderate the relationship between university’s efforts to communicate with students and their university decision.	sig < 0.05	supported

6.2. Discussion of research results

6.2.1. Main Effects

To further clarify the research results, each of the factors affecting student’ university choices will be discussed in turn below:

Student characteristics

The research results support hypothesis H1 that student characteristics have a positive impact on the “decision choosing a university of high school students” and this result is consistent with Chapman's (1981), Hossler (1984). This factor is ranked five out of six in

terms of influence on students' decision to choose a school with $\beta = 0.125$. This factor includes students' aspirations, interests, academic strengths, aptitudes and self-expectations. This means that, depending on the characteristics of the individual student, the student chooses a suitable university. In fact, currently, student characteristics affect students' decision to choose a school because this is the basis for universities to classify and evaluate students for admission to universities and their own characteristics. Students' characteristics are also the basis for students to apply for the university that is right for them.

Significant people

The research results show that hypothesis H2 “Significant people are positively related to high school students’ university decisions” is supported. This result is consistent with the claims of Carbrera and La Nasa (2000), Manski and Wise (1983), Ceja (2006), Hayden (2000), Joseph (1998, 2000). This is explained as follows, due to the characteristics of Vietnamese cultural life (Oriental culture), the influence of family members, teachers and friends has greatly influenced the person who makes the decision to choose a school. Besides, Vietnamese students tend to strictly follow social norms and expectations of the people surrounding them, which means the decision choosing a university is not only important for themselves but also for all the people around. Moreover, among the significant people for the student, the parents (mean = 2.95) still have the biggest influence on “the decision to choose the university of students” and this is similar to the research results of Baharun (2006).

University’s academic reputation

Research results show that hypothesis H3 is supported which means that the university’s academic reputation positively affects the “student’s university choices”. “The better the reputation, the more they decide to choose that university”, this result is similar to the assertion of Kotler and Fox (1995), Burn et al. (2006), Joseph (1998, 2000) and Clayton (2013). The university’s academic reputation factor has ranked third out of six factors influencing the “decision to choose a university”. The fact is that a majority of high school students tend to choose a university with a good reputation. In recent years, the context of competition and integration has made high-quality human resources increasingly affirming a particularly important role for the success of enterprises. Meanwhile, with the appearance of many universities in the country and the entry of universities abroad, the scale of training increased rapidly. Therefore, businesses as employers are faced with many choices of candidates and in fact, candidates who are students of reputable schools are being prioritized for recruitment by businesses. In addition, universities that are recognized by organizations

and associations will be more favorable for those who pursue graduate education. Students also rated the school as having a prestigious and quality program with the highest average score of 3.9, which shows that students appreciate university programs.

University's financial support

The research results show that the hypothesis H5 “University’s financial support is positively related to “high school students’ decision to choose a university” is supported and this is the factor that has the strongest influence on the “decision to choose a university of high school students” ($\beta = 0.185$). This shows that the more financial support a university offers to students, the higher the probability of being selected, and this result is similar to the comments of Jackson's (1986), Thorpe (2015), Wagner (2009) and Ming (2011), Joseph (2000), Manski and Wise (1983). In the current context, this factor is predicted to continue to be led by the difference in tuition fees between autonomous and non-autonomous universities, between public and non-public universities, between private and non-private universities which having advanced and advanced study programs and schools with mass study programs, etc. have partly influenced the students' university choices. The research results also clarify the specific criteria that students are interested in when choosing a university such as “The university has many financial support policies (scholarships, grants, preferential loans, etc.)” with mean = 4.01 is the most concerned criterion because financial support policies will reduce the burden on students and their families and especially create favorable conditions for students who study well but cannot afford.

University's facilities and resources

According to the research results, hypothesis H4 “Facilities and resources” have a positive influence on the “decision to choose a university of high school students” is accepted. This result is similar to that of Price et al. (2003), as well as Mai and Thorpe (2015). This means that the better facilities and resources the university have, the higher the chances of being selected. These universities invest a lot in facilities and promote communication so students can understand the aspects of this factor, from which students choose universities with facilities and resources that match their desires.

University's efforts to communicate with students

The accepted hypothesis H6 means that the more effort a university makes to interact with students, the higher the probability of being selected. This result is similar to the claim in Chapman (1981), Hossel and Gallagher (1987). Currently, with the strong development of social networks that allow high interaction between universities and high school students,

students can receive exactly the information they want to learn about the university from that builds trust and love for that university.

6.2.2. Moderating Effects

Discussion about supported hypothesis

The moderator hypothesis H4.1: Covid-19 would moderate the relationship between university's financial support and the “student’s university choices” is accepted. Financial support from universities is the factor that affects (most importantly) high school students when choosing a university, but Covid-19 also affects the relationship between financial support of university and “high school students’ decision to choose a university” to become stronger and more cohesive. The Covid pandemic has dealt a huge economic blow, efforts to reduce social interaction to prevent the spread of the virus are disrupting people's daily lives and adding to the economic costs. In addition, rising unemployment is increasing social unrest in developed economies, where falling incomes and health insurance are threatening living standards, and in developing economies, the population is increasingly concerned about access to basic needs and poverty rates are increasing (Weiss et al., 2020). This makes students particularly concerned about the cost of attending a university. In fact, it is true, according to Kim et al. (2020) that students who change the ranking of the university they want to attend, the most frequent reason is because of the cost of attending. This shows the economic hardship that many students and families face, students and families are hardly able to pay the large financial burden during the pandemic period. Therefore, universities with reasonable tuition fees, reasonable living costs and many financial support policies such as scholarships, grants, preferential loans along with the collection of appropriate revenues are more interested by students when choosing a university.

The moderator hypothesis H6.1: Covid-19 would moderate the relationship between university's efforts to communicate with students and the “students’ university choices” is accepted. Communication efforts of universities include career counseling activities, university tours and communication channels, advertising, etc. Due to the impact of the Covid-19 pandemic, universities are unable to conduct university visits for students and cannot go to high schools to enroll students, so online communication channels are used maximum and with strong investment. Along with the rapid development of the information technology industry, students can find out the necessary information related to universities easily. Furthermore, students can access universities through online activities organized by

universities. This is the reason why the role of media activities from universities affects students' decision to choose a school during the Covid-19 pandemic.

Discussion about rejected hypothesis

The authors predict that hypothesis 1.1, hypothesis 2.1, hypothesis 3.1 and hypothesis 5.1 are accepted which mean Covid-19 would moderate the relationship between “students’ characteristics”; “significant people”; “university’s academic reputation”; “university’s facilities and resources” and “students’ university choices”. However, the results of data analysis do not support these hypotheses.

Student characteristics

The reason for the relationship between students' characteristics and the decision to choose a university that is not affected by Covid-19 maybe because it has been nearly two years since the Covid-19 pandemic broke out in Vietnam and high school education lasts three years. Therefore, the current 12th-grade students have nearly two years to adapt to the new learning environment, and grade 10 and 11 students almost participate in high school in the Covid-19 pandemic.

Significant people

Studies in the world have shown that there are individuals who, despite facing unfavorable environmental factors, still have good career goals and are confident that they will achieve the career goals they pursue. These people tend to achieve career achievement in large part due to the support and companionship from their parents regarding their career choices (Constantine et al., 2005). These studies fully support our results. Therefore, we conclude that Covid 19 does not affect the relationship between significant people and “high school students’ decision to choose a university”.

University’s academic reputation

According to Hatch and Schultz (1997), organizational reputation is the keen perception of an organization by stakeholders. It is formed through a long period of understanding and evaluation of the success of that organization. In the higher education program, the reputation of the university is perceived by stakeholders, including students who have long been with the institution.

University’s facilities and resources

According to many research articles by many authors such as hypotheses from H5.1, the factor of facilities and resources is one of the important “factors affecting students’ university choice”. But most students are vague about the school's facilities and human resources because they have not experienced it, but only consider narrower things such as

headquarters and buildings through the image of the school. This factor is easy to overlook, and many students value the quality or program more than the university's facilities and resources. The authors, therefore, conclude that Covid 19 has no relationship between key people and school decisions.

6.3. Research implications

6.3.1. Theoretical implications

This study is based on the theory of reasoned action (TRA), choice theory, Black Box theory and theory about marketing environment and previous studies on the students' university choices. The results of this study are compared with previous studies on the same topic and placed in the context of the education sector affected by the Covid-19 pandemic. Theoretically, the research results reveal six factors that affect “the decision to choose a university of high school students”. Besides, the Covid-19 regulatory variable is a new factor contributing to the research model.

The thesis is an in-depth study on the factors which affect the “university choice of high school students” in the ongoing Covid 19 pandemic. The novelty of the thesis is the first time the impact of Covid-19 on the relationship between the observed variables (Students Characteristics, Significant People, University's Academic Reputation, University's Financial Support, University's Facilities and Resource, University's Effort to communicate with students) and the decision to choose a university are studied deeply. Thereby proving that Covid 19 has a certain impact on the interaction of the independent variable and the dependent variable in the research model. In addition, the thesis has inherited and comprehensively promoted both domestic and international studies to clarify the influence of these factors, thereby proposing directions to improve the enrollment quality of universities in Vietnam.

6.3.2. Practical implications

Research provides executive officers of the university's departments with orientations to develop the marketing strategies in order to attract students to enroll at the school and meet the entrance target of the universities. The factors that universities need to pay attention to are, respectively: university's financial support, student's significant people, university's academic reputation, university's facilities and resources, university effort to communicate with students. Financial support and efforts to communicate with students, in particular, have

a strong influence in attracting students to enroll at the school, especially with the impact of the current Covid-19 pandemic on education. Based on the research results, the author gives specific recommendations for higher education institutions to build and develop the marketing strategies presented in detail in the following section.

6.4. Recommendations for universities' marketing strategies

Segment students into target groups

One of the biggest benefits of customer segmentation is making customer management more efficient. Likewise, when universities divide students into groups based on demographics, interests, academic performance, student interests, etc. This allows universities to understand the school choice needs of high school students and respond promptly to these needs by developing effective marketing strategies. A number of related studies on educational marketing also show a tendency to abandon mass marketing in favor of targeted marketing (Lewison and Hawes, 2007). The split of a market and then classified into customer groups with distinct demands, traits, and behaviors based on variables such as location, demographics, psychology, and behavior is known as market segmentation (Kotler et al., 2012). After grasping the market opportunity of each customer group, the suppliers will decide which group to choose to serve. Lewison and Hawes (2007) stated that four criteria can be utilized to identify high school students' motivation while choosing a university:

Career learner: The main motivation is to acquire specific skills and other factors for success in future jobs.

Socio-improvement learner: The main motivation is to broaden horizons, improve mind, expand personal knowledge, realize the personal potential, and achieve other personal goals.

Leisure - Learner: Wishing for higher education services to provide an engaging learning environment, eliminate stereotypes, increase the quality of life, broaden knowledge on personal themes, and motivate and care for individuals.

Ambivalent learner: The desire to attend university in order to please others and avoid alternative possibilities.

In reality, universities in Vietnam have the opportunity to pick target clients based on factors such as academic competence, regional priority, and so on. As a result, each school establishes a clear definition of the pupils they desire focused on giving adequate solutions

for recruiting The findings of this study reveal that the Covid-19 variable moderates the link between the variables of cost, the effort of university interaction with students, and institution choice. Universities can use this aspect to clearly identify their target audience and develop a tailored marketing strategy.

Applying marketing mix

Product

There is no denying that quality improvement is the most effective method to attract new students and retain studying-students. To create the image of the "ideal university," the school must always understand and improve. Take steps to build on current strengths, overcome weaknesses, and gradually develop them. Students are the special customers of the education business. The school then will always try to improve the quality through the requirements of learners through investment in facilities, flexible curriculum, the balance between theory and practice, allowing students to choose a teacher, choose a subject, choose a class time, etc., along with the scientific assessment method, and the active support from the school's associations and unions in the learning and research process will be the premise. for students to absorb knowledge in the best way. In more detail, the curriculum must be updated at various levels to meet the school's training goals as well as the needs of students. Universities must diversify and increase the quality of study programs by:

Improving and supplementing the curriculum in the direction of assuring academic quality, absolutely not reducing the quality of academic knowledge, while also fulfilling the demands of stakeholders. The curriculum must be developed based on the findings of a comprehensive survey of students, as well as close collaboration with businesses to enrich and add educational programs that are appropriate for each audience and training period. It is necessary to organize more advanced and specialized training programs using a variety of methods, such as inviting field experts to speak at classes on predetermined topics; coordinating with businesses and organizations to design advanced courses that meet the needs of businesses and students; and having factory visits, businesses, or exchanges with other universities or businesses to exchange or learn more about students' aspirations. The curriculum needs to be student-centered, flexible and scientific to best meet the good needs of students for effective learning and research. For example, being flexible in registering for courses, paying money to create the most favorable conditions for students to access ancillary services. Student surveys and assessments of course quality should be conducted

on a regular basis in order to gradually enhance and complete the curriculum in accordance with standards and suit students' growing academic needs.

New curricular ideas must be developed. Universities must create breakthrough programs in order to stimulate student and faculty creativity in addition to mass study programs. In the 4.0 era, learning programs must be created in an open orientation so that learners can engage with one another and share materials for simple access and interchange. Instructors must also incorporate good audio-visual resources into their sessions.

In addition, the quality of facilities and equipment should be ensured. The number of classrooms is enough for classes to avoid three shifts. Classrooms need to meet construction standards and have enough light sources. Learning equipment such as tables and chairs, tables, and power sockets need to meet hygiene and safety requirements. It is also important to note that tables and chairs are provided for students with disabilities. University dormitories need to meet security standards. Regarding the environment, it is necessary to pay attention to basic factors such as water source, ensuring clean to meet the use needs of teachers, students and school staff; waste collection and treatment process must ensure environmental sanitation.

Finally, university lecturers need to be trained to actively explore new forms of training such as E-learning. This is a way to both improve the capacity of lecturers and increase their ability to adapt to changes in the external environment (Covid-19). In addition, teachers need to have the skills to build lectures as well as determine the right objectives of the subject to be able to impart knowledge to students in the best way. In addition, in order to motivate students, teachers need to identify fair and effective assessment methods.

Price

In business, the price must correspond to the product's quality (Quality of Training). As a result, universities should develop a strategy for analyzing and evaluating specific data in order to decide the right tuition charge. Furthermore, universities should do research into the relationship between the quality of intensive and high-quality programs against mass programs, as well as across faculties and departments, in order to modify tuition prices appropriately. Schools should also analyze and conduct research to better understand students' opinions about the tuition and fees they pay in order to better comprehend and alter pricing policies in accordance with competitive advantages over competitors.

Covid-19 has been crippling the global economic system, so more than ever, cost policies need to be extremely focused by universities at this time. Universities should actively balance revenues and expenditures, with strategies in place to enhance financial

sources in order to attract exceptional pupils. The monthly scholarship, for example, might be expanded with the help of businesses or organizations both at home and abroad. The school can set conditions for students with challenging circumstances or who require loans to study to be able to obtain state loans or establish funds to support preferential loans for students. The amount of money spent on scholarships and financial aid of schools should be ensured in accordance with government regulations. The universities should have working relationships with corporations and organizations. Businesses can help with financial funding and can also establish conditions and chances for students to work in the firm at different stages to earn more money. It can be said that the current low price policy of universities provides many competitive advantages, so for high school students, the use of the current low price policy of universities should be designed specifically, distinguishing between different subjects such as: giving priority to the key fields that the school requires to perform socio-political tasks, different study programs have different tuition fees, allowing students to overtake, learn to accumulate to reduce costs, and so on.

Promotion

A university can option to disregard differences between potential students or emphasize on distinctions to determine the target market in the context of university admissions and the influence of the Covid-19 pandemic. This means that mass marketing, target marketing, and even marketing without a plan can all be employed in different ways. In the case of mass marketing, universities reach out to all potential students with the same study program, tuition fee, and marketing strategy. This is quite difficult to achieve at the moment, despite the benefit of significant cost savings. When it comes to targeted marketing, universities must concentrate on one or more market segments and create unique marketing campaigns for each set of prospective students. As a result, institutions must emphasize the distinctions in curricula.

The focused marketing technique is particularly favorable in the current setting, and it offers genuine potential for success in the higher education industry (Klei and Clark, 2001). The proper material and strategy are established based on the possible pupils being targeted and the school's existing capabilities. The authors of the thesis advocate that schools implement targeted marketing strategies based on the findings of their research. Universities should focus their resources on the positive factors that lead to “students’ decision to choose a university”, rather than affecting all factors likely to influence student choice decisions, as financial resources become increasingly limited due to government cuts and the economic slowdown caused by the Covid-19 pandemic. Focus on groups of solutions that have a strong

influence on developing competitive cost advantages, enhancing and improving the quality of study programs, reputation, and having an effective impact on the reference group to encourage high school students' school choice behavior in favor of universities.

The more a university makes an effort to interact with students, the more likely it is to be selected, and this relationship becomes stronger due to Covid-19 so schools must re-evaluate communication from the perspective of the target audience in order to assess the efficacy of advertising and enrollment dissemination. The university's communication and advertising policies must be closely scrutinized in order to succeed in the enrollment process and attract more candidates for admission and admittance. It is up to each university to select and diversify communication techniques that are effective and appropriate for their unique qualities, but this effort must be done on an annual basis. The main solutions are suggested as follows.

Improve the availability of complete and detailed information about each discipline/program, as well as update and introduce scientific research works and important media job possibilities. There should be particular communication content stressing this information to enhance the academic reputation of the university, especially for universities with unique and great academic programs. To position the brand and promote the university's image, more information, evidence of the school's training quality, comments and assessments from stakeholders such as prestigious universities around the world, educational administrators, parents, former students, recruitment agencies, and so on are required. More information about the expenses that high school students must incur during their education is required. It is vital to describe tuition prices, scholarships, financial awards, financial priorities for each target group, fertility rates, expected cost of living, etc., especially for universities that have the advantage and follow a pricing strategy. However, in order to avoid negative reactions or misunderstandings concerning price hikes and education quality, information about pricing policies should be provided "wisely" and with proper thought. To boost credibility among students, the school can focus on picking images of successful students and famous influencers in society.

Place

With the explosive development of digital technology today, online learning is no longer strange to everyone. The Covid-19 pandemic has caused disruptions to the teaching and learning of students and teachers around the world, but on the other hand, online teaching measures have thus achieved their full effect.

Not only is it convenient during the time of social distancing due to the pandemic, but online classes can also be immediately applied to students' daily study programs. With practical benefits such as flexibility in time and place for students, improved attendance, full technical support, etc. In addition, online lectures can be recorded, archived, and shared for internal reference. Recording lectures allow students to access learning materials at any time, and reviewing knowledge also becomes easier. However, except for force majeure cases that force the application of online lectures entirely, such as during the Covid-19 pandemic, online courses should only be applied to non-specialized subjects to ensure students' knowledge.

6.5. Limitations and suggestions for future research

6.5.1. Limitations

This study has met the stated research objectives as well as answered the research questions; however, the authors recognize that some limitations still exist. Firstly, on the research sample: due to the pandemic situation and the convenient sampling method, the collected data may be affected in part by the research sample not having high general significance. Second, the new model can only explain 44.8% of the research problem when fully replicated. The reason identified by the author may be that the sample size is not commensurate with the research scope and the survey in this study has not mentioned a number of factors. Third, because the research subjects are high school students, the research has not shown the difference between the factors affecting the students' decisions before and after admission, as well as the level of satisfaction of the students selecting the university. In addition, the proposed solutions are mainly representative in accordance with the current situation.

6.5.2. Suggestions for future research

The scale needs to be further improved and researched with a more general and larger sample to find out other factors that can affect students' decisions to choose a school, which is an open direction for further research in this educational research field.

6.6. Conclusion

The purpose of this study is to find out the “factors that influence students' decision to choose a university” and examine the degree of regulation of Covid-19 on this relationship.

The study was conducted within 3 months to fulfill the objective of the thesis as well as answer the research questions. A survey on high school students was conducted entirely online. The questionnaire was sent to high school student groups on the social network Facebook. Time to collect data within 10 days to collect 636 responses. There are 597 high school students' valid samples for convenience of research.

The results show that, all six factors in the research model: "Students Characteristics", "Significant People", "University's Academic Reputation", "University's Financial Support", "University's Facilities and resources" and "University Effort to communicate with students" positively influence on "decision to choose a university of high school students". In addition, the research results also show that two out of six hypotheses about the moderator variable are accepted, that is, Covid-19 affects the interaction between these factors "University's Financial Support", "University Effort to communicate with students" to the "Decision of high school students to choose a university". From the results of the study, the authors propose a number of solutions for universities to optimize marketing strategies.

REFERENCES

A

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, pp.179-211.
- Aldridge, S. and Rowley, J. (1998). Measuring customer satisfaction in higher education. *Quality assurance in education*.
- Arpan, L., Raney, A. and Zivnuska, S. (2003). A cognitive approach to understanding university image. *Corporate Communications: An International Journal*, 8(2), pp.97-113.
- Asanov, I., Flores, F., McKenzie, D., Mensmann, M. and Schulte, M. (2021). Remote-learning, time-use, and mental health of Ecuadorian high-school students during the Covid-19 quarantine. *World development*, 138, p.105225.

B

- Baharun, R. (2006). Identifying needs and wants of university students in Malaysia. *Malaysian Management Review*, 39(2): 1-7.
- Barnett, R. (1992). *Improving Higher Education: Total quality care*. 1900 Frost Rd., Suite 101, Bristol, PA 19007: Open University Press.
- Baron, R. M., and Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173.
- Baxter, J., Budinski, M., Carroll, M., and Hand, K. (2020). *Families in Australia survey: Life during Covid-19 - Report no. 5: What we did during lockdown*. [online] Australian Institute of Family Studies. Available at: <<https://aifs.gov.au/publications/what-we-did>> [Accessed 26 November 2021].
- Becker, G. (1975). Human capital: A Theoretical and Empirical Analysis with Special Reference to Education. *National Bureau of Economic Research*.
- Beneke, J. and Human, G. (2010). Student recruitment marketing in South Africa- An exploratory study into the adoption of a relationship orientation. *African Journal of Business Management*, 4(4), pp. 435-447.
- Beynon, J., Hallak, J. and Postlethwaite, T.N. (1997). *Physical facilities for education: what planners need to know*. Paris: United Nations Educational, Scientific and Cultural Organization.

- Bollen, K.A. (1989). Structural equations with latent variables. *Choice Reviews Online*, 27(02), pp.27-0974-27-0974.
- Bourdieu, P. (1986). *The Form of Capital: Hand Book Theory and Research in Sociology of Education*. Richardson J. ed. Westport, CT: Greenwood, pp. 241–58.
- Bowers, T.A. and Pugh, R.C. (1973). Factors underlying college choice by students and parents. *Journal of College Student Personnel*.
- Browning, G. (2000). *Understanding contemporary society: Theory of the present*. London: Sage.
- Burgess, S. and Sievertsen, H.H. (2020). *The impact of Covid-19 on education*. [online] Voxeu.org. Available at: <<https://bit.ly/3p2wqLR>> [Accessed 25 November 2021].
- Burns, M. J. (2006). Factors influencing the college choice of African-American students admitted to the college of agriculture, food and natural resources. *Doctoral dissertation, University of Missouri - Columbia*.
- C**
- Cabrera, A.F. and La Nasa, S.M. (2000). Understanding the college-choice process. *New directions for institutional research*, 2000(107), pp.5-22.
- Ceja, M. (2006). Understanding the role of parents and siblings as Information sources in the college choice process of Chicana students. *Journal of College Student Development*, 47(1), pp. 87-104.
- Chapman, D.W. (1981). A model of student college choice. *The Journal of Higher Education*, 52(5), pp.490-505.
- Chapman, D.W. (2008). A model of student college choice. *Journal of Scholarly Publishing*, 40(1), pp.24–26.
- Clayton, D.D. (2013). Factors and Influences Contributing to the College Selection Decision of High Achieving High School Seniors. *Western Kentucky University*.
- Comrey, A. L., and Lee, H. B. (1992). *A first course in factor analysis*. New York: Lawrence Erlbaum Associates.
- Conard, M. J. and Conard, M. A. (2008). An Analysis of Academic Reputation as Perceived by Consumers of Higher Education. *Journal of Marketing for Higher Education*, 9(4), pp. 69–80. doi: 10.1300/J050V09N04_05
- Congress. (2012). *Law No. 08/2012/QH13 of the National Assembly : LAW OF LIGHT EDUCATION*. [online] Vanban.chinhphu. Available at: <<https://bit.ly/3o1S6bv>> [Accessed 29 November 2021]. (in Vietnamese)

Constantine, M. G., Wallace, B. C. and Kindaichi, M. M. (2005). Examining Contextual Factors in the Career Decision Status of African American Adolescents.

Cosser, M. and Toit, J.Ld. (2002). *From school to higher education: Factors affecting the choices of grade 12 learners*. South Africa: Cape Town, Human Science Research Council Publisher.

Crossman, A. (2010). Rational choice theory: An Overview.

Customs.gov, (2000). *The U.S.-Vietnam Bilateral Trade Agreement (BTA)*. [online] Available at: <<https://bit.ly/3odWch7>>. (in Vietnamese)

D

Deming, W.E. (1986). *Out of the crisis Cambridge*. Massachusetts: Cambridge.

Devinder, K. and Datta, B. (2003). A study of the effect of perceived lecture quality on post-lecture intentions. *Work study*.

E

Earthman, G.I. (2002). School facility conditions and student academic achievement.

Earthman, G.I. and Lemasters, L.K. (2011). The influence of school building conditions on students and teachers: A theory-based research program (1993-2011). *The ACEF Journal*, 1(1), pp.15-36.

Engel, J. F., Blackwell, R. D., and Miniard, P. W. (1995). *Consumer behavior*. 8th ed. Chicago: Dryden Press.

Eyles, A., Gibbons, S. and Montebruno, P. (2020). Covid-19 school shutdowns: What will they do to our children's education?.

F

Filip, A. (2011). *Satisfaction, trust and commitment—Key variables for understanding customer loyalty in retail banking industry*. In Proceedings of the 7th International Conference on Management of Technological Changes, pp. 133-136.

Fishbein, M., and Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. MA: Addison-Wesley.

Foskett, N., Maringe, F. and Roberts, D. (2006). Changing Fee regimes and their Impact on Student Attitudes to Higher Education. *Higher Education Academy*, 13(2), 23-31.

G

Gautam, S. (2020). The influence of Covid-19 on air quality in India: a boon or inutile. *Bulletin of environmental contamination and toxicology*, 104(6), pp.724-726.

- General Statistics Office of Vietnam, (2021). *Press release on labor and employment situation in the third quarter and 9 months of 2021*. [online] Available at: <<https://bit.ly/3o31An7>> [Accessed 26 November 2021]. (in Vietnamese)
- General Statistics Office of Vietnam, (2021). *Provincial level statistical indicator system - Number of high school students*. [online] Available at: <<https://bit.ly/3I2UFCa>> [Accessed 26 November 2021]. (in Vietnamese)
- Ginsberg, E., Ginsburg, S. W., Axelrad, S. and Herma, J. L. (1951). Occupational choice: an approach to a general theory. *Columbia University Press*.
- Glasser, W. (1999). *Choice theory: A new psychology of personal freedom*. Harper Perennial.
- Gorsuch, R. (1983). *Factor Analysis*. 2nd ed. Hillsdale, NJ: Erlbaum
- Gray, B.J., Fam, K.S. and Llanes, V.A. (2003). Branding universities in Asian markets. *Journal of product & brand management*.
- H**
- Hachmeister, C.D., Harde, M.E. and Langer, M.F. (2007). Factors influencing the decision to study. *An empirical study by CHE and EINSTIEG*, 95. (in German)
- Hair, J.F., Black, B., Babin, B., Anderson, R.E. and Tatham, R.L. (2006). *Multivariate data analysis*. 6th ed. Englewood Cliffs: Pearson Prentice Hall.
- Harpenau, J. (1992). Self-portrayal as an instrument in competition between universities: a contribution from a regional scientific point of view using the example of the University of Hanover. *Lang*. (in German)
- Harris, R. J. (1985). *A primer of multivariate analysis*.
- Häuberer, J. (2011). *Social capital theory*. Springer Fachmedien.
- Hayden, J. (1996). *Management of Early Childhood Services: An Australian Perspective*. Social Science Press.
- Hoàng, T. and Chu, N.M.N. (2008). *Data Analysis with SPSS*. Ho Chi Minh City: Thong Ke Publisher. (in Vietnamese)
- Hoàng, T. and Chu, N.M.N. (2008). *Statistics applied in the economy - society*. Ho Chi Minh City: Thong Ke Publisher. (in Vietnamese)
- Hosler, D. (1984). *Enrollment management: An integrated approach*. New York: College Board

Hossler, D. and Gallagher, K.S. (1987). Studying student college choice: A three-phase model and the implications for policymakers. *College and University*, 62(3), pp. 207-222.

Hoyt, J.E. and Brown, A.B. (2003). Marketing UVSC: 'How prospective students view the college'. *Unpublished manuscript*.

I

International Labor Organization, (2021). *Slow jobs recovery and increased inequality risk long-term Covid-19 scarring*. [online] Available at: <<https://bit.ly/3I29XqU>> [Accessed 26 November 2021].

Ivy, J. (2001). Higher education institution image: correspondence analysis approach. *International Journal of Educational Management*, 15(6), pp.276-282.

J

Jamison, D.T., Gelband, H., Horton, S., and Laxminarayan, R. (2017). *Disease control priorities: improving health and reducing poverty*. 3rd ed. Washington (DC): The World Bank.

Joseph, M. and Joseph, B. (2000). Indonesia students' perceptions of choice criteria in the selection of a tertiary institution: strategic implications. *The International Journal of Educational Management*, 14(1), pp. 40-44.

Joseph, M., and Joseph, B. (1998). Identifying needs of potential students in tertiary education for strategy development. *Quality Assurance in Education*, 6(2). 90-96

Joshep Kee Ming Sia (2013). University Choice: Implications for Marketing and Positioning. *Education*, 3(1), 7-14

K

Kant, R. (2020). Covid-19 Pandemic: Looking in the mind of students during lockdown. *Purakala. UGC CARE J*, 31, pp.508-522.

Kaynak, E., Fulmer, R. M., and Keys, J. B. (2013). Introduction: Seven Imperatives for Executive Education and Organizational Learning in the Global World. *In Executive Development and Organizational Learning for Global Business*, pp.19-28. Routledge.

Kedra, K. and Kaltsidis, C. (2020). Effects of the Covid-19 pandemic on university pedagogy: students' experiences and considerations. *European Journal of Education Studies*, 7(8).

- Khanna, M., Jacob, I. and Yadav, N. (2014). Identifying and analyzing touchpoints for building a higher education brand. *Journal of Marketing for Higher Education*, 24(1), pp.122-143.
- Kim, H., Krishnan, C., Law, J., and Rounsaville, T. (2020). Covid-19 and US higher education enrollment: Preparing leaders for fall. *McKinsey and Company*.
- Kotler, P. (2000). *Marketing management: The millennium edition*. Upper Saddle River, NJ: Prentice Hall.
- Kotler, P. and Fox, K.F.A (1995). *Strategic marketing for educational institutions*. 2nd ed. N.J: Prentice-Hall.
- Kotler, P., Armstrong, G. and Opresnik, M.O. (2018). *Principles of marketing*. 17th ed. Harlow: Pearson.
- Kotler, P., Armstrong, G., Ang, S. H., Leong, S. M., Tan, C. T., and Ho-Ming, O. (2012). *Principle of marketing: an Asian perspective*. Pearson/Prentice-Hall.
- Kotler, P., Armstrong, G., Wong, V. and Saunders, J. (2002). *Principles of marketing*. 3rd ed. London: Prentice-Hall.
- Krampf, R.F. and Heinlein, A.C. (1981). Developing marketing strategies and tactics in higher education through target market research. *Decision sciences*, 12(2), pp.175-192.

L

- Lâm, Q.T., (2017). *The structure of the new national education system and issues that need to be clarified and adjusted - Education in Vietnam*. [online] Giaoduc.net. Available at: <<https://bit.ly/3p911dk>> [Accessed 26 November 2021]. (in Vietnamese)
- Lâm, T.S. (2013). Value orientation of high school students in the Mekong Delta. *National Library of Vietnam*. (in Vietnamese)
- Le Nestour, A., Mbaye, S. and Moscoviz, L. (2020). Phone survey on the Covid crisis in Senegal. *Center for Global Development*, p.26.
- Lê, T.M.L. and Khúc, V.Q. (2020). Factors affecting the decision to choose a university of high school students in Vietnam: Survey evidence 2020. (in Vietnamese)
- Lê, V.H. (2001). *Age psychology and pedagogical psychology*. Hanoi: National University. (in Vietnamese)
- Lewison, D.M. and Hawes, J.M. (2007). Student target marketing strategies for universities. *Journal of College admission*, 196, pp.14-19.

M

- Maguad, B.A. (2007). Identifying the needs of customers in higher education. *Education*, 127(3).
- Mai, L. (2015). Choose a major according to the trend of integration. [online] tuoitre. Available at: <<https://bit.ly/3FYrJtq>>. (in Vietnamese)
- Mai, T.N.D. and Thorpe, A. (2015). What factors influence Vietnamese students' choice of university?. *International Journal of Educational Management*, 29(5), pp.666-681, <https://doi.org/10.1108/IJEM-08-2014-0110>
- Manski, C.F. and Wise, D.A. (1983). *College choice in America*. Cambridge, MA: Harvard University Press.
- Mazzarol, T. (1998). Critical success factors for international education marketing. *International Journal of Educational Management*.
- Ming, J.S.K. (2010). Institutional factors influencing students' college choice decision in Malaysia: A conceptual framework. *International Journal of Business and Social Science*, 1(3).
- Moet.gov.vn, (2021). *Higher education statistics for the academic year 2019 - 2020*. [online] Available at: <<https://bit.ly/319UP14>> [Accessed 24 September 2021]. (in Vietnamese)
- Moet.gov.vn, (2021). *Statistics of secondary and high school education for the school year 2019 - 2020*. [online] Available at: <<https://bit.ly/318Zd02>> [Accessed 25 September 2021]. (in Vietnamese)
- Mok, K.H. (2007). Questing for Internationalization of Universities in Asia: Critical Reflections. *Journal of Studies in International Education*, 11(3-4), pp.433-454.
- Müller, B.H., Hasselhorn, H.M., Tackenberg, P. and NEXT-Study Group. (2003). Intent to leave nursing in the European nursing profession. *Group Working conditions and intent to leave the profession among nursing staff in Europe*, pp.115-124.
- N**
- Nam, G. (2019). *60% of students choose the wrong major*. [online] nld.com.vn. Available at: <<https://bit.ly/3r8e5j1>> [Accessed 24 September 2021]. (in Vietnamese)
- Nguyễn, Đ.T. and Nguyễn, T.M.T. (2007). *Market Research*. Ho Chi Minh City: Ho Chi Minh National University Press. (in Vietnamese)
- Nguyễn, M.H., Huỳnh, G.X. and Huỳnh, T.K.T. (2011). Research on factors affecting students' choice of Ho Chi Minh City Open University. *Ho Chi Minh City Open University Science Journal*, 6(2), pp.107-117. (in Vietnamese)

Nguyễn, T.T.H. (2006). *Career guidance and technical teaching in high schools*. Hanoi: Giao duc Publisher. (in Vietnamese)

Nunnally, J.C. and Bernstein, I.H. (1994). *Psychometric Theory*. 3rd ed. New York: McGraw – Hill.

O

Obermeit, K. (2012). Students' choice of universities in Germany: structure, factors and information sources used. *Journal of Marketing for Higher Education*, 22(2), pp.206-230.

OECD, (2021). *Teleworking in the Covid-19 pandemic: Trends and prospects*. [online] Available at: <<https://bit.ly/31bv75l>> [Accessed 26 November 2021].

Ostrom, A.L., Bitner, M.J. and Burkhard, K.A. (2011). Leveraging Service Blueprinting to Rethink Higher Education: When Students Become " Valued Customers," Everybody Wins. *Center for American Progress*.

P

Price, I.F., Matzdorf, F., Smith, L. and Agahi, H. (2003). The impact of facilities on student choice of university. *Facilities*.

Prime Minister. (2016). *Decision No. 1981/QĐ-TTg: Approving the structural framework of the national education system*. [online] Vanban.chinhphu. Available at: <<https://bit.ly/319aIxP>> [Accessed 29 November 2021]. (in Vietnamese)

Prime Minister. (2016). *Decision No. 1982/QĐ-TTg: Approving the Vietnam National Qualifications Framework*. [online] Vanban.chinhphu. Available at: <<https://bit.ly/3I2ScHU>> [Accessed 29 November 2021]. (in Vietnamese)

Q

Qiao, Y. (2011). *Interstate Fiscal Disparities in America: A study of trends and causes*. New York: Routledge.

Quigley, C. J, Bingham, F. G, Notarantonio, E. M. and Murray, K. (2000). The Impact Discounts and the Price-Quality Effect Have on the Choice of an Institution of Higher Education. *Journal of Marketing For Higher Education*, 9(2), pp. 1-17.

R

Ritchie, H., Mathieu, E., Rodés-Guirao, L., Appel, C., Giattino, C., Ortiz-Ospina, E., Hasell, J., Macdonald, B., Beltekian, D. and Roser, M. (2021). *Coronavirus Pandemic (Covid-19)*. [online] Our World in Data. Available at: <<https://ourworldindata.org/coronavirus-data>> [Accessed 21 November 2021].

S

Sewell, W.H. and Shah, V.P. (1978). Social class, parental encouragement, and educational aspirations. *American journal of Sociology*, 559-572.

Sia, J. K. M. (2013). University choice: Implications for marketing and positioning. *Education*, 3(1), 7-14.

Solomon, M., Bamossy, G., Askegaard, S. and Hogg, M.K. (2006). *Consumer behavior: A European Perspective*. 3rd ed. London: Prentice Hall.

T

Tabachnick, B.G., and Fidell, L.S. (1991). Software for advanced ANOVA courses: A survey. *Behavior Research Methods, Instruments, & Computers*, 23(2), 208-211.

Trần, V.Q. and Cao, H.T. (2009). Factors affecting high school students' decision to choose a university. *Science & Technology*, 12. (in Vietnamese)

Tull, M.T., Edmonds, K.A., Scamaldo, K.M., Richmond, J.R., Rose, J.P. and Gratz, K.L. (2020). Psychological outcomes associated with stay-at-home orders and the perceived impact of COVID-19 on daily life. *Psychiatry research*, 289, p.113098.

Turk, J., Soler, M.C. and Vigil, D. (2020). *College and University Presidents Respond to Covid-19: April 2020 Survey*. [online] Acenet.edu. Available at: <<https://bit.ly/3xz8dk4>> [Accessed 26 November 2021].

U

UNESCO, (2020). *1.3 billion learners are still affected by school or university closures, as educational institutions start reopening around the world, says UNESCO*. [online] Available at: <<https://bit.ly/3G1KgFf>> [Accessed 26 November 2021].

Unicef.org, (2020). *Covid-19: at least a third of the world's students are not learning remotely during school closures, according to new UNICEF report*. [online] Available at: <<https://uni.cf/3FPH0MU>> [Accessed 25 September 2021]. (in Vietnamese)

Unicef.org, (2021). *Impact of the Covid-19 pandemic on poor mental health in children and adolescents, 'tip of the iceberg'*. [online] Available at: <https://uni.cf/3r8eyBN>> [Accessed 25 September 2021]. (in Vietnamese)

United Nations, (2020). *Policy Brief: Education during Covid-19 and beyond*. [online] Available at: <<https://bit.ly/3D4RshN>> [Accessed 26 November 2021]

V

Voss, C. and Zomerdijk, L. (2007). Innovation in Experiential Services – An Empirical View. In: DTI (ed). *Innovation in Services*. London: DTI, pp.97-134.

Vietnam.fes.de. (2020). *Vietnam: Covid-19 And Challenges For Education* [online]
Available at: <<https://bit.ly/3q0ISgz>> [Accessed 14 December 2021].

W

Wagner, K. and Fard, P.Y. (2009). Factors Influencing Malaysian Students' Intention to Study at a HEI. *Chinese American Scholars Association*.

Wagner, K. and Fard, P.Y. (2009). Factors influencing Malaysian students' intention to study at a higher educational institution. *E-Leader Kuala Lumpur*.

Wajeeh, E.M. and Micceri, T. (1997). Factors Influencing Students' College Choice at Traditional and Metropolitan Universities.

Weiss, M., Schwarzenberg, A., Nelson, R., Sutter, K.M. and Sutherland, M.D. (2020). Global economic effects of Covid-19. *Congressional Research Service*.

X

Xuân, T. (2016). *New point in the project on the structure of the national education system sent by the Ministry of Education and Training to the Government - Education of Vietnam*. [online] Giaoduc.net. Available at: <<https://bit.ly/3D8CzuW>> [Accessed 26 November 2021]. (in Vietnamese)

Z

Zeithaml, V., Parasuraman, A. and Berry, L. (1985). Problems and strategies in services marketing. *Journal of Marketing*, 49, Spring, pp.33-46.

APPENDIX

Questionnaire

“Factors affecting university choice of high school students in Vietnam during the Covid-19 pandemic”

Dear,

We are a group of students from FPT Hoa Lac University - Hanoi. We are conducting a survey on the “factors affecting the decision of high school students to choose a university”, in order to better understand the “decision to choose a university of high school students” and give suitable recommendations to contribute for university admissions. We promise that this survey is for research purposes only and all your personal information will be kept completely confidential.

Thank you very much for your contribution!

* The survey only takes 2 minutes to complete.

Part I. Filter Question

Question: Are you a high school student?

- Yes (Continue to survey)
- No (Stop Survey)

Part II. Personal Information

Question 1. What is your gender?

- Male
- Female
- Others

Question 2. Which grade are you in?

- 10
- 11
- 12

Question 3. When have you made the decision to choose a university?

- Before 10
- 10
- 11
- 12

Question 4. To what extent has the situation associated with COVID-19 affected your life?

- Not influence at all
- Somewhat influence
- Moderately influence
- Influence
- Extremely influence

Part III.

Question: Please indicate the influence level of these following factors to your university choice. (Tick in the box, where 1 = Not influence at all, 2 = Somewhat influence, 3 = Moderately influence, 4 = Influence, 5 = Extremely influence)

Students Characteristic	1	2	3	4	5
1. Your aspirations (interests) influence your decision to choose a university.					
2. Your academic strengths affect your decision to choose a university.					
3. Your aptitude affects your decision to choose a university.					
4. Your educational expectations influence your decision to choose a university.					
Significant People					
1. Your parents influence your decision to choose a university.					
2. The brothers/sisters who were or are currently studying at the university influence your decision to choose a university.					
3. Friends influence your decision to choose a university.					
4. Homeroom teachers, career teachers influence your decision to choose a university.					
University's Academic Reputation					
1. The school has an academic reputation.					

2. The school has a prestigious and quality program.					
3. The school has programs of study that are recognized by individuals and organizations.					
University's Financial Support					
1. The university has reasonable tuition fees.					
2. A university with a reasonable cost of living.					
3. The university has many financial support policies (scholarships, grants, etc.)					
4. The university has a flexible fee (tuition) system.					
University's Facilities and Resources					
1. The school has an ideal location.					
2. The school has an environment that encourages learning for students.					
3. The school has facilities and equipment for students to rest and relax.					
4. The school provides students with a desirable social life.					
5. The school has the necessary resources to meet the needs of its students.					
6. The school has a safe and clean learning environment.					
7. The school has a team of high quality teachers.					
University's Efforts to communicate with students					

1. The school has recruitment and career counseling activities.					
2. The university organizes campus tour visits for high school students.					
3. The school implements advertisements that provide complete and detailed information through the media.					

Part IV.

Question: How certain are you with your university decision? (Note: X is the university name). (Tick in the box, where 1 = Not agree at all, 2 = Somewhat agree, 3 = Moderately agree, 4 = Agree, 5 = Extremely agree)

	1	2	3	4	5
1. I will attend X university in the near future					
2. I intend to choose X university to study					
3. X university will be my decision					