

NETWORK TECHNOLOGY, TEACHING QUALITY AND LEARNING  
INTERACTION IMPACTING LEARNING SATISFACTION IN NEW ORIENTAL  
ONLINE EDUCATION

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Xiaoqiong Xia

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Learning Satisfaction in New Oriental Online Education

Author: Miss Xiaoqiong Xia

Independent Study Committee:

Advisor



---

(Assoc. Prof. Dr. Suthinan Pomsuwan)

Field Specialist



---

(Dr. Papob Puttimanoradeekul)



---

(Mr. Virat Rattakorn)

Dean of the Graduate School

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Xiaoqiong Xia, M.B.A., August 2020, Graduate School, Bangkok University

Network Technology, Teaching Quality and Learning Interaction Impacting Learning Satisfaction in New Oriental Online Education (86 pp.)

Advisor: Assoc. Prof. Suthinan Pomsuwan, Ph.D.

## **ABSTRACT**

This research aims to study Network Technology, Teaching Quality, and Learning Interaction Impacting Learning Satisfaction in New Oriental Online Education. A total of 414 respondents are Chinese. They have all participated in online courses of New Oriental Online Education. Researchers use questionnaire surveys as research tools. Finally, multiple regression analyses used to analyze the results of the questionnaire. Multiple Regression was employed for hypothesis testing at 0.05 level of statistical significance. This study shows that in the independent variable 1. Network Technology, the sub-variables 1.1 System reliability and design and 1.2 the Speed of the Internet affect New Oriental Online Education's Learning Satisfaction, while 1.3 System ease of use did not. In the independent variable 2. Teaching Quality, the sub-variables 2.1 Class Schedule and 2.2 Self-Assessment Exercises affect New Oriental Online Education's Learning Satisfaction, while 2.3 Course Content does not. The independent variable 3. Learning Interaction, the sub-

variables 3.1 Teaching Interaction, 3.2 Problem Solving, and 3.3 Received Enjoyment influenced New Oriental Online Education's Learning Satisfaction.

*Keywords: Network Technology, Teaching Quality, Learning Interaction, Learning Satisfaction*



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Xiaoqiong Xia

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## **CHAPTER 1**

### **INTRODUCTION**

This chapter introduces the research proposal of this study which includes the importance and problem of the study, research problems, objectives of the study, the theoretical framework/conceptual framework, method of the study, tools, and statistics used, scope of the study (independent variables and dependent variable/population and sample), benefits of the research, limitations of the research.

#### **1.1 The importance and problem of the study**

With the development of network technologies, online learning has attracted more and more attention from teachers, learners, and educational researchers, and various online courses have continued to emerge. Simultaneously, learners' positive and negative experiences with online learning have prompted researchers to explore the factors that affect the satisfaction of online learning from various angles. Online learning has become an inevitable trend in the development of education. Studying online course learning satisfaction from the perspective of management is a hot topic in online education research in recent years.

The purpose of conducting this research was to study Network Technology, Teaching Quality, and Learning Interaction that influence Learning Satisfaction towards New Oriental online Education in China. Online education refers to the method of content dissemination and rapid learning through network technology.

Network technology provides technical support for online education platforms and can help students and teachers quickly organize teaching resources. Online education refers to the method of content transmission and fast learning through network technology. First, network technology provides technical support for online education platforms. CNNIC (2020) pointed out affected by the Covid-19 infection, the rapidly growing market demand has pushed online education to its peak. In the early days of large-scale online learning, the rapid increase in the number of people online often encountered freezes on the online education platform. Freezes are likely to cause a discontinuity in teacher teaching and affect the continuity of the entire class learning. The quality of the network directly determines the basis of online education. If the network technology effectively supports and it can also help students and teachers quickly organize teaching resources. Second, Berba (2018) stated that the quality of teaching determines the competitiveness of online education. Online education should pay more attention to content quality, strengthen teaching and research capabilities, and continuously create and output high-quality content resources that meet the characteristics of online teaching. Third, Kumpulainen & Wray (2002) believe that teaching interaction can activate the classroom atmosphere, increase students' attention, promote students' positive thinking, and improve the classroom teaching effect. Teachers should decide the teaching form and effect from different course types and content characteristics and strengthen interaction through classroom interaction and problem-solving.



## **1.2 Research problems**

(1) Does the Network Technology factor influence the learning satisfaction of students selected for New Oriental Online Education?

(2) Does Teaching Quality factor influence the learning satisfaction of students selected for New Oriental Online Education?

(3) Does Learning Interaction factor influence the learning satisfaction of students selected for New Oriental Online Education?

## **1.3 Objectives of the study**

(1) To study the impact of Network Technology on the learning satisfaction of students selected for New Oriental Online Education.

(2) To study the impact of Teaching Quality on the learning satisfaction of students selected for New Oriental Online Education.

(3) To study the impact of Learning Interaction on the learning satisfaction of students selected for New Oriental Online Education.

## **1.4 The conceptual framework**

This conceptual framework is important for the purpose of this study because it defines what are the independent variables effect learning satisfaction. This conceptual framework identifies 3 different independent variables to define the learning

satisfaction.

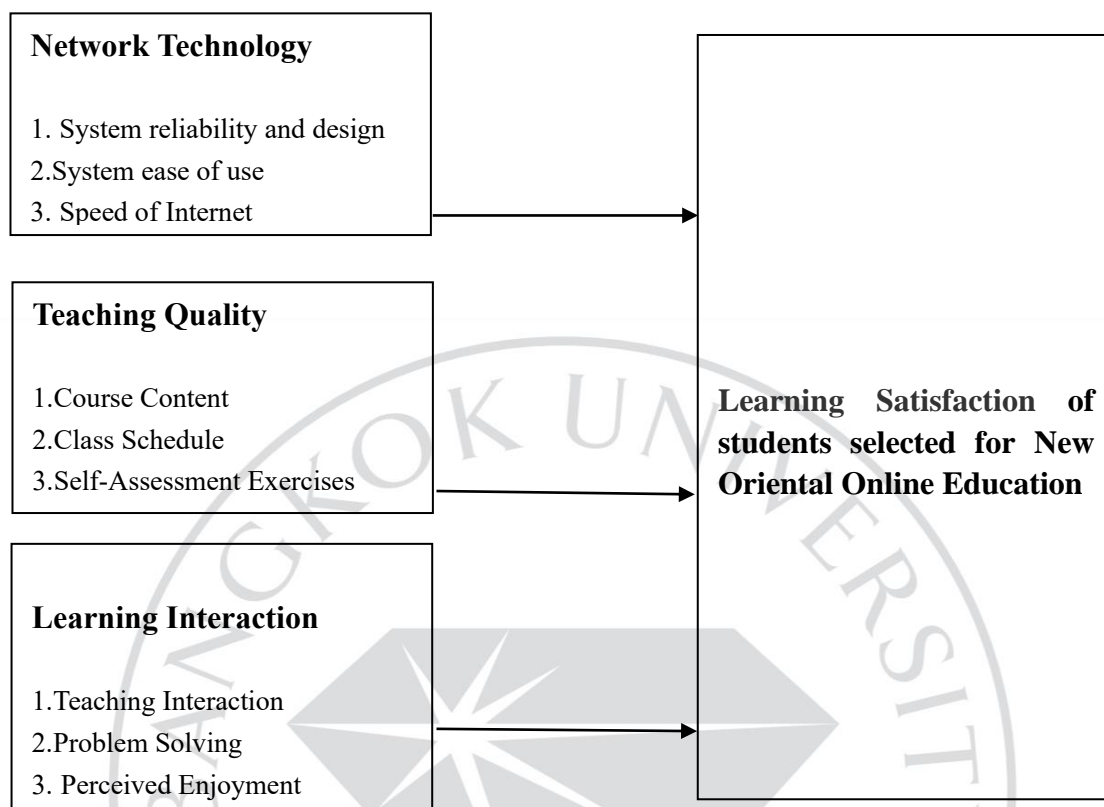


Figure 1: The conceptual framework

### 1.5 Method of the study

The population and sample group in this study were students who learned online courses for New Oriental Online Education in 8 out of 34 provinces of China, using simple random sampling, which includes Beijing, Shanghai, Guangdong, Jiangsu, Zhejiang, Sichuan, Shandong, Hubei province. The sample size was 400, actually received 414 questionnaires, with a confidence level of 95% and the margin of error of  $\pm 5$ . Therefore, 50 samples in each of the eight districts were selected to participate in this study. The questionnaires will conduct concerning the accuracy,

reliability, and validity of the answer from customers. The surveys were checked for the content of validity by Advisor Assoc. Prof. Dr. Suthinan Pomsuwan (English Version) and Dr. Tiaojiao Liu (Chinese Version), and tested for reliability with a volunteer sample group of another 30 students who learned online courses. The information from the questionnaires will provide analysis by Cronbach's Alpha.

### **1.6 Tools and statistics used.**

This study is a survey research using a questionnaire as the data collection tool to obtain information about Network Technology, Teaching quality, and Learning Interaction that influences the learning satisfaction of students selected for New Oriental Online Education. Use statistical software to analyze data collected from questionnaires. The Multiple Regression and Linear Regression Analysis used for the hypothesis testing process and to produce results.

### **1.7 Scope of the study**

#### **1.7.1 Independent variables: A. Network Technology**

- a. System reliability and design
- b. System ease of use
- c. Speed of Internet

#### **B. Teaching Quality**

- a. Course Content

b. Class Schedule

c. Self-Assessment Exercises

### **C. Learning Interaction**

a. Teaching Interaction

b. Problem Solving

c. Perceived Enjoyment

#### **1.7.2 Dependent Variable:**

Learning Satisfaction of students selected for New Oriental Online Education.

#### **1.7.3 Population and sampling**

The population and sample group in this study are students of New Oriental Online Education in China. The result of the questionnaire's analysis based on 414 questionnaires collected from the students from May 14, 2020, to June 15, 2020. The surveys conducted concerning the accuracy, reliability, and validity of the answer from customers.

#### **1.8 Benefits of the research**

This research will benefit the business plan of New Oriental Online

Education, the largest online education company in China. The research results will help the company develop and improve the quality of the customer-oriented online platform so that the research considers essential factors that affect learning satisfaction. As a result, the company can learn more about the service requirements for online learning of this research and develop appropriate plans to improve learning satisfaction. This result will help New Oriental Online Education get more competition online advantages and market share.

### **1.9 Limitations of the research**

Based on the sample group of New Oriental Online Education, this may affect the respondents' objectivity. Due to the composition of the sample group, this study's results may be ineffective for the entire target market of online education. Due to time constraints, this study will attempt to collect quantitative data through an online questionnaire. This study may cause the actual message to change, depending on the interpretation of the answer.

### **1.10 Definition of terms**

**Network technology** related to the network, integrating a company's network system. Such as distributed LAN and other network settings. This article refers specifically to the application of network technology reflected in online education platforms, including remote answering services, computer applications,

and related software applications (Bourgeois & T. Bourgeois, 2014).

**Teaching quality** refers to the academic level of business teachers, teaching methods, teaching attitudes of a comprehensive reflection. This article specifically refers to the application of teaching quality reflected in the online education platform, factors that affect students' learning outcomes (Rice, 2003).

**Learning Interaction** is a teacher who adjusts their emotions and teaching methods and fully mobilizes the student body, feelings, and mind to promote their all-around participation in teaching. This article specifically refers to the interactive application of education reflected in the online platform, including the learning process and the Interaction between teachers and students after class (Liu, 2016).

**Learning Satisfaction** refers to the learners to learn and to meet the overall feeling. Learning satisfaction is from the learning process, whether to make learners feel happy or comfortable and learning outcomes, whether to make learners think their needs are subjective feelings (Suarman, 2015).

## **CHAPTER 2**

### **LITERATURE REVIEW**

This chapter will describe the literature review and relevant research, including the theories, academic concepts, and related research for the research topic. "Network Technology, Teaching Quality and Learning Interaction Impacting Learning Satisfaction in New Oriental Online Education". The structure of this chapter is as follows:

- 2.1 The background of the New Oriental Online Education.
- 2.2 Theories/academic concepts and relevant researches of Network Technology.
- 2.3 Theories/academic concepts and relevant researches of Teaching Quality.
- 2.4 Theories/academic concepts and relevant researches of Learning Interaction.
- 2.5 Theories/academic concepts and relevant researches of Learning Satisfaction.

#### **2.1 The background of the New Oriental Online Education**

The company's website shows that New Oriental Online Education is a professional online education website owned by New Oriental Education Technology Group (NYSE: EDU). It is one of the first professional online education websites in China. New Oriental Online Education was founded in 2005, relying on New Oriental 's strong teaching force and teaching resources. The teaching content development and production team are committed to

providing users with a personalized, interactive, and intelligent, excellent online learning experience. The courses cover six significant categories, including overseas examinations, national examinations, vocational education, English learning, multilingualism, and K12 education, with 3,000 courses. At present, there are more than 20 million individual registered users on the New Oriental Online Education website, and more than 50 million mobile learning users.

## **2.2 Theories/academic concepts and relevant researches of Network Technology**

Educators use online technologies as information display tools and information storage tools to support learning. Promote interactive learning by enabling learners to actively analyze information and knowledge structures and apply technology to support their decisions (Tu, 2005, p. 189). Online technology has three aspects: teaching communication technology, cognitive technology, and management technology. These three dimensions enable learners to participate in active online communication, knowledge building, and mental model communication (Tu, 2005). Usability divided into five elements: learning ability, efficiency, memory, error, and satisfaction. It can affect productivity, quality of work, cost reduction, and user satisfaction (Jakob, 1994, p. 24). Mobile device technologies are changing the way socialize, interact, and connect. At the same time, a series of effects have occurred. We should specify a set of new paradigms, mechanisms, and techniques with the capacity for network technology's function



and evolution (Wang & Ma, 2014, p. 349). In mobile software, the seven factors that affect user satisfaction are system reliability and design, perceived ease of use, content usefulness, content quality, focused attention, perceived Enjoyment, and flow (Özata, & İçlem Er, 2015, p. 262). Satisfaction of students with Wi-Fi Internet services in higher education institutions. The role of the internet has always played a key role in higher education. a) Access to online educational materials, b) duration of Internet access per day, c) speed of internet browsing, and d) reliability of internet connectivity are essential factors in predicting student satisfaction with Wi-Fi internet services (Berba, 2018, p. 2).

The results show that the responsiveness and perceived content of network technology are important factors that affect the user's satisfaction with mobile learning apps. Users expect immediate feedback during the learning process, which can improve learning methods and efficiency. The satisfaction problem in mobile applications determines the user's satisfaction to ensure the maximum degree of satisfaction and the impact of satisfaction on mobile apps (Olubusola, 2018, p. 23). Mobile applications have become crucial in all fields, especially in education. Mobile applications can transform education from methodologies to results and innovation, and smartphones have completely changed online learning activities (Kundariya, 2020). Mobile apps have completely changed the way we traditionally learn in the past. Students can directly access these materials at any time, any place, without geographical restrictions, and help students and teachers

expand and enhance the learning process outside the classroom while enhance parent-teacher communication (Singh, 2018).

### **2.3 Theories/academic concepts and relevant researches of Teaching Quality**

Teacher quality can be measured by five standards: teacher experience, teacher preparation programs and degrees, type of teacher certification, specific coursework taken in preparation for the profession, and teachers' test scores. It can have a significant impact on the students they teach, and high-quality teachers play an essential role in the lives of children and the communities they serve (Rice, 2003, p. 89). Online education has become the main form of distance education. Academic leadership expects online registrations to grow by 25% per year; most people view online education as the key to a long-term strategy; most people believe that online education is already equal to or better than face-to-face teaching (Seaman, 2003, p. 99). Editor SCOPE In September 2001, Sloan (2002) organized the Sloan Consortium's third annual summer workshop on Asynchronous Learning Networks (ALNS). Participants discussed how to continue to improve the online course and concluded that the quality of the course depends on five aspects: learning effectiveness, cost-effectiveness, access, student satisfaction, and faculty satisfaction (p. 45). To improve the quality of teaching and learning is a priority for every higher education institution, especially at the level of higher education. Colleges and universities must adopt a culture of

sustainable development to provide quality teaching and better learning. High-quality teaching and better learning always refer to appropriate teaching processes, meeting teaching needs, and anticipating the expectations of customers and stakeholders in education, useful sports facilities, friendly staff, and excellent management services. According to the research results, the relationship between lecturers and students determines the lecturer's teaching quality and student satisfaction (Suarman, 2015, p.151). As the face of higher education continues to change, high-quality teaching has become an important issue. "Excellent teachers" are passionate: the passion for learning, field, teaching, and students. However, research also shows that "good teaching" depends on what taught and other contextual factors (Henard & Ringuet, 2007). Research indicates that student participation in college life and their perception and evaluation of teaching quality play an important role in higher education. He surveyed overall satisfaction and proposed a survey indicator: the global level of satisfaction; an index related to the organizational aspects of the course (clarity of scopes, examination arrangements, observance of timetable and educational material); and an indicator associated with the efficacy of didactics (interest stimulation, clear explanation). These indicators and the tools for collecting them must have valid and reliable characteristics that can guarantee their purpose Guerra (Bassi & Dias, 2017, p. 56). Seipel & Ferraria (2019) studied "three assessment tools/opportunities: guidelines for online teaching, high-quality online learning and teaching tools, and

quality issues to improve teaching quality (p. 33). With the continuous development of online courses, new teaching methods need to be continuously adjusted and evaluated to ensure that the classes meet students' needs. One such event is the shift to intensive mode courses, which also requires the quality of teachers (Roddy & Amiet, 2017, p. 10). The survey tools aimed at measuring students' job satisfaction in academic classes. The factors include academic coursework, program schedule, advising, collegiality, faculty expertise, general program coordination, and communication will affect students' satisfaction (Sumner, 2008, p. 170). A study of student self-assessment in a university's online courses, emphasizing which factors are critical for students to ensure high-quality learning outcomes in an online learning environment (Mcguire & Castle, 2010, p. 8).

#### **2.4 Theories/academic concepts and relevant researches of Learning Interaction**

A perfect online course can be designed and guided according to different teaching methods and models. And implement different teaching or guidance strategies, and use interactive guidance strategies to achieve interaction. He pointed out that Interaction included: 1. Social report- building designs for interaction 2. Instructional designs for interaction 3. The interactivity of technology resources 4. Evidence of learner engagement 5. Evidence of instructor engagement (Terry L et al, 2009, p. 127). Classroom interaction can be a valuable

tool for learning, but not necessarily a useful learning experience. The environment enables students to expand their ideas and complement them to develop their insights and contributions (Kumpulainen & Wray, 2002. p. 8).

Learning interaction is significant for learning. The role of learning interaction is undeniable in different learning environments between students and tutors. In online education, Interaction includes Interaction of learning materials, social and conceptual dimensions of learning, and interactions in online discussions. The design, implementation, management, and use of flexible learning is essential for all participants (Juwah, 2007). Student-educator interaction is the key in online courses, and educator interaction should be throughout the learning curriculum. Hirumi also stated the purpose of educator interaction: "to establish learning outcomes/objectives; to provide timely and appropriate feedback; to facilitate information presentation; to monitor and evaluate student performance; to provide (facilitate) learning activities; to initiate; maintain, and facilitate discussions, and to determine learning needs and preferences " (Hirumi, 2002. p. 19). Researcher explores the experience of online learners in community colleges to understand better the importance of teacher-student interaction, student-student interaction, and student-content interaction in online learning. Research shows that students pay more attention to teacher-student interaction, and the teacher's role becomes an essential part of overall satisfaction with online courses (Thiessen, 2017, p. 25).

In different learning environments (such as classrooms, online, or mixed learning

environments), students should interact with peers, mentors, media, or tools, which can encourage them to improve their learning (Meri1, 2015). Downing & Lam, et al. (2018) studied “detailed student-mentor course interactions in online courses. The authors found that both teachers and students believed that interaction in the online course learning environment could improve students' academic performance” (p. 201). Enrollment in online courses has increased dramatically, especially in higher education. Educational researchers must expand their research on online learning. The ability to interact online includes relationships between individuals and learning content, lecturers, and learning environments (Song and Rice et al, 2019, p. 45). With the marketization of higher education, student satisfaction, and perceived learning outcomes have become popular indicators for measuring the quality of education. Knowledge acquisition, problem-solving, critical thinking, and self-directed learning are essential for students' learning satisfaction (Garnjost & Lawter, 2019, p. 267).

## **2.5 Theories/academic concepts and relevant researches of Learning Satisfaction**

Moore & Kearsley (1996) uses their vast experience and expertise to explain how to design and teach courses online-including the latest technology adopted, learner characteristics, organizational structure, and current policy and global perspectives. His research includes Interaction with course content, lessons, learning activities, learning objects, videos, assignments, websites, and projects

(p. 290). To further improve student satisfaction. After investigating The constructs of learner-content, learner-instructor, learner-learner, and learner-technology. found Learner-content Interaction, learner-instructor, and learner-technology are the most influential factors on student satisfaction (Simonson, 2003, p. 171). Online learning satisfaction is becoming more prominent in contemporary society (Bourne & Moore, 2003, p. 60).

Furthermore, essential measures to study learning satisfaction are usefulness, feeling of flexibility, security, active participation. And feeling free for asking questions, instructor response time, perceived ease of use parents satisfaction, belief in contribution to success, and support for study habits. Technology's development had revolutionized education. The existing traditional school-based learning model has been unable to meet new learning needs. An online education that allows students to learn anytime, anywhere, is no longer an option but a necessity. In recent years, China's online education industry has grown at a rate of about 20%. In 2016, the market value was 150.7 billion RMB, an increase of 23% year-on-year (LV1& SHI2, 2018, p. 50). With the adjustment of the Chinese population structure and the upgrading of domestic market consumption, the role of education in Chinese household consumption has become increasingly important, maintaining a positive development trend in China's education market. In this report, the size of China's education market expected to reach 2.68 trillion yuan by 2018. By 2020, driven by a favorable



policy environment, the private education market will grow to 3.36 trillion yuan, showing the tremendous vitality and unlimited potential of the Chinese education market (Lu & China, 2018, p. 12). said We live in an era of globalization and that almost everything in life is different from decades ago, which is an essential reason for its technical innovation (Baker & Wang, et al, 2018, p. 6). Online Instruction said that "Convenience" is the most satisfying reason for student satisfaction. "Lack of interaction" is the most shocking reason (Cole et al, 2014, p. 111). As online learning may be easier to adapt to busy schedules, more and more students may be more inclined to take more and more online courses. Adult learners are looking for a suitable learning environment to adapt to students' role while satisfying many needs in other areas of work and life. Studies have shown that learner satisfaction is a crucial indicator of the quality of the learning experience (Ng & Baharom, 2018, p. 70).



## **CHAPTER 3**

### **METHODOLOGY**

This chapter will introduce the research methodology, which covers the type of research and research design, the quality of the research tool, the data collection, the population and sampling, the sampling technique, the research procedures and timeline, and the hypotheses test and data analysis. The structure of this chapter is as follows:

#### **3.1 The type of research and tool**

This research is the survey research, which uses the closed-ended questionnaire to be a tool to collect the data. This questionnaire has five parts: the demographic data question (10 questions), the Network Technology question (10 questions), the Teaching Quality question (10 questions), the Learning Interaction question (10 questions), and the Learning Satisfaction question (10 questions). The total question is 50 questions.

Part 1: The demographic data question (10 questions)

Part 2: The Network Technology question (10 questions)

Part 2.1 System reliability and design (3 questions)

Part 2.2 System ease of use (4 questions)

Part 2.3 Speed of Internet (3 questions)

Part 3: The Teaching Quality question (10 questions)

Part 3.1 Course Content (3 questions)

Part 3.2 Class Schedule (4 questions)

Part 3.3 Self-Assessment Exercises (3 questions)

Part 4: The Learning Interaction question (10 questions)

Part 4.1 Teaching Interaction (3 questions)

Part 4.2 Problem Solving (3 questions)

Part 4.3 Perceived Enjoyment (4 questions)

Part 5: The Learning Satisfaction question (10 questions)

### **3.2 The research designs**

3.2.1 The questionnaire will be measured as follows:

- 1) Part 1: the fact: nominal and ordinal scales
- 2) Part 2-4: the attitude: interval scale (Strongly disagree (1) to the Strongly agree (5))
- 3) Part 5: the attitude: interval scale (Strongly dissatisfied (1) to the Strongly Satisfied (5))

3.2.2 The statistics used will be two types:

Descriptive statistics, which is composed of frequency, mean, and standard deviation

Inferential statistics, which is composed of the Multiple Regression Analysis Test

3.2.3 Part 2 to Part 5, all elements were rated by respondents on a 5-point Likert-type scale for measuring the statistical mean range, and the mean interpretation as follows:

Part 2-5 with the comment "Strongly disagree to the Strongly agree."

Strongly disagree = 1 point

Disagree = 2 point

Moderate Agree = 3 point

Agree = 4 point

Strongly agree = 5 point

3.2.4 The Range and Interpretation

$$\begin{aligned}\text{Range} &= \frac{\text{Maximum} - \text{Minimum}}{\text{Scale Level}} \\ &= \frac{5-1}{5} \\ &= 0.80\end{aligned}$$

Table 3.1: The Range of Interpretation

Range	Interpretation
1.00-1.80	Strongly disagree
1.81-2.60	Disagree
2.61-3.40	Moderate agree
3.41-4.20	Agree
4.21-5.00	Strongly agree

### 3.3 The quality of the research tool

The questionnaires will be conducted concerning the accuracy, reliability, and validity of the answer from customers. The two essential characteristics of the survey are the validity and reliability of the content and the respondents' collective understanding of the questionnaire. In addition to the statistical reliability of the study, they can also respond based on facts. The surveys were checked for content validity by Advisor Assoc. Prof. Dr. Suthinan Pomsuwan (English Version) and Dr. Tiaojiao Liu (Chinese Version) and tested for reliability with a volunteer sample group of another 30 students who learned online courses.

#### 3.3.1 The validity test

The value of effectiveness is formal and can use in this study. The question stated in the questionnaire is based on these comments. The author submits the survey

to the thesis advisor - Assoc. Prof. Dr. Suthinan Pomsuwan (English Version) and Dr. Tiaojiao Liu (Chinese Version), and the content of validity was acceptable.

### 3.3.2 The reliability test

To ensure the questionnaire developed is significant to implement for sample size with effectiveness, the researcher will do the test of the reliability of the questionnaire with 30 sample respondents. The information from the surveys will provide analysis by Cronbach's Alpha.

The results show that the questionnaire has an acceptable reliability value equal to or greater than 0.7 (Cronbach, 1951). The table below shows that the project composed of Network Technology, Teaching Quality, Learning Interaction, and Learning Satisfaction is reliable or close enough to the Alpha value.

Table 3.2: Reliability values of various parts of the 30 sample

Statements of each part	Alpha Coefficient	Number of items	Accepted/ Not
Network Technology	0.963	10	Accepted
Teaching Quality	0.959	10	Accepted
Learning Interaction	0.941	10	Accepted
Learning Satisfaction	0.954	10	Accepted
Total Value	0.974	40	Accepted

### 3.4 The data collection

The researchers collected data according to the following process:

1. Researchers collect information from Theories / academic concepts and relevant researches and use them as reference materials for creating questionnaires.
2. Researchers design the questionnaire and assign it to the sampled population through online surveys; –Online: publish the quiz through the website community and social media. For example, [www.weibo.com](http://www.weibo.com), WeChat, QQ, Facebook, Google Document, [ww.wjx.cn](http://ww.wjx.cn).
3. Random sampling survey of 400 respondents from MAY 2020 to JULY 2020.

### 3.5 The population and sampling

According to data from the New Oriental Education official website, as of November 30, 2017, New Oriental had established 82 schools, 19 bookstores, and 940 learning centers in 70 cities, with a total of nearly 33.54 million students. The population and sample group in this study were students selected for who have used New Oriental Online Education in 8 out of 34 provinces of China, using simple random sampling, which includes Beijing, Shanghai, Guangdong, Jiangsu, Zhejiang, Sichuan, Shandong, Hubei province. With a confidence level of 95%, and the margin of error of  $\pm 5$ , according to the formula, the sample size was driven as follow:

$$n = \frac{N}{1 + N(e)^2}$$

Where,  $n$  = the sample size,

$N$  = the population size, and

$e$  = the level of precision (0.05)

For this research, applied the formula

$N = 335400$

$e = 0.05$

$$n = \frac{N}{1 + N(e)^2} = \frac{335400}{1 + 335400(0.05)^2} \approx 400$$

According to the results, the scale of the study is 400 students from New Oriental Online Education. The researchers distributed questionnaires to carry out the research, the actual survey process obtained 414 respondents. All sample sizes in this study are calculated based on the study population. Table 3.5 illustrates the specific locations selected by the researchers.

Table 3.3: The Locations of Data Collection

Locations	Quota(n=400)
(1) Beijing	54
(2) Shanghai	51
(3) Guangdong	52
(4) Jiangsu	50
(5) Zhejiang	54
(6) Sichuan	52
(7) Shandong	51
(8) Hubei	50
<b>Total</b>	<b>414</b>

### 3.6 The sampling technique

in order to make the survey results close to the overall characteristics, in the sampling method, a purposeful sampling method was selected. Participants should be students who have learned New Oriental Online Education.

### 3.7 The research procedures and timeline

First month: Planned job description and job structure.

The second month: Collect information and design questionnaire forms.

The third month: data analysis and evaluation.



The fourth month: Revise, conduct a thorough editing process, carefully check for minor errors, and submit the paper.

### **3.8 The hypotheses test**

According to a survey on the Satisfaction of New Oriental Online Education Learning, network technology's improvement and the importance of network technology are gradually declining. The most important factor affecting the learning satisfaction of New Oriental Online Education is the quality of teaching (Suarman, 2015). At the same time, research shows that students pay more attention to teacher-student Interaction, and the role of the teacher becomes an essential part of the overall satisfaction of online courses. (Thiessen, 2017).

H1: Network Technology has effects New Oriental Online Education's learning satisfaction.

H1.1 System reliability and design has effects New Oriental Online Education's learning satisfaction.

H1.2 System ease of use has effects New Oriental Online Education's learning satisfaction.

H1.3 Speed of Internet has effects New Oriental Online Education's learning satisfaction.

H2: Teaching Quality has effects New Oriental Online Education's learning satisfaction.

H.2.1 Course Content has effects New Oriental Online Education's learning satisfaction.

H.2.2 Class Schedule has effects New Oriental Online Education's learning satisfaction.

H.2.3 Self-Assessment Exercises has effects New Oriental Online Education's learning satisfaction.

H3: Learning Satisfaction has effects New Oriental Online Education's learning satisfaction.

H3.1 Teaching Interaction has effects New Oriental Online Education's learning satisfaction.

H3.2 Problem Solving has effects New Oriental Online Education's learning satisfaction.

H3.3 Perceived Enjoyment has effects New Oriental Online Education's learning satisfaction.

## **CHAPTER 4**

### **RESEARCH FINDINGS AND DATA ANALYSIS**

This chapter will present the results of the data analysis provided. The study using the reference framework in Chapter 2 and the methods given in Chapter 3. It divided into the following three parts and the statistical software used to analyze the data.

Part 1: Use Descriptive Statistics to analyze frequency and percentage to display samples' demographic information.

Part 2: Use mean ( $\bar{X}$ ) and standard deviation (S.D) to analyze the factors of Network Technology.

Part 3: Use mean ( $\bar{X}$ ) and standard deviation (S.D) to analyze the factors of Teaching Quality.

Part 4: Use mean ( $\bar{X}$ ) and standard deviation (S.D) to analyze the factors of Learning Interaction.

Part 5: Use mean ( $\bar{X}$ ) and standard deviation (S.D) to analyze the factors of Learning Satisfaction.

Part 6: Relationship between Network Technology, Teaching Quality, Learning Interaction, and Learning Satisfaction

Part 7. Summary of the Hypothesis Testing

#### 4.1 The analysis of demographic and general information of samples

The research findings of this part presented the respondents' information of New Oriental Online Education students, including gender, education level, age, occupation, average monthly income, reasons for payment, type of course, Know-how, reasons for choosing New Oriental Online, and learning duration.

Table 4.1: Frequency and Percentage of Demographic Information

Demographic Data	Frequency	Percentage
<b>Gender</b>		
Male	149	36.0
Female	265	64.0
<b>Total</b>	414	100
<b>Education Level</b>		
Master's degree and above	249	60.1
Bachelor's degree	127	30.7
High school and below	38	9.2
<b>Total</b>	414	100
<b>Age</b>		

(Continued)

Table 4.1 (Continued):

Under 20 years old	<b>37</b>	<b>8.9</b>
21-30 years old	302	72.9
31-40 years old	75	18.1
41 years or older	0	0
<b>Total</b>	<b>414</b>	<b>100</b>
<b>Occupation</b>		
Student	162	39.1
Officer	188	45.4
Business manager	25	6.0
No occupation	39	9.4
<b>Total</b>	<b>414</b>	<b>100</b>
<b>Monthly income</b>		
Below \$ 400/Below ¥ 2100	115	27.8
\$ 401-500/ ¥ 2101- ¥ 3500	62	15
\$ 501-700/ ¥ 3501- ¥ 4900	175	42.3
\$ 701-1500/ ¥ 4901- ¥ 10500	37	8.9
\$ 1,500 and above ¥ 10501 and above	25	6.0
<b>Total</b>	<b>414</b>	<b>100</b>

(Continued)

Table 4.1 (Continued):

<b>Reasons for payment</b>		
Good content quality	264	27.8
Easy software operation	177	18.6
High Learning-interaction	129	13.6
Complete self-test questions	106	11.2
Reasonable course arrangement	226	23.8
Other	47	5.0
<b>Total</b>	<b>949</b>	<b>100</b>
<b>Type of course</b>		
Vocational education, language	328	38.3
IT Internet	138	16.1
life interest	200	23.4
skills	190	22.2
<b>Total</b>	<b>856</b>	<b>100</b>
<b>Know-how</b>		
Online promotion	278	67.1
Offline promotion	37	8.9
Newspapers and magazines	37	8.9

(Continued)

Table 4.1 (Continued):

Recommendation by friend	62	15.0
<b>Total</b>	414	100
<b>Reasons</b>		
Reasonable price	136	15.9
Good reputation	235	27.5
Strong faculty	163	19.1
Guaranteed service	149	17.4
Courses that meet the needs	160	18.7
Others	12	1.4
<b>Total</b>	855	100
<b>Learning duration</b>		
Within 30 minutes	102	24.6
30 minutes-1 hour	262	63.3
1-2 hours	25	6.0
more than 2 hours	25	6.0
<b>Total</b>	414	100

Present from Table 4.1, the majority of respondents are female, with a total number of 265(64%), and the total number of males is 149(36%).

The majority of respondents hold Master's degree and above, with 249 people, accounting for 60.1. Bachelor's degree has 127 people, accounting for 30.7%. High school and below have 38 people, accounting for 9.2%.

The majority of respondents aged 21-31 and the total number is 302, accounting for 72.9%. 31-40 years old 75 respondents, accounting for 18.1%. 37 respondents under the age of 20, accounting for 8.9%.

The majority of respondents from Officer, there are 188 people, accounting for 45.4%. Students 162 respondents, accounting for 39.1%. No occupation 39 respondents, accounting for 9.4%. Business managers, 25 respondents, accounting for 6%. The results show that most respondents who buy New Oriental online education courses are students and officers.

The majority of respondents with a monthly income of \$501-700 are 175 respondents, accounting for 42.3%. Monthly income below \$400 in 115 respondents, accounting for 27.8%. Monthly income \$401-500 in 62 respondents, accounting for 15%. Monthly income \$701-1500 in 37 respondents, accounting for 8.9%. Monthly income \$1,500 and above are 25 respondents, accounting for 6%.

The majority of reasons for purchasing New Oriental online courses are Good content quality, which was selected by 264 respondents, accounting for 27.8%. Reasonable course arrangement was selected by 226 respondents, accounting for 23.8%. Easy software operation was selected by 177 respondents, accounting for 18.6%. High Learning-interaction was selected by 129 respondents, accounting for



13.6%. Complete self-test questions were selected by 106 respondents, accounting for 11.2%. So the results show that the majority of reasons for buying courses are Good content quality and Reasonable course arrangement.

The majority type of courses has Vocational education & language, there are 328 respondents, accounting for 38.3%. Life interest has 200 respondents to choose, accounting for 23.4%. Skills have 190 respondents, accounting for 22.2%. IT Internet has 138 respondents, accounting for 16.1%. The results show that the courses that choose New Oriental Online Education mainly include Vocational education, language, and life interest.

The majority method to know New Oriental online education was an online promotion, has 278 respondents, accounting for 67.1%. Recommendation by a friend has 62 respondents, accounting for 15%. The offline promotion has 37 respondents, accounting for 8.9%. Newspapers and magazines have 37 respondents, accounting for 8.9%. The results showed that the respondents knew about New Oriental Online mainly through online promotion.

The majority reason respondents chose New Oriental Education was a good reputation, and 235 respondents chose it, accounting for 27.5%. Strong faculty has 163 respondents, accounting for 19.1%. Courses that meet the needs were selected by 160 respondents, accounting for 18.7%. Guaranteed service was chosen by 149 respondents, accounting for 17.4%. Reasonable price was selected by 136 respondents, accounting for 15.9%. So the results show that the main reason for the

respondents to select New Oriental Online is a good reputation.

The majority duration for respondents to learn online is 30 minutes-1 hour. 262 respondents chose it, accounting for 63.3%. Within 30 minutes, 102 respondents chose, accounting for 24.6%. 25 respondents chose 1-2 hours, accounting for 6%. More than 2 hours, 25 respondents chose, accounting for 6%. So the results show that the main learning duration of New Oriental Online Education is 30 minutes-1 hour.

#### **4.2 Use mean ( $\bar{X}$ ) and standard deviation (S.D) to analyze the factors of Network Technology**

The analysis and interpretation of Network Technology, Teaching quality, and Learning Interaction will use the average range interpretation presented in chapter 3.

Table 4.2: The Independent variable of Network Technology

<b>Independent variable</b>	<b>Network Technology</b>
Sub variable 1	System reliability design
Sub variable 2	System ease of use
Sub variable 3	Speed of Internet

Table 4.2.1: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of System reliability and design

System reliability and design	$\bar{X}$	S.D.	Interpretation
I often use a mobile phone or other mobile devices for online courses in New Oriental Online Education.	3.52	1.132	Agree
I often use my computer for online courses in New Oriental Online Education.	3.54	1.165	Agree
The Software of New Oriental Online Education does not take up much memory of my device.	3.36	1.095	Moderate agree
Total	3.47	0.806	Agree

According to the data shown in Table 4.2.1, it found that most of the respondents agreed with New Oriental Online Education's System reliability and design ( $\bar{X}=3.47$ , S.D.=0.806) . However, it was found that the respondents agreed to frequently use mobile device ( $\bar{X}=3.52$ , S.D.=1.132) and computer ( $\bar{X}=3.54$ , S.D.=1.165) to learn New Oriental online education courses. In addition, it was also found that the respondents Moderate agreed to occupy the memory of the software ( $\bar{X}=3.36$ , S.D.=1.095) .

Table 4.2.2: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of System ease of use

System ease of use	$\bar{X}$	S.D.	Interpretation
I really like the page design style of New Oriental Online Education.	3.46	1.014	Agree
I am very satisfied with the function of New Oriental Online Education Software.	3.11	1.353	Moderate agree
I am very satisfied with the products and services of New Oriental Online Education.	3.55	1.019	Agree
I thought New Oriental Online Education Software is simple and convenient to use.	3.62	0.927	Agree
Total	3.44	0.659	Agree

According to the data shown in Table 4.2.2, it found that most of the respondents agreed with New Oriental Online Education's System ease of use ( $\bar{X}=3.44$ , S.D.=0.659) . However, they found that they agreed with page design ( $\bar{X}=3.46$ , S.D.=1.014) , the products and services ( $\bar{X}=3.55$ , S.D.=1.019) , and Software is simple and convenient ( $\bar{X}=3.62$ , S.D.=0.927) . In addition, it was also found that the respondents Moderate agree the function of New Oriental Online Education Software ( $\bar{X}=3.11$ , S.D.=1.353) .

Table 4.2.3: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Speed of Internet

Speed of Internet	$\bar{X}$	S.D.	Interpretation
I thought the online use of New Oriental Online Education's online learning process is very smooth.	3.12	1.390	Moderate agree
New Oriental Online Education has no problems uploading / downloading data.	3.60	1.071	Agree
When using New Oriental Online Education, there is no freezing or black screen.	3.38	1.137	Moderate agree
Total	3.36	0.753	Moderate agree

According to the data shown in Table 4.2.3, most of the respondents found Moderate agrees with New Oriental Online Education's Speed of Internet ( $\bar{X}$ =3.36, S.D.=0.753) . However, they found that they agreed to have no problems uploading / downloading data ( $\bar{X}$ =3.60, S.D.=1.071) . In addition, it was also found that the respondents Moderate agree learning process is smooth ( $\bar{X}$ =3.12, S.D.=1.390) and no freezing or black screen ( $\bar{X}$ =3.38, S.D.=1.137) .

### 4.3 Use mean ( $\bar{X}$ ) and standard deviation (S.D) to analyze the factors of Teaching Quality

The analysis and interpretation of Teaching Quality will use the average range interpretation that presented in chapter 3.

Table 4.3: The Independent variable of Teaching Quality

Independent variable	Teaching Quality
Sub variable 1	Course Content
Sub variable 2	Class Schedule
Sub variable 3	Self-Assessment Exercises

Table 4.3.1: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Course Content

Course Content	$\bar{X}$	S.D.	Interpretation
New Oriental online education courses are rich in content.	3.72	0.974	Agree
Online teaching teachers are professional and conscientious.	3.21	1.381	Moderate agree
Online teaching resources are sufficient.	3.68	1.046	Agree
Total	3.53	0.703	Agree

Table 4.3.1 found that most of the respondents agreed to the Course Content of New Oriental Online Education ( $\bar{X}=3.53$ , S.D.=0.703) . However, the respondents were found to agree that rich in content ( $\bar{X}=3.72$ , S.D.=0.974) and teaching resources are sufficient ( $\bar{X}=3.68$ , S.D.=1.046) . In addition, I also found that the respondents Moderate agree teachers are professional and conscientious ( $\bar{X}=3.21$ , S.D.=1.381) .

Table 4.3.2: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Class Schedule

Class Schedule	$\bar{X}$	S.D.	Interpretation
The study period is very reasonable.	3.43	1.119	Agree
The arrangement of teachers' course content is very reasonable.	3.67	1.005	Agree
The study duration is very reasonable.	3.46	0.995	Agree
Teachers have reasonable arrangements for breaks between classes.	3.37	1.085	Moderate agree
Total	3.48	0.692	Agree

Table 4.3.2 found that most of the respondents agreed to the New Oriental Online Education Class Schedule ( $\bar{X}=3.48$ , S.D.=0.692) . However, they found that they agreed to study period ( $\bar{X}=3.43$ , S.D.=1.119) , arrangement of teachers' course

content ( $\bar{X}=3.67$ , S.D.=1.005) and study duration ( $\bar{X}=3.46$ , S.D.=0.995) is very reasonable. In addition, it was also found that the respondents Moderate agree teachers had reasonable arrangements for breaks between classes ( $\bar{X}=3.37$ , S.D.=1.692) .

Table 4.3.3: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Self-Assessment Exercises

Self-Assessment Exercises	$\bar{X}$	S.D.	Interpretation
The teacher arranged for the test questions targeted learning.	3.14	1.220	Moderate agree
Test questions have a detailed answer.	3.38	1.093	Moderate agree
Test questions are rich in content.	3.71	0.968	Agree
Total	3.41	0.720	Agree

Table 4.3.3 found that most of the respondents agreed with New Oriental Online Education's Self-Assessment Exercises ( $\bar{X}=3.41$ , S.D.=0.720) . However, they found that they agreed to Test questions are rich in content ( $\bar{X}=3.71$ , S.D.=0.968) . In addition, it was also found that the respondents Moderate agree test questions targeted learning ( $\bar{X}=3.14$ , S.D.=1.220) and Test question have detailed answer ( $\bar{X}=3.38$ , S.D.=1.093) .



#### 4.4 Use mean ( $\bar{X}$ ) and standard deviation (S.D) to analyze the factors of Learning Interaction.

The analysis and interpretation of Learning Interaction will use the average range interpretation that presented in chapter 3.

Table 4.4: The Independent variable of Learning Interaction

Independent variable	Learning Interaction
Sub variable 1	Teaching Interaction
Sub variable 2	Problem Solving
Sub variable 3	Perceived Enjoyment

Table 4.4.1: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Teaching Interaction

Teaching Interaction	$\bar{X}$	S.D.	Interpretation
Teachers interactive online courses a lot.	3.47	1.099	Agree
Online interactive teachers have timely feedback.	3.52	1.086	Agree
Have the opportunity to interact with other students.	3.29	1.083	Moderate agree
Total	3.43	0.790	Agree

Table 4.4.1 found that most of the respondents agreed to the Teaching Interaction of New Oriental Online Education ( $\bar{X}=3.43$ , S.D.=0.790) . However, they found that they agreed to Teachers interactive online courses ( $\bar{X}=3.47$ , S.D.=1.099) and Online interactive teachers have timely feedback ( $\bar{X}=3.52$ , S.D.=1.086) . In addition, the respondents also found Moderate agree Have the opportunity to interact with other students ( $\bar{X}=3.29$ , S.D.=1.083) .

Table 4.4.2: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Problem Solving

Problem Solving	$\bar{X}$	S.D.	Interpretation
Teachers have timely feedback on problems encountered by students in the course.	3.19	1.397	Moderate agree
Teachers have timely feedback on problems encountered by students in self-test questions.	3.41	1.065	Agree
Teachers have timely feedback on related learning problems encountered by students outside of class.	3.60	0.993	Agree
Total	3.40	0.796	Agree

Table 4.4.2 found that most of the respondents agree to New Oriental Online Education's Problem Solving ( $\bar{X}=3.40$ , S.D.=0.796) . However, the respondents were found to agree Teachers have timely feedback on problems encountered by students in self-test questions ( $\bar{X}=3.41$ , S.D.=1.065) and Teachers have timely feedback on related learning problems encountered by students outside of class ( $\bar{X}=3.60$ , S.D.=0.993) . In addition, it was found that the respondents Moderate agree Teachers have timely feedback on problems encountered by students in the course ( $\bar{X}=3.19$ , S.D.=1.397) .

Table 4.4.3: The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Perceived Enjoyment

Perceived Enjoyment	$\bar{X}$	S.D.	Interpretation
The teacher is very interesting and humorous.	3.21	1.342	Moderate agree
The learning process made me feel very happy.	3.73	0.959	Agree
Learning interest and self-learning ability improved.	3.50	1.039	Agree
I really like to use New Oriental online education courses to learn.	3.30	1.313	Moderate agree
Total	3.44	0.697	Agree

Table 4.4.3, most of the respondents found agree New Oriental Online Education's Received Enjoyment ( $\bar{X}=3.44$ , S.D.=0.697) . However, they found that they agreed to feel very happy ( $\bar{X}=3.73$ , S.D.=0.959) , and Learning interest and self-learning ability improved ( $\bar{X}=3.50$ , S.D.=1.039) . In addition, it also found that the respondents Moderate agree teacher is very interesting and humorous ( $\bar{X}=3.21$ , S.D.=1.342) , and really like to use New Oriental online education courses to learn ( $\bar{X}=3.30$ , S.D.=1.313) .

#### 4.5 Use mean ( $\bar{X}$ ) and standard deviation (S.D.) to analyze the factors of Learning Satisfaction

The analysis and interpretation of Learning Satisfaction will use the average range interpretation that presented in chapter 3.

Table 4.5 The Mean ( $\bar{X}$ ) and Standard Deviation (S.D.) of Learning Satisfaction

Learning Satisfaction	$\bar{X}$	S.D.	Interpretation
There is a study plan for the online course, and the study direction is clear.	3.56	1.081	Agree
Very satisfied with the learning atmosphere.	3.79	0.940	Agree

(Continued)

Table 4.5 (Continued):

The teacher is very concerned about the students and can adjust the teaching methods in time.	3.20	1.329	Moderate agree
I feel complete software learning function.	3.58	1.009	Agree
Contribute to the development of personal analysis and resolution skills.	3.36	1.058	Moderate agree
I am very satisfied with the course assessment method.	3.23	1.330	Moderate agree
I am very satisfied with the teacher's teaching method.	3.45	1.159	Agree
Very helpful for my knowledge development.	3.18	1.337	Moderate agree
I am very satisfied with the learning guidance provided by the teacher.	3.34	1.059	Moderate agree
Very satisfied with the teaching materials and academic sharing provided by New Oriental Online Education.	3.30	1.055	Moderate agree
Total	3.40	0.619	Agree

According to the data shown in Table 4.2.2, it found that most of the respondents agree with New Oriental Online Education's Learning Satisfaction ( $\bar{X}=3.40$ , S.D.=0.619) . However, the respondents were found to agree

1) There is a study plan for the online course, and the study direction is clear ( $\bar{X}=3.56$ , S.D.=1.081)

2) Very satisfied with the learning atmosphere ( $\bar{X}=3.79$ , S.D.=0.74)

3) I feel complete software learning function ( $\bar{X}=3.58$ , S.D.=1.009)

4) I am very satisfied with the teacher's teaching method ( $\bar{X}=3.45$ , S.D.=1.159) .

In addition, I also found that the respondents Moderate agree

1) The teacher is very concerned about the students and can adjust the teaching methods in time ( $\bar{X}=3.20$ , S.D.=1.329)

2) Contribute to the development of personal analysis and resolution skills ( $\bar{X}=3.36$ , S.D.=1.058)

3) I am very satisfied with the course assessment method ( $\bar{X}=3.23$ , S.D.=1.330)

4) Very helpful for my knowledge development ( $\bar{X}=3.18$ , S.D.=1.337)

5) I am very satisfied with the learning guidance provided by the teacher ( $\bar{X}=3.34$ , S.D.=1.059)

6) Very satisfied with the teaching materials and academic sharing provided by New Oriental Online Education ( $\bar{X}=3.30$ , S.D.=1.055) .

## Part 6: Relationship between Network Technology, Teaching Quality, Learning Interaction, and Learning Satisfaction

This part's research results are analyzed from the influence degree of Network Technology, Teaching Quality, Learning Interaction, and Learning Satisfaction. We used Multiple Regression Analysis to examine the relationship of these factors, which will present in Table 4.6.1 to Table 4.6.4.

Table 4.6.1: Analysis of the Impact of Network Technology on Learning Satisfaction

Independent Variables: Network Technology		b	Beta	t	Sig	Interpretation
Sub variable 1	System reliability and design	0.229	0.298	5.712	0.000*	Accepted
Sub variable 2	System ease of use	0.027	0.029	0.544	0.581	Not accepted
Sub variable 3	Speed of Internet	0.103	0.125	2.504	0.013*	Accepted

Adjusted R-square=0.139, F=22.033, \*P≤0.05

Dependent variable: Learning Satisfaction

Table 4.6.1 showed that System reliability and design (Beta=0.298, Sig=0.000)

and Speed of Internet (Beta=0.103, Sig=0.013) affected Learning Satisfaction at 0.05 level of statistical significance. This finding supported the hypothetical testing of System reliability and design and speed of the Internet affected Learning Satisfaction. While System ease of use (Beta=0.029, Sig=0.581) failed affected Learning Satisfaction, this finding showed System ease of use failed to the hypothesis research which proposed. Table 4.7 illustrated the summary results of the hypothesis testing.

Table 4.6.2: Analysis of the Impact of Teaching Quality on Learning Satisfaction

Independent Variables: Teaching Quality		b	Beta	t	Sig	Interpretation
Sub variable 1	Course Content	-0.013	-0.015	-0.406	0.685	Not accepted
Sub variable 2	Class Schedule	0.408	0.456	10.252	0.000*	Accepted
Sub variable 3	Self Assessment Exercises	0.288	0.335	7.625	0.000*	Accepted

Adjusted R-square=0.494, F=133.508, \*P≤0.05

Dependent variable: Learning Satisfaction



Table 4.6.2 showed that Class Schedule (Beta=0.456, Sig=0.000) and Self-Assessment Exercises (Beta=0.335, Sig=0.000) affected Learning Satisfaction at 0.05 level of statistical significance. This finding supported the hypothetical testing of Class Schedule, and Self-Assessment Exercises affected Learning Satisfaction. While Course Content (Beta=-0.013, Sig=0.685) failed affected Learning Satisfaction, this finding showed Course Content failed to the hypothesis research which proposed. Table 4.7 illustrated the summary results of the hypothesis testing.

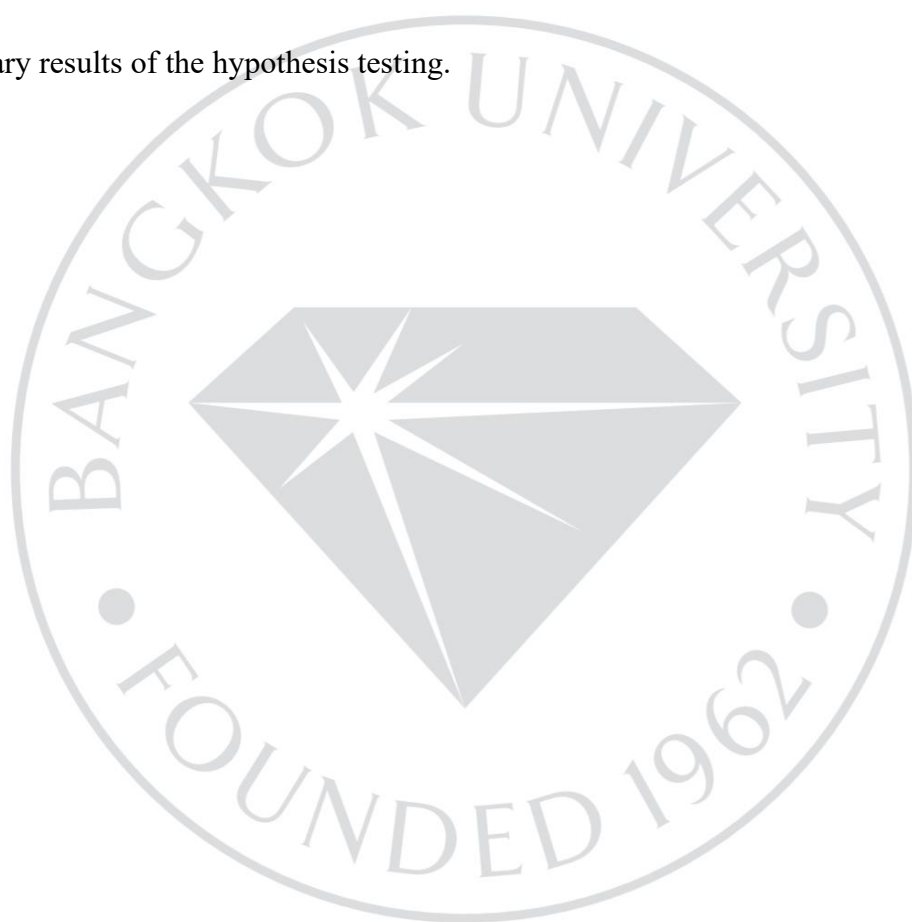
Table 4.6.3: Analysis of the Impact of Teaching Quality on Learning Interaction

Independent Variables: Teaching Quality		B	Beta	t	Sig	Interpretation
Sub variable 1	Teaching Interaction	0.330	0.421	10.180	0.000*	Accepted
Sub variable 2	Problem Solving	0.210	0.270	6.509	0.000*	Accepted
Sub variable 3	Perceived Enjoyment	0.167	0.188	4.644	0.000*	Accepted

Adjusted R-square=0.516, F=147.575, \*P≤0.05

Dependent variable: Learning Satisfaction

Table 4.6.3 showed that Teaching Interaction ( $\text{Beta}=0.421$ ,  $\text{Sig}=0.000$ ), Problem Solving ( $\text{Beta}=0.270$ ,  $\text{Sig}=0.000$ ) and Perceived Enjoyment ( $\text{Beta}=0.188$ ,  $\text{Sig}=0.000$ ) affected Learning Satisfaction at 0.05 level of statistical significance. This finding supported the hypothetical testing of Teaching Interaction, Problem Solving and Perceived Enjoyment affected Learning Satisfaction. Table 4.7 illustrated the summary results of the hypothesis testing.



## Part 7. Summary of the Hypothesis Testing

Table 4.7: Summary of the Hypothesis Testing

Hypothesis	Result
<b>Hypothesis 1: Network Technology</b>	
Hypothesis 1.1: System reliability and design	Accepted
Hypothesis 1.2: System ease of use	Not accepted
Hypothesis 1.3: Speed of Internet	Accepted
<b>Hypothesis 2: Teaching Quality</b>	
Hypothesis 2.1: Course Content	Not accepted
Hypothesis 2.2: Class Schedule	Accepted
Hypothesis 2.3: Self-Assessment Exercises	Accepted
<b>Hypothesis 3: Learning Interaction</b>	
Hypothesis 3.1: Teaching Interaction	Accepted
Hypothesis 3.2: Problem Solving	Accepted
Hypothesis 3.3: Perceived Enjoyment	Accepted

Table 4.7 Showed that Hypothesis 1.1, Hypothesis 1.3, Hypothesis 2.2, Hypothesis 2.3, Hypothesis 3.1, Hypothesis 3.2, and Hypothesis 3.3 were supported, while Hypothesis 1.2 and Hypothesis 2.1 were not accepted.

## **CHAPTER 5**

### **CONCLUSION AND DISCUSSION**

The purpose of this study is to discuss the impact of independent variables such as Network Technology, Teaching Quality, and Learning Interaction on Learning Satisfaction. We collected 414 questionnaires from users of New Oriental Online Education for analysis. For the study, multiple regression analysis techniques used to analyze the data. The percentage rate, frequency, mean and standard deviation used to analyze demographic information and the relationship between independent and dependent variables. This chapter summarizes the research results of this study and discusses the research results, recommendations for management, and future research.

#### **5.1 Conclusion**

##### **5.1.1 Demographic Data**

Most respondents were female, aged between 21-31 years old, and holding Master's degree. Moreover, it found that the majority of respondents from Officer with monthly income of \$501-700. The majority of reasons for purchasing New Oriental online courses are Good content quality. And the majority type of courses choose is Vocational education & language, through online promotion. Most of them studied 30 minutes-1 hour per time.

### 5.1.2 The Conclusion of Attitudes toward variables

#### 1) Attitude towards Network Technology

1.1) Most of the respondents agreed with New Oriental Online Education's System reliability and design.

1.2) Most of the respondents agreed with New Oriental Online Education's System ease of use.

1.3) Most of the respondents found Moderate agrees with New Oriental Online Education's Speed of Internet.

#### 2) Attitude towards Teaching Quality

2.1) Most of the respondents agreed to the Course Content of New Oriental Online Education.

2.2) Most of the respondents agreed to the New Oriental Online Education Class Schedule.

2.3) Most of the respondents agreed with New Oriental Online Education's Self-Assessment Exercises.

#### 3) Attitude towards Learning Interaction.

3.1) Most of the respondents agreed to the Teaching Interaction of New Oriental Online Education.

3.2) Most of the respondents agreed to New Oriental Online Education's Problem Solving.

3.3) Most of the respondents found agreed New Oriental Online Education's

Received Enjoyment.

4) Most of the respondents Satisfied with New Oriental Online Education's Learning Satisfaction.

### 5.1.3 The Conclusion of Hypothesis Results

The Multiple Regression and Linear Regression Analysis used in this research, and the relationship between independent and dependent variables are analyzed and investigated in the following hypothesis:

- 1) Network Technology variable in terms of System reliability and design positively affected Learning Satisfaction. The result was accepted.
- 2) Network Technology variable in terms of System ease of use negatively affected Learning Satisfaction. The result was not accepted.
- 3) Network Technology variable in terms of Speed of the Internet positively affected Learning Satisfaction. The result was accepted.
- 4) Teaching Quality variable in terms of Course Content negatively affected Learning Satisfaction. The result was not accepted.
- 5) Teaching Quality variable in terms of Class Schedule positively affected Learning Satisfaction. The result was accepted.
- 6) Teaching Quality variable in terms of Self-Assessment Exercises positively affected Learning Satisfaction. The result was accepted.

- 7) Learning Interaction variable in terms of Teaching Interaction positively affected Learning Satisfaction. The result was accepted.
- 8) Learning Interaction variable in terms of Problem Solving positively affected Learning Satisfaction. The result was accepted.
- 9) Learning Interaction variable in terms of Perceived Enjoyment positively affected Learning Satisfaction. The result was accepted.

## 5.2 Discussion

This study shows that in the independent variable Network Technology, the sub-variables System reliability and design and the Speed of the Internet affect New Oriental Online Education's Learning Satisfaction, while System ease of use did not. In the independent variable Teaching Quality, the sub-variables Class Schedule and Self-Assessment Exercises affect New Oriental Online Education's Learning Satisfaction, while Course Content does not. In the independent variable Learning Interaction, the sub-variables Teaching Interaction, Problem Solving, and Received Enjoyment influenced New Oriental Online Education's Learning Satisfaction.

According to Özata, & İçlem Er (2015), in mobile Software, System reliability and design are essential factors that affect user satisfaction. From the findings of this study on New Oriental Online Education Learning Satisfaction, this view confirmed by the most value of mean 3.47. System reliability and design will affect students'

learning satisfaction.

According to the questionnaire survey results on learning satisfaction, students will also consider the Speed of the Internet when choosing a course. The average value of this point is 3.44. The speed of the Internet also affects the learning experience and satisfaction of learning. As Berba (2018) puts forward, the Internet's role has always played a key role in higher education. The speed of internet browsing is an essential factor in predicting student satisfaction with Internet services.

According to the results of the questionnaire survey on learning satisfaction, at this stage, learning satisfaction for courses to consider System ease of use may not be as crucial as it was a few years ago. The average value of this point is 3.36. With the development of the times and the company's maturity, the comprehensive software system is also easy to operate. Many courses can be entered into the online classroom through WeChat. The considerations for students to choose courses System ease of use is no longer as important as it once was, more Will consider classroom content, teachers, and classroom interaction. Hu et al. (1999) proposed that received ease of use is less likely to be a determinant of attitude and usage intention, according to studies.

According to the questionnaire survey results on learning satisfaction, the Course Content factor is important effective for learning satisfaction. The average value of this point is 3.53. Because online education has changed the primary reference basis for learning satisfaction, most online education institutions will take



Course Content as part of the sales information in the course sales. Students will be interested in Course Content before choosing courses. An article on Blog.Coursify.Me mentioned how to attract students to choose your online courses? First, you should carefully consider the course content. What skills do students Master? Who may be interested in online learning? What are the advantages of this particular course compared to classroom courses? These are all very important factors before students choose a course, while not influencing learning satisfaction.

According to the results of the questionnaire survey on learning satisfaction, students choose courses that will be considered Class Schedule, the average value of the point is 3.48. Class Schedule also affects students' user experience and learning satisfaction. As Sumner (2008) puts forward, program schedules are an essential tool to measure students' satisfaction in academic courses.

From the results of the questionnaire survey on learning satisfaction, student self-assessment has an essential impact on learning satisfaction. The average value of this point is 3.41. student self-assessment also affects the learning experience and satisfaction of learning. As McGuire & Castle (2010) points out, a study of online course student self-assessment is critical to students' high-quality learning outcomes in online learning environments.

According to the results of the questionnaire survey on learning satisfaction, Teaching Interaction has an impact on learning satisfaction. The average value of this point is 3.43. Teaching Interaction also affects students' experience of using and

learning satisfaction. Juwah (2007) believes that learning interaction is important for learning. In different learning environments between students and tutors, the role of learning interaction is undeniable.

From the results of the questionnaire survey on learning satisfaction, Problem Solving has an important impact on learning satisfaction. The average value of this point is 3.40. Problem Solving also affects the learning experience and learning satisfaction. Garnjost & Lawter (2019) proposed that with the marketization of higher education, Problem Solving is a popular indicator for measuring student satisfaction and perceiving the quality of knowledge of learning outcomes.

From the results of the questionnaire survey on learning satisfaction, Perceived Enjoyment has an important influence on learning satisfaction. The average value of this point is 3.44. Perceived Enjoyment also affects learning experience and learning satisfaction. As Özata, & İçlem Er (2015) pointed out, in mobile software, perceived enjoyment affects user satisfaction.

### **5.3 Recommendations for Future Research**

#### **5.3.1 Policy Recommendation**

With the popularization and development of the Internet, online education has developed. Allowing high-quality teacher resources to be free from geographical restrictions while allowing students to acquire knowledge free from geographic

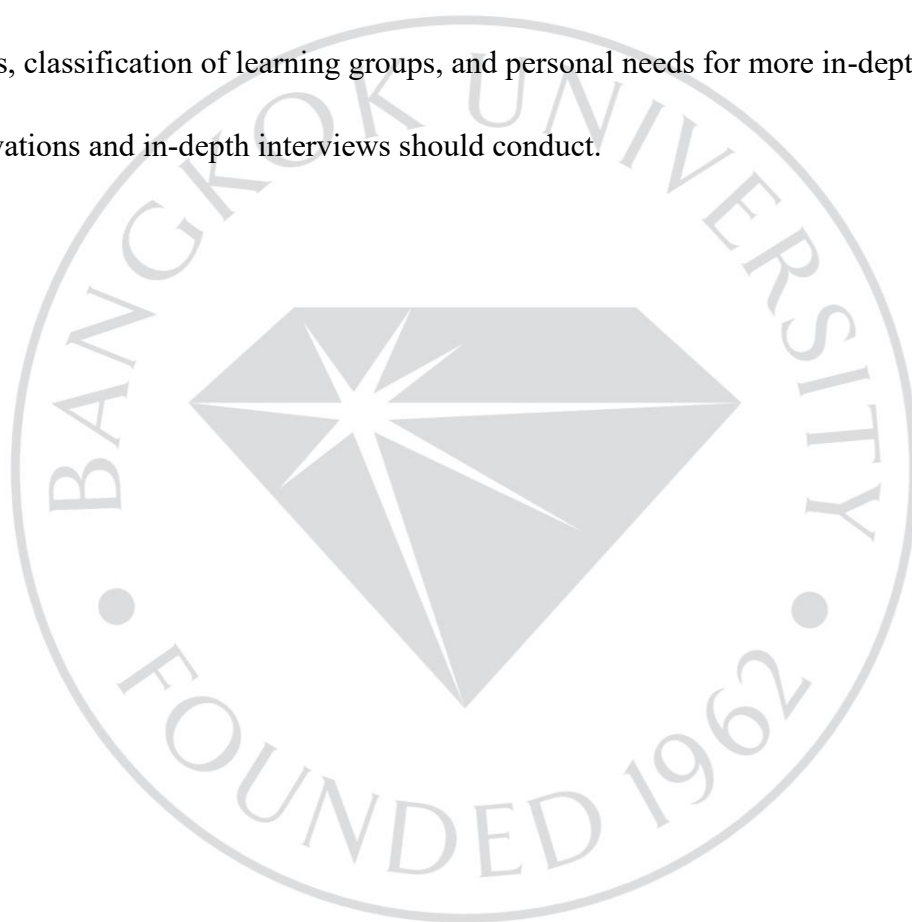
restrictions, and at the same time gave birth to new business models. Under the influence of COVID-19, online education has also given high hopes. Many schools uphold the concept of non-stop classes, which stimulates the vitality of online learning and promotes the development of online education. Simultaneously, with the development of 5G technology, it will be more conducive to enhancing the value of online education and creating a learning atmosphere for the smart home office. In the future, online education may promote innovation in the form of educational teaching and school organization.

### 5.3.2 Managerial Recommendation

To encourage students to purchase online courses in the future and improve the quality of online courses. Online education companies should pay more attention to the system reliability and design and the Speed of the Internet factors of network technology when setting up courses to enhance customers' good network experience. In terms of Teaching Quality, we should pay attention to Class Schedule and Self-Assessment Exercises, conduct research and analysis on different student groups, and propose different programs to meet students' needs. Finally, in terms of Learning Interaction, teachers should also pay attention to Teaching Interaction, Problem Solving, and Received Enjoyment to guide students to a good learning experience. To better establish a positive image for the company.

### 5.3.3 Academic Recommendation

This research focuses only on the online courses of New Oriental Online Company. The impact on students' learning satisfaction is complicated and will continue to change with time and technology development. Therefore, various amended that more factors need to consider in future research, such as specific courses, classification of learning groups, and personal needs for more in-depth study. Observations and in-depth interviews should conduct.



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## Appendix A: QUESTIONNAIRE

My name is Xiaoqiong Xia and I am currently studying for a Master in Business Administration at Bangkok University. I am conducting research entitled Network Technology, Teaching Quality and Learning Interaction Impacting Learning Satisfaction in New Oriental Online Education. This research is composed of 3 objectives: (1) Network Technology, (2) Teaching Quality, and (3) Learning Interaction. The questionnaire has 5 sections and will take no longer than 15 minutes to complete. All responses will be kept anonymous and no one will be identifiable in the research. Once complete please e-mail back to [xia.xiao@bumail.net](mailto:xia.xiao@bumail.net).

**Please tick the box provided to show your consent to be part of the research.**

我的名字是夏晓琼，我是曼谷大学 MBA 的学生。我现在正在做《网络技术、教学质量及教学互动对新东方在线教育的学习满意度影响》的研究，这份研究主要有三个调研方向：（1）网络技术；（2）教学质量；（3）教学互动。这份调查问卷主要有 5 个部分，总共填写时间不超过 15 分钟，所有的回复将保持匿名，并不会出现在任何研究中。完成后，[请发送至邮件 xia.xiao@bumail.net](mailto:xia.xiao@bumail.net)。

### **Part 1: The demographic data question (10 questions)**

1) What is your gender? 您的性别?

☐ Male (男)

☐ Female (女)

2) What is your education level? 您的受教育程度?

☐ Master's degree and above (硕士及以上)

☐ Bachelor's degree (本科)

☐ High school and below (高中及以下)

3) What is your age? 您的年龄?

☐ Under 20 years old (20 岁以下)

☐ 21-30 years old (21-31 岁)

☐ 31-40 years old (31-40 岁)

☐ 41 years or older (41 岁以上)

4) What is your occupation type? 您的职业类型?

☐ Student (在校学生)

☐ Officer (职员)

☐ Business manager (企业管理)

☐ No occupation (暂无职业)

☐ Other please specify..... (其他, 请举例...)

5) What is your monthly income? 您的月收入多少?

☐ Below \$ 300 / Below ¥ 2100 (2100 元以下)

☐ \$ 300-500 / ¥ 2101-¥ 3500 (2101 元-3500 元)

☐ \$ 501-700 / ¥ 3501-¥ 4900 (3501 元-4900 元)

☐ \$ 701-1500 / ¥ 4901-¥ 10500 (4901-10500 元)

☐ \$ 1,500 and above / ¥ 10501 and above (10501 元以上)

6) Why are you willing to pay for online education courses? 您为何愿意在在线教育

课程上付费?

- Good content quality (内容质量好)
- Easy software operation (系统容易操作)
- High Learning interaction (积极的教学互动)
- Complete self-test questions (完整的自测题)
- Reasonable course arrangement (合理的课程安排)
- Other please specify..... (其他, 请举例....)

7) What type of course do you generally choose for online learning? 您一般选择哪些类型的课程进行在线学习?

- Vocational education, language (职业教育 语言)
- IT Internet (网络信息技术)
- Life interest (生活兴趣)
- Skills (技能)
- Other please specify.....

8) How did you hear about "New Oriental Online Education"? 您是通过什么方式了解“新东方在线”的?

- Online promotion (网络宣传)
- Offline promotion (线下宣传)
- Newspapers and magazines (报刊杂志)
- Recommendation by a friend (朋友推荐 其他)
- Other please specify..... (其他, 请举例....)

9) Why did you choose "New Oriental Online Education"?您选择“新东方在线”的原因是什么?

- Reasonable price (价格合理)
- Good reputation and reputation (口碑信誉好)
- Strong faculty (师资力量强)
- Guaranteed service (服务有保障)
- Courses that meet the needs (课程符合需要)

10) How long do you study online every day? 您每天进行在线学习的时间大约为多久?

- Within 30 minutes (30 分钟以内)
- 30 minutes-1 hour (30 分钟-1 小时)
- 1-2 hours (1-2 小时)
- more than 2 hours (2 小时以上)

## Part 2: The Network Technology question (Continued)

Network Technology 网络技术	Strongly disagree 非常不 同意	Disagree 不同意	Moderate Agree 一般	Agree 同意	Strongly agree 非常同 意
I often use mobile phone or other mobile device for online courses of New Oriental Online Education. 我经常使用手机或者其他移动 设备来进行新东方在线教育的 在线课程学习。					
I often use my computer for online courses of New Oriental Online Education. 我经常使用电脑来进行新东方 在线教育的在线课程学习。					

(Continued)



## Part 2: The Network Technology question (Continued)

<p>The software of New Oriental Online Education does not take up much memory of my device.</p> <p>新东方在线教育的软件没有占用我的设备很多内存。</p>					
<p>I really like the page design style of New Oriental Online Education.</p> <p>我很喜欢新东方在线教育的页面设计风格。</p>					
<p>I am very satisfied with the function of New Oriental Online Education Software.</p> <p>我对新东方在线教育软件功能十分满意。</p>					

(Continued)

## Part 2: The Network Technology question (Continued)

<p>I am very satisfied with the products and services of New Oriental Online Education.</p> <p>我对新东方在线教育的产品服务十分满意。</p>					
<p>I thought New Oriental Online Education Software is simple and convenient to use.</p> <p>我觉得新东方在线教育软件使用简洁方便。</p>					
<p>I thought the online use of New Oriental Online Education's online learning process is very smooth.</p> <p>我觉得新东方在线教育的在线学习过程中网络使用很流畅。</p>					

(Continued)

## Part 2: The Network Technology question (Continued)

<p>New Oriental Online</p> <p>Education has no problems</p> <p>uploading / downloading</p> <p>data.</p> <p>新东方在线教育上传/下载</p> <p>数据时没有出现问题。</p>					
<p>When using New Oriental</p> <p>Online Education, there is no</p> <p>freezing or black screen.</p> <p>在使用新东方在线教育的时候</p> <p>没有出现卡顿，黑屏情</p> <p>况。</p>					

**Part 3: The Teaching Quality question (10 questions)**

Teaching Quality 课程质量	Strongly disagree 非常不 同意	Disagree 不同意	Moderate Agree 一般	Agree 同意	Strongly agree 非常同 意
New Oriental online education courses are rich in content. 新东方在线教育课程内容丰 富。					
Online teaching teachers are professional and conscientious. 在线授课教师专业认真。					
Online teaching resources are sufficient. 在线教学资源充分。					

(Continued)

## Part 3: The Teaching Quality question (Continued)

The study period is very reasonable.教师课程内容安排十分合理。					
The arrangement of teachers' course content is very reasonable. 学习时长安排十分合理。					
The study duration is very reasonable. 学习时间段安排十分合理。					
Teachers have reasonable arrangements for breaks between classes. 教师有合理安排课间休息。					
The teacher arranged for the test questions targeted learning.老师安排的测试题有学习针对性。					

(Continued)

## Part 3: The Teaching Quality question (Continued)

Test question have detailed answer. 测试题目有详细的解答。					
Test questions are rich in content. 测试题目详尽。					

Part 4: The Learning Interaction question (10 questions)

Learning Interaction 课程互动	Strongly disagree 非常不同意	Disagree 不同意	Moderate Agree 一般	Agree 同意	Strongly agree 非常同意
Teachers interactive online courses a lot. 教师在线课程互动很多。					
Online interactive teachers have timely feedback. 在线互动教师有及时反馈。					

(Continued)

## Part 4: The Learning Interaction question (Continued)

Have the opportunity to interact with other students. 与其他同学有互动的机会。					
Teachers have timely feedback on problems encountered by students in the course. 学生在课程中遇到的问题老师有及时反馈。					
Teachers have timely feedback on problems encountered by students in self-test questions. 学生在自测题中遇到的问题老师有及时反馈。					

(Continued)

## Part 4: The Learning Interaction question (Continued)

Teachers have timely feedback on related learning problems encountered by students outside of class. 学生在课外遇到的相关的学习问题老师有及时反馈。					
The teacher is very interesting and humorous. 教师十分有趣幽默。					
The learning process made me feel very happy. 学习过程让我感到十分愉悦。					
Learning interest and self-learning ability improved. 学习兴趣和自我学习能力提高。					

(Continued)



## Part 4: The Learning Interaction question (Continued)

I really like to use New Oriental online education courses to learn. 我非常喜欢用新东方在线教育课程来进行学习。					
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1.5 Part 5: The Learning Satisfaction question (10 questions)

Learning Satisfaction 学习满意度	Strongly disagree 非常不同意	Disagree 不同意	Moderate Agree 一般	Agree 同意	Strongly agree 非常同意
There is a study plan for the online course, and the study direction is clear. 对在线课程有学习计划，学习方向明确。					
Very satisfied with the learning atmosphere. 对学习氛围感到十分满意。					

## Part 5: The Learning Satisfaction question (Continued)

<p>The teacher is very concerned about the students and can adjust the teaching methods in time.</p> <p>老师十分关心学生，并能及时调整教学方法。</p>					
<p>I feel complete software learning function.</p> <p>我觉得软件学习功能齐全。</p>					
<p>Contribute to the development of personal analysis and resolution skills.</p> <p>有助于个人分析和解决能力的发展。</p>					
<p>I am very satisfied with the course assessment method.</p> <p>我对课程考核方式很满意。</p>					

(Continued)

## Part 5: The Learning Satisfaction question (Continued)

I am very satisfied with the teacher's teaching method. 我对老师教学方式很满意。					
Very helpful for my knowledge development. 对我知识拓展很有帮助。					
I am very satisfied with the learning guidance provided by the teacher. 教师提供的学习指导我很满意。					
Very satisfied with the teaching materials and academic sharing provided by New Oriental Online Education. 对新东方在线教育提供的教学材料和学术分享十分满意。					

**BIODATA**

Name – Surname :Xiaoqiong Xia

Address :888/139, Lumpini Park Rama 9 - Rachada Condo,  
Chaturathit Road, Bang Kapi, Huai Khwang,  
Bangkok, 10310

Email :wadee-xia@outlook.com

Contact Number :+66 823 238 018

Educational Background :BBA(International Business Administration)  
University of The Thai Chamber of Commerce

## Bangkok University

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Mr./ Mrs./ Ms. Xiaoqiong Xia now living at Bangkok  
Soi 139/888, Lumpini Park Rama 9-Rachada Street Chaturathit  
Sub-district Bang Kapi District Huai Khwang  
Province Bangkok Postal Code 10310 being a Bangkok  
University student, student ID 7610200334  
Degree level ... Bachelor ☒ Master ... Doctorate  
Program MBA Department \_\_\_\_\_ School Graduate School  
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Bangkok University 119 Rama 4 Road, Klong-Toey, Bangkok 10110 hereafter referred to as  
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