DETERMINANTS OF STUDENTS' SATISFACTION ON BLENDED LEARNING AT LOCAL PRIVATE UNIVERSITIES IN MALAYSIA

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PREFACE

It is compulsory to carry out this research project to accomplish our study for the Bachelor's Degree of Business Administration (Hons). The topic of this research is "Determinants of Students' Satisfaction on Blended Learning at Local Private Universities in Malaysia". This study is conducted due to the continuous growth and importance of blended learning at local private universities in Malaysia, as it has gained considerable traction, evolving students' expectations.

In Southeast Asia, Malaysia has seen a swift development in its higher education sector, notably due to the influx of private university openings. Recent years have seen a surge in the popularity of blended learning as an educational approach. It mixes in-person classes with online learning. A variety of private universities in Malaysia are implementing blended learning approaches to improve educational quality and increase flexibility for learners. Students' contentment plays a crucial role in the effectiveness of blended learning. Unhappiness among students can lead to a lack of focus, lower academic performance, and a waning enthusiasm for education. Additionally, factors such as the standard of online content, instructional techniques, the technology utilized, and the ability of students to communicate with their teachers can impact their feelings regarding blended learning. The focus of this study is to explore the determinants of student satisfaction regarding blended learning at Malaysia's private universities. This study's outcomes can guide educational institutions in improving their virtual and physical learning experiences, fostering a friendlier space for student engagement.

In short, this research outlined the five independent variables, student-instructors' interactions, service quality, information quality, perceived usefulness, and perceived ease of use that may influence the students' satisfaction of the students who study at the local private universities in Malaysia. Therefore, it was believed that this research would be beneficial for future research.

ABSTRACT

This study investigates and analyze the determinants of student satisfaction with blended learning at local private universities in Malaysia. The factors influencing students' satisfaction with blended learning include student-instructor interaction, service quality, information quality, perceived usefulness, and perceived ease of use.

The researchers focused on students studying at University Tunku Abdul Rahman (UTAR) and Sunway University which have implemented blended learning as part of their teaching approach. This paper aims to identify the impact of various factors on student satisfaction in this context. A total of 380 responses were successfully collected for this study through Google Forms which was used to distribute the questionnaire. The data from the respondents were analyzed using Statistical Package for Social Sciences (SPSS) Version 30 in both pilot and full studies. To test the significant relationship between the independent variables (student-instructor interaction, service quality, information quality, perceived usefulness, and perceived ease of use) and dependent variable (students' satisfaction), the researchers employed Pearson correlation analysis and multiple linear regression analysis.

In a nutshell, the results found that all explanatory variables (student-instructor interaction, service quality, information quality, perceived usefulness, and perceived ease of use) have a significant impact on the dependent variable (students' satisfaction), as determined through Pearson correlation analysis and multiple linear regression analysis. Lastly, this study presents a summary of the key findings, discusses the research implications, highlights its limitations, and provides several recommendations for future research.

Keywords: Student-Instructor Interaction, Service Quality, Information Quality, Perceived Usefulness, Perceived Ease of Use, Student Satisfaction

Subject Area: LB2300 – 2430 Higher Education

TABLE OF CONTENT

Pages

Copyright Statement ii

PREFACE iii

ABSTRACT iv

TABLE OF CONTENT v

LIST OF TABLES x

LIST OF FIGURES xii

LIST OF ABBREVIATIONS xiii

LIST OF APPENDICES xv

CHAPTER 1: RESEARCH OVERVIEW

1.0- Introduction 1

1.1-Background of Study 1

1.1.1-Overview of Blended Learning and Its Evolution 1

1.1.2-Development of Private Higher Education in Malaysia 3

1.1.3-History and Background of Private Universities in Malaysia 5

1.2-Problem Statement 6

1.3 Research Objectives 10

1.3.1 General Objectives 10

1.3.2 Specific Objectives 10

1.4-Research Questions 11

1.5-Hypotheses of Study 11

1.6-Significance of Study 13

1.7-Chapter Layout 14

1.8-Conclusion 16

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction 17

2.1 Underlying theories 18

2.1.1 Social Exchange Theory 18

2.2 Review of the Literature 20

2.2.1 Dependent Variable – Students' Satisfaction 20

2.2.2 Independent Variables 1 – Student-Instructor Interaction 21

2.2.3 Independent Variable 2 – Service Quality 23

2.2.4 Independent Variable 3 – Information Quality 24

2.2.5 Independent Variables 4 – Perceived Usefulness 25

2.2.6 Independent Variables 5 – Perceived Ease of Use 26

2.3 Conceptual Framework 27

2.4 Hypothesis Development 28

2.4.1 The Relationship between Student-Instructor Interaction with Students' Satisfaction 28

2.4.2 The Relationship between Service Quality with Students' Satisfaction 29

2.4.3 The Relationship between Information Quality with Students' Satisfaction 30

2.4.4 The Relationship between Perceived Usefulness with Students' Satisfaction 31

2.4.5 The Relationship between Perceived Ease of Use with Students' Satisfaction 31

2.5 Conclusion 32

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction 33

3.1 Research Design 33

3.2 Data Collection Methods 34

3.2.1 Primary Data 34

3.3 Sampling Design 35

3.3.1 Target Population 35

3.3.2 Sampling frame and Sampling Location 36

3.3.3 Sampling Element 36

3.3.4 Sampling Technique 37

3.3.5 Sampling size 38

3.4 Research Instrument 39

3.4.1 Questionnaire Design 39

3.4.2 Pilot Study 39

3.5 Construct Measurement 40

3.5.1 Nominal Scale 41

3.5.2 Ordinal Scale 42

3.5.3 Interval Scale 43

3.5.4 Origin of Measure of Construct 44

3.6 Data Processing 44

3.6.1 Data Checking 44

3.6.2 Data Editing 45

3.6.3 Data Coding 45

3.6.4 Data Transcribing 47

3.6.5 Data Cleaning 47

3.7 Data Analysis 47

3.7.1 Descriptive Analysis 47

3.7.2 Reliability Analysis 48

3.7.3 Inferential Analysis 49

3.8 Chapter Summary 50

CHAPTER 4: DATA ANALYSIS

4.0 Introduction 51

4.1 Descriptive Analysis 51

4.1.1 Respondent Demographic Profile 52

4.1.1.1 Gender 52

4.1.1.2 Race 53

4.1.1.3 University 55

4.1.1.4 How Long the Respondents Have Been University Student 56

4.1.1.5 How Frequently do respondents attend the blended learning classes per week 58

4.1.2 Central Tendencies Measurement of Constructs 60

4.1.2.1 Student-Instructor Interaction 60

4.1.2.2 Service Quality 61

4.1.2.3 Information Quality 62

4.1.2.4 Perceived Usefulness 63

4.1.2.5 Perceived Ease of Use 64

4.1.2.6 Student Satisfaction 65

4.2 Scale Measurement 66

4.2.1 Reliability Test 66

4.3 Inferential Analysis 67

4.3.1 Pearson Correlation Analysis 67

4.3.1.1 Student-Instructor Interaction with Student Satisfaction (Hypothesis 1) 68

4.3.1.2 Service Quality with Student Satisfaction (Hypothesis 2) 69

4.3.1.3 Information Quality with Student Satisfaction (Hypothesis 3) 70

4.3.1.4 Perceived Usefulness with Student Satisfaction (Hypothesis 4) 71

4.3.1.5 Perceived Ease of Use with Student Satisfaction (Hypothesis 5) 72

4.3.2 Multiple Linear Regression Analysis 73

4.4 Conclusion 77

CHAPTER 5: DISCUSSION, CONCLUSION, AND IMPLICATIONS

5.0 Introduction 78

5.1 Summary of Statistical Analysis 78

5.1.1 Summary of Descriptive Analysis 79

5.1.2 Summary of Inferential Analysis 81

5.1.2.1 Reliability Test 81

5.1.2.2 Pearson Correlation Coefficient Analysis 81

5.1.2.3 Multiple Linear Regression Analysis 82

5.2 Discussion of Major Findings 83

5.2.1 Hypothesis 1: Student-Instructor Interaction with Student Satisfaction 84

5.2.2 Hypothesis 2: Service Quality with Student Satisfaction 84

5.2.3 Hypothesis 3: Information Quality with Student Satisfaction 85

5.2.4 Hypothesis 4: Perceived Usefulness with Student Satisfaction 86

5.2.5 Hypothesis 5: Perceived Ease of Use with Student Satisfaction 86

5.3 Implications of the Study 87

5.3.1 Theoretical Implications 87

5.3.2 Managerial Implications 88

5.4 Limitations of the Study 89

5.5 Recommendations for Future Research 91

5.6 Conclusion 92

References 94

Appendices 110

LIST OF TABLES

	Page
Table 1: Sample Size Table	38
Table 2: Cronbach's Alpha Reliability Test for Pilot Study	40
Table 3: Data Coding	46
Table 4: Rules of Thumb of Cronbach's alpha	49
Table 5: Frequency Table for Respondents' Gender	52
Table 6: Frequency Table for Respondents' Race	53
Table 7: Frequency Table for Respondents' University	55
Table 8: Frequency Table for How Long the Respondents Have Been University Student	56
Table 9: Frequency Table for How Frequently do respondent attend the blended learning classes per week	58
Table 10: Central Tendencies Measurement for Student Instructor Interaction	60
Table 11: Central Tendencies Measurement for Service Quality	61
Table 12: Central Tendencies Measurement for Information Quality	62
Table 13: Central Tendencies Measurement for Perceived Usefulness	63
Table 14: Central Tendencies Measurement for Perceived Ease of Use	64
Table 15: Central Tendencies Measurement for Student Satisfaction	65
Table 16: Cronbach's Alpha Reliability Test	66
Table 17: Rules of Thumb of Coefficient Range	67
Table 18: Correlations between Student-Instructor Interaction with Student Satisfaction	68

Table 19: Correlations between Service Quality with Student Satisfaction 69

Table 20: Correlations between Information Quality with Student Satisfaction 70

Table 21: Correlations between Perceived Usefulness with Student Satisfaction 71

Table 22: Correlations between Perceived Ease of Use with Student Satisfaction 72

Table 23: Coefficients 73

Table 24: ANOVA for Multiple Regressions 75

Table 25: R-square Value's Model Summary 76

Table 26: Rules of Thumb for the Strength of Correlation Coefficient 76

Table 27: Summary of Descriptive Analysis 79&80

Table 28: Overview of Inferential Findings on Student Satisfaction 83

LIST OF FIGURES

	Page
Figure 1: Blended Learning Framework	2
Figure 2: Number of Local Private Universities and Students' Enrollment	4
Figure 3: Number of Local Private Universities in Malaysia	5
Figure 4: Social Exchange Theory	18
Figure 5: Conceptual Framework Model	27
Figure 6: Questionnaire Section A (Questions 1and 2)	41
Figure 7: Questionnaire Section A (Questions 3 and 4)	42
Figure 8: Questionnaire Section A (Question 5)	43
Figure 9: Questionnaire format in Sections B to G	44
Figure 10: Pie Chart Showing Respondents' Gender	52
Figure 11: Pie Chart of Respondents' Race	54
Figure 12: Pie Chart Showing Respondents' University	55
Figure 13: Pie Chart Showing How Long the Respondents Have Been University Student	57
Figure 14: Pie Chart Showing How Frequently do respondent attend the blended learning classes per week	59

LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
B	The Slope
BL	Blended Learning
Df	Degree Of Freedom
F	F Statistic
FMHS	Faculty of Medicine and Health Sciences
H0	Null Hypothesis
H1	Alternative Hypothesis
IAC	International Advisory Committee
IQ	Information Quality
JFC	Jeffrey Cheah Foundation
KTAR	Kolej Tunku Abdul Rahman
MCA	Malaysian Chinese Association
N	Total Sample Size
PE	Perceived Ease of Use
PU	Perceived Usefulness
Q	Question
R	Regression
SET	Social Exchange Theory
SI	Student-Instructor Interaction
Sig.	Significant
SPSS	Statistical Package for the Social Sciences

SQ	Service Quality
Std Error	Standard Error
SS	Student Satisfaction
T	T Value
UTAR	University Tunku Abdul Rahman
WBLE	Web-Based Learning Environment
α	Cronbach's Alpha

LIST OF APPENDICES

Page

Appendix 1: Table for Origin of Measure of Construct 110

Appendix 2: Questionnaire 113

Appendix 3: Descriptive Analysis 123

Appendix 4: Reliability Test for Pilot Study 125

Appendix 5: Reliability Test for Actual Study 131

Appendix 6: Pearson Correlation Coefficient Analysis 137

Appendix 7: Multiple Linear Regression Analysis 140

CHAPTER 1: RESEARCH OVERVIEW

1.0- Introduction

The reputation of an institution or university will be enhanced with high student satisfaction. Institutional development will be driven by satisfaction. Therefore, researchers conducted a study to explores the key factors that impact student satisfaction with blended learning at local private universities in Malaysia. Chapter 1 introduces the study context, addressing the problem statement, study goals, research questions, hypotheses, significance, chapter structure and summary.

1.1-Background of Study

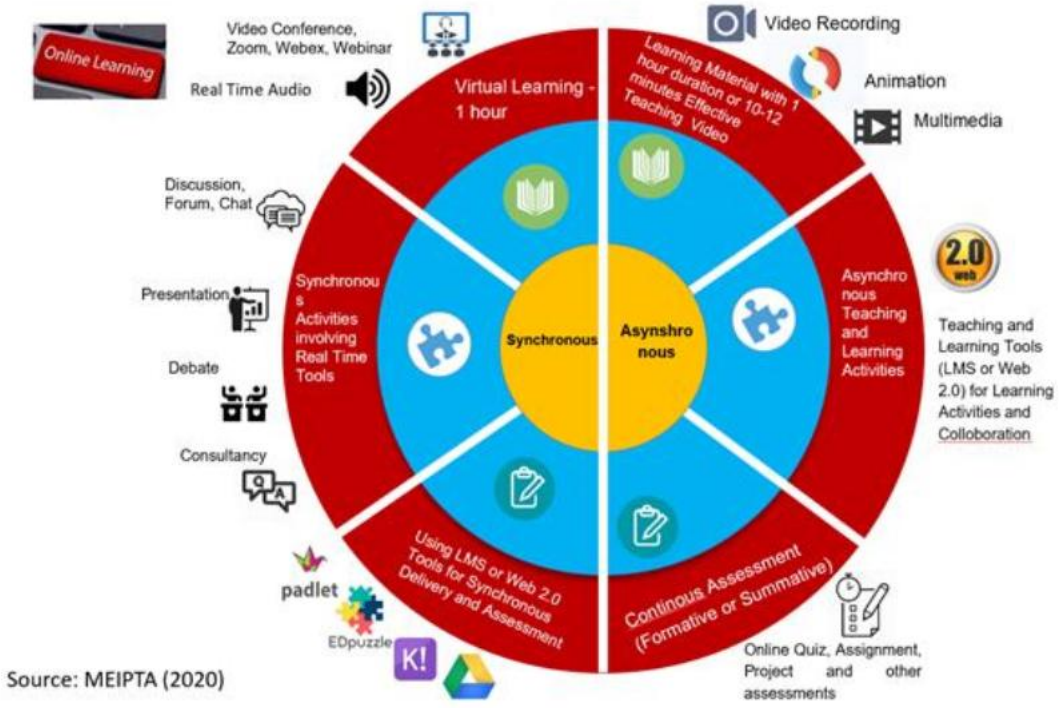
1.1.1-Overview of Blended Learning and Its Evolution

Blended learning is a method that combines both virtual and physical learning and interaction. The Guidelines to Good Practices 2023 published by the Malaysian Qualifications Agency (MQA) state that, A few online lessons combined with mainly face-to-face instruction is referred to as "blended" learning. An advance in technology can be used to improve activities, sharing of content or knowledge, and assessment of learners. As shown in Figure 1, the blended learning constructed maintains the work relationships between instructors and students even in circumstances in which participants are unable to be online simultaneously through the use of asynchronous learning, which is often supported by media like discussion boards and email. The learning environment can be facilitated through synchronous

learning which facilitated through chat and video conferencing, enhances social interaction between instructors and learners, preventing frustration and promoting stronger learning environments (Malaysian Qualifications Agency, 2023).

Figure 1

Blended Learning Framework (Malaysian Qualifications Agency,2023)

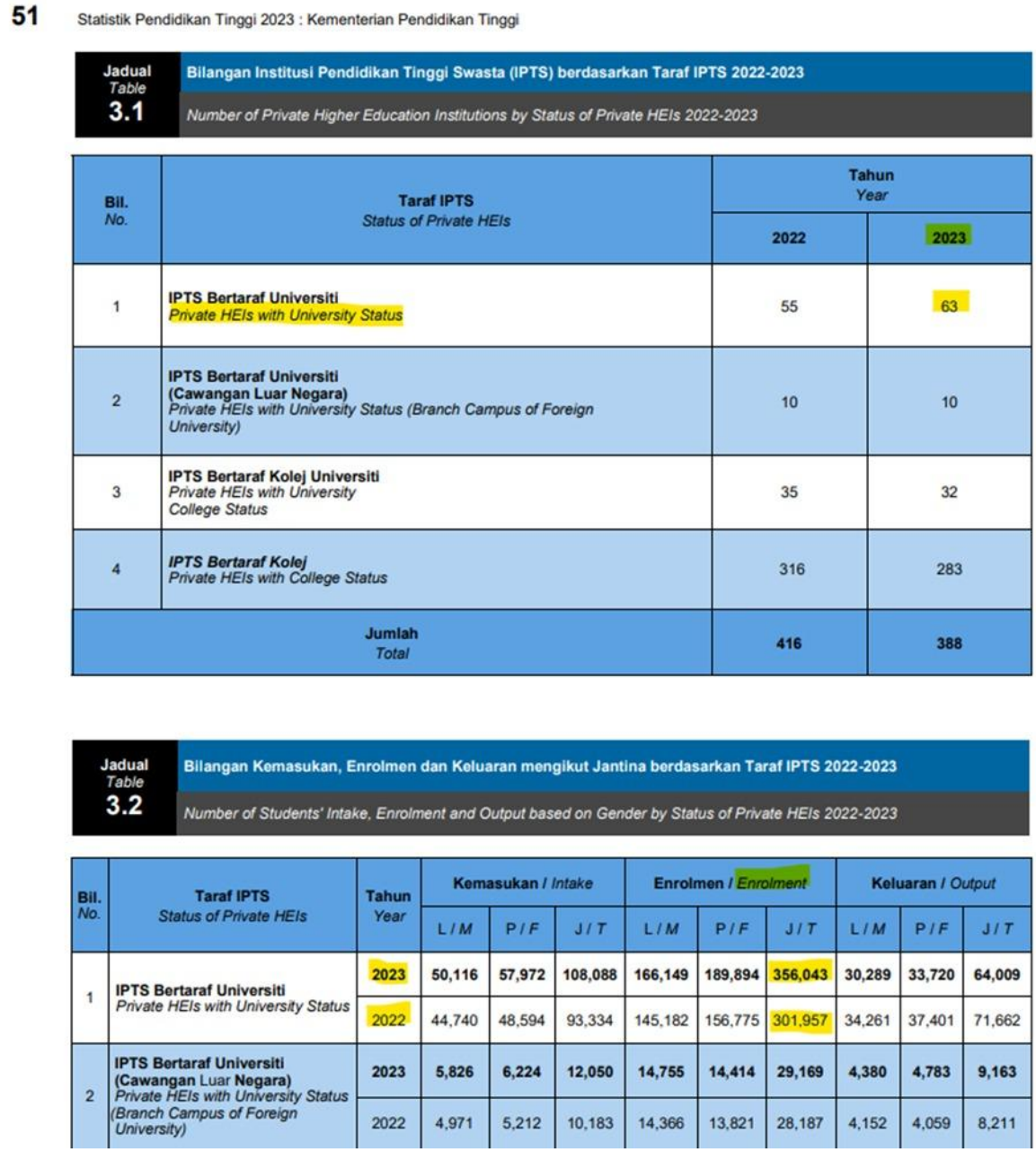


Blended learning has become a crucial teaching strategy in Malaysia's private institutions due to its rapid growth post-pandemic. There are an estimated 80%–90% of higher education courses using blended learning, and this proportion is growing quickly (Shamsuddin & Kaur, 2020). Blended learning is a popular approach in higher education for its flexibility, customized courses, differentiated instruction, and increased student satisfaction. However, it faced challenges in addressing the needs of different students and ensuring effective implementation in higher education (Bruggeman et al., 2021).

Additionally, blended learning offered a flexible learning approach for students. Students may modify learning activities based on time, location, and pace. According to Dinh et al. (2021), a better student experience and outcome may be accomplished through blended learning, which can also increase students' levels of access, flexibility, and active learning. Yet, different students might have different preferences, perceptions, requirements for level satisfaction, and learning methods in education; hence, according to Shamsuddin and Kaur (2020), students' participation in blended learning is influenced by their unique learning styles, as they tend to get involved in activities that align with their preferred learning style. Understanding the elements that affect satisfaction among students is essential for the education industry and may enhance the effectiveness of blended learning (Cheng et al., 2023).

1.1.2-Development of Private Higher Education in Malaysia

Nevertheless, this study examines students' satisfaction with blended learning at Malaysian local private universities. In 2023, there were 63 local private higher education institutions with 356,043 students in 2023, an increase of 14,754 new intakes and 54,086 students compared to 2022 (Ministry of Higher Education Malaysia, 2023) (Figure 2&3). Thus, in accordance with the Malaysia Qualification Framework (MQF), learning accomplishment are divided into eight levels which are from Level 1 to Level 8. When qualifications from two distinct sectors are combined at the same level, they must roughly comply with the MQF's general standards for each level. The MQF assigns a single qualification title for each qualification, including master's degrees awarded through coursework, research, or mixed mode, based on the specific requirements for each level. The connection of the qualifications aims to provide learners with different needs and background with development and a flexible learning way is one of the main goals of the MQF (Malaysian Qualifications Agency,2024).



51 Statistik Pendidikan Tinggi 2023 : Kementerian Pendidikan Tinggi

Jadual / Table 3.1 — **Bilangan Institusi Pendidikan Tinggi Swasta (IPTS) berdasarkan Taraf IPTS 2022-2023**
Number of Private Higher Education Institutions by Status of Private HEIs 2022-2023

Bil. / No.	Taraf IPTS / Status of Private HEIs	Tahun / Year	
		2022	2023
1	**IPTS Bertaraf Universiti** *Private HEIs with University Status*	55	63
2	**IPTS Bertaraf Universiti (Cawangan Luar Negara)** *Private HEIs with University Status (Branch Campus of Foreign University)*	10	10
3	**IPTS Bertaraf Kolej Universiti** *Private HEIs with University College Status*	35	32
4	***IPTS Bertaraf Kolej*** *Private HEIs with College Status*	316	283
Jumlah / *Total*		**416**	**388**

Jadual / Table 3.2 — **Bilangan Kemasukan, Enrolmen dan Keluaran mengikut Jantina berdasarkan Taraf IPTS 2022-2023**
Number of Students' Intake, Enrolment and Output based on Gender by Status of Private HEIs 2022-2023

Bil. / No.	Taraf IPTS / Status of Private HEIs	Tahun / Year	Kemasukan / Intake			Enrolmen / Enrolment			Keluaran / Output		
			L / M	P / F	J / T	L / M	P / F	J / T	L / M	P / F	J / T
1	**IPTS Bertaraf Universiti** *Private HEIs with University Status*	**2023**	**50,116**	**57,972**	**108,088**	**166,149**	**189,894**	**356,043**	**30,289**	**33,720**	**64,009**
		2022	44,740	48,594	93,334	145,182	156,775	301,957	34,261	37,401	71,662
2	**IPTS Bertaraf Universiti (Cawangan Luar Negara)** *Private HEIs with University Status (Branch Campus of Foreign University)*	**2023**	**5,826**	**6,224**	**12,050**	**14,755**	**14,414**	**29,169**	**4,380**	**4,783**	**9,163**
		2022	4,971	5,212	10,183	14,366	13,821	28,187	4,152	4,059	8,211

Figure 2

Number of Local Private Universities and Students' Enrollment (Ministry of Higher Education Malaysia ,2023)

Figure 3

Number of Local Private Universities in Malaysia (Ministry of Higher Education Malaysia ,2023)

1.1.3-History and Background of Private Universities in Malaysia

In general, public universities and private universities are the two major categories of higher education institutions. However, this study aimed to discuss private universities, University Tunku Abdul Rahman and Sunway University, focused on the factors that affect students' satisfaction with blended learning.

Kolej Tunku Abdul Rahman (KTAR) is the first college in Malaysia named after the country's first Prime Minister and a model for Universiti Tunku Abdul Rahman (UTAR). In 1964, the Malaysian Chinese Association (MCA) proposed the establishment of a new private institution, and the government approved its establishment. Additionally, Tan Sri Musa Mohamed, then Minister of Education, asked MCA to establish UTAR in 2001. Initially, the institution offered a total of eight degree programs. To provide opportunities for the global collaboration, the International Advisory Committee (IAC) was formed. UTAR is still part of the Faculty of Education of UTAR, which was officially established in 2002. However, the Faculty of Medicine and Health Sciences (FMHS) was established in 2009 to prepare medical students for careers in health care. The institution offers over 138 academic programs in a range of disciplines including business, accounting, and medicine. Currently, UTAR has four centres, and nine faculties in Kampar and Sungai Long (University Tunku Abdul Rahman, n.d.).

Next, Sunway University was founded in 2011 and has grown to become Malaysia's leading private not-for-profit institution. As a private university in Malaysia, Sunway University is committed to offering excellent comprehensive education to all individuals, irrespective of race, religion, or financial status. It encourages the discovery, development, dissemination and application of knowledge to meet the needs of communities and the public worldwide. Sunway University operates under the Jeffrey Cheah Foundation (JCF). Through this special non-profit structure, an operating surplus is returned to the institution through this special nonprofit structure or as grants allocated for research, scholarship, facilities, and faculty development, ensuring a lifetime of high-quality education (Sunway University, n.d.).

1.2-Problem Statement

Blended learning is rapidly gaining popularity in higher institutions and related studies have expanded significantly in recent years (Fisher et al., 2021). With the advancement of technology, education has become ever more beneficial from a higher education point of view, strengthening student accessibility, and raising the significance of active learning during the blended learning process. Through increased flexibility and independence during their educational experience, students can advance at their own pace (Seong et al., 2022). Next, blended learning also has some limitations. The technical difficulties that both instructors and students may encounter during online teaching are one of the major disadvantages. The instructors and students may have some concerns about computers, tablets, mobile devices, and software used for educational purposes. In addition, a stable and quick internet connection is necessary for blended learning. However, not every student has access to a stable internet connection. The learning process can be interrupted by even brief internet disruptions (Mustafa,2023).

Hence, the differences in students' satisfaction with blended learning showed that their negative impression was influenced by their lack of satisfaction with several parts of it. This is due to the internet connection and available online features. Some students reported that fewer training opportunities and technology limitations impacted their satisfaction with this learning approach (Rianto, 2020). Thus, students expressed satisfaction with blended learning in their past studies. The study results mentioned that blended learning is conductive to the publication of teaching materials, the arrangement of students' independent homework, and the management and planning of courses, all of which contributed to enhancing students' satisfaction with blended learning. The study found that student satisfaction with blended learning courses increased when instructors effectively motivate them. According to the results, 88.6% of the respondents believed that the course's level of benefit was one of the factors that enhanced learners' satisfaction with blended learning (Al Awamleh, 2020; Zeqiri et al., 2022; Cheng et al., 2023).

According to Zeqiri et al. (2022), the interaction between learners has a positive relationship with students' performance and satisfaction yet based on the evidence

reported by Gray and DiLoreto (2016), it does not significantly affect student satisfaction. Moreover, previous research indicated that the interaction between students and instructors is a crucial factor in enhancing their satisfaction. This form of education requires engagement and communication. Both learners and instructors need to figure out strategies to communicate, examine comprehension levels, and create an effective feedback system. Both traditional and online learning settings emphasized student-instructor interaction with online platforms offering more engagement opportunities, enhanced student satisfaction and improved academic outcomes (Ali&Mizra,2020). Next, based on the data provided by Zakaria et al. (2022) and Bwachele et al. (2023), student satisfaction has been adversely and non-significantly influenced by the quality of the services. However, Amoako et al. (2023) and Malik et al. (2010) investigated and found that student satisfaction has been showed to positively correlate with the quality of academic services. According to the studies, service quality is also one of the areas of concern. Some aspects of service quality that contributed to student satisfaction include tangibility, reliability, responsiveness, and assurance. These aspects emphasized the provision of high-quality educational services. In ideal circumstances, student satisfaction plays a vital role in an institution's performance and became a powerful tool to raised the perceived value of services. Additionally, as a greater number of individuals viewed students as potential customers of higher education institutions, drawing in new students is a crucial task for educational institutions (Yusof et al., 2022). Therefore, it is important to maintain and improve student satisfaction and brand awareness of educational institutions.

On the other hand, the information quality examined by Alzahrani & Seth (2021) and Alterkait & Alduaij (2024) had a significant impact on student satisfaction, while the measure of student satisfaction was not significantly impacted by the information quality variable (Purwati et al., 2022). According to past studies, information quality was another concern area, the information quality described the characteristics of being comprehensive, accurate, and relevant. Therefore, the methods teachers used for content creation, management, and delivery are essential to the informational quality of e-learning platforms. This helped to ensure that each

student understood the information easily and clearly. A key condition for student satisfaction was high information quality (Alterkait&Alduaij,2024). Furthermore, there was a slight positive link between student satisfaction and collaborative learning and a negative correlation between student satisfaction with perceived usefulness (Al-Rahmi&Ohman,2013). According to Daryanto (2022), the research results reported that students' satisfaction is unaffected by perceived usefulness. Additionally, Nuryakin et al. (2023) and Nurfitriyani&Legowo (2023) found different results, showing that students' satisfaction is significantly impacted by perceived usefulness. Furthermore, perceived usefulness is also one of the concern areas that has an impact on satisfaction; therefore, students felt highly satisfied when they believed that the technology or system used is beneficial and provides value. This is because blended learning is more acceptable to students, and their perceptions of its usefulness significantly impacted their overall satisfaction (Nurfitriyani&Legowo,2023). On the other hand, previous studies have shown that perceived ease of use were another element that affected student satisfaction. A system application's perceived ease of use refers to the level of belief that users have in it. The term "ease," which signifies a considerable amount of effort or freedom from difficulties, serves as the definition (Rahman et al., 2017). According to Nuryakin et al. (2023), the results indicated no significant effect between perceived ease of use and students' satisfaction. However, significant impacts of perceived ease of use on student satisfaction were reported by Yang (2024) and Ohliati and Abbas (2019).

Therefore, the research on student satisfaction has yielded inconsistent results, making it difficult to provide a precise overview of the relationship between satisfaction objectives and practices. Hence, a study on five independent variables as drivers of students' satisfaction at local private universities in Malaysia was especially important. Consequently, the factors influencing satisfaction at local private universities in Malaysia had been overlooked in prior research, since research has mostly concentrated on public universities in Malaysia and different countries. This study aimed to explore the factors that influence students' satisfaction with blended learning in a local private university in Malaysia.

1.3 Research Objectives

1.3.1 General Objectives

The general objective of the study was:

-To study the **factors that influence Students' Satisfaction with Blended Learning at local Private Universities in Malaysia**

1.3.2 Specific Objectives

The **specific objectives** of the study were:

1) To investigate the significant impact of **student-instructor interaction on student satisfaction** with blended learning at local Private Universities in Malaysia.

2) To investigate the significant impact of **service quality on student satisfaction** with blended learning at local Private Universities in Malaysia.

3) To investigate the significant impact of **information quality on student satisfaction** with blended learning at local Private Universities in Malaysia.

4) To investigate the significant impact of **perceived usefulness on student satisfaction** with blended learning at local Private Universities in Malaysia.

5) To investigate the significant impact of **perceived ease of use on student satisfaction** with blended learning at local Private Universities in Malaysia.

1.4-Research Questions

Following was the research question that has been considered in this study's research, taking into consideration the stated research objectives:

1) Does student-instructor–interaction affect students' satisfaction at local Private Universities in Malaysia?

2) Does service quality affect students' satisfaction at local Private Universities in Malaysia?

3) Does information quality affect students' satisfaction at local Private Universities in Malaysia?

4) Does perceived usefulness affect students' satisfaction at local Private Universities in Malaysia?

5) Does perceived ease of use affect students' satisfaction at local Private Universities in Malaysia?

1.5-Hypotheses of Study

The hypotheses of the research study had been stated to analyse the impact of student's satisfaction (dependent variable), along with the independent variables,

which were student-instructor interaction, information quality, service quality, perceived usefulness and perceived ease of use. The hypotheses are listed as follows:

Hypothesis 1:

*H*0: Student-instructor interaction has no significant impact on student satisfaction with blended learning at local Private Universities in Malaysia.

*H*1: Student-instructor interaction has significant impact on student satisfaction with blended learning at local Private Universities in Malaysia.

Hypothesis 2:

*H*0: Service quality has no significant impact on student satisfaction with blended learning at local Private Universities in Malaysia.

*H*2: Service quality has significant impact on student satisfaction with blended learning at local Private Universities in Malaysia.

Hypothesis 3:

*H*0: Information quality has no significant impact on student satisfaction with blended learning at local Private Universities in Malaysia

$H3$: Information quality has significant impact on student satisfaction with blended learning at local Private Universities in Malaysia

Hypothesis 4:

$H0$: Perceived usefulness has no significant impact on student satisfaction with blended learning at local Private Universities in Malaysia.

$H4$: Perceived usefulness has significant impact on student satisfaction with blended learning at local Private Universities in Malaysia.

Hypothesis 5:

$H0$: Perceived ease of use has no significant impact on student satisfaction with blended learning at local Private Universities in Malaysia.

$H5$: Perceived ease of use has significant impact on student satisfaction with blended learning at local Private Universities in Malaysia

1.6-Significance of Study

By focusing on Malaysian private institutions, a setting that has not been given as much attention in past studies, this study expanded the body of information that

exists on blended learning and the satisfaction of learners. This paper proposed a novel framework highlighting key factors influencing student satisfaction, including quality of service, information quality, perceived usefulness, student-instructor interaction and perceived ease of use. This approach may be used by future researchers, who can utilize this approach to enhance understanding and investigate the various ways blended learning impacts students' experiences in higher education.

This research investigation report shall bring significance to higher institutions by providing an improved understanding the factors that shape students' satisfaction in blended learning at local private universities in Malaysia. The study highlights the shift from traditional in-person education to blended learning models after the pandemic, providing valuable insights for university management to understand student satisfaction and improve facilities, thereby enhancing future strategies for blended learning.

The significance of this study is that it has increased students' satisfaction, met their needs, improved the quality of education and enhanced their academic performance. Understanding these five independent variables can help institutions enhance their blended learning models and plan the decision-making process for the present and future. The research aimed to enhance student satisfaction and adapt to current trends in local private universities in Malaysia by enhancing understanding of all the independent variables in this study.

1.7-Chapter Layout

Chapter 1

Chapter 1 of this report provided an overview of the study, outlining its general aim, research background, issue statement, objectives, questions, hypotheses, importance of the study, chapter layout, and conclusions.

Chapter 2

Chapter 2 provided a comprehensive literature review, analyzed previous research from various sources, including journals, articles, textbooks, and the internet. It includes an introduction, underlying theories, a literature review, a proposed conceptual framework, hypothesis development, and a conclusion.

Chapter 3

Chapter 3 of the study provided a comprehensive analysis of the research methodology, detailing data collection, sample design, instruments, measurement construction, data processing, and analysis.

Chapter 4

The outcomes of SPSS's analysis of the collected data have been covered in this chapter.

Chapter 5

This chapter have provided a comprehensive summary of the study's findings including its limitations, implications, and suggestions for future research.

1.8-Conclusion

Concisely, this chapter outlined the purpose of a study aimed at understanding students' satisfaction with blended learning at local private universities in Malaysia. It provided background and study goals, identified factors affecting satisfaction, and provided a literature review in Chapter 2.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Chapter 2 reviewed the dependent variable which was students' satisfaction followed by the independent variables which were service quality, student-instructor interaction, information quality, perceived usefulness, and perceived ease of use. The connection between dependent variable and independent variable was clarified and grounded on support from the literature and journal articles. Additionally, this chapter reviewed and analysed past literature with research issues mentioned in Chapter 1.

2.1 Underlying theories

2.1.1 Social Exchange Theory

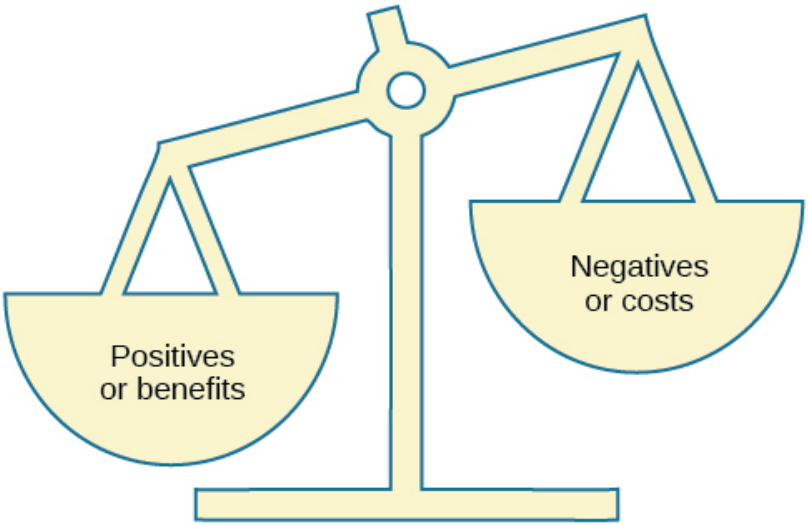


Figure 4

Social Exchange Theory

Source:
https://oertx.highered.texas.gov/courseware/lesson/2154/student/?section=6

Social Exchange Theory served as a method to comprehend social interactions by focusing on how people assist one another through the exchange of goods and services. Additionally, it outlined how these minor processes support the construction of our social frameworks and the pressures for social change they generated, which are often a result of unequal power dynamics. Understanding how these interactions occur, transform, and impacted the associated groups and networks is crucial (Karen & Michael, 2021). Most experts concur that interaction

patterns consist of mutual exchanges among individuals. Modern theories of social exchange include personal relationships in their ideas about exchanging. Despite their common focus, these theories approached the understanding of relationship patterns in distinct ways (Mitchell et al., 2012).

Social exchange theory served as a framework for comprehending and anticipating the three components involved in developing skills for cross-cultural interactions. Firstly, the relationship maintenance was the fundamental concept that individuals engaged in interactions by exchanging rewards with one another. These communications helped established permanent social bonds, and as individuals become more estranged, they usually collaborate less. Thibaut and Kelley (2017) examined personal relationships by analysing the exchanges and reciprocations that occur between individuals. Secondly, exchange processes happened when two parties give and receive from each other. If one party stops giving back, the exchange can fail, leading to an imbalance in the interaction. Hence, social interaction involved individuals developing and nurturing connections with one another, as they perceive mutual advantages from these relationships. According to the prominent SET theorist Homans (1958), an increased likelihood of engaging in an activity enhances the significance of the rewards associated with it. Advocates of blended learning (BL) might argue that the time teachers and students spend interacting isn't necessarily diminished by this method. Meyer (2019) identified three significant benefits of in-person communication, especially for diverse student groups, noting the positive impact of emotion, energy, and the seamless nature of such conversations. Furthermore, prompt feedback, obtained through body language or spoken comments from fellow students, leads to a quick evaluation of their opinions, which remained memorable and aids in responding effectively during live discussions (Pillay & James, 2015).

The Social Exchanged Theory has been chosen as was able to explain the students' perceptions of their social exchange relationships (service quality, information quality, perceived usefulness, student-instructor interaction, and perceived ease of

use) with the university's implication for students' satisfaction. The better their perception is, the higher their satisfaction will be.

2.2 Review of the Literature

2.2.1 Dependent Variable – Students' Satisfaction

Satisfaction refers to the state of being content due to the realization of one's goals or expectations (Onditi & Thaddeus, 2017). It encourages students to remain devoted and is a consequence of the educational framework (Elliott & Healy, 2001). According to Elliot and Shin (2010), student satisfaction reflects students' feelings about their education, which are influenced by their perceptions of their achievements and experiences. Therefore, the contentment of students is influenced by their perceptions of their experiences and the effectiveness of the education they were provided (Elliot & Shin, 2010). Wilkins and Balakrishnan (2013) discovered that factors such as instructor quality, facility conditions, and the degree of technology integration played a crucial role in determining student satisfaction. Several elements greatly impacted student satisfaction in universities, such as the quality of classroom environments, the feedback they obtained, their connections with teachers, social interactions with fellow students, course material, and access to learning tools and library resources (Wilkins & Balakrishnan, 2013). For example, highly satisfied students can occur due to good and functional facilities provided by the university, highly knowledgeable and helpful lecturers who can help them to achieve good results, and good management of the university. In contrast, a highly dissatisfied student may form if they perceive the university to have high fees despite mediocre facilities provided, ineffective learning from the lecturer's teaching, and bad management of the university. Hence, each student's satisfaction varies depending on their feelings and experiences.

Besides, research has revealed that virtual learning tends to yield better results than in-person educational environments. This instructional approach eliminated challenges related to time and distance, facilitating easier access to education for individuals. A major advantage of online learning was the flexibility it offered in selecting their study times. The option to take online classes anytime and anywhere enabled students to engage in continuous learning throughout their lives. While online learning offers various advantages, it also presented some disadvantages, like a sense of solitude, a lack of social interaction, and possible internet disruptions (Rajeh et al., 2021). Therefore, the implementation of blended learning mode has overcome both the pros and cons and ensure students' satisfaction is high. When students are satisfied, the productivity of learning will increase and thus they will have a better academic achievement.

In conclusion, it is important to ensure students' satisfaction can be achieved in an institution. Millennials make up today's student body, showing a preference for fresh teaching styles and a desire for meaningful interaction with their instructors. They appreciate the perks of integrating digital and traditional classroom experiences which have been implemented today as a blended-learning mode (Rajeh et al., 2021).

2.2.2 Independent Variables 1 – Student-Instructor Interaction

Student-instructor interaction involves the manner in which the student exchanges information with the teacher. This could entail the teacher transmitting knowledge, inspiring the learner, or delivering critiques on their performance (Sher, 2009). It is also essential to instruct and guide all students on the effective use of online

resources as it would help with their academic learning even more. Additionally, students have to be good with technology as part of the blended course requirements in order to fully utilize all the resources (Ibrahim & Nat, 2019). For example, Microsoft Teams can be utilized not only as a platform for class meetings, but the application also provided a chat box function so that the students will be able to communicate with instructors regarding their studies. Through the resources, students and instructors will be able to interact effectively and efficiently.

Students who established a rapport with their instructors gained a variety of advantages. For instance, engaging interactions between students and teachers contributed to a more favourable attitude toward both the instructor and the learning environment, leading to more enjoyable educational experiences, regular class attendance, heightened focus and effort in studies, increased school perseverance, active participation, and elevated grades (Sandstrom, 2023). When a student feels more connected and receive constructive feedback from the instructors, they will be able to learn more, and thus, increasing their satisfaction.

In conclusion, according to Ali et al. (2004), students reported that their relationships with online instructors were comparable to those in traditional classrooms, and in some cases, even more positive, as online teachers exhibited greater friendliness and professionalism (Joyner et al., 2014). Therefore, the implementation of blended learning mode has struck the perfect balance that satisfied students' wants and needs. It is important to achieve good academic results but it is also important to help the instructors who will be able to guide the way.

2.2.3 Independent Variable 2 – Service Quality

Service quality describes how well a service provider satisfies customer needs efficiently, contributing to enhanced business performance (N. Ramya e. al.,2019). As noted by Tan and Kek (2004), the assessment of educational quality hinged on the degree to which students' desires and requirements were satisfied. A quality education can be defined as a collection of principles within a learning program, tailored to fulfil the requirements of the students (Borishade et al., 2021). In higher education, students' opinions about service quality were typically derived from their experiences with a range of individuals. These included interactions with office staff, lecturers, librarians, and security staff. Should the services not align with what customers expected, they will be rated as low quality (Onditi & Wechuli, 2017). For example, service quality in university is highly related to students' experience and perceptions of the service delivered. Therefore, if the service did not match the expectations and experience, the quality is deemed low. Nowadays, students tend to scrutinize the quality of their education more than previous generations did. Quintal and Phau (2016) discovered that students who demonstrated loyalty were typically pleased with their learning experiences. Their research revealed that the quality of educational services can influence student loyalty, although this relationship is not straightforward (Borishade et al., 2021).

To ensure student satisfaction, universities must consider every aspect of students' experience (Onditi & Wechuli, 2017). According to Jones and Shandiz (2015), the level of happiness among customers was determined by their evaluations of the product's price and quality. Next, customers possessed two kinds of service expectations: their ideal outcomes and the compromises they are prepared to make. The service level that customers expected indicated the amount of help or support they wished to receive. Mulyono (2020) indicated that the service quality has a direct effect on student satisfaction (Doan, 2021).

In conclusion, service quality is highly related to the outcome of students' satisfaction in blended learning. To have high student satisfaction through quality

of the service, the university must ensure enough resources are prepared, lecturers are equipped with the suitable technology and knowledge to deliver course materials to students' level of understanding as well as other factors that could affect students' experience in blended learning. When students experienced a good service quality, they will recommend the mode of blended learning, and many other higher institutions that have not implemented blended learning mode will consider it.

2.2.4 Independent Variable 3 – Information Quality

The term "information quality" describes the value of course materials used in blended learning environments, where online and traditional teaching methods are combined to support better student learning (Anthony Jnr, 2024). Information in blended learning must be readily accessible, comprehensive, precise, straightforward, and sufficient for student needs. A study conducted by Ghazal et al. (2018) demonstrated that the quality of information significantly influenced both the usage of e-learning systems and students' satisfaction with their educational experience. Likewise, according to Mohammadi, the quality of information plays an important part in assessing blended learning environments, which in turn impacts student embracement of blended learning. Additionally, Ghazal indicated in a 2018 report that the ease of blended learning for students is enhanced when it successfully combined effective traditional classroom teaching with useful digital materials (Ghazal et al., 2018) (Jnr, 2024).

Information quality highlighted the standard associated with digital educational materials. The main objective of course material was to provide learners with the essential information required for their studies. Lecturers in the university must maintain accurate and timely information to remain flexible and capable of adapting to various changes. This feedback serves as an indication of the quality of the information (Freez et al., 2010).

The performance of students in an educational setting was significantly impacted by the information quality of the course material they encountered. According to Moore (2009), course details revealed the degree of rigidity or flexibility in the program's objectives, instructional strategies, and evaluation techniques. Course arrangement related to the ease of using the course website and the systematic organization of course content in a clear and understandable format. Such details had a significant effect on students' satisfaction (Freeze et al., 2010).

In conclusion, information quality was important in forming students' level of satisfaction as this variable highly affected their academic achievement. Students needed a piece of high-quality, relevant, and timely information in order to keep up with the world changes as well as their examinations. Hence, the lecturers and staff should pay more information when they are forming the course content materials in order to satisfy the students' needs.

2.2.5 Independent Variables 4 – Perceived Usefulness

The term perceived usefulness described the level to which an individual believed that utilizing a specific system could boost their work efficiency (Huang, 2021). The perceived usefulness of blended learning was a key determinant that influenced individuals' decisions to adopt this method of learning. The integration of blended learning by lecturer's likely stemmed from their observation of technology's effectiveness in enhancing instruction and learning. In this setting, comprehensive training about the advantages of the technology played an important part in ensuring the success of blended learning initiatives (Haron et al., 2012). Hence, the lecturers need to understand the perceived usefulness of integrating technology in order to satisfy students' needs during the blended learning mode.

The results demonstrated that instructors thought that blended learning offered various benefits. These advantages featured greater flexibility, diminished challenges concerning a lack of classrooms and instructors, as well as a platform for sharing recommendations, knowledge, and educational documents among students and instructors (Ramly et al., 2016). Through this usefulness of blended learning, it enhanced students' satisfaction as instructors were able to listen and provide feedback regarding their ideas as well as share it with other classmates. They were also able to reduce the time taken to discuss with each of the students as they can utilize technology resources such as Google Jamboard for idea sharing, unlike traditional learning.

2.2.6 Independent Variables 5 – Perceived Ease of Use

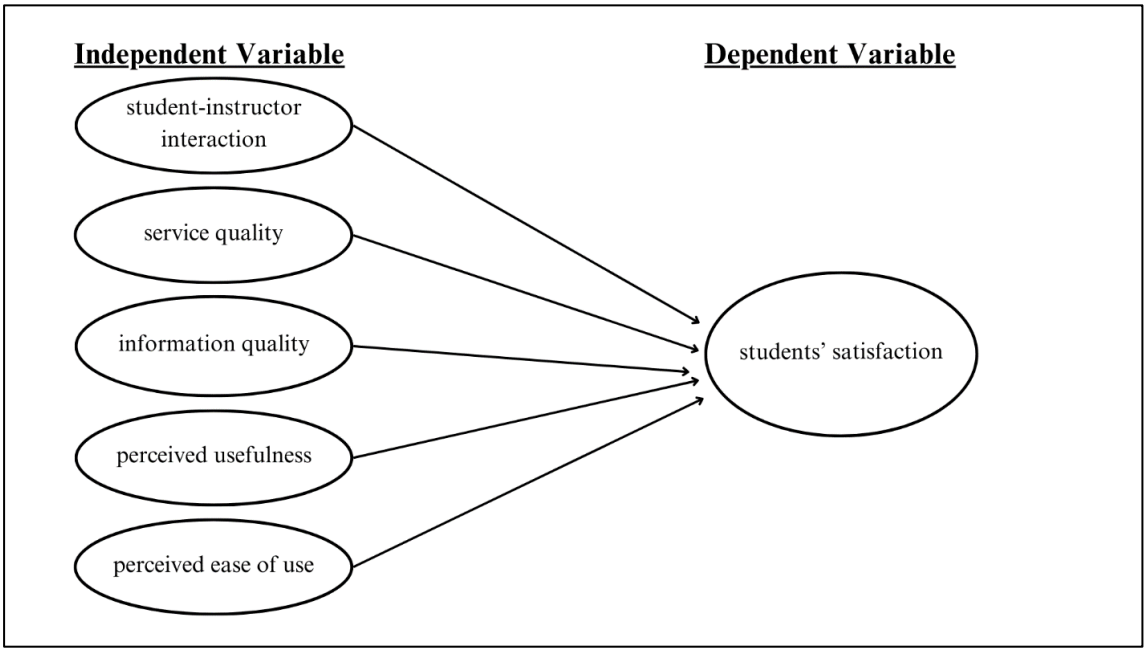
Perceived ease of use can be explained as a person's belief about how user-friendly a system is (Huang, 2021). Students improve their ability to log into the educational platform and easily discovered the subjects they were looking for. They also effectively utilized communication tools to engage in discussions with the teacher and their classmates. Additionally, it was mentioned that the online materials were well-structured and clear, contributing to increased student satisfaction with blended learning. The tool that aided the perceived ease of use increased students' efficiency since it minimized the amount of effort they need to put in. The availability of technology played a vital role in influencing students' satisfaction levels. The tools must be consistent in performance, and students ought to be proficient in using them. Blended learning incorporated resources such as Microsoft Teams, a platform that enabled educators and learners to leverage a cohesive and secure environment for developing tailored learning experiences. Students perceived the tools as accessible and straightforward to utilize. Another factor

contributed to this optimistic perspective was that many students possessed solid computer skills. Making online environments simple and accessible, it encouraged learners to participate more actively, leading to improved learning outcomes, thus enhancing satisfaction in blended learning (Ibrahim et al., 2021).

2.3 Conceptual Framework

Figure 5

Conceptual Framework Model



Source: Developed for the research

A conceptual framework, as shown in Figure 5 was constructed for this research. It consisted independent variables that impacted the dependent variable. This framework was developed from past literature and integrated the concept of the Social Exchange Theory, expressing that through these independent variables, students' satisfaction in the blended learning mode can increase.

The researcher has used the Social Exchange Theory to strengthen the connection between the dependent variable and the five independent variables. These five factors positively affected students' satisfaction. For instance, when all the independent variables increased, the dependent variable also increased. In contrast, if one of the factors decreased, students' satisfaction is also lowered.

2.4 Hypothesis Development

2.4.1 The Relationship between Student-Instructor Interaction with Students' Satisfaction

The extent and effectiveness of student-instructor interactions impacted students' contentment with students' satisfaction. The communication between students and teachers, known as student-instructor interaction, was an important part of the learning experience. There were various approaches to achieving this, such as educators designing a program that enhanced motivation while offering assistance and fostering encouragement. Feedback played a crucial role in the relationship between students and educators (Khan & Iqbal, 2016). According to Eccles (2004), a positive rapport between students and instructors played a vital part in boosting students' satisfaction and motivation to excel in their academic pursuits. The findings of the study indicated that establishing positive and secure connections between students and teachers was crucial to ensure students' satisfaction. Many educational institutions implemented diverse initiatives aimed at helping students to establish positive interaction with instructors and schools, thus increasing their satisfaction with their experience (Creaey et al., 2009). Therefore, the following hypothesis is developed.

H1: Student-instructor interaction has a significant impact on students' satisfaction with blended learning at local private universities in Malaysia.

2.4.2 The Relationship between Service Quality with Students' Satisfaction

Educational institutions must comprehend students' views on their services. Satisfaction among students arised from initiatives aimed at addressing the needs and preferences of them through various products and services. In educational institutions, student satisfaction was a key indicator of the quality of the education provided (Al-Sheeb et al., 2018). Next, four primary factors that contributed to student satisfaction: the teacher's level of knowledge, the selection of courses, the educational setting, and the resources found in the classroom. The standard of higher education was determined by the availability of effective teaching aids, contemporary libraries, research options, and a comprehensive curriculum (Islam & Himel, 2018). Additionally, higher education institutions could enhance student satisfaction by elevated quality of instruction, providing a wider variety of courses, facilitating student-teacher interactions beyond the classroom, and assessing students' comprehension of the subject matter (Tsai et al., 2017). According to research conducted, students reported feeling satisfied when they felt they were getting worthwhile returns on their spending. This consisted of acquiring timely feedback regarding their performance, having teachers readily available for help, having enough teaching resources and textbooks, and having educators who were responsive to their distinct academic demands (Douglas et al., 2014; Twum & Peprah, 2020). Therefore, the following hypothesis is developed.

H2: Service quality has a significant impact on students' satisfaction with blended learning at local private universities in Malaysia.

2.4.3 The Relationship between Information Quality with Students' Satisfaction

The quality of information relates to the way individuals utilized the system, their happiness with it, and the comprehensive benefits derived from it. Important aspects that determined the quality of information included its origin, level of accuracy, relevance, promptness of delivery, and whether it contains all essential information. Moreover, the degree of satisfaction experienced by students typically hinged on the quality of the information available. Consequently, many students tend not to view information quality as a standalone idea, but instead assessed it in relation to their level of satisfaction (Achmadi &Siregar, 2021). By providing quality information, students can enjoy a more straightforward experience, leading to greater satisfaction among students (Khan et al., 2022). For example, if students are provided with course content such as lecture notes that are comprehensive, timely, and relevant to their courses will be highly satisfied as they are able to study accordingly for examinations and to apply the knowledge in their future endeavors. Therefore, the following hypothesis is developed.

H3: Information quality has a significant impact on students' satisfaction with blended learning at local private universities in Malaysia.

2.4.4 The Relationship between Perceived Usefulness with Students' Satisfaction

Perceived usefulness referred to a student's belief in the effectuality of a blended learning system for enhancing their learning experience. The concept of perceived usefulness revolved around users' opinions on whether a technology will improve their work efficiency (Abdel-Maksoud, 2018). This implied that a more effective blended-learning increased students' enthusiasm to participate. Students expressed that they found online learning platforms beneficial and user-friendly, as it enhanced their performance and facilitate overall learning (Nuryakin et al., 2023). What students often contemplated was the relevance and effectiveness of the information presented to them. Thus, students anticipate to increase their performance through proposed system, where in this study is the blended-learning mode (Haddad, 2018). Consequently, students' satisfaction with something is impacted by its perceived usefulness (Amsal et al., 2021). Therefore, the following hypothesis is developed.

H4: Perceived usefulness has a significant impact on students' satisfaction with blended learning at local private universities in Malaysia

2.4.5 The Relationship between Perceived Ease of Use with Students' Satisfaction

As outlined by Davis, perceived ease of use indicated the level of effort, both physical and mental, that an individual associated with using a specific system. Davis suggested that when people perceived a system as straightforward, they tend to maintain their usage of it. In the topic of E-learning, perceived ease of use describes users' opinions regarding the simplicity of using a specific technology (Sun et al., 2022). Furthermore, students want to know how easy or hard it will be

to use technology while doing their work tasks (Abdel-Maksoud, 2018) in order to increase their performance and efficiency to be satisfied with blended learning. For example, students that could easily access to tools provided by university such as Microsoft Teams, with straightforward design and quick as well as secure accessibility, they found it helpful and easier to find information as well as to communicate with lecturers and peers regarding their education which enhance efficiency thus, increasing their performance in studies due to it is easy to use. Consequently, the subsequent hypothesis is developed.

H5: Perceived ease of use has significant impact on students' satisfaction with blended learning at local private universities in Malaysia

2.5 Conclusion

This chapter has evaluated and analyzed the literature for the dependent variable (students' satisfaction) and independent variables (quality of service, quality of information, perceived usefulness, student-instructor interaction, and perceived ease of use). Conceptual framework and hypotheses had been developed based on the literature review.

CHAPTER 3: RESEARCH METHODOLOGY

3.0 Introduction

Chapter 3 explained research methodology that used by this research to collect data and solve problem. This chapter discussed the research design to identify the method for answering questions. After that, this study will examine the data collection methods followed by sampling design, research instrument, and constructs measurement. In addition, this study included handling data processing and data analysis. The last section will be a summary.

3.1 Research Design

Quantitative research has been used in this study to examine how student satisfaction with blended learning at local private universities in Malaysia was affected by perceived usefulness, service quality, information quality, student-instructor interaction, and perceived ease of use. In quantitative research, numerical data was collected and mathematically based analytical techniques were used to analysed the data. Determining the connection between independent and dependent variables in a population was the goal of quantitative research. It was a technique for evaluating the relationship between several variables in order to evaluate objective theories (Kandel, 2020). This research has collected and analysed numerical data survey to examine the connection between independent variables and dependent variable from 380 students who studies at local private universities in Malaysia.

This research has applied causal research as quality of service, information quality, perceived usefulness, student-instructor interaction, and perceived ease of use

(independent variables) have a causal relationship with student satisfaction with blended learning (dependent variable) at local private universities in Malaysia. When independent variables have any changes, student satisfaction were affected. The independent and dependent variables were in a cause-effect relationship, as identified through the review of existing studies and literature.

This research also used cross-sectional study. Cross-sectional study was one kind of observational study design that examines data from a population at a given moment. In a cross-sectional study, researchers evaluated the exposures and results of the study subjected at the same time (Wang, X., & Cheng, Z., 2020). In this study, subjects were selected from the population which were students who are studying at local private universities in Malaysia. After subject selection, the researchers collected information and evaluated any correlations between exposures and outcomes.

3.2 Data Collection Methods

Data collection was techniques that researchers used to gather data required to provide a response to a research question, solved a specific research issue, or established a basis for the acceptance or rejection of a research hypothesis. One of the most important decisions that every researcher must make was choosing a strategy for data collecting. The study used primary data from a primary data collection approach (Mwita, 2022).

3.2.1 Primary Data

While conducting research, primary data is collected. This study has used survey method by applying **questionnaire** method for respondents to **select the one that**

they considered appropriate from **list of choices.** The questionnaire is set through Google form and distributed to students who were studying at Local Private Universities in Malaysia. The respondents can choose answer which they considered appropriate by ticking the answer list provided.

3.3 Sampling Design

The methods used to choose a **sample** from the target population to gather the data required for accurate measurement were referred as sample design. Additionally, it was the formula for computing sample statistics using the estimate technique.

3.3.1 Target Population

First step of sampling design is to define target population which was the entire group that were able to provide information needed (Ackerman et. al, 2019). In this study, research area is local private universities in Malaysia. The population in Local Private Universities in Malaysia also rose sharply from the year 1984 until the current year. According to World Bank data, the population of students in local Private Universities in Malaysia increased significantly from 4% in 1980 to 7% in 1990, 26% in 2000, 37% in 2010, and 43% in 2020 (Tai-Chee, 2022). In order to make sure that the collected information was relevant and accurate, this study focused on two private universities that have actively adopted blended learning which are UTAR and Sunway University. The universities were selected because of their empirical implementation of blended learning, which mixture of the face-to-face and online lecture class. Therefore, target population was **students who study at Universiti Tunku Abdul Rahman and Sunway University** to investigate the impact of service quality, information quality, perceived usefulness, student-

instructor interaction and perceived ease of use on the student's satisfaction with blended learning.

3.3.2 Sampling frame and Sampling Location

A sampling frame is a list of proper information about the whole population (Methodology, 2019). In this study, researchers have targeted students who studies at UTAR and Sunway University. Unfortunately, this research cannot proceed with the sampling frame due to limited sources and being unable to list out all the students in UTAR and Sunway University as the **population is too wide** which is out of the ability range. **Sampling location** is where the researchers conducted a survey. The questionnaire has been distributed to students who study at UTAR and Sunway University randomly and it was collected from them. This is because there has been limited blended learning research and studies conducted at the local private universities in Malaysia. It is important to understand students' satisfaction with blended learning as the population keeps increasing. Therefore, there was an opportunity and a gap for underlying relevant factors affecting student's satisfaction at local private universities in Malaysia.

3.3.3 Sampling Element

S**tudents who study at Universiti Tunku Abdul Rahman and Sunway University** were selected as target respondents. Therefore, every full-time undergraduate student at UTAR and Sunway University had the chance to answer the questionnaire. The respondents provided an accurate response regarding their demographic information, student's satisfaction with blended learning and

perception of service quality, information quality, perceived usefulness, student-instructor interaction and perceived ease of use.

3.3.4 Sampling Technique

For this study, sampling methods were crucial in determining the accuracy of survey responses from the population. This research has applied **non-probability sampling.**

In this study, the researchers used one of the non-probability samplings which is **purposive sampling**. Purposive sampling focused on collecting data from individuals (the target population) who has the characteristics that the researchers needed in their sample. When selecting a sample for purposive sampling, the researcher has a specific goal in mind.

Additionally, this sampling will assist the researchers in gathering information that would enable them to develop a strong hypothesis. The researcher has identified two private universities in Malaysia that implemented blended learning, which has enabled a clearer focus in selecting the sample for the study. The target population in this study is students who study at UTAR and Sunway university. Purposive sampling methods are used in this study since the researchers already know which target group they want to focus on, which are the students from UTAR and Sunway University who are attending the blended learning classes. Through purposive sampling approach, the researchers are able to directly target and distribute the questionnaires to students of these two universities, thus increasing the chances of collecting data that is closely aligned with the research objectives. This not only enhances the efficacy of data collection but also contributes to saving both time and resources. Therefore, the target population will be purposively selected, meaning that the researcher will choose students from UTAR and Sunway University to answer the questionnaire, excluding students from other universities. The

researchers may visit these two universities to distribute the questionnaires, which will help identify the target population more efficiently and directly.

3.3.5 Sampling size

There are about 26000 students in Sunway University (Sunway University, Malaysia, n.d.). In addition, Universiti Tunku Abdul Rahman has a total of 19080 students (Universiti Tunku Abdul Rahman (UTAR), 2024). Therefore, there was a total of 45,080 students studying in Sunway University and UTAR. Based on the table 1, the researchers have set the sample size as **380 respondents** is required in this research.

Table 1

Sample size table

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*

3.4 Research Instrument

3.4.1 Questionnaire Design

This study has applied the **questionnaire method** to collect data since it is a time efficient way to get information from a wide sample of respondents. **Fixed-alternative questions** were used in the design of the questionnaire. The questions were precise and have few options, so responders can quickly and simply respond with the option that best suits their perspective without the need for complex techniques.

The questionnaire consisted of **7 sections. Section A** was about the demographic profile. **Section B** was about the independent variable (Student-Instructor Interaction). While Section C and Section D were about independent variables which are **Section C** (Service quality) and **Section D** (Information quality). In addition, **Section E** and **Section F** also were about the independent variable which was perceived usefulness and perceived ease of use. Lastly, **Section G** was the dependent variable which were student satisfaction. Researchers had designed the questionnaire by using **Five Point Likert Scale** which the rating level is from strongly disagree to strongly agree.

3.4.2 Pilot Study

A pilot study is a small, preliminary feasibility study. The main goal of a pilot study is to prevent researchers from commencing a larger investigation before they are sufficiently confident in the appropriate methodology (Lowe, 2019). Researchers

had created Google form questionnaire and distributed it to students who were studying at Sunway University and UTAR through social media and face-to-face methods. Researcher had prepared 50 sets of google form questionnaire and distributed to students. Researcher will enter the survey responses into **Statistical Package for Social Sciences (SPSS)** software after collecting all the responses in order to test the questionnaires' reliability. According to the Table 2, all the variable has **good reliable.**

Table 2

Cronbach's Alpha Reliability Test for Pilot Study

Type of Variables	Variables	Alpha Value
Independent variable	Student-Instructor interaction	0.694
	Service quality	0.729
	Information quality	0.682
	Perceived usefulness	0.676
	Perceived ease of use	0.612
Dependent variable	Student Satisfaction	0.758

3.5 Construct Measurement

Scale of Measurement

A measuring technique used to define the variables is the scale of measurements. Three different scales of measurement which are nominal, ordinal and interval scales had been used in statistical analysis. This research has used nominal scale and ordinal scale for Section A, and Section B to G has used interval scale.

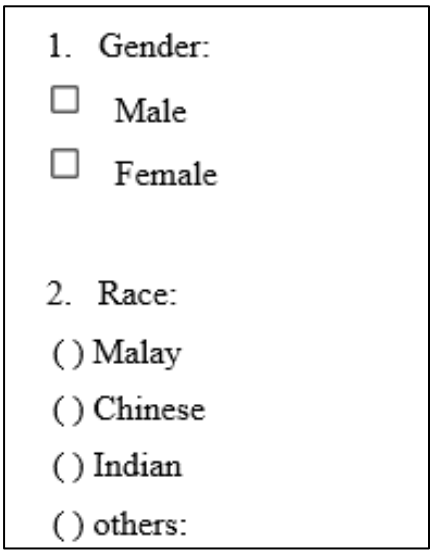
3.5.1 Nominal Scale

The nominal scale was the most fundamental level of measuring. The values can either be numerical or non-numerical for statements that did not represent any quantities.

This questionnaire has **2 nominal scale questions (Questions 1, and 2) in Section A. Question 1,** no ranking was present in gender classification. **Question 2** also has no ranking present in race classification. All of the above did not fulfilled the ranking order definition, no measurement of distance and no unique origin.

Figure 6

Questionnaire Section A (Questions 1and 2)


1. Gender:

☐ Male

☐ Female

2. Race:

( ) Malay

( ) Chinese

( ) Indian

( ) others:

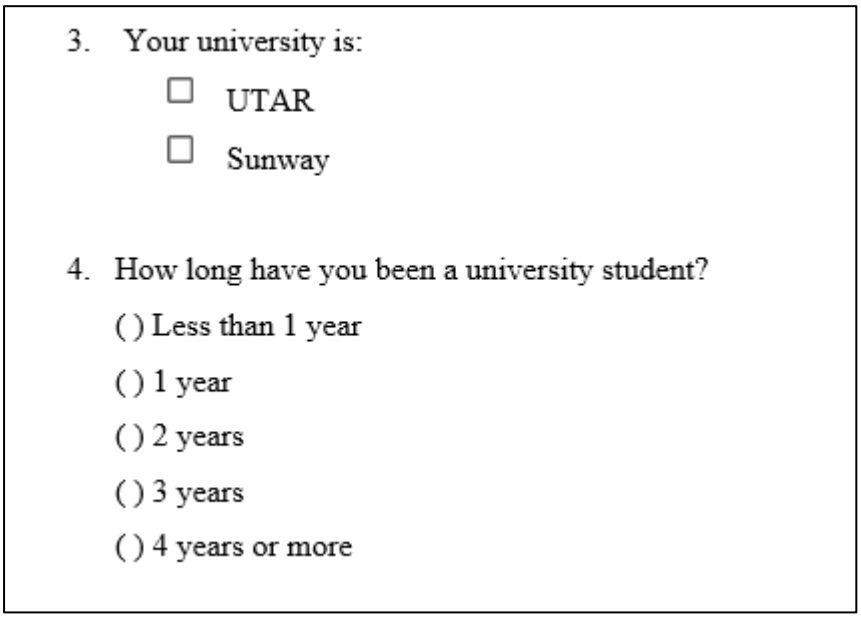
3.5.2 Ordinal Scale

Ordinal scale included the elements of nominal scale, but it required items to be **arranged based on the ranking-tier concept.** However, it **did not state the value** in between the scale of the ranked items.

There were three questions in Section A of questionnaire that used the ordinal scale. **Question 3** was about the university they are studying. **Question 4 and 5** were about how long the student has been a university student and how frequently does the student attended the blended learning classes per week respectively. **All the above statements have an order of rankings.** However, there is **no measurement** of **distance** and **no unique origin.**

Figure 7

Questionnaire Section A (Questions 3 and 4)


3. Your university is:
   - ☐ UTAR
   - ☐ Sunway

4. How long have you been a university student?
   - ( ) Less than 1 year
   - ( ) 1 year
   - ( ) 2 years
   - ( ) 3 years
   - ( ) 4 years or more

Figure 8

Questionnaire Section A (Question 5)

5. How frequently do you attend the blended learning classes per week?
   ( ) Less than 4 hours
   ( ) 5-8 hours
   ( ) 9-12 hours
   ( ) 13-16 hours
   ( ) 17-20 hours
   ( ) Above 21 hours

3.5.3 Interval Scale

Nominal and ordinal components were included in interval scales, but the concept of the question structure was different. Interval scale was the level of measurement whereby the variables' elements were measured according to specific numerical values and exists of equal distance between each element which was called an interval that are always equal.

Interval scale measurement was used in Sections B to G of the questionnaire. The range of rankings was 1 to 5. The numbers "1" indicated strongly disagree, "2"represented disagree, "3" represented neutral, "4" indicated agree, and "5" represented strongly agree.

Figure 9

Questionnaire format in Sections B to G

No	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I feel more satisfied with the learning process using blended learning.	1	2	3	4	5

3.5.4 Origin of Measure of Construct

Refer to Appendix 1**, Student-Instructor Interaction** section contained five questions in the questionnaire. Both **Service Quality** and **Information Quality** has four questions each. Similarly, **Perceived Usefulness** and **Perceived Ease of Use** also consisted of four questions each. Lastly, the dependent variable, **Student Satisfaction**, included five questions in the questionnaire.

3.6 Data Processing

3.6.1 Data Checking

This research has **checked the language and grammar** to make sure that there are **no grammatical errors** in the questionnaire. Researchers have ensured that our **questionnaire was easy to understand** and **matched to all the definition** of

dependent and independent variables. The researchers have also verified the results for any omissions, irrational answers, illegal codes, or inconsistencies in responses.

3.6.2 Data Editing

All responses to the questionnaire have been reviewed by researchers to determine if any data errors existed, including incomplete, inconsistent, or illogical answers. **Illogical responses have been ignored.** Researchers have assisted participants in answering questions if omissions do not exceed 25%. However, they discarded the questionnaire if omissions exceed 25%**.** In the case of inconsistent responses, researchers attempted to correct related questions based on the participants' answers.

3.6.3 Data Coding

Every response has been **assigned a number** and entered into SPSS for this research. In section A, researchers code the first option equal to "1", the second option equal to "2", and others.

Table 3

Data Coding

No:	Question	Coding
Q1	Gender	- "Male" is coded as 1 - "Female" is Coded as 2
Q2	Race	- "Malay" is coded as 1 - "Chinese" is coded as 2 - "Indian" is coded as 3 - "Others" is coded as 4
Q3	University	- "UTAR" is coded as 1 - "Sunway" is coded as 2
Q4	How long have you been a university student	- "Less than 1 year" is coded as 1 - "1 year" is coded as 2 - "2 years" is coded as 3 - "3 years" is coded a 4 - "4 years or more" is coded as 5
Q5	How frequency do you attend the blended learning classes per week	- "Less than 4 hours" is coded as 1 - "5-8 hours" is coded as 2 - "9-12 hours" is coded 3 - "13-16 hours" is coded as 4 - "17-20 hours" is coded as 5 - "Above 21 hours" is coded as 6

The coding for the answer in Sections B, C, D, E, F and G in the questionnaire are coded as below:

- "Strongly Disagree" is coded as 1
- "Disagree" is coded as 2
- "Neutral" is coded as 3
- "Agree" is coded as 4
- "Strongly Agree" is coded as 5

3.6.4 Data Transcribing

In order to begin the data transcription process, the researcher has entered the data that was previously collected into SPSS software. Researchers has coded all the answer after collecting responses. After entering all the coded data, all the data entered was analyzed.

3.6.5 Data Cleaning

The procedure known as data cleaning assisted in the researcher's examination and identification of missing data. Additionally, the SPSS software has assisted the researcher in determining which data were irrelevant to the research or outside the research purpose and in verifying the consistency of the data.

3.7 Data Analysis

3.7.1 Descriptive Analysis

Descriptive analysis was one of the most advanced, flexible, and frequently utilized tools in the field of analysis (Kemp, et. al, 2018). Section A used nominal scale and ordinal scale. After that, researchers have presented the data in the form of a table that were collected from Google Form to **measure the frequency distribution and percentage distribution. Frequency distribution** was a **well-organized overview**

of each variable's value on the measurement scale. **Percentage distribution** was the **percentage** distributed to the variables.

For the **nominal scale,** questionnaire had asked about gender and race. In this research, the results were used to construct the frequency distribution presented in a **table.** The categories, frequencies and total amount was listed in the table columns and rows. **Pie chart** were used in this study to show the percentage calculated from the results of each category.

For **ordinal scale,** frequency distribution were also constructed following the procedures used for the nominal variables. Same as nominal variables, this study has used the **pie chart** to present the result.

3.7.2 Reliability Analysis

Reliability analysis can be used to examine the characteristics of measuring scales and the scale items. This research has measured the internal consistency which the common measure for was **Cronbach's alpha (α)** by using **SPSS.** The mean of all potential reliabilities for a construct was illustrated by coefficient alpha. Its value could range from α=0 (indicating no association between the items) to α=1 (indicating a complete association). The highly reliability analysis association means the scale produces satisfactory outcomes which was reliable.

The standard is as follows:

Table 4

Rules of Thumb of Cronbach's alpha

Alpha (α)	Reliability
0.90 – 1.0	Very high reliability
0.75 – 0.90	High reliability
0.60 – 0.75	Good reliability
Less than 0.60	Low reliability

3.7.3 Inferential Analysis

This research used two analysis to examined the hypothesis. The connection between dependent and independent variables was tested using **Pearson correlation coefficient analysis**. Pearson coefficient, which ranges from -1 to +1, is displayed similarly to a correlation coefficient applied in linear regression. All hypotheses were suitable to use the Pearson Correlation Coefficient Analysis to test.

Multiple linear regression analysis was an established statistical method. The most precise and appropriate data model was found. A more advanced version of linear regression than ordinary linear regression was multiple linear regression. It was used to predict the value of one variable relied on the values of two or more additional factors. This model employs a mathematical formula to calculate the coefficients (beta values) for each independent variable. Researcher can verify the model's overall fit (variance explained) from this analysis (Uyanık & Güler, 2013). Quality of service, quality of information, student-instructor interaction, perceived ease of use and perceived usefulness were examples of independent factors that were use to predict the value of the dependent variable.

3.8 Chapter Summary

In conclusion, this chapter was about research methodology. This study has used quantitative research, casual research and cross-sectional study for research design. This research also used the questionnaire method to get primary data from the fixed population. This chapter explained the sampling information used throughout this study. Researchers have identified the scale of measurement used for each variable in the questionnaire. This chapter described the process of preparing data to proceed with data analysis and also explained about how the SPSS function to run reliability test to complete data analysis. Lastly, this chapter has described and summarized descriptive, reliability, and inferential analysis.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In chapter 4 have discussed about the detail about the results of the questionnaires. Researcher will use SPSS software to analyze the data. After that, they will interpret the result of questionnaires that have received. Firstly, the descriptive analysis is more focus on respondents' demographic information. It will be analyze based on the frequency analysis. Next, scale of measurement also will provide the reliability analysis result. The final part is inferential analysis. In this analysis will apply Pearson Correlation Analysis and Multiple Linear Regression Analysis to evaluate the relation between the dependent and independent variables. All results will be illustrated using pie charts and tables.

4.1 Descriptive Analysis

A total of 5 question about the respondents' demographic profile include in the demographic section in the questionnaire. The 4 questions involve gender, race, university, how long they been a university student and how frequently attend the blended learning classes per week. Researcher also used the tables and pie charts to summarize and illustrate the data collected.

4.1.1 Respondent Demographic Profile

4.1.1.1 Gender

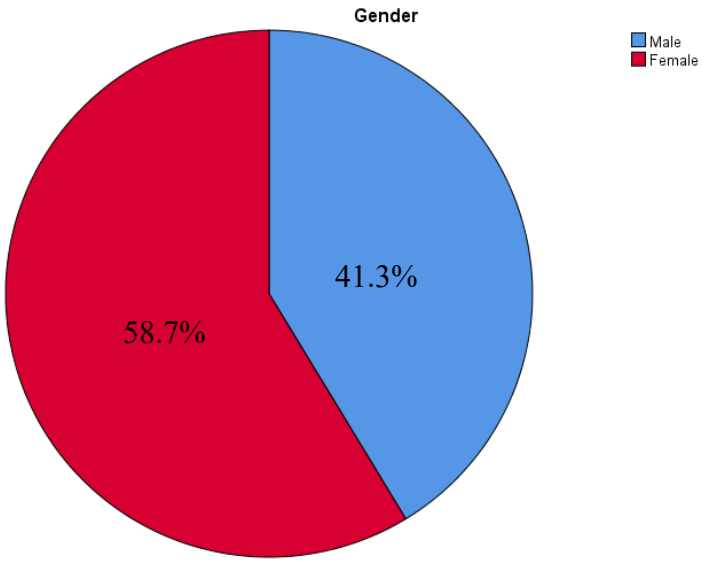
Table 5:

Frequency Table for Respondents' Gender

Gender	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent
Male	157	41.3	157	41.3
Female	223	58.7	380	100.0
Total	380	100.0		

Figure 10

Pie Chart Showing Respondents' Gender



According to table 5 and figure 10, female made up the most of the survey respondents. There are 157 male and 223 female that have responded. This indicates that female has accounted for 58.70% of the 380 respondents and 41.30% were male.

4.1.1.2 Race

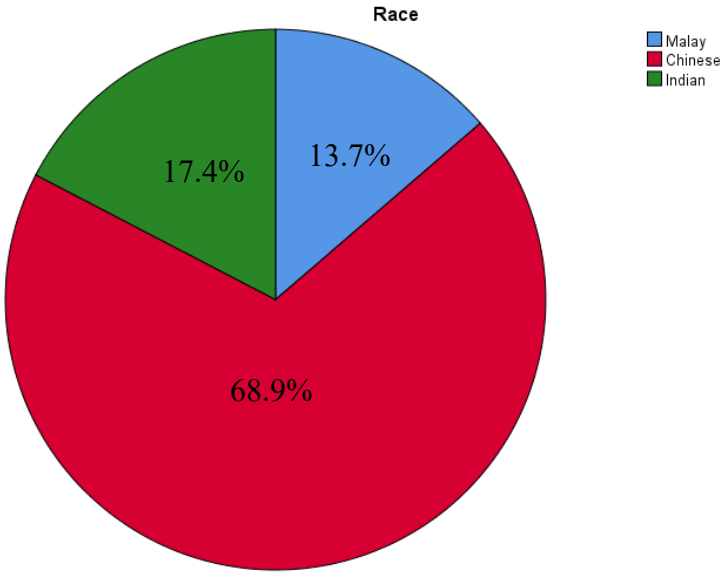
Table 6

Frequency Table for Respondents' Race

Race	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent
Malay	52	13.7	52	13.7
Chinese	262	68.9	314	82.6
Indian	66	17.4	380	100.0
Total	380	100.0		

Figure 11

Pie Chart of Respondents' Race



The race of the respondents is divided into three distinct groups. Based on Table 6 and Figure 11, the majority of the respondents were Chinese, making up 68.9% or the frequency of 262. Then is follow by 66 respondents that is 17.4% whom are Indian. Besides, there are only 13.7% (52 respondents) are Malay. The distribution is probably due to the student population in Universiti Tunku Abdul Rahman (UTAR) and Sunway University, where Chinese students dominate. Moreover, due to the relatively higher enrolment rate of Chinese students than other ethnic groups in both institutions, the racial composition of the sample mirrors the real student population in these universities.

4.1.1.3 University

Table 7

Frequency Table for Respondents' University

University	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent
UTAR	227	59.7	227	59.7
SUNWAY	153	40.3	380	100.0
Total	380	100.0		

Figure 12

Pie Chart Showing Respondents' University

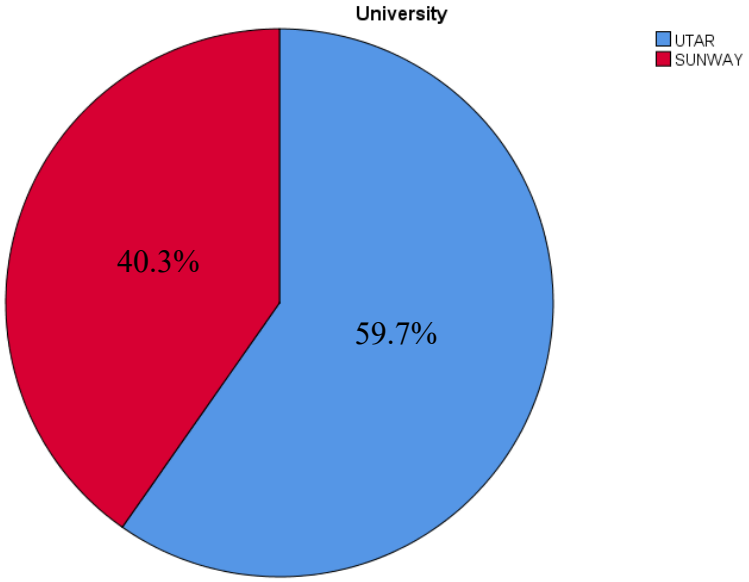


Table 7 and Figure 12 shows that 59.7% (227 respondents) out of total respondents of 380 are students who studied at UTAR. While another 40.3% (153 respondents) studied at SUNWAY. This uneven distribution is primarily due to the researcher being located near UTAR, which made it more convenient to access and gather data from its students. In contrast, Sunway University is located in Kuala Lumpur, which made it more difficult to collect data from Sunway students

4.1.1.4 How Long the Respondents Have Been University Student

Table 8

Frequency Table for How Long the Respondents Have Been University Student

How Long the Respondents Have Been University Student	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent
Less than 1 year	1	0.3	1	0.3
1 year	8	2.1	9	2.4
2 years	155	40.8	164	43.2
3 years	208	54.7	372	97.9
4 years or more	8	2.1	380	100.0
Total	380	100.0		

Figure 13

Pie Chart Showing How Long the Respondents Have Been University Student

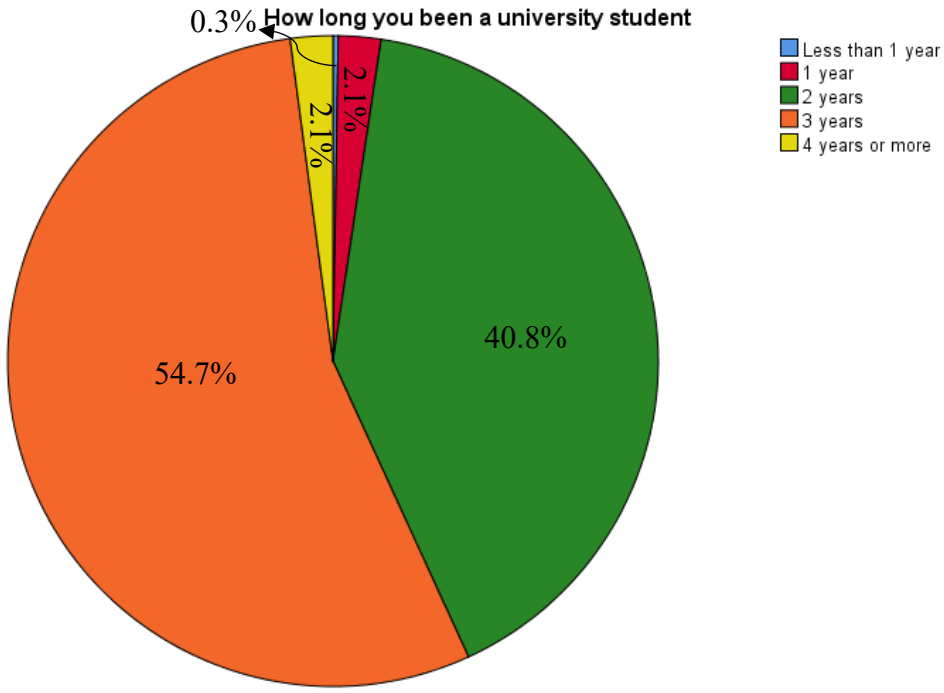


Table 8 and Figure 13 shows that how long the respondents have been university student is categorized into five groups. There are 54.7% (208 respondents) out of the total respondents of 380 have studied for 3 years, while 40.8% (155 respondents) have studied for 2 years. Besides, both 1 year and 4 years or more have the same amounts of respondents with 8 respondents each, and their percentage is 2.1%. Lastly, there are only 0.3% (1 respondent) have studied for less than 1 year.

4.1.1.5 How Frequently do respondents attend the blended learning classes per week

Table 9

Frequency Table for How Frequently do respondent attend the blended learning classes per week

How Frequently do respondents attend the blended learning classes per week	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent
Less than 4 hours	23	6.1	23	6.1
5-8 hours	181	47.6	204	53.7
9-12 hours	164	43.2	368	96.8
13-16 hours	12	3.2	380	100.0
17-20 hours	0	-		
Above 21 hours	0	-		
Total	380	100.0		

Figure 14

Pie Chart Showing How Frequently do respondent attend the blended learning classes per week

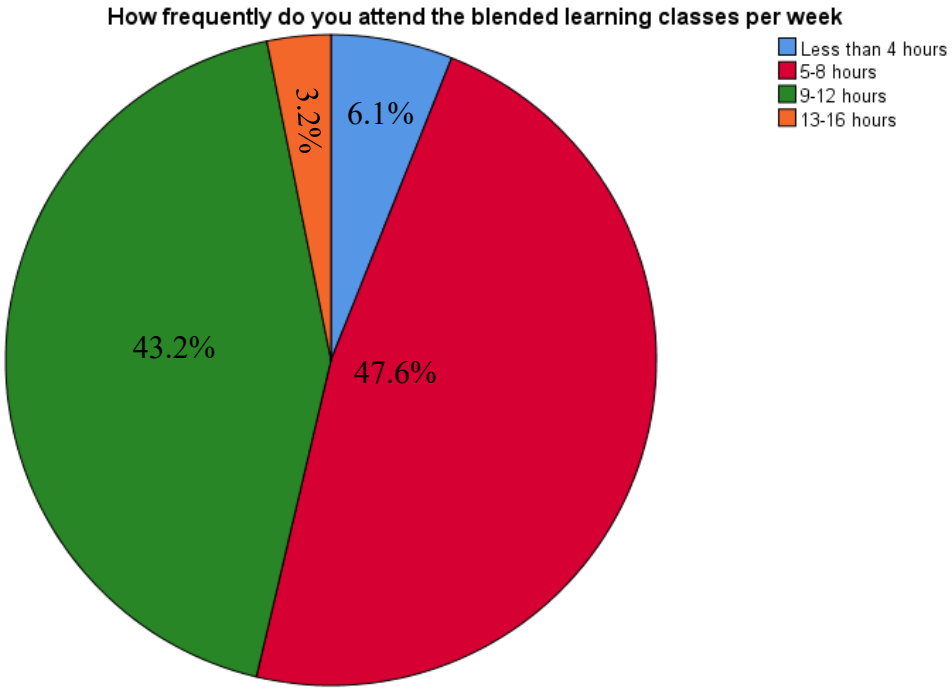


Table 9 and Figure 14 shows that how frequently with which respondents attend the blended learning classes per week is categorized into six groups. There are 47.6% (181 respondents) out of the total respondents of 380 have attend the blended learning classes for 5-8 hours, while 43.2% (164 respondents) attend for 9-12 hours. Besides, 23 respondents (6.1%) attend blended learning classes less than 4 hours per week. Lastly, there are only 3.2% (12 respondent) have attend 13-16 hours blended learning classes. However, no respondents attend more than 17 hours blended learning classes.

4.1.2 Central Tendencies Measurement of Constructs

4.1.2.1 Student-Instructor Interaction

Table 10

Central Tendencies Measurement for Student-Instructor Interaction

Question	Statement	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
SI1	My instructor creates a user-friendly learning environment through blended learning.	4.3571	0.50035	2	4
SI2	My instructor is keen on receiving questions and providing timely feedback (e.g.: within 24 hours, by the next class).	4.3053	0.61766	1	2
SI3	My instructor has been friendly and supportive throughout my entire study process.	4.3789	0.64859	3	1
SI4	My instructors encourage me to participate in the course discussion.	4.3921	0.60903	4	3
SI5	My instructor provides active interaction and communication with students using blended learning.	4.3991	0.44577	5	5

Table 10 shows that the central tendencies measurement of student-instructor interaction. It indicates that **SI 5 has the highest mean value** of 4.3991, meaning the most respondents agree with this statement. Then followed by SI 4 (4.3921), SI 3 (4.3789), SI 1 (4.3571), and ended with SI 2 (4.3053). Additionally, the table also shows that SI 3 has the highest standard deviation of 0.64859, followed by SI 2

(0.61766), SI 4 (0.60903), SI 1 (0.50035), and ending with **SI 5 (0.44577), which has the lowest standard deviation**, indicating that there was more agreement among this statement.

4.1.2.2 Service Quality

Table 11

Central Tendencies Measurement for Service Quality

Question	Statement	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
SQ1	My communication with the university administration and help desk does not encounter any problems.	4.4062	0.44370	2	4
SQ2	My instructor ensures that the learning process meets my academic goals by offering both online and offline instruction.	4.3052	0.54179	1	1
SQ3	My learning is supported by the ability to learn at my own pace using printed and online materials.	4.4225	0.53311	3	2
SQ4	My instructor provides excellent service by assisting me with technical issues such as access to online platforms (e.g., Microsoft Teams/Zoom/Google Meet, etc.)	4.4225	0.50052	3	3

As shown in Table 11, the central tendencies measurement of service quality. It shows that **SQ3 and SQ4 display the highest mean value** of 4.4225, with a majority of respondents agreeing with these statements. SQ1 has a mean value of 4.4062, which places it in second ranking. In the meantime, SQ2 has the lowest average value at 4.3052. Regarding the standard deviation, SQ2 exhibits the highest

value at 0.54179. Then SQ3 (0.53311), SQ 4 (0.50052), and finally **SQ1 (0.44370) with the lowest standard deviation** followed.

4.1.2.3 Information Quality

Table 12

Central Tendencies Measurement for Information Quality

Question	Statement	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
IQ1	Blended learning provides me with accurate course content that helps me understand the material better during the learning process.	4.4217	0.55129	2	4
IQ2	Blended learning offers an appropriate level of learning content that aligns with my learning outcomes.	4.3484	0.62374	1	2
IQ3	Blended learning provides me with timely learning content.	4.4955	1.64998	4	1
IQ4	Blended learning provides me with up-to-date learning content.	4.4492	0.56301	3	3

Information quality measurement of central tendencies is presented in Table 12. It is evident that **IQ3 has the highest mean of 4.4955**, with most agreeing to this statement. Then came IQ4 (4.4492), followed by IQ1 (4.4217), and concluding with IQ2, which has the lowest mean of 4.3484. According to Table 12, the highest standard deviation, at 1.64998, is found in IQ3. Following this was IQ2 (0.62374), then IQ4 (0.56301), and finally **IQ1 (0.55129), which has the lowest standard deviation.**

4.1.2.4 Perceived Usefulness

Table 13

Central Tendencies Measurement for Perceived Usefulness

Question	Statement	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
PU1	Blended learning enhances my learning effectiveness.	4.4314	0.45543	2	3
PU2	Blended learning improves my learning performance.	4.4265	0.42735	1	4
PU3	Blended learning facilitates a smoother learning experience through its learning platforms (e.g., web-based learning environments, recorded videos, etc.).	4.4609	0.49027	3	1
PU4	Blended learning allows me to access and obtain useful information through online resources (e.g., library portal, journal databases, etc.).	4.4742	0.46757	4	2

Table 13 shows that the central tendencies measurement of perceived usefulness. It indicates that **PU4 has the highest mean value of 4.4742**, meaning the most respondents agree with this statement. Then followed by PU3 (4.4609), PU1 (4.4314), and ended with PU2 (4.4265). Additionally, the table also shows that PU3 has the highest standard deviation of 0.49027, followed by PU4 (0.0.46757), PU1 (0.45543), and ending with **PU2 (0.42735), which has the lowest standard deviation**, indicating that there was more agreement among this statement.

4.1.2.5 Perceived Ease of Use

Table 14

Central Tendencies Measurement for Perceived Ease of Use

Question	Statement	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
PE1	Blended learning makes it easy for me to submit assignments through the web-based environment (WBLE) or Microsoft Teams and others.	4.4399	0.44997	4	3
PE2	Blended learning allows me to easily participate in both online sessions through platforms like Microsoft Teams Zoom, and Google Meet as well as physical classes facilitating smooth transitions between the two formats. It took me only a short time to adapt.	4.3569	0.47731	1	2
PE3	Blended learning makes it easy for me to accomplish tasks such as using Microsoft Teams to collaborate with my assignment mates for discussions.	4.3930	0.49043	2	1
PE4	Blended learning provides clear and understandable interaction features, making it easy for me to communicate and collaborate with classmates.	4.4190	0.43672	3	4

Perceived ease of use measurement of central tendencies is presented in Table 14. This shows that **PE1 has the highest mean value of 4.4399**, with most respondents agreeing with this statement. Then came PE4 (4.4190) and PE3 (4.3930). In the

meantime, PE2 has the lowest mean value of 4.3569. Regarding the standard deviation, PE3 exhibits the highest value at 0.49043. Then, there were PE2 (0.47731), PE1 (0.44997), and finally, **PE4 (0.43672), which had the lowest standard deviation** which have the most consistent responses.

4.1.2.6 Student Satisfaction

Table 15

Central Tendencies Measurement for Student Satisfaction

Question	Statement	Mean	Standard Deviation	Mean Ranking	Standard Deviation Ranking
SS1	I feel more satisfied with the learning process using blended learning.	4.4678	0.43929	5	5
SS2	I feel more flexible with blended learning than traditional physical classes.	4.4472	0.52568	4	1
SS3	I feel that I prefer attending a blended class that combines both online and offline instruction.	4.4282	0.52374	3	2
SS4	I feel that blended learning satisfies my learning expectations.	4.4240	0.47401	2	4
SS5	I feel satisfied with my overall experience in blended learning.	4.3977	0.49305	1	3

Table 15 shows that the central tendencies measurement of student satisfaction. It indicates that **SS1 has the highest mean value of 4.4678**, meaning the most respondents agree with this statement. Then followed by SS2 (4.4472), SS3 (4.4282), SS4 (4.4240), and ended with SS5 which have the lowest mean value of 4.3977. Additionally, the table also shows that SS2 has the highest standard

deviation of 0.52568, followed by SS3 (0.52374), SS5 (0.49305), SS4 (0.47401), and ending with **SS1 (0.43929), which has the lowest standard deviation**, indicating that there was more agreement among the statement.

4.2 Scale Measurement

4.2.1 Reliability Test

Table 16

Cronbach's Alpha Reliability Test

Type of Variables	Variables	Alpha Value
Independent variable	Student-Instructor interaction	0.716
	Service quality	0.736
	Information quality	0.773
	Perceived usefulness	0.761
	Perceived ease of use	0.760
Dependent variable	Student Satisfaction	0.823

The outcome of all variables is explained in Table 16. To begin with, the dependent variable (Student Satisfaction) has a Coefficient Alpha Value of 0.823. As for the Coefficient Alpha value of the independent variables, Information Quality has the highest value (0.773), followed by Perceived Usefulness (0.761), Perceived Ease of Use (0.760), Service Quality (0.736), and Student-Instructor Interaction, which has

the lowest value (0.716). To sum up, the alpha coefficient for most variables falls within the range of 0.75 to 0.90, indicating a **high level of reliability.**

4.3 Inferential Analysis

4.3.1 Pearson Correlation Coefficient Analysis

Pearson correlation coefficient analysis was used to examine the connection between a dependent variable and independent variables. Table 17 shows the Rules of Thumb of Coefficient Range.

Table 17

Rules of Thumb of Coefficient Range

Coefficient Range	Strength
±0.91 to ±1.00	Very strong
±0.71 to ±0.90	High
±0.41 to ±0.70	Moderate
±0.21 to ±0.40	Small but definite relationship
0.00 to ±0.20	Slight, almost negligible

4.3.1.1 Student-Instructor Interaction with Student Satisfaction (Hypothesis 1)

H_0: There is no significant relationship between student-instructor interaction with student satisfaction.

H_1: There is significant relationship between student-instructor interaction with student satisfaction.

Table 18

Correlations between Student-Instructor Interaction with Student Satisfaction

		Student Satisfaction
Student-Instructor Interaction	Pearson Correlation	0.472
	Significant (2-tailed)	<0.000
	N	380

Table 18 shows a positive connection between student satisfaction and student-instructor interaction, as evidenced by the correlation coefficient. Student satisfaction has a positive correlation of 0.472 with Student-Instructor Interaction. A high level of interaction between students and instructors will thus result in high student satisfaction. This correlation coefficient, valued at 0.472, is found among the coefficients ranging from ±0.41 to ±0.70. As shown by a p-value of 0.000, which is lower than the alpha value of 0.05, there exists a **significant and moderate** correlation between student satisfaction and interaction between students and instructors.

4.3.1.2 Service Quality with Student Satisfaction (Hypothesis 2)

H_0: There is no significant relationship between service quality with student satisfaction.

H_2: There is significant relationship between service quality with student satisfaction.

Table 19

Correlations between Service Quality with Student Satisfaction

		Student Satisfaction
Service Quality	Pearson Correlation	0.462
	Significant (2-tailed)	<0.000
	N	380

Table 19 shows a positive connection between student satisfaction and service quality, as evidenced by the correlation coefficient. The correlation between service quality and student satisfaction is positive, with a value of 0.462. The quality of service and the level of student satisfaction are directly correlated: the better the service quality, the greater the satisfaction. This correlation coefficient value of 0.462 found among the range of coefficients from ±0.41 to ±0.70. The connection between the service quality and student satisfaction is **significant and moderate**, given that the p-value (<0.000) is less than the alpha value (0.05).

4.3.1.3 Information Quality with Student Satisfaction (Hypothesis 3)

H_0: There is no significant relationship between information quality with student satisfaction.

H_3: There is a significant relationship between information quality with student satisfaction.

Table 20

Correlations between Information Quality with Student Satisfaction

		Student Satisfaction
Information Quality	Pearson Correlation	0.410
	Significant (2-tailed)	<0.000
	N	380

Refer to Table 20, the positive value of the correlation coefficient indicates a positive relationship between information quality and student satisfaction. The correlation between information quality and student satisfaction is positive, with a value of 0.410. Therefore, this suggests that as the quality of information improves, so does student satisfaction. This correlation coefficient, valued at 0.410, lies within the range of coefficients from ±0.41 to ±0.70. The connection between information quality and student satisfaction is **moderate and significant**, as indicated by a p-value (<0.000) that is lower than the alpha value (0.05).

4.3.1.4 Perceived Usefulness with Student Satisfaction (Hypothesis 4)

H_0: There is no significant connection between perceived usefulness with student satisfaction.

H_4: There is significant connection between perceived usefulness with student satisfaction.

Table 21

Correlations between Perceived Usefulness with Student Satisfaction

		Student Satisfaction
Perceived Usefulness	Pearson Correlation	0.461
	Significant (2-tailed)	<0.000
	N	380

As shown by the positive correlation coefficient, Table 21 demonstrates that perceived usefulness and student satisfaction are positively related. Student satisfaction is positively correlated with perceived usefulness, with a correlation coefficient of 0.461. Thus, a strong degree of perceived usefulness will result in a high degree of student satisfaction. The correlation coefficient of 0.461 is in the coefficient range of ±0.41 to ±0.70. The connection between the perceived usefulness and student satisfaction is **moderate and significant**, as indicated by a p-value (<0.000) that is lower than the alpha value (0.05).

4.3.1.5 Perceived Ease of Use with Student Satisfaction (Hypothesis 5)

H_0: There is no significant connection within perceived ease of use with student satisfaction.

H_5: There is significant connection within perceived ease of use with student satisfaction.

Table 22

Correlations between Perceived Ease of Use with Student Satisfaction

		Student Satisfaction
Perceived Ease of Use	Pearson Correlation	0.489
	Significant (2-tailed)	<0.000
	N	380

The analysis of Table 22 indicates a positive connection between perceived ease of use and student satisfaction, as evidenced by the correlation coefficient's positive value. The correlation is positive and amounts to 0.489. This suggests that student satisfaction increases with the perceived ease of use. This correlation coefficient value of 0.489 is situated within the coefficients range from ±0.41 to ±0.70. The connection between perceived ease of use and student satisfaction is **moderate and significant**, given that p-value (<0.000) is lower than the alpha value (0.05).

4.3.2 Multiple Linear Regression Analysis

Table 23

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.334	0.245		1.362	0.174
Student Instructor Interaction Average	0.145	0.046	0.148	3.172	0.002
Service Quality Average	0.204	0.046	0.197	4.398	0.000
Information Quality Average	0.093	0.023	0.172	4.068	0.000
Perceived Usefulness Average	0.203	0.047	0.190	4.283	0.000
Perceived Ease of Use Average	0.285	0.046	0.269	6.177	0.000

$$\mathbf{Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5}$$

Where,

Y= Student Satisfaction

X_1 = Student-Instructor Interaction

X_2 = Service Quality

X_3 = Information Quality

X_4 = Perceived Usefulness

X_5 = Perceived Ease of Use

Multiple Linear Regression Equation

Student Satisfaction = 0.334 + 0.145 (Student-Instructor Interaction) + 0.204 (Service Quality) +0.093 (Information Quality) + 0.203 (Perceived Usefulness) + 0.285 (Perceived Ease of Use)

Highest Contribution

Perceived Ease of Use (independent variable) is accounts for the greatest variation in the dependent variable (student satisfaction). The Beta value (under standardized coefficients) for this independent variable is the largest at 0.269 when compared to the other predictor variables. Among all predictor variables in the model, perceived ease of use contributes for the greatest specific portion of the variance in the dependent variable.

Second-Highest Contribution

Service Quality is the independent variable that accounts for the second-highest contribution to variation in the dependent variable (student satisfaction), with a beta value of 0.197 (under standardized coefficients), which ranks second among the other independent variables. Thus, among all predictor variables in the model, service quality contributes for the second greatest specific portion of the variance in the dependent variable.

Third-Highest Contribution

The independent variable (Perceived Usefulness) accounts for the third-largest contribution to the variation in student satisfaction (dependent variable), with its beta value (under standardized coefficients) ranks third among the independent variables at 0.190. This indicates that, among all predictor variables, perceived usefulness constitutes the third largest specific contribution to explaining the variation in the dependent variable.

Fourth Highest Contribution

The independent variable (Information Quality) contributes the fourth highest amount to the variation in the dependent variable (student satisfaction), by means of a beta value of 0.172 (under standardized coefficients), which ranks fourth when compared to the other predictor variables. Among the predictor variables in the model, information quality ranks fourth in terms of its specific contribution to explaining the variation in the dependent variable.

Lowest Contribution

Student-Instructor Interaction is the independent variable that contributes least to the variation in the dependent variable (student satisfaction), as it has the smallest beta value (0.148) under standardized coefficients when compared to other independent variables. Among all predictor variables in the model, this means that the interaction between student and instructor contributes the least to explaining the variation in the dependent variable.

Table 24

ANOVA for Multiple Regressions

Model		Sum of Squares	Df	Mean square	F	Sig.
1	Regression	23.686	5	4.737	60.864	<0.000[b]
	Residual	29.109	374	0.078		
	Total	52.795	379			

As shown in table 24, the p-value (0.000) is below the alpha value of 0.05. F-statistic (60.864) is significant. The research model provides an excellent description of the association between the dependent and independent variables. In result, all

independent variables are having a **significant impact** on the dependent variable (student satisfaction).

Table 25

R-square Value's Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.670[a]	.449	.441	.27898

The R value illustrates the correlation among the independent and dependent variables. This study has a correlation coefficient (R value) of 0.670. The correlation within the dependent variable (student satisfaction) and independent variables is moderate positive and correlated.

Table 26

Rules of Thumb for the Strength of Correlation Coefficient

R-squared Value	Strength
Less than 0.3	None or very weak
0.3 to 0.5	Weak or low
0.5 to 0.7	Moderate
More than 0.7	Strong

The R square shows the proportion or percentage the independent variable that can accounted for variance in the dependent variable. In this research, independent variables which can explain 44.90% of variance in the dependent variable (student satisfaction). In this research, it still leaves 55.10% (100% -44.90 %) unexplained. In other words, there are additional elements that are essential for illuminating student satisfaction but were not taken into account in this study.

4.4 Conclusion

The research data collected was analyzed and summarized using SPSS software. The outcome of the analyses performed with SPSS software (Multiple Linear Regression Analysis and the Pearson Correlation Coefficient) demonstrated a considerable link between every independent variable and the dependent variable. In chapter 5, the discussions will be continued and a conclusion will be drawn based on the data analysis from chapter 4.

CHAPTER 5: DISCUSSION, CONCLUSION, AND IMPLICATIONS

5.0 Introduction

This chapter will provide an overview of statistical analyses, including descriptive and inferential, and discuss the study's limitations and suggest further research.

5.1 Summary of Statistical Analysis

This chapter will discuss a summary and discussion of analysis findings from both descriptive and inferential methods conducted in the previous chapter.

5.1.1 Summary of Descriptive Analysis

Table 27

Summary of Descriptive Analysis

Variables	Frequency	Percentage (%)	Cumulative Frequency	Cumulative Percent
Gender				
Male	157	41.3	157	41.3
Female	223	58.7	380	100.0
Race				
Malay	52	13.7	52	13.7
Chinese	262	68.9	314	82.6
Indian	66	17.4	380	100.0
University				
UTAR	227	59.7	227	59.7
SUNWAY	153	40.3	380	100.0
Duration of Being a University Student				
Less than 1 year	1	0.3	1	0.3
1 year	8	2.1	9	2.4
2 years	155	40.8	164	43.2
3 years	208	54.7	372	97.9
4 years or more	8	2.1	380	100.0

Frequency of respondents' weekly blended learning attendance				
Less than 4 hours	23	6.1	23	6.1
5-8 hours	181	47.6	204	53.7
9-12 hours	164	43.2	368	96.8
13-16 hours	12	3.2	380	100.0
17-20 hours	0	-		
Above 21 hours	0	-		

Source: Developed for the research

In summary the survey involved a total of 380 respondents. According to the results of descriptive analysis in Table 27, the majority of respondents are female, with a total of 58.7%. The major ethnic group is Chinese at 68.9%, followed by Indian at 17.4% and Malay at 13.7%. Additionally, 59.7% of the respondents are from UTAR, while 40.3% are from Sunway University. Most respondents have been university students for three years, as shown by 54.7% of the total. Lastly, 47.6% of respondents attend blended learning classes for 5 to 8 hours per week.

5.1.2 Summary of Inferential Analysis

5.1.2.1 Reliability Test

According to the Table 16, the results indicated that the student satisfaction has a high reliability level with a Cronbach's alpha value of 0.823. The alpha value for perceived usefulness is 0.761, followed by perceived ease of use at 0.760, information quality at 0.773, service quality at 0.736 and student-instructor interaction at 0.716. Hence, all variables fall between 0.75 and 0.90 indicating high reliability in Cronbach's alpha values.

5.1.2.2 Pearson Correlation Coefficient Analysis

The Pearson Correlation Coefficient results show a significant impact between student satisfaction and the independent variables which are student-instructor interaction, service quality, information quality, perceived usefulness and ease of use.

The results indicated that the dependent variable has a positive relationship with all independent variables as shown by the positive correlation coefficients. Among these, perceived ease of use has the highest R-value of 0.489, followed by student-instructor interaction with 0.472. Perceived usefulness and service quality have R-values of 0.461 and 0.462 respectively while information quality has the

lowest at 0.410. Therefore, all independent variables positively impact the dependent variable, with perceived ease of use showing the strongest relationship. This highlights the importance of improving key area such as perceived ease of use to enhance student satisfaction.

The findings showed that there was a moderate connection between the independent variables, with all correlation coefficients falling between ±0.41 and ±0.70 and dependent variable. Additionally, the relationship is significant as all p-values (<0.000) are below the alpha value (0.05).

5.1.2.3 Multiple Linear Regression Analysis

The results indicate an R-square value of 0.449 showing that independent variables explain 44.9% of the variation in the dependent variable while the remaining 55.1% is affected by other underlying factors. The F-statistic is significant because the p-value is below than 0.000 and the alpha value of 0.05. Additionally, the R-value of 0.670 indicates a moderate correlation among the dependent and independent variables. The independent variables that contribute most to student satisfaction is perceived ease of use as shown by the highest standardized Beta coefficient (0.269) while student-instructor interaction has the lowest contribution with the lowest standardized Beta value (0.148).

5.2 Discussion of Major Findings

According to the outcomes of the analysis (refer to Table 28), all independent variables have a positive linked to the dependent variable, as shown by positive correlation coefficient and p-values below 0.05. As the P value below the alpha value of 0.05, statistical significance is achieved at the 95% confidence level. Based on the results, the null hypothesis is not supported and the alternative hypothesis is supported.

Table 28

Overview of Inferential Findings on Student Satisfaction

Note: All hypotheses were tested at $\alpha = 0.05$

	Hypothesis	**Results**	**Outcomes**
H1	There is a significant relationship between student-instructor interaction with student's satisfaction.	Correlation Coefficient =0.472 p-value=0.002	Supported
H2	There is a significant relationship between service quality with student's satisfaction.	Correlation Coefficient =0.454 p-value= 0.000	Supported
H3	There is a significant relationship between information quality with student's satisfaction.	Correlation Coefficient =0.410 p-value=0.000	Supported
H4	There is a significant relationship between perceived usefulness with student's satisfaction.	Correlation Coefficient =0.462 p-value=0.000	Supported
H5	There is a significant relationship between perceived ease of use with student's satisfaction.	Correlation Coefficient =0.489 p-value=0.000	Supported

Source: Developed for the research

5.2.1 Hypothesis 1: Student-Instructor Interaction with Student Satisfaction

According to the findings, student-instructor interaction has a positive impact on student satisfaction. This result was consistent with previous studies by Ali et al. (2004), Joyner et al. (2014) and Zeqiri et al. (2022), who also found that effective student-instructor interaction relationships contribute to higher satisfaction levels. The findings demonstrated that higher education students figure out the significance of interacting with their classmates and instructors in order to improve the course of their study learning (Wong & Chapman, 2022). Based on the outcomes, the question SI5 has gained the highest mean (4.3991) indicating that most respondents, as students highly value active interaction and communication from instructors in a blended learning environment. The past studies also presented that, the interaction between teachers and learners helps improve learning outcomes, enhances the classroom environment, and helps students develop a positive attitude towards learning (Sun et al., 2022). Therefore, this variable is one of the basic needs of student which can help to enhance the overall student satisfaction.

5.2.2 Hypothesis 2: Service Quality with Student Satisfaction

The findings indicate that service quality plays a vital role in influencing student satisfaction as indicated by a p-value<0.000 emphasizing its importance in shaping student experiences. The positive correlation between student satisfaction and service quality is consistent with earlier research by Zakaria et al. (2022), Bwachele et al. (2023), and Mulyono (2020). Moreover, student satisfaction is influenced by

key service quality factors such as tangibility, reliability, responsiveness, and assurance, which highlight the importance of delivering high-quality educational services. Institutions must address learners' needs to enhance performance and attract new students (Yusof et al., 2022). By referring to the results obtained, questions SQ3 and SQ4 have recorded the highest mean (4.4225) reflect that most respondents concur with these two statements. This suggests that students highly value being able to study at their own speed using printed and online materials as well as the excellent support provided by instructors in resolving technical issues related to online platforms such as Microsoft Teams, WBLE and others.

5.2.3 Hypothesis 3: Information Quality with Student Satisfaction

Based on the results, information quality has a positive relationship with student satisfaction, indicated by the correlation coefficient of 0.410. This aligns with previous studies by Alzahrani & Seth (2021), Alterkait & Alduaij (2024), and Ghazal et al. (2018). The quality of information in e-learning systems is significantly influenced by the methods educators use for content creation, management, and distribution, which are essential in enhancing student understanding and satisfaction (Alterkait & Alduaij, 2024). The results also show that most respondents agreed with statements IQ3 and IQ4, with mean values of 4.4955 and 4.4492, respectively, highlighting that timely and up-to-date learning content strongly contributes to overall satisfaction. Therefore, maintaining high-quality digital learning resources is essential for students' academic success. To adapt to evolving educational needs, instructors must continuously update their knowledge and course materials, which directly impacts student satisfaction. Additionally, student feedback during a course plays a key role in improving content effectiveness and enhancing satisfaction (Freeze et al., 2010).

5.2.4 Hypothesis 4: Perceived Usefulness with Student Satisfaction

Moreover, the p-value (<0.000), which is below than alpha value (0.05), indicates a positive correlation within perceived usefulness and satisfaction for students. This outcome is in line with earlier research by Nurfitriyani&Legowo (2023) and Nuryakin et al. (2023). According to the results, the survey question PU4 had the highest mean (4.4742), indicating that students place a high priority on being able to access and get information from online resources such as databases and library portals. Therefore, blended learning programs are more successful when instructors provide comprehensive training on the advantages of technology. Their commitment to self-directed learning and teaching reflects their dedication to achieving educational goals (Haron et al., 2012). Students' perception of the usefulness of the technology or system used significantly affects student satisfaction, making blended learning more acceptable and beneficial for them. When students feel that the technology or system being utilized is useful and offers value, they will be extremely satisfied (Nurfitriyani&Legowo, 2023).

5.2.5 Hypothesis 5: Perceived Ease of Use with Student Satisfaction

The findings showed a positive relationship between student satisfaction and perceived ease of use with the highest contribution to the variation in the dependent variable. This is supported by the Beta value of 0.269 under the standardized coefficient, making it the most influential factor. Additionally, the R-value of 0.489 shows perceived ease of use is positively correlated with student satisfaction. These

findings align with previous studies by Yang (2024) and Ohliati & Abbas (2019), which also found that ease of use significantly impacts student satisfaction. Among the survey questions, PE1 received the highest mean score (4.4399), showing that most respondents strongly agreed that their learning platform is easy to use for submitting assignments. Research suggests that when students find digital platforms simple and intuitive, they are more likely to interact with the system, which will improve their learning experience and increase their level of satisfaction. Furthermore, when learning resources are easy to find and use, students experience less frustration and are more likely to enjoy their learning process. This contributes to their overall satisfaction with the educational experience (Suson, 2024). Therefore, improving the usability and accessibility of learning platforms is essential to enhancing student engagement and ensuring a more effective learning environment.

5.3 Implications of the Study

5.3.1 Theoretical Implications

Based on the research, the developed conceptual framework applies to the study as the Social Exchange Theory is able to explain the connection between dependent variables (students' satisfaction) and the independent variables. Based on the inferential analysis from Chapter 4, all the independent variables' correlation coefficient value falls under the range of ±0.41 to ±0.70, which indicates relationship of dependent variable with independent variables is moderately significant. Therefore, this model is relevant to determine the students' satisfaction in the blended learning mode. This research framework has contributed to the Social Exchange Theory as firstly, it has expended the traditional Social Exchange Theory

dimension. For instance, traditional Social Exchange Theory focuses on student engagement and learning experiences, however, in this proposed framework, researches have added in new aspects factors such as perceived ease of use and quality of service.

5.3.2 Managerial Implications

The quick rise in the adoption of educational technologies, especially online resources and conveyance methods, has provided lecturers with numerous opportunities to manoeuvre to find optimal learning conditions tailored to their students' requirements (Akkoyunlu & Soylu, 2008). To improve students' satisfaction while addressing variability in teaching quality, a combination of online education and in-person classes was adopted, resulting in a blended learning strategy (Woltering et al., 2009). Online learning is becoming increasingly essential in institutions of higher education, especially when it is offered alongside standard classroom experiences. This novel instructional strategy can be applied through various means. However, the processes of education are intricate and affected by factors beyond merely the delivery of lessons (Nortvig et al., 2018). Whichever viewpoints researchers and developers hold, those focused on blended learning unanimously agree that student satisfaction is key to its successful implementation. The degree of student satisfaction is a crucial benchmark for determining the positive outcome of blended learning programs (Abou Naa et. al., 2012).

As a conclusion, the five independent variables (quality of service, information quality, perceived usefulness, student-instructor interaction and perceived ease of use) in this study can affect the students' satisfaction. When students are satisfied with the blended learning mode, they will be more motivated to study, thus increasing their efficiency and performance. These independent variables is a crucial part in assisting students to achieve better satisfaction as not only educators'

quality matters in teaching and learning. Hence, to align with student needs, private universities in Malaysia should consistently evolve their blended learning techniques. The policymakers such as Ministry of Higher Education should implement policies such as mandate a user-centered design so that the system have standard usability while also providing training for institutional technology for all lecturers and students. Through the integration of technology, teacher development, establishing relationships with students, and developing adaptable educational spaces, universities can promote greater student happiness, encourage enrolment persistence, and enhance academic achievements. For example, findings related to student-instructor interaction can help universities' management to focus on faculty training in order to encourage interactive teachings such as utilizing discussion forum. Besides that, universities can also improve service quality by providing a 24/7 helpdesk to provide assistance to students. Additionally, by constantly updating course materials, universities can enhance the information quality. Moreover, universities also can provide training to lecturers and students on how to use digital tools more efficiently to increase perceived usefulness. Lastly, universities management can also gather feedbacks from time-to-time as it can help to gather more information and ways to improve the perceive ease of use on the facilities provided.

5.4 Limitations of the Study

Firstly, the **limited sample size and representatives** are some of the challenges faced during the study. This is because the research was conducted at only two private universities in Malaysia which is UTAR and Sunway University. Therefore, this sampling size is unable to represent all of the students who are studying using the blended learning mode. Moreover, there may be more differences regarding their opinions towards the study of blended learning mode as each university might have implemented different methods of blended learning mode compared to UTAR and Sunway University. Additionally, a larger sample size could have generated

more accurate results. Therefore, this has affected the study as it was limited to certain respondents only and neglected the opinions of other possible respondents.

Furthermore, the research method used was based on the online survey, which uses Google Forms to gather responses. As survey data are **self-reported data**, the responses are also subjective as students' satisfaction is subject to their own feelings and experiences. Therefore, this online survey response was biased and changed according to respondents' environment. Besides that, the questions are also **limited and constrained by fixed choices, so researchers could not gain a huge variation for researching** factors that affect students' satisfaction. The factors discussed in this study are service quality, information quality, perceived usefulness, student-instructor interaction, and perceived ease of use. This is because there might be additional factors that could affect students' satisfaction in the implementation of blended learning mode that were not included in this research such as self-efficacy. For example, there may be students who thinks that the included factors are relevant to their satisfaction while some may think that there were certain factors which was not included in the research have a significant impact on their satisfaction.

The last limitation is the **formulation of research aims and objectives**. As the objectives of the research is to study the determinants of students' satisfaction on blended learning at local private universities in Malaysia (UTAR and Sunway University only), with the factors being service quality, information quality, perceived usefulness, student-instructor interaction and perceived ease of use (independent variables) as well as students' satisfaction (dependent variable). This is a limitation as the research concentrates on independent variables and dependent variables only but did not concern about the possibilities of other interference consequences.

In conclusion, student satisfaction varies with each student's personal experiences. Therefore, universities must find a way to overcome these limitations to enhance students' satisfaction in utilizing blended learning mode during their studies.

5.5 Recommendations for Future Research

Firstly, future researchers should **ensure a larger sample selection**. By enlarging the sample sizes, such as doing research on more local public and private universities in Malaysia, the researchers would be able to obtain more diversified data to better reflect overall students' populations and opinions in each university. Generally, statistical test needs more data to make sure that the sample represent the whole group, therefore, it is suggested that the future researchers to apply findings to a larger size. Additionally, it is suggested the future researchers to fully comprehend on which universities have implemented the blended learning mode in order to expand the scope of study to gather more variation of data.

Next, future researchers should consider **using mixed methods to collect data**. For instance, they can use mixed methods to collect data such as using online surveys like Google Forms and face-to-face interviews. By combining qualitative and quantitative approaches, researchers can gain deeper insights into the data. For example, while online surveys like Google Forms provide large-scale, numerical data that can be analysed statistically, face-to-face interviews allow for more detailed, contextual responses that help explain the reasons behind the numbers. Mixed methods enhance the validity and reliability of findings, reduce biases, and offer a holistic perspective that a single method might not achieve.

Lastly, the framework of this study is to test the relationship between independent variables and dependent variables. So, when future researchers would study about

factors that affect students' satisfaction in blended learning mode, they should **also explore mediating and moderating variables** such as student engagement, learning motivation, demographic factors, and more. Additionally, future researchers should also contemplate about the longitudinal effects as it could also affect students' satisfaction. For instance, future researchers can observe on students' satisfaction evolvement over time to see if there are any shifts in satisfaction that may have happened as they keep learning using the blended learning mode. This can help to provide more insight as the students will be able to compare their previous experiences with the most current one and provide a more comprehensive and accurate data regarding their satisfaction.

5.6 Conclusion

The independent variables of this study have proved that it is significant on students' satisfaction in blended learning mode. Therefore, universities should consider these factors in the implementation of blended learning mode as it can directly affect students' satisfaction.

This study has met the research objective as factors that affect students' satisfaction in blended learning mode have been identified. This research has proved that students' satisfaction is significantly influenced by their presumptions and the results of their expectations. When all the factors are provided efficiently and effectively, the students' satisfaction in the implementation of blended learning mode will also increase, these findings have related it to the Social Exchange Theory where students expect that their educational needs are met as the cost they had paid. Thus, this research may also serve as a guideline for educational institutions before the full implementation of blended learning mode.

Research has also discussed several limitations and provided recommendations to improve the studies for future research in order to further increase students' satisfaction.

By referring to the findings, perceived ease of use has highest effect on students' satisfaction in the blended learning mode compared to other independent variables, which indicates that universities should consider this variable the most in their implementation of blended learning mode in order to increase students' satisfaction during their studies.

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Appendices

Appendix 1: Table for Origin of Measure of Construct

Variables	Items	Construct Measurement	Sources
Student-Instructor Interaction	5	Q1: My instructor creates a user-friendly learning environment through blended learning. Q2: My instructor is keen on receiving questions and providing timely feedback (e.g.: within 24 hours, by the next class). Q3: My instructor have been friendly and supportive throughout my entire study process. Q4: My instructors encourage me to participate in the course discussion. Q5: My instructor provides active interaction and communication with students using blended learning.	(Ali&Mirza, 2020) (Zeqiri et al, 2022)
Service Quality	4	Q1: My communication with the university administration and help desk does not encounter any problems. Q2: My instructor ensures that the learning process meets my academic goals by offering both online and offline instruction. Q3: My learning is supported by the ability to learn at my own pace using printed and online materials. Q4: My instructor provides excellent service by assisting me with technical issues such as access to online platforms (e.g., Microsoft Teams/Zoom/Google Meet, etc.)	(Anthony, 2024)

Information Quality	4	Q1: Blended learning provides me with accurate course content that helps me understand the material better during the learning process. Q2: Blended learning offers an appropriate level of learning content that aligns with my learning outcomes. Q3: Blended learning provides me with timely learning content. Q4: Blended learning provides me with up-to-date learning content.	(Li&Phongsatha, 2022) (Alkali et al., 2021)
Perceived usefulness	4	Q1: Blended learning enhances my learning effectiveness. Q2: Blended learning improves my learning performance. Q3: Blended learning facilitates a smoother learning experience through its learning platforms (e.g., web-based learning environments, recorded videos, etc.). Q4: Blended learning allows me to access and obtain useful information through online resources (e.g., library portal, journal databases, etc.).	(Li&Phongsatha, 2022)
Perceived ease of use	4	Q1: Blended learning makes it easy for me to submit assignments through the web-based environment (WBLE) or Microsoft Teams and others. Q2: Blended learning allows me to easily participate in both online sessions through platforms like Microsoft Teams Zoom, and Google Meet as well as physical classes facilitating smooth transitions between the two formats. It took me only a short time to adapt.	(Suson, 2024) (Dinh et al., 2021)

		Q3: Blended learning makes it easy for me to accomplish tasks such as using Microsoft Teams to collaborate with my assignment mates for discussions. Q4: Blended learning provides clear and understandable interaction features, making it easy for me to communicate and collaborate with classmates.	
Students' Satisfaction	5	Q1: I feel more satisfied with the learning process using blended learning. Q2: I feel more flexible with blended learning than traditional physical classes. Q3: I feel that I prefer attending a blended class that combines both online and offline instruction. Q4: I feel that blended learning satisfies my learning expectations. Q5: I feel satisfied with my overall experience in blended learning.	(Zeqiri et al, 2022)

Appendix 2: Questionnaire

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE

RESEARCH TOPIC: DETERMINANTS FOR STUDENTS' SATISFACTION ON BLENDED LEARNING AT LOCAL PRIVATE UNIVERSITIES IN MALAYSIA

Dear respondents,

We are Bachelor of Business Administration (Honours) students from Universiti Tunku Abdul Rahman (UTAR). The purpose of this study is to investigate the key factors that affect students' satisfaction with blended learning at local private universities in Malaysia.

There are SEVEN (7) sections in this questionnaire. Section A is about your personal particulars. Sections B, C, D, E, F and G cover all of the variables in this study. Please read the instructions carefully before answering the questions. Please answer ALL questions in ALL sections. Completion of this questionnaire will take you approximately 5 to 10 minutes.

Your response will be kept strictly **PRIVATE AND CONFIDENTIAL** and be used only for **ACADEMIC PURPOSE**.

For any inquiries, please do not hesitate to contact us at yimun0710@1utar.my or peien02@1utar.my

Your assistance in completing this questionnaire is very much appreciated. Thank you for your participation.

Regards,

Wong Yi Mun 22ABB04922

Yau Pei En 22ABB05077

You Vivian 22ABB04802

PERSONAL DATA PROTECTION NOTICE

Consent:

Your data privacy is important to us. Personal data collected will be protected in accordance to the Personal Data Protection Act 2010.

Please be informed that in accordance with the Personal Data Protection Act 2010 (PDPA) which came into force on 15 November 2013, Universiti Tunku Abdul Rahman (UTAR) is hereby bound to make notice and required consent in relation to collection, recording, storage, usage, and retention of personal information.

Acknowledgment of Notice:

( ) I have been notified by you and I hereby understood, consented, and agreed per UTAR notice.

FILTER QUESTION

1. Do your university conduct a blended learning?

( ) Yes

( ) No

SECTION A

Demographics Profile

Please tick (√) the appropriate answer.

1. Gender:

☐ Male

☐ Female

2. Race:

( ) Malay

( ) Chinese

( ) Indian

( ) others:

3. Your university is:
   ( ) UTAR
   ( ) SUNWAY

4. How long have you been a university student?

( ) Less than 1 year

( ) 1 year

( ) 2 years

( ) 3 years

( ) 4 years or more

5. How frequently do you attend the blended learning classes per week?

( ) Less than 4 hours

( ) 5-8 hours

( ) 9-12 hours

( ) 13-16 hours

( ) 17-20 hours

( ) Above 21 hours

SECTION B

Student-Instructor Interaction (Independent Variable)

Student-instructor interaction refers to the conversation of ideas, participation, and support between students and instructors.

(Circle the number that best represents your answer)

No	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My instructor creates a user-friendly learning environment through blended learning.	1	2	3	4	5
2	My instructor is keen on receiving questions and providing timely feedback (e.g.: within 24 hours, by the next class)	1	2	3	4	5
3	My instructor have been friendly and supportive throughout my entire study process.	1	2	3	4	5
4	My instructors encourage me to participate in the course discussion.	1	2	3	4	5
5	My instructor provides active interaction and communication with students using blended learning.	1	2	3	4	5

SECTION C

Service Quality (Independent Variable)

Service quality refers to the support and assistance provided by university, faculty, and academic staff.

(Circle the number that best represents your answer)

No	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My communication with the university administration and help desk does not encounter any problems.	1	2	3	4	5
2	My instructor ensures that the learning process meets my academic goals by offering both online and offline instruction.	1	2	3	4	5
3	My learning is supported by the ability to learn at my own pace using printed and online materials	1	2	3	4	5
4	My instructor provides excellent service by assisting me with technical issues such as access to online platforms (e.g., Microsoft Teams/Zoom/Google Meet, etc.)	1	2	3	4	5

SECTION D

Information Quality (Independent Variable)

Information quality is a measure of the value that the information provides to the user.

(Circle the number that best represents your answer)

No	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Blended learning provides me with accurate course content that helps me understand the material better during the learning process.	1	2	3	4	5
2	Blended learning offers an appropriate level of learning content that aligns with my learning outcomes.	1	2	3	4	5
3	Blended learning provides me with timely learning content.	1	2	3	4	5
4	Blended learning provides me with up-to-date learning content.	1	2	3	4	5

SECTION E

Perceived usefulness (Independent Variable)

Perceived usefulness indicates the extent to which individuals believe in using a particular system because they expect it will improve their performance.

(Circle the number that best represents your answer)

No	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Blended learning enhances my learning effectiveness.	1	2	3	4	5
2	Blended learning improves my learning performance.	1	2	3	4	5
3	Blended learning facilitates a smoother learning experience through its learning platforms (e.g., web-based learning environments, recorded videos, etc.).	1	2	3	4	5
4	Blended learning allows me to access and obtain useful information through online resources (e.g., library portal, journal databases, etc.).	1	2	3	4	5

SECTION F

Perceived ease of use (Independent Variable)

Perceived ease of use is the belief that using a system or platform requires little effort, making it easy to navigate and perform tasks effectively.

(Circle the number that best represents your answer)

No	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Blended learning makes it easy for me to submit assignments through the web-based environment (WBLE) or Microsoft Teams and others.	1	2	3	4	5
2	Blended learning allows me to easily participate in both online sessions through platforms like Microsoft Teams Zoom, and Google Meet as well as physical classes facilitating smooth transitions between the two formats. It took me only a short time to adapt.	1	2	3	4	5
3	Blended learning makes it easy for me to accomplish tasks such as using Microsoft Teams to collaborate with my assignment mates for discussions.	1	2	3	4	5
4	Blended learning provides clear and understandable interaction features, making it easy for me to communicate and collaborate with classmates.	1	2	3	4	5

SECTION G

Student Satisfaction（Dependent Variable)

Student satisfaction is the degree to which students are satisfied with their educational experience, including the quality of instruction, course materials, and support services.

(Circle the number that best represents your answer)

No	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I feel more satisfied with the learning process using blended learning.	1	2	3	4	5
2	I feel more flexible with blended learning than traditional physical classes.	1	2	3	4	5
3	I feel that I prefer attending a blended class that combines both online and offline instruction.	1	2	3	4	5
4	I feel that blended learning satisfies my learning expectations.	1	2	3	4	5
5	I feel satisfied with my overall experience in blended learning.	1	2	3	4	5

Thank you very much for your participation in this survey.

Appendix 3: Descriptive Analysis

Demographic Profile: Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	157	41.3	41.3	41.3
	Female	223	58.7	58.7	100.0
	Total	380	100.0	100.0	

Demographic Profile: Race

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	52	13.7	13.7	13.7
	Chinese	262	68.9	68.9	82.6
	Indian	66	17.4	17.4	100.0
	Total	380	100.0	100.0	

Demographic Profile: University

University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	UTAR	227	59.7	59.7	59.7
	SUNWAY	153	40.3	40.3	100.0
	Total	380	100.0	100.0	

Demographic Profile: How long you been a university student

How long you been a university student

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	1	.3	.3	.3
	1 year	8	2.1	2.1	2.4
	2 years	155	40.8	40.8	43.2
	3 years	208	54.7	54.7	97.9
	4 years or more	8	2.1	2.1	100.0
	Total	380	100.0	100.0	

Demographic Profile: how frequently do you attend the blended learning classes per week

How frequently do you attend the blended learning classes per week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 4 hours	23	6.1	6.1	6.1
	5-8 hours	181	47.6	47.6	53.7
	9-12 hours	164	43.2	43.2	96.8
	13-16 hours	12	3.2	3.2	100.0
	Total	380	100.0	100.0	

Appendix 4: Reliability Test for Pilot Study

Dependent Variable: Student Satisfaction

Scale: Student Satisfaction

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.758	5

Item Statistics

	Mean	Std. Deviation	N
Feel more satisfied with learning process	4.7000	.46291	50
Feel more flexible than traditional physical classes	4.6800	.58693	50
Prefer to attending a blended classes	4.5000	.61445	50
Satisfies my learning expectations	4.4200	.57463	50
Feel satisfied with overall experience	4.5200	.57994	50

Independent Variable: Student-Instructor Interaction

Scale: Student Instructor Interacion

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.694	5

Item Statistics

	Mean	Std. Deviation	N
User-friendly learning environment	4.4400	.50143	50
Keen on receiving questions and providing timely feedback	4.1400	.53490	50
Friendly and supportive	4.6600	.51942	50
Encourage to participate in cource discussion	4.7400	.44309	50
Provide active interaction and communication	4.5800	.53795	50

Independent Variable: Service Quality

Scale: Service Quality

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.729	4

Item Statistics

	Mean	Std. Deviation	N
Does not encounter any problems	4.3000	.61445	50
Learning process meets academic goals	4.2400	.55549	50
Supported by the ability to learn at own pace	4.6800	.55107	50
Assisting with teachnical issues	4.6400	.63116	50

Independent Variable: Information Quality

Reliability

Scale: Information Quality

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.682	4

Item Statistics

	Mean	Std. Deviation	N
Acurate course content	4.3800	.69664	50
Offers an appropriate level of learning content	4.3200	.58693	50
Provide timely learning content	4.4000	.75593	50
Provide up-to-date learning content	4.2800	.67128	50

Independent Variable: Perceived Usefulness

Scale: Perceived Usefulness

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.676	4

Item Statistics

	Mean	Std. Deviation	N
Enhances learning effectiveness	4.4000	.49487	50
Improves learning performance	4.4000	.57143	50
Facilitates smoother learning experience	4.6800	.55107	50
Allows to access and obtain useful information through online resources	4.7400	.48697	50

Independent Variable: Perceived Ease of Use

Scale: Perceived Ease of use

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.612	4

Item Statistics

	Mean	Std. Deviation	N
Make it easy to submit assignments	4.8000	.40406	50
Easily participare in both online sessions through platforms	4.2800	.53605	50
Easy to accomplish tasks	4.4400	.57711	50
Provides clear and understandable interaction features	4.4600	.61312	50

Appendix 5: Reliability Test for Actual Study

Dependent Variable: Student Satisfaction

Case Processing Summary

		N	%
Cases	Valid	380	100.0
	Excluded[a]	0	.0
	Total	380	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.823	.823	5

Item Statistics

	Mean	Std. Deviation	N
Feel more satisfied with learning process	4.4678	.43929	380
Feel more flexible than traditional physical classes	4.4472	.52568	380
Prefer to attending a blended classes	4.4282	.52374	380
Satisfies my learning expectations	4.4240	.47401	380
Feel satisfied with overall experience	4.3977	.49305	380

Independent Variable: Student-Instructor Interaction

Case Processing Summary

		N	%
Cases	Valid	380	100.0
	Excluded[a]	0	.0
	Total	380	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.716	.727	5

Item Statistics

	Mean	Std. Deviation	N
User-friendly learning environment	4.3571	.50035	380
Keen on receiving questions and providing timely feedback	4.3053	.61766	380
Friendly and supportive	4.3789	.64859	380
Encourage to participate in cource discussion	4.3921	.60903	380
Provide active interaction and communication	4.3991	.44677	380

Independent Variable: Service Quality

Scale: Service Quality

Case Processing Summary

		N	%
Cases	Valid	380	100.0
	Excluded[a]	0	.0
	Total	380	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.736	.739	4

Item Statistics

	Mean	Std. Deviation	N
Does not encounter any problems	4.4062	.44370	380
Learning process meets academic goals	4.3052	.54179	380
Supported by the ability to learn at own pace	4.4225	.53311	380
Assisting with teachnical issues	4.4225	.50052	380

Independent Variable: Information Quality

Scale: Information Quality

Case Processing Summary

		N	%
Cases	Valid	380	100.0
	Excluded[a]	0	.0
	Total	380	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.773	.900	4

Item Statistics

	Mean	Std. Deviation	N
Acurate course content	4.4217	.55129	380
Offers an appropriate level of learning content	4.3484	.62374	380
Provide timely learning content	4.4955	1.64998	380
Provide up-to-date learning content	4.4492	.56301	380

Independent Variable: Perceived Usefulness

Scale: Perceived Usefulness

Case Processing Summary

		N	%
Cases	Valid	380	100.0
	Excluded[a]	0	.0
	Total	380	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.761	.762	4

Item Statistics

	Mean	Std. Deviation	N
Enhances learning effectiveness	4.4314	.45543	380
Improves learning performance	4.4265	.42735	380
Facilitates smoother learning experience	4.4609	.49027	380
Allows to access and obtain useful information through online resources	4.4742	.46757	380

Independent Variable: Perceived Ease of Use

Scale: Perceived Ease of Use

Case Processing Summary

		N	%
Cases	Valid	380	100.0
	Excluded[a]	0	.0
	Total	380	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.760	.760	4

Item Statistics

	Mean	Std. Deviation	N
Make it easy to submit assignments	4.4399	.44997	380
Easily participare in both online sessions through platforms	4.3569	.47731	380
Easy to accomplish tasks	4.3930	.49043	380
Provides clear and understandable	4.4190	.43672	380

Appendix 6: Pearson Correlation Coefficient Analysis

Student-Instructor Interaction with Student Satisfaction

Correlations

		Student Instructor Interaction Average	Student Satisfaction Average
Student Instructor Interaction Average	Pearson Correlation	1	.472**
	Sig. (2-tailed)		.000
	N	380	380
Student Satisfaction Average	Pearson Correlation	.472**	1
	Sig. (2-tailed)	.000	
	N	380	380

**. Correlation is significant at the 0.01 level (2-tailed).

Service Quality with Student Satisfaction

Correlations

		Service Quality Average	Student Satisfaction Average
Service Quality Average	Pearson Correlation	1	.462**
	Sig. (2-tailed)		.000
	N	380	380
Student Satisfaction Average	Pearson Correlation	.462**	1
	Sig. (2-tailed)	.000	
	N	380	380

**. Correlation is significant at the 0.01 level (2-tailed).

Information Quality with Student Satisfaction

Correlations

		Information Quality Average	Student Satisfaction Average
Information Quality Average	Pearson Correlation	1	.410**
	Sig. (2-tailed)		.000
	N	380	380
Student Satisfaction Average	Pearson Correlation	.410**	1
	Sig. (2-tailed)	.000	
	N	380	380

**. Correlation is significant at the 0.01 level (2-tailed).

Perceived Usefulness with Student Satisfaction

Correlations

		Student Satisfaction Average	Perceived Usefulness Average
Student Satisfaction Average	Pearson Correlation	1	.461**
	Sig. (2-tailed)		.000
	N	380	380
Perceived Usefulness Average	Pearson Correlation	.461**	1
	Sig. (2-tailed)	.000	
	N	380	380

**. Correlation is significant at the 0.01 level (2-tailed).

Perceived Ease of Use with Student Satisfaction

Correlations

		Student Satisfaction Average	Perceived Ease of Use Average
Student Satisfaction Average	Pearson Correlation	1	.489**
	Sig. (2-tailed)		.000
	N	380	380
Perceived Ease of Use Average	Pearson Correlation	.489**	1
	Sig. (2-tailed)	.000	
	N	380	380

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 7: Multiple Linear Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Cha F Change
1	.670[a]	.449	.441	.27898	.449	60.864

a. Predictors: (Constant), Perceived Ease of Use Average, Service Quality Average, Information Qu Average, Student Instructor Interaction Average

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.686	5	4.737	60.864	.000[b]
	Residual	29.109	374	.078		
	Total	52.795	379			

a. Dependent Variable: Student Satisfaction Average

b. Predictors: (Constant), Perceived Ease of Use Average, Service Quality Average, Information Quality Average, Perceived Usefulness Average, Student Instructor Interaction Average

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	.334	.245		1.362	.174	-.148	.816
	Student Instructor Interaction Average	.145	.046	.148	3.172	.002	.055	.234
	Service Quality Average	.204	.046	.197	4.398	.000	.113	.296
	Information Quality Average	.093	.023	.172	4.068	.000	.048	.138
	Perceived Usefulness Average	.203	.047	.190	4.283	.000	.110	.296
	Perceived Ease of Use Average	.285	.046	.269	6.177	.000	.194	.376

a. Dependent Variable: Student Satisfaction Average