



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

FACTORS INFLUENCING CHINESE UNIVERSITY
ENGLISH AS A FOREIGN LANGUAGE (EFL)
STUDENTS' ADOPTION OF MOBIL
TECHNOLOGY-INTEGRATED
VOCABULARY LEARNING



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

HUANG SHIQIN

SULTAN IDRIS EDUCATION UNIVERSITY

2024



05-4506832



pustaka.upsi.edu.my



Perpustakaan Tuanku Bainun
Kampus Sultan Abdul Jalil Shah



PustakaTBainun



ptbupsi

FACTORS INFLUENCING CHINESE UNIVERSITY ENGLISH AS A
FOREIGN LANGUAGE (EFL) STUDENTS' ADOPTION OF
MOBILE TECHNOLOGY-INTEGRATED
VOCABULARY LEARNING

HUANG SHIQIN

THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR THE
DOCTOR OF PHILOSOPHY

FACULTY OF HUMAN DEVELOPMENT
SULTAN IDRIS EDUCATION UNIVERSITY

2024

UPS/WPS-3/BO 32
Print : 00 m/s: 1/1

Please tick (✓)

Project Paper ☐

Masters by Research ☐

Master by Mixed Mode ☐

PhD ☒

INSTITUTE OF GRADUATE STUDIES

DECLARATION OF ORIGINAL WORK

This declaration is made on the15.....day of.....October.....20.....24.....

i. Student's Declaration:

I, Huang Shiqin, P20201000907, Faculty of Human Development (PLEASE INDICATE STUDENT'S NAME, MATRIC NO. AND FACULTY) hereby declare that the work entitled FACTORS INFLUENCING CHINESE UNIVERSITY ENGLISH AS A FOREIGN LANGUAGE (EFL) STUDENTS' ADOPTION OF MOBILE TECHNOLOGY-INTEGRATED VOCABULARY LEARNING is my original work. I have not copied from any other students' work or from any other sources except where due reference or acknowledgement is made explicitly in the text, nor has any part been written for me by another person.

Huang Shiqin

Signature of the student

ii. Supervisor's Declaration:

I Prof. Dr. Abdul Rahim bin Hamdan (SUPERVISOR'S NAME) hereby certifies that the work entitled FACTORS INFLUENCING CHINESE UNIVERSITY ENGLISH AS A FOREIGN LANGUAGE (EFL) STUDENTS' ADOPTION OF MOBILE TECHNOLOGY-INTEGRATED VOCABULARY LEARNING (TITLE) was prepared by the above named student, and was submitted to the Institute of Graduate Studies as a * partial/full fulfillment for the conferment of DOCTOR OF PHILOSOPHY (PLEASE INDICATE THE DEGREE), and the aforementioned work, to the best of my knowledge, is the said student's work.

21/10/2024

Date

[Signature]

Signature of the Supervisor


**INSTITUT PENGAJIAN SISWAZAH /
INSTITUTE OF GRADUATE STUDIES**
**BORANG PENGESAHAN PENYERAHAN TESIS/DISERTASI/LAPORAN KERTAS PROJEK
DECLARATION OF THESIS/DISSERTATION/PROJECT PAPER FORM**

Tajuk / Title: FACTORS INFLUENCING CHINESE UNIVERSITY ENGLISH AS A FOREIGN LANGUAGE (EFL)
STUDENTS' ADOPTION OF MOBILE TECHNOLOGY-INTEGRATED VOCABULARY LEARNING

No. Matrik / Matric's No.: P20201000907

Saya / I : Huang Shiqin

(Nama pelajar / Student's Name)

mengaku membenarkan Tesis/Disertasi/Laporan Kertas Projek (Kedoktoran/Sarjana)* ini disimpan di Universiti Pendidikan Sultan Idris (Perpustakaan Tuanku Bainun) dengan syarat-syarat kegunaan seperti berikut:-

acknowledged that Universiti Pendidikan Sultan Idris (Tuanku Bainun Library) reserves the right as follows:-

1. Tesis/Disertasi/Laporan Kertas Projek ini adalah hak milik UPSI.
The thesis is the property of Universiti Pendidikan Sultan Idris
2. Perpustakaan Tuanku Bainun dibenarkan membuat salinan untuk tujuan rujukan dan penyelidikan.
Tuanku Bainun Library has the right to make copies for the purpose of reference and research.
3. Perpustakaan dibenarkan membuat salinan Tesis/Disertasi ini sebagai bahan pertukaran antara Institusi Pengajian Tinggi.
The Library has the right to make copies of the thesis for academic exchange.
4. Sila tandakan (✓) bagi pilihan kategori di bawah / Please tick (✓) for category below:-

☐ **SULIT/CONFIDENTIAL**

Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub dalam Akta Rahsia Rasmi 1972. / Contains confidential information under the Official Secret Act 1972

☐ **TERHAD/RESTRICTED**

Mengandungi maklumat terhad yang telah ditentukan oleh organisasi/badan di mana penyelidikan ini dijalankan. / Contains restricted information as specified by the organization where research was done.

☒ **TIDAK TERHAD / OPEN ACCESS**

Huang Shiqin

(Tandatangan Pelajar/ Signature)

Tarikh: 21/10/2024

Prof Dr Abdul Rahim Hamdan
(Tandatangan Penyelia / Signature of Supervisor)
& (Nama & Cof Rasm / Name & Official Stamp)
Pakuti Pembangunan Manusia
Universiti Pendidikan Sultan Idris

Catatan: Jika Tesis/Disertasi ini **SULIT @ TERHAD**, sila lampirkan surat daripada pihak berkuasa/organisasi berkenaan dengan menyatakan sekali sebab dan tempoh laporan ini perlu dikelaskan sebagai **SULIT** dan **TERHAD**

Notes: If the thesis is **CONFIDENTIAL** or **RESTRICTED**, please attach with the letter from the organization with period and reasons for confidentiality or restriction.

ACKNOWLEDGMENT

This paper was successfully completed with the guidance and help of many people. While collecting research materials and conducting questionnaires, I received direct and indirect assistance from the following people. My main supervisor, Prof. Dr. Abdul Rahim bin Hamdan provided me with a lot of guidance and suggestions. My co-supervisor, Assoc. Prof. Dr Abdul Talib bin Mohamed Hashim and teachers from the faculty of Human Development also gave me a lot of help. Also, I would like to express my gratitude to the two universities that engaged in this research. Last, thanks to my classmates who gave me a lot of help and encouragement, and my parents who have always given me endless support and love.

ABSTRACT

This research investigated the factors influencing Chinese university EFL students' adoption of mobile technology-integrated vocabulary learning in a student-centered learning context, using an extended unified theory of acceptance and use of technology (UTAUT2) model. The theoretical framework incorporated additional constructs of privacy, trust, personal innovativeness, and information quality, along with the original UTAUT2 determinants of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit, to examine their effects on behavioral intention and use behavior. This study was based on a quantitative approach using a questionnaire adapted from Venkatesh's and Nikolopoulou's research. The sample of the study consisted of 300 EFL students from two universities in the Fujian province of China. Data analysis was conducted using SPSS and AMOS software, employing descriptive statistics, structural equation modeling, and regression path analysis. Results demonstrated significant positive effects of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, personal innovativeness, and information quality on students' behavioral intention. Price value and privacy concerns exerted significant negative influences. Hedonic motivation, price value, personal innovativeness, and information quality emerged as the most significant predictors of behavioral intention. Behavioral intention strongly influenced use behavior. The study makes key theoretical contributions by demonstrating the explanatory power of an extended UTAUT2 model in examining emerging educational technologies. The findings offer valuable insights for EFL teachers, vocabulary course designers, and developers of mobile technologies. Understanding the factors influencing adoption can inform strategies to enhance the integration of mobile technologies in EFL vocabulary learning. The research highlights the complex interplay of factors shaping students' behavioral intention and use behavior in adopting mobile technology-integrated vocabulary learning. It underscores the importance of considering drivers and barriers to adoption, particularly emphasizing the roles of hedonic motivation, price value, personal innovativeness, and information quality in predicting behavioral intention.

FAKTOR-FAKTOR YANG MEMPENGARUHI PENERIMAAN PELAJAR BAHASA INGGERIS SEBAGAI BAHASA ASING (EFL) UNIVERSITI DI CHINA MELALUI TEKNOLOGI MUDAH ALIH TERHADAP PEMBELAJARAN PERBENDAHARAAN KATA BERSEPADU

ABSTRAK

Kajian ini bertujuan mengetahui faktor-faktor yang mempengaruhi penerimaan pelajar EFL universiti di China terhadap penggunaan pembelajaran kosa kata bersepadu teknologi mudah alih (UTAUT2) dalam konteks pembelajaran berpusatkan pelajar. Rangka kerja teori ini menggabungkan pembinaan tambahan mengenai privasi, kepercayaan, inovasi peribadi dan kualiti maklumat. Ia juga menggabungkan penentu asal UTAUT2 seperti jangkaan prestasi, jangkaan usaha, pengaruh sosial, keadaan memudahkan, motivasi hedonik, nilai harga dan tabiat serta kesannya terhadap niat tingkah laku dan penggunaan tingkah laku. Kajian ini menggunakan pendekatan kuantitatif dengan soal selidik yang diadaptasi daripada penyelidikan Venkatesh dan Nikolopoulou. Sampel kajian terdiri daripada 300 orang pelajar EFL dari dua universiti di wilayah Fujian, China. Statistik deskriptif, pemodelan persamaan struktur dan analisis laluan regresi telah digunakan untuk menganalisis data menggunakan program SPSS dan AMOS. Dapatan kajian menunjukkan bahawa jangkaan prestasi, jangkaan usaha, pengaruh sosial, keadaan yang memudahkan, motivasi hedonik, tabiat, inovasi peribadi dan kualiti maklumat mempunyai kesan positif yang ketara terhadap matlamat tingkah laku pelajar. Nilai harga dan kebimbangan privasi memberikan kesan yang buruk. Dapatan juga menunjukkan peramal utama niat tingkah laku ialah motivasi hedonik, nilai harga, inovasi peribadi, dan kualiti maklumat. Tingkah laku penggunaan sangat dipengaruhi oleh niat tinngkah laku. Kajian ini menunjukkan bahawa kuasa penjelasan model UTAUT2 lanjutan dalam kajian teknologi pendidikan semakin berkembang dan memberikan sumbangan teori utama. Hasilnya memberikan pandangan yang berguna kepada guru EFL, pereka kursus perbendaharaan kata dan pembangun teknologi mudah alih. Dalam pembelajaran perbendaharaan kata EFL, pemahaman tentang faktor yang mempengaruhi penerimaan boleh membantu pelajar dalam membuat rancangan untuk memasukkan teknologi mudah alih ke dalam proses pembelajaran. Kajian ini menunjukkan bahawa niat tingkah laku pelajar dan tingkah laku penggunaan dalam menerima pakai pembelajaran kosa kata bersepadu teknologi mudah alih dipengaruhi oleh banyak faktor yang saling berkaitan. Ia mengutamakan peranan motivasi hedonik, nilai harga, inovasi peribadi dan kualiti maklumat dalam meramalkan niat tingkah laku dan menekankan betapa pentingnya mempertimbangkan kedua-dua pemacu dan halangan untuk diterima pakai.

CONTENTS

	Page
DECLARATION OF ORIGINAL WORK	ii
DECLARATION OF THESIS	iii
ACKNOWLEDGMENT	iv
ABSTRACT	v
ABSTRAK	vi
CONTENTS	vii
LIST OF TABLES	xiii
LIST OF FIGURES	xv
LIST OF ABBREVIATIONS	xvi

CHAPTER 1 INTRODUCTION

1.1	Introduction	1
1.1.1	Challenges in EFL Vocabulary Learning in China	2
1.1.2	Impact of Mobile Learning on EFL Vocabulary Acquisition	3
1.2	Backgrounds	4
1.3	Problem Statements	9
1.4	Research Objectives	15
1.5	Research Questions	18
1.6	Research Hypothesis	20
1.7	Research Scope and Limitations of the Study	24
1.8	The Research Significance	25
1.9	Operational Definition	26

1.10	Theoretical Framework	37
1.11	Conceptual Framework	42
1.12	Thesis Organization	44

CHAPTER 2 REVIEW OF THE LITERATURE

2.1	Introduction	47
2.2	Student-Centered Learning (SCL)	48
2.2.1	The Background of Student-Centeredness	48
2.2.1.1	Learner-Centered Psychological Principles	49
2.2.1.2	Humanistic Approach	52
2.2.2	Student-Centeredness in Language Education	56
2.2.2.1	Different Versions of Student-Centeredness	56
2.2.2.2	Attitudes Towards Student-Centeredness Instruction	61
2.2.3	The Roles of Teachers and Learners in Student-Centeredness Instruction	65
2.2.4	Studies on Student-Centeredness in China	69
2.3	Technology-Integrated Vocabulary Learning	76
2.3.1	Integration of EFL and Technology in Curriculum	76
2.3.2	Effectiveness of Technology- Integrated Vocabulary Learning	80
2.3.3	Characteristics of The Participants	84
2.3.4	Contextual Features	85
2.3.5	Effects of within-Study Comparisons	87
2.4	Learning Theories of Mobile Technologies	88

2.4.1	Behaviorism and Mobile Technology	89
2.4.2	Cognitivism and Mobile Technology	90
2.4.3	Constructivism and Mobile Technology	91
2.5	Mobile Technologies and Learning	96
2.5.1	Mobile English Language Learning	96
2.5.2	BaiCizhan App Applied to Vocabulary Learning	103
2.5.3	Instructional and Materials (Baicizhan as The Example)	105
2.5.4	Mobile Technology-Integrated Vocabulary Learning Courses Settings	113
2.6	Theories and Models of Acceptance Mobile Technologies	115
2.6.1	The Development of Technology Acceptance Model	116
2.6.2	The Unified Theory of Acceptance and Use of Technology Model (UTAUT)	118
2.6.3	Extending The Unified Theory of Acceptance and Use of Technology (UTAUT2)	123
2.6.4	The Application of UTAUT2 Model in Higher Education	128
2.6.5	The Extend UTAUT2 Model in This Study	134
2.7	Conclusion	161

CHAPTER 3 METHODOLOGY

3.1	Introduction	162
3.2	Research Approach	163
3.3	Research Design	166
3.4	Population and Sampling	173

3.4.1	Target Population	173
3.4.2	Sample Framework	174
3.4.3	Sample Size	176
3.4.4	Choice of Sample	177
3.4.5	Demographic Profile of Respondents	179
3.5	Research Instrument	185
3.5.1	Questionnaire Settings	186
3.5.2	Components and References of the Questionnaire	199
3.6	The Pilot Study	219
3.6.1	The Process and Significance of The Pilot Study	219
3.6.2	The Reliability and Validity of the Instrument	221
3.6.3	Implications for The Main Study	223
3.7	Data Collection Procedures	225
3.7.1	Data Collection Methods	225
3.7.2	Ethical Considerations	227
3.7.3	Requesting Official Permission	229
3.8	Methods of Analyzing Data	230
3.8.1	Data Analysis Software and Methods	232
3.8.2	Descriptive Statistics	235
3.8.3	Reliability Analysis	235
3.8.4	Validity Analysis	236
3.8.4.1	Exploratory Factor Analysis (EFA)	238
3.8.4.2	Confirmatory Factor Analysis (CFA)	240

3.8.4.3	Differences and Similarities between CFA and EFA	241
3.8.4.4	Convergent Validity and Discriminant Validity Analysis	242
3.8.5	Pearson Correlation Analysis	244
3.8.6	SEM and AMOS Explanation	245
3.8.6.1	Various Methods for Performing Structural Equation Modeling (SEM)	245
3.8.6.2	Reason to Use CB-SEM	246
3.8.6.3	AMOS and SEM	247
3.8.7	Regression Path Analysis	250
3.9	Summary	251

CHAPTER 4 RESULTS AND FINDINGS

4.1	Introduction	252
4.2	Data Preparation	253
4.2.1	Missing Value Analysis	253
4.2.2	Outlier Evaluation	256
4.2.3	Common Method Bias	260
4.3	Analysis and Findings of Research Question1	263
4.3.1	Descriptive Statistics	263
4.3.1.1	The Mean and Standard Deviation	265
4.3.1.2	Normality Test	267
4.3.1.3	Descriptive Statistics of Variables and T-Test	270
4.3.2	Reliability Analysis of Research Variables	272
4.3.3	Validity Analysis of Research Variables	275

4.3.3.1	Exploratory Factor Analysis	277
4.3.3.2	Confirmatory Factor Analysis	290
4.3.3.3	Convergent Validity	294
4.3.3.4	Discriminant Validity	299
4.3.4	Correlation Analysis of Research Variables	301
4.4	Analysis and Findings of Research Question2	308
4.4.1	Structural Equation Modeling	311
4.4.2	Regression Path Analysis	315
4.5	Analysis and Findings of Research Question 3	321
4.6	Summary	322

CHAPTER 5 DISCUSSION, CONCLUSION AND FUTURE WORKS

5.1	Summary of The Research Results	324
5.2	Discussion	327
5.2.1	Factors Influencing Chinese University EFL students' behavioral intentions to Adopt Mobile Technology-Integrated Vocabulary Learning Towards Student-Centered Learning	327
5.2.2	Relationships between Identified Factors, Behavioral Intention and Use Behavior	330
5.2.3	Significant Predictors Influencing Chinese university EFL students' behavioral intentions to Adopt Mobile Technology-Integrated Vocabulary Learning towards Student-Centered Learning	352
5.3	The Final Model of This Research	357
5.4	Implications for EFL Teachers, Vocabulary Course Designers and Developers of Mobile Technologies	363
5.5	Conclusion	366

5.6	Significance of The Research	370
5.7	Future Works	371
REFERENCES		374
APPENDICES		



LIST OF TABLES

Table No.		Page
2.1	The Prominent Theories and Models of Acceptance Mobile Technologies	124
3.1	Demographic Profile of Respondents	181
3.2	The Statements of Each Item Based on The UTAUT/UTAUT2 Constructs	194
3.3	Structure of The Questionnaire	199
3.4	Performance Expectancy on Behavioral Intention (PEBI)	202
3.5	Effort Expectancy on Behavioral Intention (EEBI)	203
3.6	Social Influence on Behavioral Intention (SIBI)	204
3.7	Hedonic Motivations on Behavioral Intention (HMBI)	206
3.8	Facilitating Conditions on Behavioral Intention (FCBI)	207
3.9	Price Value on Behavioral Intention (PVBI)	209
3.10	Habit on Behavioral Intention (HBBI)	210
3.11	Privacy on Behavioral Intention (PRBI)	211
3.12	Trust on Behavioral Intention (TRBI)	212
3.13	Personal Innovativeness on Behavioral Intention (PIBI)	213
3.14	Information Quality on Behavioral Intention (IQBI)	214
3.15	Behavioral Intention on Use Behavior (BIUB)	216
3.16	Use Behavior (UB)	217
4.1	Critical Values from The Chi-Square Distribution with Degrees of Freedom from 1 to 52	257
4.2	The Variance Explained by The Factors	261



4.3	The Mean and Standard Deviation of The Variables	267
4.4	Kurtosis and Skewness Values for The 52 Items	268
4.5	Comparison between Mean Scores of Variables and Mean of the Five-Point Likert Scale	271
4.6	The Cronbach's Coefficients of Variables	275
4.7	The Results of The KMO and Bartlett Test	279
4.8	The Results of the Total Variance Analysis	282
4.9	The Loadings of Each Item on The Extracted Factors	285
4.10	Results of Multicollinearity Test	291
4.11	Model Fitness Results Obtained from The CFA	292
4.12	Results of the Convergent Validity Analysis of The Scale	296
4.13	Results of The Discriminant Validity Analysis of The Scale	300
4.14	The Correlation Analysis Results for Each Variable	304
4.15	Fit Index Results for The Model	312
4.16	Regression Weights for Each Path Analysis	315

LIST OF FIGURES

No. Figures	Page
1.1 Hypothesized Model	21
1.2 The Theoretical Framework	42
1.3 The Conceptual Framework	44
2.1 The Unified Theory of Acceptance and Use of Technology Model	120
2.2 The Extend Unified Theory of Acceptance and Use of Technology	126
3.1 Research Design Flow	167
4.1 The Model Fit of The Measurement Scale	292
4.2 Structural Equation Modeling	312
5.1 The Final Model of This Research	358



LIST OF ABBREVIATIONS

AMOS	Analysis of Moment Structure
BI	Behavioral Intention
CALL	The Use of Computer Technology in Language Learning
CLT	Communicative Language Teaching
EE	Effort Expectancy
EFL	English as a Foreign Language
FC	Facilitating Conditions
HM	Hedonic Motivation
HT	Habit
ICT	Information and Communication Technologies
IQ	Information Quality
IT	Information Technology
LMS	Learning Management System
MALL	The Use of Mobile Phones and Other Mobile Technologies in Language learning
M-Learning	Mobile Learning
PDAs	Personal Digital Assistants
PE	Performance Expectancy
PI	Personal Innovativeness
PR	Privacy
PV	Price value
SCL	Student-Centered Learning



SD	Standard Deviation
SEM	Structural Equation Modeling
SI	Social Influence
SPSS	Statistical Product and Service Solutions
TCL	Teacher-Centered Learning
TR	Trust
UB	Use Behavior
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Extended Unified Theory of Acceptance and Use of Technology
VIF	Variance Inflation Factors



APPENDIX LIST

- A Constructs, Corresponding Items and Sources of Instrument Measurement
- B Questionnaire on Technology-Integrated Vocabulary Learning towards Student-Centered Learning
- C Research Approval Letter





CHAPTER 1

INTRODUCTION



Now people are living in an era of global integration, English is the world's language and it plays a more and more important role in our lives. English as the main communication tool, is used in International political dialogue and trade exchanges, information and technology dissemination worldwide, education, and resource sharing (Rao, 2019). Many countries in the world now attach great importance to English. In most European countries, English is a compulsory subject. Southeast Asian countries such as India, Japan, Malaysia, and Singapore almost take English as a second language.



1.1.1 Challenges in EFL Vocabulary Learning in China

English, chosen as the first foreign language in China, became a crucial part of the education system after the 1978 "reform and opening up" policy, which emphasized global connections and the importance of English (Yiyang, 2019). English is taught from kindergarten and is one of the three main subjects in all levels of schooling, alongside Chinese and mathematics. For university students, passing the College English Test Band 4 (CET 4) and College English Test Band (CET 6) is mandatory, and English is also required for obtaining a master's degree (Rao & Lei, 2014).

Vocabulary mastery is fundamental in English as a Foreign Language (EFL) learning, underpinning the development of listening, speaking, reading, and writing skills (Ardasheva et al., 2019). A robust vocabulary facilitates easier language use and comprehension (Setiawan & Wiedarti, 2020; Mahdi, 2018). Without sufficient vocabulary, students struggle to express themselves (Inkey & Szépe, 2018; Alqahtani, 2015).

Despite its importance, EFL education in China faces challenges, primarily due to an exam-oriented, teacher-centered teaching model focusing on rote memorization and grammar over practical language skills (Lin, 2016). This approach diminishes students' enthusiasm and motivation for learning English vocabulary. In response, the "College English Teaching Guidelines" issued by the Ministry of Education in 2020 advocate for integrating information technology with curriculum teaching, emphasizing a shift from teacher-led to student-centered learning.



1.1.2 Impact of Mobile Learning on EFL Vocabulary Acquisition

In recent years, with the advent of the information age, innovative technologies have penetrated various fields, such as education, construction, sports, logistics, and other industries (Schwab, 2017). Mobile learning (m-learning) and information technology (IT) are closely intertwined, with advancements in IT significantly shaping and enhancing the capabilities and reach of m-learning.

Mobile learning, which merges mobile communication technology with education, has gained traction with the widespread use of mobile devices among Chinese college students. This approach supports a student-centered learning model, promoting real-life language use, critical thinking, and active participation.

Researchers like Wang and Cui (2016) highlight mobile learning's potential to foster learner autonomy, with students engaging in self-directed learning through interactive apps. These apps offer personalized experiences, immediate feedback, and tailored content, enhancing student engagement and collaboration.

Albadry (2018) explores how mobile vocabulary learning enhances student autonomy, showing that mobile apps help students set goals, monitor progress, and regulate their learning processes. This aligns with the principles of student-centered learning, where learners shape their educational journeys.

Cárdenas-Robledo et al. (2018) discuss the opportunities mobile learning presents in EFL contexts, emphasizing personalized learning, real-world language experiences, and global peer connections. Mobile technology's flexibility and



inclusivity support student-centered education, encouraging active cognitive engagement.

Integrating mobile technology into EFL vocabulary learning can improve engagement, motivation, and learning outcomes. However, the success of mobile learning depends on user acceptance. The author aims to explore the factors influencing Chinese university EFL students' intention to adopt mobile technology for vocabulary learning in a student-centered learning environment.

1.2 Backgrounds

Chinese university EFL students face significant challenges in vocabulary acquisition.

Firstly, the vast size of the English vocabulary makes mastery difficult. English has over a million words, and new words are continually added (Li & Fan, 2022). Each word comes with its unique sound, shape, meaning, and fixed collocations, further complicated by phenomena such as polysemy, homophony, and synonymy. This complexity makes vocabulary acquisition daunting. Secondly, students often rely on a single method of memorizing vocabulary, typically rote memorization while reading. They seldom employ more effective techniques such as associative memory, root and affix analysis, natural spelling, or word classification (Fu, 2021). This leads to inefficient learning, where students exert great effort for minimal retention (Khaewratana, 2022). Thirdly, maintaining vocabulary knowledge over time is challenging. German psychologist Hermann Ebbinghaus discovered that forgetting occurs rapidly after initial learning, slowing down over time. Due to the large and

easily forgettable nature of English vocabulary, continuous review and consolidation are necessary to reduce the forgetting rate.

The traditional teacher-centered teaching model, where the teacher controls the learning process, planning activities, and serves as the primary source of knowledge, is prevalent in China (Craig, 2018). Characteristics of this model include teacher control over direction and information transfer, and distinct roles for teachers and students (Shadiev et al., 2018). This approach limits students' ability to innovate and fully engage with vocabulary learning.

To address these issues, contemporary English teachers should adopt new teaching methods that motivate students to learn vocabulary effectively. Student-centered learning (SCL) is an innovative technique that places students at the heart of the learning process, encouraging them to be active participants, develop their abilities, and think critically. SCL emphasizes student accountability, logical topic organization, authentic learning activities, and collaboration (Asyifa et al., 2019).

The development of technology has enabled the concept of "student-centered" education. The 2017 Teaching Instruction for College English issued by the Ministry of Education emphasizes the role of modern information technology in modernizing teaching methods and promoting changes in teaching concepts, contents, and techniques.

Mobile learning technologies merge mobile communication technology with education, including digital tools like personal computers, the internet, software

applications, multimedia resources, social networking services (SNSs), blogs, smartphones, and web technologies, offer flexible and engaging ways to enhance vocabulary acquisition (Chawinga, 2017; Lawrence & Tar, 2018; Al-Rahmi et al., 2021). These technologies leverage the convenience and capabilities of smartphones and tablets to make vocabulary learning more accessible and effective. For instance, learners can use vocabulary learning apps, games, and resources on their mobile devices, which support multimedia content such as audio pronunciations, images, videos, and example sentences. This multi-sensory approach helps reinforce word meanings and improve retention.

Incorporating technology into the EFL classroom positively impacts student motivation, allowing students to acquire information, interact with peers, and expand their knowledge (Bouton et al., 2021; Herrera-Pavo, 2021). Educational institutions worldwide are investing in mobile learning technology to create more engaging classrooms and expand educational options (Huang et al., 2019).

Although mobile technologies are popular among Chinese university EFL students and have been shown to improve vocabulary acquisition, they are not yet widely adopted. According to the information system success theory, the success of an information system involves more than technical factors; behavioral factors and users' attitudes, such as cognition and acceptance, are crucial. EFL students' adoption of mobile technologies for vocabulary learning is influenced by the social environment and individual factors. To maximize the potential of mobile technologies, it is essential to understand what factors influence university EFL students' intention to adopt these technologies and what prompts positive or negative feelings when

using them for vocabulary learning. Therefore, this study aims to explore the factors that contribute to Chinese university EFL students' behavioral intentions to adopt mobile technology for vocabulary learning.

For the Technology Acceptance Model (TAM), TAM2, and other acceptance models, it is essential to contextualize their relevance and evolution in understanding technology adoption, especially in the domain of mobile learning.

The Technology Acceptance Model (TAM), introduced by Davis (1989), is one of the most influential models in predicting user acceptance of technology. TAM posits that two primary factors—Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)—determine an individual's intention to use a technology. PU is defined as the degree to which a person believes that using a particular system would enhance their job performance, while PEOU is the degree to which a person believes that using the system would be free of effort.

TAM2, an extension of the original TAM, was proposed by Venkatesh and Davis (2000) to include additional determinants of PU and PEOU, such as social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use). TAM2 provides a more comprehensive understanding of the factors influencing technology acceptance, highlighting the role of social and cognitive factors in shaping user perceptions and intentions.

The Unified Theory of Acceptance and Use of Technology (UTAUT),

developed by Venkatesh et al. (2003), synthesizes elements from eight prominent models, including TAM, TAM2, the Theory of Planned Behavior (TPB), and the Theory of Reasoned Action (TRA). UTAUT identifies four key constructs—Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC)—that influence behavioral intention and use behavior. UTAUT also incorporates moderating variables such as age, gender, experience, and voluntariness of use, making it a robust model for studying technology adoption across different contexts.

UTAUT2, an extension of UTAUT, adds three new constructs: Hedonic Motivation (HM), Price Value (PV), and Habit (HT), to better explain consumer use of technology. UTAUT2 is particularly relevant in the context of mobile learning because it captures the enjoyment and cost-benefit aspects of technology use, which are critical in understanding the adoption of mobile applications among students.

The adoption of mobile learning technologies can be effectively studied using these models. TAM and TAM2 provide foundational insights into the perceived usefulness and ease of use of mobile learning tools, which are crucial for initial acceptance. UTAUT expands on these insights by considering social and facilitating factors, which are significant in a collaborative educational environment. UTAUT2 further enhances the analysis by incorporating hedonic motivation and price value, reflecting the importance of enjoyment and cost considerations in the adoption of mobile learning.



1.3 Problem Statements

Vocabulary learning is one way that one's command of the English language may be evaluated (Grigoryeva et al., 2018). Vocabulary development remains a cornerstone of fluency in EFL learning, influencing listening, speaking, reading, and writing skills (Gorjian et al., 2011). In EFL acquisition, expanding one's vocabulary is a focal point (Ardasheva et al., 2019). High-quality word knowledge, encompassing aspects like pronunciation, spelling, morphological and grammatical properties, and multi-contextual meanings, plays a pivotal role in understanding the rich and interconnected information conveyed by words, making it a fundamental component in vocabulary acquisition (Andrews et al., 2002).



However, the complexity of acquiring vocabulary becomes apparent, primarily

due to limited classroom hours dedicated to EFL instruction and limited exposure to the studied language outside of the classroom (Schmitt, 2019). While vocabulary acquisition is recognized as a gradual, cumulative process where small but steady improvements occur through multiple exposures and retrievals of words in various contexts, the learning process itself can be daunting (Lei, 2022). This process involves key stages such as word noticing (Eltalhi et al., 2021), word encoding and storage in long-term memory (Zhang and Crompton, 2021), and active recall and retrieval of word forms and meanings (Rafiq et al., 2021).

In university settings, particularly within the context of English as a Foreign Language (EFL) instruction, the traditional teacher-centered teaching method is increasingly seen as inadequate for meeting students' evolving needs and expectations.



This approach often results in a significant disconnect that hampers students' English language development, especially in vocabulary acquisition (Bremner, 2021). Traditional vocabulary teaching methods, which tend to be uninspiring and rote-based, fail to engage students actively, thus inhibiting effective vocabulary learning (Li & Hafner, 2022). Such challenges contribute to students acquiring fewer vocabulary words than expected, affecting their overall language skills, motivation, and learning experience. Moreover, the impact of insufficient vocabulary skills reverberates into students' reading abilities, especially in academic contexts, emphasizing the need for more effective vocabulary learning strategies (National Institute for Literacy, 2007).

As pedagogical roles evolve toward student-centered learning (SCL), the dynamics in classrooms shift, with students assuming more active roles, and teachers transitioning from mere content providers to facilitators and resources (Brassimne et al., 2020). This transition places increased emphasis on tailoring education to individual student needs, enhancing classroom dynamics, and customizing instruction.

The shift towards student-centered learning paradigms necessitates innovative approaches that empower students to take control of their learning processes. Mobile technology, with its interactive and engaging capabilities, offers a promising avenue to facilitate such empowerment. Mobile learning supports autonomous learning by providing students with tools that enable personalized and flexible learning experiences (Hwang & Tsai, 2022). This approach aligns well with contemporary educational theories that emphasize learner autonomy and engagement.



Yeop et al. (2019) reiterates that since technology-integrated learning is becoming more popular in 21st-century education, the Central Committee of the Communist Party of China and the State Council 2009 jointly announced China's Education Modernization 2035 Plan, which proposes to accelerate educational reform in the digital age by 2035. Developments in technology create conditions for vocabulary learning towards student-centered learning. Whig (2022) states that today's young techno-savvy generation is rapidly acquiring the fundamentals of English, such as sentence structures and vocabulary, via social media and web-based tools. Mobile technologies, in particular, hold immense potential for creating language-rich environments that extend learning opportunities beyond classroom boundaries. Students will receive more verbal and multimedia exposure to the target language using mobile technological activities, as well as more opportunities to interact with the target language through the use of a variety of mobile technologies.

The integration of mobile technology into vocabulary learning is not just a response to existing gaps in traditional teaching methods but also a proactive approach to align education with modern technological and pedagogical trends. However, understanding and enhancing EFL students' engagement with mobile technology-integrated vocabulary learning towards student-centered learning is a multifaceted endeavor. This engagement depends on the interplay of behavioral, emotional, and cognitive factors, making it a complex subject of inquiry (Eccles and Wang, 2012). Addressing these educational shifts and vocabulary acquisition challenges requires comprehensive research to unveil factors influencing EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning. Bridging this knowledge gap is crucial to



identifying the key determinants of successful vocabulary acquisition, providing students with effective word-learning tools, and fostering their language proficiency.

This study aims to bridge this gap by identifying the factors that influence EFL students' adoption of mobile technology for vocabulary learning in a student-centered context. The study's focus on predictors like performance expectancy, effort expectancy, social influence, and other constructs from the extended UTAUT2 model is crucial for several reasons (Venkatesh et al., 2022).

Firstly, understanding these predictors helps in developing targeted strategies that leverage mobile technology to enhance vocabulary learning. For instance, insights into performance expectancy can guide the development of mobile applications that are perceived as useful and effective by students (Luo et al., 2022).

Similarly, knowledge about effort expectancy can inform the design of user-friendly interfaces that reduce the cognitive load on learners, making the technology more accessible and easier to use (Zhao & Wang, 2022). Secondly, the study's findings can inform educators and policymakers about the potential benefits and challenges of integrating mobile technology in educational settings. By providing empirical evidence on the determinants of students' acceptance and use of mobile technology, the study offers a basis for informed decision-making and resource allocation (Gao et al., 2022). This is particularly relevant in the context of EFL learning, where mobile technology can significantly enhance exposure to language learning opportunities outside the classroom (Kim et al., 2022). Moreover, the study contributes to the broader field of educational technology by advancing our understanding of technology acceptance models in the context of language learning. By empirically

validating the extended UTAUT2 model, the research adds to the theoretical framework and provides a nuanced understanding of how various factors influence technology adoption in educational contexts (Venkatesh et al., 2022). In conclusion, the study on identifying predictors of mobile technology-integrated learning towards student-centered learning is essential for advancing educational practices, informing policy decisions, and contributing to the academic discourse on technology-enhanced learning environments. The integration of mobile technology in EFL vocabulary learning not only addresses the highlighted challenges but also opens up new avenues for innovative, effective, and engaging language education.

Investigating learner engagement with the mobile technology-integrated vocabulary should also make use of various theoretical perspectives and conceptual frameworks. This is an important additional point to take into consideration. Regarding the acceptance and use of information technology in the field of online learning, including higher education online courses, adult education, corporate training and learning, etc., researchers have proposed a variety of models and theories to study, such as Innovation Diffusion Theory (IDT), Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Motivation Theory (MT), Unified Theory of Acceptance and Use of Technology (UTAUT), conducted empirical research and proposed various influencing factors that affect users' acceptance and willingness to use. However, there are few studies investigating EFL students' adoption of mobile technologies for vocabulary learning.

According to Bradley (2009) and Sultana (2020), UTAUT 2 is a reliable model for explaining the usage and adoption of various technologies. This is due to

the model's greater explanatory power of behavioral use technology, which is widely applicable in a variety of settings and capacities, and its high explanatory power of behavioral use technology. Furthermore, UTAUT2 is a solid model for explaining the usage and adoption of various technologies. To this day, only a small amount of study of EFL curriculum has been carried out with the expanded Unified Theory of Acceptance and Use of Technology (UTAUT 2).

In this context, it is imperative to recognize the scarcity of research applying the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model in the EFL curriculum (Venkatesh et al., 2012). The rarity of the UTAUT2 model within the English curriculum raises pertinent questions about its explicit inclusion and its potential to unravel the intricacies of technology adoption and use. UTAUT2 offers a holistic perspective by considering factors such as performance expectation, effort expectancy, social influence, hedonic motivation, facilitating conditions, price value, and habit. This comprehensive model is instrumental in explaining students' technology acceptance, adoption, and use across diverse contexts (Bradley, 2009; Sultana, 2020). The limited application of UTAUT2 underscores a significant opportunity for educational researchers to explore uncharted territories, unravel technology integration nuances, and enhance language learning experiences.

Hence, this research endeavors to address the three gaps mentioned earlier:

Gap One: An absence of comprehensive studies on the factors influencing EFL students' intention to adopt mobile technology-integrated vocabulary learning, particularly concerning student-centered learning.

Gap Two: Limited insight into the independent and dependent factors affecting EFL students' decision to employ mobile technology-integrated vocabulary learning, signifying a need for a deeper understanding of these variables.

Gap Three: A scarcity of research utilizing the UTAUT2 model within the EFL curriculum context, highlighting the potentiality of employing this model for investigating the factors that influence EFL students' adoption of mobile technology-integrated vocabulary learning towards student-centered learning.

Considering these identified gaps, this research seeks to delve into the factors that influence Chinese university EFL students' adoption of mobile technology-integrated vocabulary learning towards student-centered learning using the UTAUT2 model. By specifically identifying the predictors of mobile technology-integrated vocabulary learning towards student-centered learning, it provides references for EFL teachers, vocabulary course designers, and developers of mobile technologies to take intervention measures for enhancing the adoption of mobile technology-integrated vocabulary learning.

1.4 Research Objectives

The study employed an extended Unified Theory of Acceptance and Use of Technology (UTAUT2) model to investigate factors influencing Chinese university EFL students' adoption of mobile technology for vocabulary learning. The 13 variables examined include performance expectancy (PE), effort expectancy (EE),

social influence (SI), facilitating conditions (FC), hedonic motivation (HM), price value (PV), habit (HT), privacy (PR), trust (TR), personal innovativeness (PI), information quality (IQ), behavioral intention (BI), and behavioral use (BU).

Performance Expectancy (PE): PE refers to the degree to which students believe that using mobile technology will help them improve their vocabulary learning outcomes. Previous research has shown that PE is a strong predictor of technology adoption (Venkatesh et al., 2022). Effort Expectancy (EE): EE concerns the ease of use associated with mobile technology for vocabulary learning. Technologies that are user-friendly and require minimal effort are more likely to be adopted (Zhao & Wang, 2022). Social Influence (SI): SI pertains to the extent to which students perceive that important others (peers, teachers) believe they should use mobile technology for vocabulary learning. Social norms and peer influences significantly impact technology acceptance (Kim et al., 2022). Facilitating Conditions (FC): FC involves the availability of resources and support required to use mobile technology for vocabulary learning. Adequate technical support and infrastructure are critical for successful adoption (Luo et al., 2022). Hedonic Motivation (HM): HM refers to the fun and enjoyment derived from using mobile technology for vocabulary learning. Enjoyable experiences enhance students' willingness to adopt new technologies (Gao et al., 2022). Price Value (PV): PV is the perceived cost-benefit ratio of using mobile technology for vocabulary learning. If students find the technology cost-effective, they are more likely to adopt it (Kim et al., 2022). Habit (HT): HT denotes the extent to which students tend to use mobile technology for vocabulary learning automatically because of past experiences. Established habits can facilitate technology adoption (Venkatesh et al., 2022). Privacy (PR) and Trust (TR):

PR concerns students' perceptions of data security and privacy when using mobile technology for vocabulary learning. Trust in the technology and its providers is crucial for adoption, especially in contexts involving personal data (Gao et al., 2022). Personal Innovativeness (PI): PI refers to the degree to which an individual is open to new ideas and willing to try out new technologies for vocabulary learning. Innovative students are more likely to adopt mobile technology (Zhao & Wang, 2022). Information Quality (IQ): IQ concerns the relevance, accuracy, and comprehensiveness of the information provided by mobile technology. High-quality information can enhance learning and encourage technology use for vocabulary learning (Luo et al., 2022). Behavioral Intention (BI): BI is the intention to use mobile technology for vocabulary learning. It is a direct predictor of actual usage behavior (Venkatesh et al., 2022). BI is influenced by all the aforementioned factors (Gao et al., 2022). Use Behavior (UB): UB refers to the actual use of mobile technology for vocabulary learning purposes. It is influenced by Behavioral Intention (BI).

The research objectives are as follows:

- i. To investigate the factors influencing Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.
- ii. To identify the relationships between performance expectancy, effort expectancy, social influence, facilitating conditions, habit, hedonic motivation, price value, privacy, trust, personal innovativeness, information quality, behavioral intention, and use behavior.
- iii. To explore the variables that are the significant predictors influencing

Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

1.5 Research Questions

- i. What factors influence Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning?
- ii. What are the relationships between performance expectancy, effort expectancy, social influence, facilitating conditions, habit, hedonic motivation, price value, privacy, trust, personal innovativeness, information quality, behavioral intention, and use behavior?
- iii. Which of the variables are the significant predictors influencing Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning?

It is necessary to elucidate the differences and rationales between Research Question 1 (RQ1) and Research Question 3 (RQ3) while drawing from relevant literature to support the discussion.

Broad Identification and Specific Prediction: RQ1 is about casting a wide net to understand all possible influences on behavioral intention. This initial identification is

necessary to ensure that no potential factor is overlooked. Conversely, RQ3 aims to pinpoint which of these factors are most critical, providing more actionable insights for educators and policymakers (Luo et al., 2022).

Theoretical and Practical Implications: From a theoretical standpoint, RQ1 contributes to building a comprehensive framework that includes all relevant variables. Practically, RQ3 offers targeted recommendations by highlighting the most significant predictors, which can be crucial for designing effective interventions and strategies (Zhao & Wang, 2022).

Methodological Rigor: Addressing both questions ensures methodological rigor. Identifying factors in RQ1 involves exploratory techniques, while RQ3 employs confirmatory methods to validate the significance of these factors (Kim et al., 2022).

Research in educational technology often distinguishes between the broad identification of influencing factors and the determination of significant predictors. For instance, Venkatesh et al. (2022) emphasize the importance of initially identifying a comprehensive set of factors before narrowing down to significant predictors through statistical analyses. Similarly, Gao et al. (2022) argue that understanding both broad influences and specific predictors is essential for developing effective educational technologies.

RQ1 and RQ3 serve distinct purposes in the research process. RQ1's broad identification of factors provides a foundational understanding, while RQ3's focus on significant predictors offers targeted insights for practical application. This distinction

ensures a thorough and nuanced analysis, contributing to both theoretical development and practical implementation in the field of mobile technology-integrated vocabulary learning for EFL students.

1.6 Research Hypothesis

It has been noted regarding the use of the UTAUT2 model that the independent variables of this study are performance expectancy, effort expectancy, social influence, facilitating conditions, habit, hedonic motivation, price value, privacy, trust, personal innovativeness, and information quality while the dependent variables are behavioral intention to use mobile technologies and the use behavior of mobile technologies. In the current study, the exclusion of mediating variables from the UTAUT2 model in the current study could be a deliberate choice based on the specific research focus and scope. Including mediating variables would introduce additional complexity and may require a larger sample size or more resources. By focusing solely on the direct relationships between the core UTAUT2 constructs and behavioral intention or use behavior, it can provide a more focused analysis and draw clear conclusions regarding the direct effects of the variables of interest. In addition, the decision to exclude mediating variables could be based on prior empirical evidence. If previous research has consistently shown limited or weak mediating effects in the context of mobile technology adoption or vocabulary learning, it may be reasonable to exclude these variables from the study (Mustafa et al., 2022). By streamlining the model and focusing on the core UTAUT constructs, the researcher builds upon existing knowledge and explores the direct effects more deeply.

It is clarified to present the hypothesized model and the associated hypotheses, it is crucial to elucidate how the research framework was developed and how it led to the formulation of the 13 hypotheses. A schematic representation of the hypothesized model provides a visual summary that makes it easier for readers to comprehend the relationships between variables and the direction of the hypotheses.

A schematic representation, or a path diagram, visually illustrates the hypothesized relationships between variables in a study. This is particularly helpful in complex models like the extended UTAUT2 framework used in this research. It not only aids in understanding but also ensures that readers can easily follow the logic behind the proposed hypotheses. According to Venkatesh et al. (2022), clear visual representations of theoretical models enhance comprehension and facilitate better communication of research findings.

The extended UTAUT2 model in this study incorporates traditional UTAUT2 variables along with additional constructs such as privacy, trust, personal innovativeness, and information quality. The schematic representation would look like in Figure 1.1.

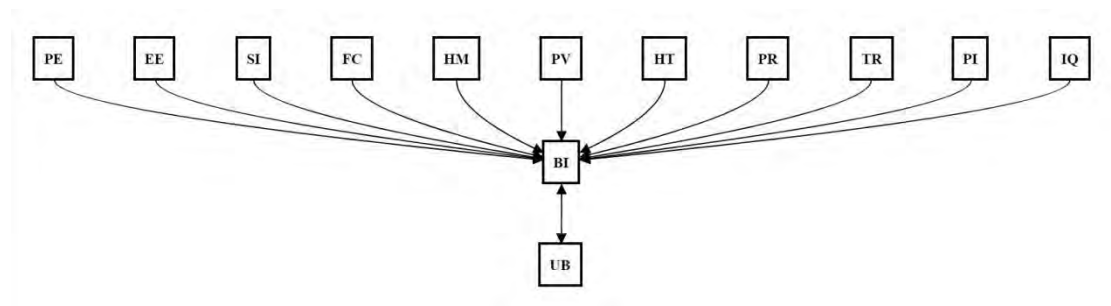


Figure 1.1. Hypothesized Model

Based on the hypothesized model, the following 13 hypotheses are presented:

H Performance expectancy, effort expectancy, social influence, facilitating conditions, habit, hedonic motivation, price value, privacy, trust, personal innovativeness, and information quality are factors influencing Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H1 Performance expectancy positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H2 Effort expectancy positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H3 Social influence positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H4 Facilitating conditions positively influence Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H5 Hedonic motivation positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H6 Habit positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H7 Price value negatively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H8 Privacy negatively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H9 Trust positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H10 Personal innovativeness positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H11 Information quality positively influences Chinese university EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning towards student-centered learning.

H12 Chinese university EFL students' behavioral intentions positively influences their use behavior of mobile technology-integrated vocabulary learning towards student-centered learning.

1.7 Research Scope and Limitations of the Study

The purpose of this study was to investigate factors influencing Chinese university EFL students' adoption of mobile technology-integrated vocabulary learning towards student-centered learning. It was decided to confine the scope of this study to a regional department of two universities (university A and university B) located in the Chinese Fujian province. The sample size was limited to 300 undergraduates from a population of 2642 EFL students from the 2 Chinese universities. The study took the Baicizhan application as an example to explore EFL students' views on mobile technology for vocabulary learning. Because the research is based on a specific period, a specific group of individuals, and a specific information technology system, it may not be possible to generalize the findings to other departments or other organizations within the EFL university students studied.

Furthermore, this study was limited to a student-centered environment in Chinese universities. However, other contextual factors such as cultural differences,

institutional policies, and teaching methods may influence the adoption and use of mobile technology for vocabulary learning. In addition, this study only examined the direct relationships between the identified factors, behavioral intention, and use behavior. However, there may be mediating and moderating variables that could influence the relationship between the identified factors and outcomes. Also, the current study was limited to a cross-sectional design, which captured a snapshot of the participants' perceptions and behaviors at a specific point in time. Longitudinal designs to track the changes in students' perceptions and behaviors over time and investigate the dynamic nature of mobile technology adoption and use are also important.

1.8 The Research Significance

Theoretical significance

Although the research results of domestic and foreign experts and scholars on the effectiveness of mobile learning adoption in EFL learning deserve attention, the existing research mainly focuses on the technology development and application models of mobile learning. Research on technology acceptance and influencing factors of mobile learning from the user level is relatively weak. Therefore, this study attempts to construct a model of factors influencing Chinese university EFL students' adoption of mobile technology-integrated vocabulary learning towards student-centered learning based on existing research. This study makes important empirical contributions by validating an extended UTAUT2 framework incorporating additional

constructs (privacy, trust, personal innovativeness, and information quality) to investigate factors influencing Chinese EFL university students' adoption of mobile technology-integrated vocabulary learning towards student-centered learning. It expands the Unified Theory of Acceptance and Use of Technology (UTAUT2) model and enriches the research on the acceptance and use of mobile learning technology.

Practical significance

This study investigates the factors influencing Chinese university EFL students' adoption of mobile technology-integrated vocabulary learning towards student-centered learning. By examining the drivers, barriers, and significant predictors of the behavioral intention to adopt mobile technology-integrated vocabulary learning towards student-centered learning, it helps EFL teachers, vocabulary course designers, and developers of mobile technologies to understand EFL students' behavioral intentions to adopt mobile technology-integrated vocabulary learning and provides effective strategic suggestions for them. It will be conducive to enhancing the adoption of mobile technologies in EFL vocabulary learning to some extent.

1.9 Operational Definition

Operationalizing these constructs involves clearly defining each concept in measurable terms, such as through survey items, interview questions, or observational measures. Researchers often employ established scales or develop their own based on

the specific context and research objectives. These operational definitions ensure that researchers can effectively measure and analyze the relationships between variables, providing insights into the factors influencing EFL students' adoption of mobile technology for vocabulary learning. The operational definitions play a crucial role in research by clarifying how abstract concepts are translated into measurable variables. For constructs like PE, FE, Social Influence, and others in the context of mobile technology-integrated vocabulary learning among EFL students, operationalization involves defining these concepts in terms of specific measurable indicators or survey items. This ensures that researchers can accurately assess the factors influencing technology adoption and contribute to a more robust understanding of effective educational technology integration.

Performance Expectancy (PE)

Performance Expectancy refers to the degree to which an individual believes that using the technology will help them enhance their job performance or achieve gains in learning outcomes (Venkatesh et al., 2022). In the context of EFL students adopting mobile technology for vocabulary learning, PE can be operationalized by measuring perceptions related to the usefulness and effectiveness of mobile applications or platforms in improving vocabulary acquisition and retention. This could be assessed through Likert-scale items in a questionnaire, asking students to rate statements like "Using mobile apps helps me learn new vocabulary more effectively."

Effort Expectancy (EE)

Effort Expectancy refers to the ease of use associated with technology adoption (Venkatesh et al., 2022). In the context of vocabulary learning, EE can be operationalized by evaluating how easy students perceive it to be to use mobile technologies for vocabulary exercises. This might involve assessing factors such as user interface simplicity, navigation clarity, and user-friendliness through survey items like "Learning vocabulary through mobile apps is easy for me."

Social Influence (SI)

Social Influence reflects the degree to which individuals perceive that important others believe they should use the technology (Venkatesh et al., 2022). In the context of EFL vocabulary learning, social influence can be operationalized by examining the influence of peers, teachers, or influencers on students' decisions to adopt mobile technology for vocabulary learning. This can be measured by asking students about the extent to which they feel pressure or encouragement from their peers or instructors to use mobile apps for vocabulary learning.

Facilitating Conditions (FC)

Facilitating conditions were originally defined as students' perception of the resources and support available to them to engage in a behavior (Wut et al., 2022). Facilitating

Conditions refer to the resources and support available to facilitate technology use (Venkatesh et al., 2022). In the context of mobile technology adoption for vocabulary learning, facilitating conditions can be operationalized by assessing the availability of necessary resources such as internet access, technical support, and training on how to use mobile apps for vocabulary learning.

Hedonic Motivation (HM)

Hedonic motivation (HM) is defined as the enjoyment or pleasure derived from the use of technological tools (Tamilmani et al., 2020). Hedonic Motivation refers to the pleasure derived from using technology (Venkatesh et al., 2022). In vocabulary learning, this can be operationalized by assessing students' enjoyment or satisfaction while using mobile apps for vocabulary exercises. This might involve measuring students' perceptions of enjoyment, fun, or entertainment associated with vocabulary learning through mobile technologies.

Price Value (PV)

Price value is conceptualized as a cognitive tradeoff between users' quality perceptions and monetary sacrifices related to acquiring and utilizing a technology (Dodds et al., 1991). It captures the subjective utility judgment of what is received (perceived benefits) relative to what is given up (costs) in a transaction (Zeithaml, 1988). In this study, price value represents a cognitive tradeoff between the

educational value derived from mobile learning and the monetary and effort costs of using mobile technologies in EFL vocabulary learning.

Habit (HT)

Habit (HT) relates to the automatic and routinized use of technology, which can influence learners' continued engagement (Verplanken & Aarts, 1999). In the current study, the term "habit" refers to both earlier experiences and the current circumstances about the usage of mobile technology in EFL vocabulary learning.

Privacy (PR) concerns involve learners' apprehensions regarding data security and confidentiality while using mobile technology (Dinev & Hart, 2006). In this study, Privacy (PR) concerns reflect EFL students' worry about data security and privacy breaches associated with using mobile technologies in vocabulary learning.

Trust (TR)

Trust (TR) refers to learners' confidence in its reliability and credibility when using mobile technologies (McKnight et al., 2002). In this research, trust refers to EFL students' confidence in the reliability, truthfulness, and integrity of using mobile

technologies in vocabulary learning.

Personal Innovativeness (PI)

Personal Innovativeness (PI) refers to individuals' openness to adopting new technologies and their willingness to explore novel approaches (Rogers, 2003). The current study represents EFL students' receptiveness to trying mobile technologies in vocabulary learning.

Information Quality (IQ)

Information Quality (IQ) encompasses the reliability, accuracy, and relevance of information provided through mobile technology platforms (Alshurideh et al., 2019). In the context of mobile technology-integrated vocabulary learning, it involves the accuracy, relevance, completeness, and timeliness of the vocabulary content. High-quality information is crucial for effective learning as it ensures that students are receiving correct and useful knowledge. Accuracy is a fundamental aspect of information quality. Vocabulary learning tools must provide correct definitions, pronunciations, and usage examples. Inaccurate information can lead to misunderstandings and incorrect usage, undermining the learning process. Relevance is another critical factor. The information provided should be pertinent to the learners' needs and context. For instance, vocabulary that is commonly used in the learners' target language environment or that aligns with their academic or professional goals is

more valuable than obscure or outdated terms. Completeness involves providing sufficient context and examples for each vocabulary item. Learners benefit from seeing words used in various contexts, which helps them understand nuances and different meanings. Comprehensive information supports deeper learning and better retention. Timeliness refers to the up-to-dateness of the information. Language evolves, and new words and usages emerge over time. Vocabulary learning tools should reflect current language use to remain relevant and useful. High information quality can enhance learners' trust and confidence in the learning tool, leading to greater engagement and more effective learning outcomes. It can also support personalization by providing content that matches the learners' proficiency levels and learning objectives.

Behavioral Intention (BI)

Behavioral Intention (BI) reflects learners' intentions to adopt mobile technology and their willingness to engage in related behaviors (Fishbein & Ajzen, 1977). In the current study, it is the extent to which EFL students intend to use mobile technology in vocabulary learning.

Use Behavior (UB)

Use Behavior (UB) measures the actual usage of mobile technology activities (Venkatesh et al., 2003). In the current study, it is the extent to which EFL students



use mobile technologies in vocabulary learning (as learning tools).

English as a Foreign Language (EFL)

English as a Foreign Language (EFL) refers to the study of English by non-native speakers in a country where English is not the primary language of communication. This context is different from ESL (English as a Second Language), where learners study English in an English-speaking country. In EFL settings, students typically learn English in their home countries through formal education systems, language institutes, or self-study methods. EFL education focuses on developing skills in reading, writing, listening, and speaking in English, often with an emphasis on grammar, vocabulary, and pronunciation. The primary goal is to achieve a level of proficiency that allows effective communication in English for academic, professional, or personal purposes. EFL instruction may also include cultural aspects of English-speaking countries to provide learners with a broader understanding of the language in context. In an EFL classroom, various methods and tools are employed to facilitate learning, such as textbooks, multimedia resources, language labs, and, increasingly, mobile technology and online platforms. These tools aim to create an immersive and interactive learning environment that can compensate for the lack of natural English-speaking surroundings. EFL learners often face unique challenges compared to ESL learners, including limited exposure to native English speakers and fewer opportunities to practice English outside the classroom. As a result, EFL teachers must be creative and resourceful in providing ample practice opportunities and real-life language experiences.





Mobile Technology-Integrated Vocabulary Learning

Mobile Technology-Integrated Vocabulary Learning involves using mobile devices, such as smartphones and tablets, to enhance vocabulary acquisition. This approach leverages the portability, accessibility, and multimedia capabilities of mobile technology to create engaging and effective language learning experiences. Mobile apps, online platforms, and other digital tools offer various features designed to support vocabulary learning, such as interactive flashcards, gamified learning activities, spaced repetition systems, and context-rich multimedia content. One of the primary benefits of mobile technology-integrated vocabulary learning is its flexibility. Learners can access learning materials anytime and anywhere, making it easier to fit study sessions into their daily routines. This convenience can lead to more consistent practice and reinforcement of new vocabulary, which is crucial for retention and mastery. Moreover, mobile technology provides opportunities for personalized learning. Many apps and platforms use adaptive learning algorithms to tailor vocabulary exercises to the individual needs and proficiency levels of learners. This personalization ensures that learners are challenged at the right level and can progress at their own pace. Mobile technology also enables immersive and interactive learning experiences. For example, apps may include audio recordings of native speakers, visual aids, and interactive exercises that require learners to use new vocabulary in context. These features can enhance understanding and retention by engaging multiple senses and cognitive processes. In addition to these advantages, mobile technology-integrated vocabulary learning can incorporate social and collaborative elements. Many platforms include features that allow learners to connect with peers, join study groups, and participate in language challenges or competitions. These social





interactions can provide additional motivation and opportunities for practice.

Student-Centered Learning

Student-Centered Learning is an educational approach that shifts the focus of instruction from the teacher to the student. In this model, students are active participants in their learning process, engaging in activities that foster critical thinking, problem-solving, and collaborative skills. The teacher's role is to facilitate and guide learning rather than simply transmitting information. In student-centered learning, students have greater autonomy and responsibility for their education. They often have a say in what and how they learn, which can increase motivation and engagement. This approach recognizes that students have diverse needs, interests, and learning styles, and it aims to provide a more personalized and meaningful learning experience. Key elements of student-centered learning include active learning, where students engage in hands-on activities and discussions; collaborative learning, which involves working in groups to solve problems or complete projects; and experiential learning, which emphasizes learning through real-world experiences and applications. Assessment in student-centered learning is often formative and reflective, focusing on students' progress and understanding rather than just their performance on standardized tests. Self-assessment and peer assessment are common practices, encouraging students to take an active role in evaluating their learning. Technology plays a significant role in supporting student-centered learning. Digital tools and resources can provide personalized learning experiences, facilitate collaboration, and offer immediate feedback. For example, online learning platforms can adapt to





students' learning paths, allowing them to progress at their own pace and revisit challenging concepts as needed.

Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) is an extension of the original UTAUT model developed by Venkatesh, Thong, and Xu in 2012. The original UTAUT model, introduced by Venkatesh et al. in 2003, aimed to explain user intentions to use an information system and subsequent usage behavior. UTAUT2 expands on this by including additional constructs and focusing on the consumer context. The UTAUT2 model incorporates seven key constructs that influence technology acceptance and use: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit. Each of these constructs plays a significant role in shaping an individual's behavioral intention to adopt and use technology. Performance Expectancy refers to the degree to which an individual believes that using the technology will help them achieve gains in job performance. Effort Expectancy is the degree of ease associated with the use of technology. Social Influence involves the degree to which an individual perceives that important others believe they should use the technology. Facilitating Conditions refer to the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the technology. Hedonic Motivation is the fun or pleasure derived from using technology. Price Value represents the cost-benefit ratio of using the technology. Habit refers to the extent to which people tend to perform behaviors automatically because of learning. UTAUT2 has been widely used



to study technology adoption in various contexts, including mobile learning, e-commerce, and social media. The model's comprehensive nature makes it a valuable tool for understanding the multiple factors that influence users' acceptance and use of new technologies.

1.10 Theoretical Framework

In a research investigation, using a theoretical framework is crucial. The theoretical framework of a research project is the foundation upon which all knowledge is constructed. It essentially serves as the foundation and support for the study's importance, purpose, problem description, rationale, and research questions. This research's theoretical framework contains the fundamental precepts of the extended Unified Theory of Acceptance and Usage of Technology (UTAUT2) and Constructivist Learning theory.

To provide a comprehensive theoretical framework, it's essential to review and integrate various models of technology acceptance and learning theories. This discussion will explore the Technology Acceptance Model (TAM), TAM2, and other relevant models, and explain how the UTAUT2 model relates to constructivist learning theory.

Introduced by Davis (1989), TAM posits that perceived ease of use and perceived usefulness are the primary determinants of technology acceptance. TAM has been widely applied in various contexts to predict users' acceptance and usage of

technology. Venkatesh and Davis (2000) expanded TAM into TAM2 by incorporating additional variables such as subjective norm, image, job relevance, output quality, and result demonstrability. TAM2 aims to provide a more comprehensive understanding of technology acceptance by considering social influences and cognitive processes.

Developed by Venkatesh et al. (2003), UTAUT integrates elements from eight prominent models, including the TRA, "Technology Acceptance Model (TAM)," "Traditional Motivational Model (MM)," "Technology Planned Behavior (TPB)," "Combined TAM and TPB (CTAM-TPB)," "Model of PC Utilization (MPCU)," "Innovation Diffusion Theory (IDT)," and "Social Cognitive Theory (SCT)" (Venkatesh et al. 2003). The UTAUT model is presently regarded to be the most up-to-date and powerful model for examining various technological applications and adoption. The UTAUT model is chosen because of its broad application, high explanatory power of technology use behavior (more than 70%), and capability of predicting future technology use behavior (Bradley 2009). UTAUT identifies four key constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions.

An extension of UTAUT, UTAUT2 (Venkatesh et al., 2012) adds three new constructs: hedonic motivation, price value, and habit, to better capture the consumer context of technology use. UTAUT2 has been particularly effective in explaining the acceptance and use of mobile technologies. UTAUT2 is an extension of the original unified theory of acceptance and use of technology (UTAUT) to examine the acceptance and use of technology in a student setting. When compared to the variation in behavioral intention and use behavior of UTAUT, which was 70 percent and 48

percent, respectively, the prediction efficiency discovered in the research of UTAUT2 was high (74 percent and 52 percent, respectively).

The researcher sorted out the theories and models in the field of technology acceptance and chose the UTAUT2 model with higher explanatory power as the theoretical basis. Then she summarized the relevant research on mobile learning acceptance at home and abroad and introduced four new variables of privacy, trust, personal innovativeness, and information quality based on the individual characteristics of university students to form an extended model of UTAUT2 for mobile learning acceptance.

Constructivist learning theory, rooted in the work of Piaget (1972) and Vygotsky (1978), emphasizes the importance of active, contextualized learning where learners construct knowledge through experiences and interactions. Constructivism suggests that learning is an active, constructive process where learners build new knowledge upon their existing cognitive structures.

The constructivist view of learning in the classroom may allude to a variety of pedagogical techniques. In the broadest sense, it often refers to assisting students in developing new information using active procedures (experiments, real-world problem-solving). In a constructivist classroom, students develop into expert learners. Numerous strategies are used in constructivist classrooms, where the emphasis is shifted away from the instructor to the students. The classroom is no longer a setting in which the instructor imparts knowledge to passive students who sit like empty vessels awaiting filling. Students are encouraged to take an active role in their

learning process under the constructivist paradigm. As a facilitator, the instructor coaches, mediates, motivates, and assists students in developing and assessing their comprehension, as well as their learning.

The integration of UTAUT2 with constructivist learning theory can provide a robust framework for understanding and enhancing the adoption of mobile technology-integrated vocabulary learning among EFL students. The Constructivist theory promotes active engagement in learning activities, which aligns with performance expectancy in UTAUT2. Mobile technology can facilitate active learning by providing interactive and engaging tools that enhance students' learning experiences and outcomes (Crompton & Burke, 2022). Effort expectancy, a key construct of UTAUT2, correlates with the constructivist emphasis on accessible and user-friendly learning tools. When mobile technologies are easy to use, they support seamless integration into students' learning activities, thereby promoting more effective and meaningful learning experiences (Sung et al., 2022). Constructivist theory highlights the importance of social interactions in learning. UTAUT2's social influence construct reflects this by considering how peers and instructors impact students' technology adoption. Mobile learning platforms that support collaboration and communication can enhance social learning processes, consistent with constructivist principles (Greenhow & Lewin, 2022). Constructivism advocates for a supportive learning environment that provides necessary resources and scaffolding. Facilitating conditions in UTAUT2 emphasize the availability of infrastructure and support, ensuring that students have the tools and resources needed for effective mobile learning (Hwang et al., 2022). Constructivist theory values intrinsic motivation and engagement in learning. Hedonic motivation in UTAUT2 captures the

enjoyment and satisfaction derived from using technology. Mobile learning applications that are enjoyable and engaging can enhance students' intrinsic motivation to learn, aligning with constructivist approaches (Liu et al., 2022). Constructivism supports personalized learning experiences tailored to individual needs. The habit construct in UTAUT2 reflects the regular and personalized use of technology. Personalized mobile learning experiences that become habitual can reinforce positive learning behaviors and outcomes (Chen & Tsai, 2022).

Integrating UTAUT2 with constructivist learning theory provides a comprehensive framework for understanding the adoption and use of mobile technology in EFL vocabulary learning. This integration highlights the importance of active, engaging, and socially interactive learning experiences supported by user-friendly and well-facilitated technology. By leveraging both theories, educators and developers can design more effective mobile learning environments that align with students' cognitive and motivational needs.

The study's theoretical framework, which is depicted in Figure 1.2, clearly highlights the theoretical tenets and how they relate to one another to serve as a roadmap for this intellectual undertaking.

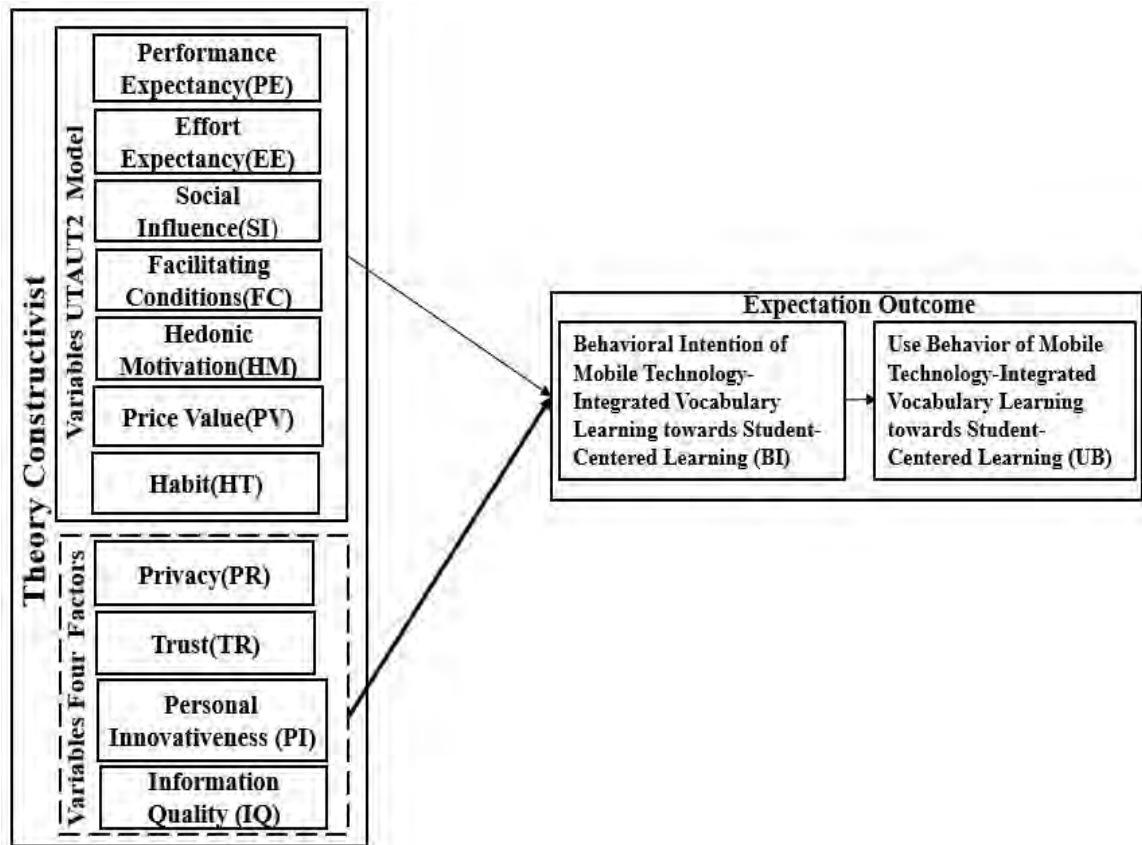


Figure 1.2. The Theoretical Framework

1.11 Conceptual Framework

A study's conceptual framework is an essential element that gives the investigation a well-organized base and aids in defining the parameters and extent of the investigation. To highlight the constructions and their relationships, it is crucial to conceptualize the ideas or elements that need to be investigated when conducting research. To help with this conceptualization, relevant concepts and their anticipated linkages that are gathered throughout the literature review process are represented as diagrams. By creating pertinent research questions and hypotheses, a researcher can confidently and accurately describe their findings by using a conceptual framework.

In summary, this conceptual framework serves as the foundation for outlining the ensuing research initiatives.

The purpose of this study is to investigate the factors influencing Chinese EFL university students' adoption of mobile technology-integrated vocabulary learning towards student-centered learning. In previous studies, researchers have taken the seven basic components of the UTAUT2 model into consideration: Performance expectation (PE), Effort expectancy (EE), Social influence (SI), Facilitating Condition (FC), Hedonic Motivation (HM), Price Value (PV), and Habit (HT). They believe that all seven of these characteristics have influenced the behavioral intention (BI) and use behavior (UB) of the technology.

In addition to the seven basic components of the UTAUT2 model taken into consideration, the researcher in this study has also taken into account the nature of mobile technology-integrated vocabulary learning by including four new factors, privacy, trust, personal innovativeness, and information quality by consulting a large amount of literature related to EFL university students' vocabulary learning and technology acceptance. The researcher aims to investigate EFL students' adoption of mobile technology-integrated vocabulary learning and explore the relationship between these eleven independent variables and the two dependent variables, behavioral intention and use behavior. In the current study, the mediating variables were excluded from the UTAUT2 model. By focusing solely on the direct relationships between the core UTAUT2 constructs and behavioral intention or use behavior, it can provide a more focused analysis and draw clear conclusions regarding the direct effects of the variables of interest. The conceptual framework of this study

is shown in Figure 1.3, which highlights pertinent ideas and elements along with their assumed relationships.

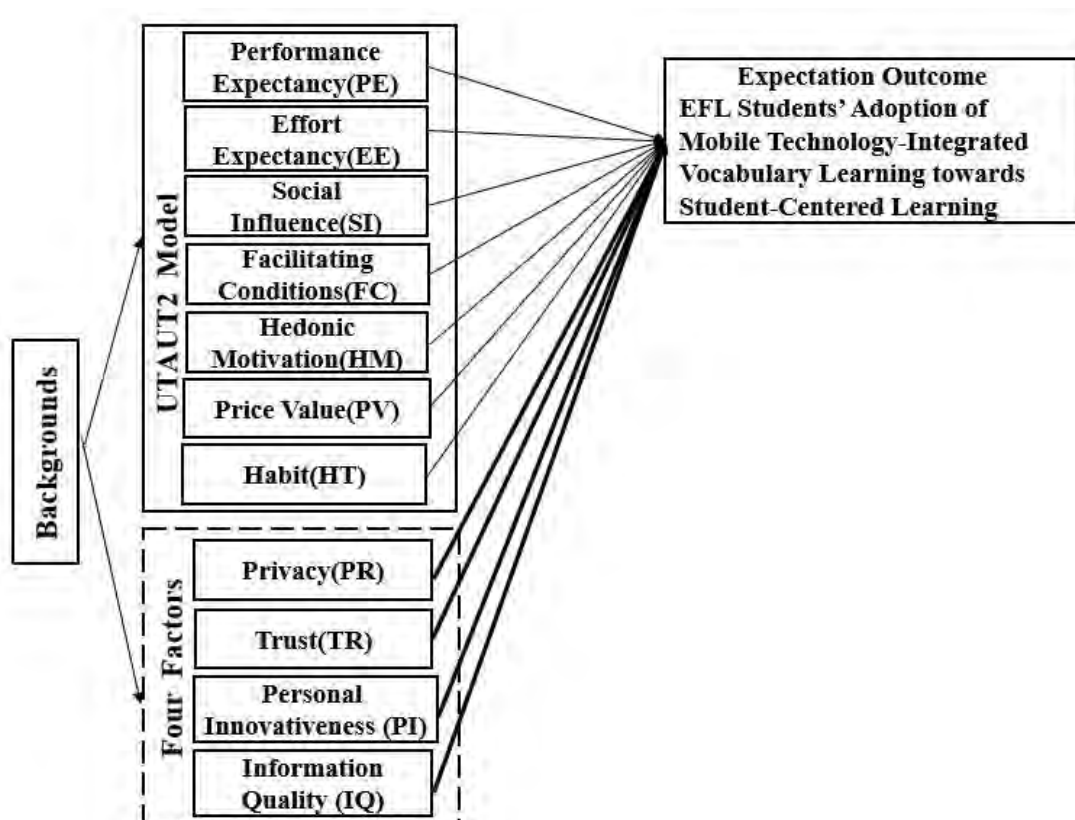


Figure 1.3. The Conceptual Framework

1.12 Thesis Organization

The following is how the thesis is structured:

The background of mobile technology-integrated vocabulary learning towards student-centered learning, the problem statement, the research objectives and

questions, the hypothesis, the scope and the significance of the study, the operational definition, the theoretical framework, the conceptual framework, and organization of this research are all presented in Chapter 1.

The literature linked to student-centered learning review, technology-integrated vocabulary learning, mobile technology learning, theories, and models of technology acceptance are presented and discussed in Chapter 2. It also delves into the existing models that have looked into the topic. The study's conceptual framework of UTAUT2 with Privacy, trust, personal innovativeness, and information quality is built around formulated research hypotheses.

Chapter 3 provides a comprehensive summary of the approach that has been suggested for this research. First, the research design and the approach. The next step is to investigate the population and the sample size. This is followed by the section on the instrumentation, which provides an in-depth look at the instruments and places an emphasis on their validity and reliability. Following the survey questionnaire being delivered, detailed explanations are provided for the processes of data gathering, management, and analysis. Last, a discussion of ethical issues, constraints, and delimitations can be found in Chapter 3.

In Chapter 4, the author introduces the detailed process of data analysis. It examines the statistical findings of data analysis obtained from Statistical Product and Service Solutions (SPSS) and Analysis of Moment Structure (AMOS). It also incorporates the results of empirical testing of the structural hypotheses.

Chapter 5 provides a detailed discussion of the major findings of the present study by relating the findings with the research questions and research objectives. The significance of the research conducted on the field of study and the future works bring the thesis to an end.