



**INTENTION TO USE INNOVATIVE INSTRUCTIONAL
METHODS FOR COLLEGE PE IN TEACHING
TAI CHI IN GUANGDONG PROVINCE:
INVESTIGATING MICRO-LECTURE
AND PAD CLASS**

**BY
ZOU HENG**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF EDUCATION
IN EDUCATIONAL STUDIES
SURYADHEP TEACHERS COLLEGE**

**GRADUATE SCHOOL, RANGSIT UNIVERSITY
ACADEMIC YEAR 2024**

Dissertation entitled

**INTENTION TO USE INNOVATIVE INSTRUCTIONAL METHODS FOR
COLLEGE PE IN TEACHING TAI CHI IN GUANGDONG
PROVINCE: INVESTIGATING MICRO-LECTURE
AND PAD CLASS**

by
ZOU HENG

was submitted in partial fulfillment of the requirements
for the degree of Doctor of Education in Educational Studies

Rangsit University
Academic Year 2024

Assoc.Prof.Ujsara Prasertsin, Ph.D.
Examination Committee Chairperson

Asst.Prof.Wallapa Chalermvongsavej, Ph.D.
Member

Asst.Prof.Juladis Khantap, Ph.D.
Member

Kunlayarat Lormanenoprat, Ed.D.
Member

Asst.Prof.Pimurai Limpapath, Ph.D.
Member and Advisor

Approved by Graduate School

(Prof.Suejit Pechprasarn, Ph.D.)

Dean of Graduate School

February 20, 2025

Acknowledgements

I would like to thank my advisor, Asst.Prof.Dr.Pimurai Limpapath for her attentive advice and guidance and patient assistance throughout the research process. I also extend my gratitude to Asst.Prof.Dr.Wallapa Chalermvongsavej for her valuable suggestions and support regarding the data analysis.

Next, I appreciate all the PE Instructors who participated in this study. Thank you for taking time from your busy schedules to engage in the surveys and interviews, sharing your valuable insights and experiences.

I also want to express my gratitude to my family. Your unconditional support and understanding have been my backbone. Your encouragement has kept me persistent in the face of challenges, and your love has sustained me until today.

Lastly, I wish to thank my classmates and friends. Your valuable friendships and countless encouragements during my academic journey have helped me maintain a positive attitude throughout my research process.

Zou Heng
Researcher

6304995 : Zou Heng
 Dissertation Title : Intention to Use Innovative Instructional Methods for
 College PE in Teaching Tai Chi in Guangdong
 Province: Investigating Micro-lecture and PAD Class
 Program : Doctor of Education in Educational Studies
 Dissertation Advisor : Asst.Prof.Pimurai Limpapath, Ph.D.

Abstract

This study aimed to explore the intentions to use innovative instructional methods of Micro-Lecture and PAD Class in teaching Tai Chi in the universities in Guangdong Province. The study used both the quantitative survey to predict intentions to use Micro-Lecture and PAD Class to teach Tai Chi and the qualitative of the semi-structure interview to obtain administrators' perspectives to better PE Education in teaching Tai Chi. 291 subjects were administered with questionnaires concerning intentions to use Micro-lecture and PAD Class to teach Tai Chi, while 12 informants who are PE Head Instructors/Administrators were interviewed to gain guidelines for better teaching Tai Chi future courses with Micro-Lecture and PAD Class. Descriptive analysis with mean, standard deviation, frequency, and percentage was performed, followed by multiple regression.

The research findings indicated significant positive correlations among all three components and ITU, with PU exerting the strongest influence. Specifically, physical educators commonly believed that Micro-lecture and PAD classes would significantly enhance teaching efficiency, boost student interest in learning, and facilitate the achievement of instructional objectives. The results of this study, thus, provided not only the empirical evidence of PE instruction reform by using innovative teaching methods of Micro-Lecture and PAD Class but also the guidelines of how to elevate the level of teaching Tai Chi, particularly in the universities of Guangdong Province.

(Total 161 pages)

Keywords: Intention To Use, Innovative Instructional Methods, Teaching Tai Chi,
 Micro-Lecture and PAD Class, Guangdong Province

Student's Signature Dissertation Advisor's Signature

Table of Contents

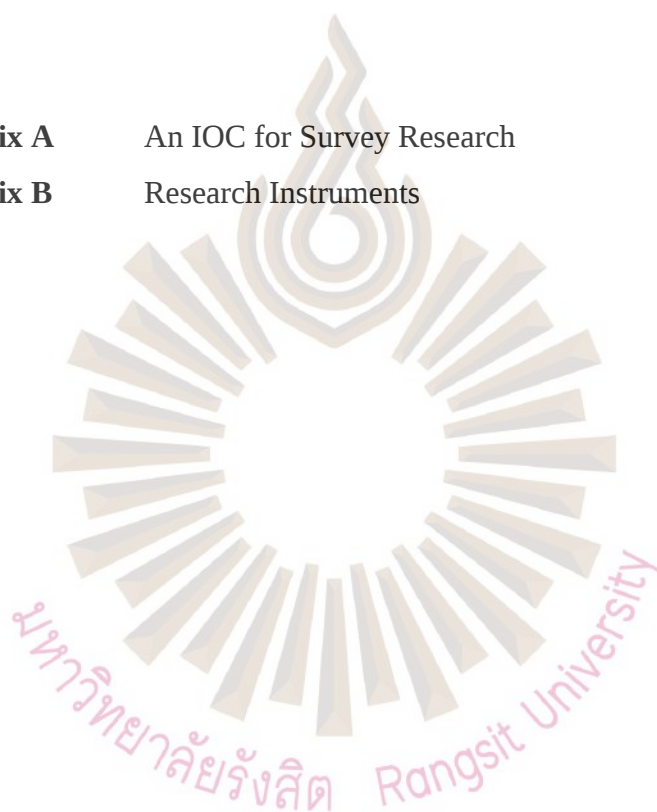
	Page
Acknowledgements	i
Abstracts	ii
Table of Contents	iii
List of Tables	vi
List of Figures	ix
Chapter 1 Introduction	1
1.1 Background and Significance of the Problem	1
1.2 Research Objectives	8
1.3 Research Questions	9
1.4 The Scope of the Study	9
1.5 Research framework	10
1.6 Definition of Terms	11
Chapter 2 Literature Review	15
2.1 Micro-lecture	15
2.2 PAD CLASS	23
2.3 College PE course — Tai Chi	29
2.4 Execution of teaching Tai Chi with Micro-lecture and PAD Class	32
2.5 How Micro-lecture and PAD Class can improve the effectiveness of teaching Tai Chi.	32
2.6 Relevant Theories	34
2.7 Related Research	38

Table of Contents (Continued)

	Page
Chapter 3 Research Methodology	46
3.1 Research Plan	46
3.2 Population and Samples	47
3.3 Data Analysis	52
3.4 Ethical Concerns	55
3.5 Limitation	55
 Chapter 4 Results of Data Analysis	 56
4.1 Descriptive analysis of demographic variables	57
4.2 Descriptive Statistics of Survey Variables	58
4.3 Reliability test of the questionnaire	66
4.4 Validity test of the questionnaire	66
4.5 Comparative analysis of differences in survey variables	67
4.6 Correlation analysis	
4.7 Multivariate regression analysis	73
4.8 Qualitative Analysis	74
	83
 Chapter 5 Conclusion Discussion and Recommendations	 107
5.1 Research Objectives and Summary	107
5.2 The Influence of ATU, PEOU, and PU on PE Teacher' ITU	109
5.3 Analysis of the correlation between ITU, ATU, PEOU, and PU	111
5.4 Consistency and contradictions with related studies	112
5.5 Impact on Tai Chi Instruction in Higher Education	114
5.6 Future Research	115

Table of Contents (Continued)

	Page
5.7 Recommendations	115
5.8 Conclusion	116
References	117
Appendices	147
Appendix A An IOC for Survey Research	148
Appendix B Research Instruments	153
Biography	161



List of Tables

Tables	Page
1.1 Research Variables	10
2.1 Current status of the development of Micro-lecture	17
3.1 The sample size from Universities in Guangdong Province	49
4.1 Frequency and Percentage of Respondents	57
4.2 Descriptive Statistics	58
4.3 Descriptive statistics of PE Teachers According to Gender	59
4.4 Descriptive statistics of PE Teachers According to Age	61
4.5 Descriptive statistics of PE Teachers According to Level of The Study group	62
4.6 Descriptive statistics of PE Teachers According to Professional Title group	64
4.7 Descriptive statistics of PE Teachers According to Work Experiences group	65
4.8 Reliability test	66
4.9 KMO and Bartlett's Test	67
4.10 Independent Samples Test for Gender	68
4.11 Independent samples t-test based on Age	69
4.12 Independent samples t-test based on Level of The Study	71
4.13 Independent samples t-test based on Professional Title	72
4.14 Independent samples t-test based on Work Experiences	73
4.15 Correlation analysis of ITU with ATU, PEOU, PU	74
4.16 Model Summaryb of the effects of ATU, PEOU, and PU on ITU of PE teachers	75
4.17 ANOVAa of the effects of ATU, PEOU, and PU on ITU of PE teachers	75
4.18 Coefficientsa of the effects of ATU, PEOU, and PU on ITU of PE teachers	76

List of Tables (Continued)

Tables	Page
4.19 Model Summaryb of the effects of Questionnaire Q1-Q7 and ITU	77
4.20 ANOVAa Model Summaryb of the effects of Questionnaire Q1-Q7 and ITU	77
4.21 Coefficientsa:Questionnaire Q1-Q7 and ITU	77
4.22 Model Summaryb of the effects of Questionnaire Q8-Q14 and ITU	79
4.23 ANOVAa of the effects of Questionnaire Q8-Q14 and ITU	79
4.24 Coefficientsa of the effects of Questionnaire Q8-Q14 and ITU	79
4.25 Model Summaryb of the effects of Questionnaire Q15-Q21 and ITU	81
4.26 ANOVAa of the effects of Questionnaire Q15-Q21 and ITU	81
4.27 Coefficientsa of the effects of Questionnaire Q15-Q21 and ITU	82
4.28 Participants Information	83
4.29 How do you see Micro-lecture or PAD Class as optional methods for teaching Tai Chi?	85
4.30 What is your overall perception for PE instructors to use Micro-lecture and PAD Class to teach Tai Chi?	86
4.31 How do you think of PE teachers to use Micro-lecture and PAD Class to teach Tai Chi is a wise decision? Why?	87
4.32 What are the advantages do you perceive in encouraging PE instructors to use Micro-lecture and PAD Class for teaching?	88
4.33 Could you say something to encourage the PE instructors to use Micro-lecture and PAD Class with ease in their Tai Chi classes?	90
4.34 What do anticipate with the PE instructors' intention to use these methods in teaching Tai Chi?	91
4.35 How do you evaluate the efficiency of these teaching methods compared to traditional methods in teaching Tai Chi?	93

List of Tables (Continued)

Tables	Page
4.36 Do you consider these teaching methods valuable tools for teaching Tai Chi?	93
4.37 How do you think Micro-lecture and PAD Class assist in teaching Tai Chi?	95
4.38 What impact do you believe in using Micro-lecture and PAD Class has on the quality of PE teaching in Tai Chi?	96
4.39 Do you think using Micro-lecture and PAD Class in teaching Tai Chi affects the PE instructors' confidence and ability to achieve their teaching goals?	97
4.40 How do you think using Micro-lecture and PAD Class affects students' motivation and engagement in learning Tai Chi?	98
4.41 What suggestions do you have for PE instructors in using Micro-lecture and PAD Class in future teaching Tai Chi ?	100
4.42 What motivates you to encourage PE instructors to continue using these teaching methods in Tai Chi classes?	101
4.43 What specific guidance or resources do you think are needed to help you better use Micro-lecture and PAD Class in teaching Tai Chi courses?	102
4.44 How do you encourage your PE colleagues to use Micro-lecture and PAD Class in teaching Tai Chi ?	104
4.45 Do you have any other thoughts or insights on improving the implementation of Micro-lecture and PAD Class in teaching Tai Chi ?	105

List of Figures

		Page
Figures		
1.1	Conceptual Framework of Behavioural Intention to Use	10
2.1	Instant Discussion Model	24
2.2	Delayed Discussion Model	24
2.3	Technology Acceptance Model	43



Chapter 1

Introduction

1.1 Background and Significance of the Problem

In China, the teaching reform has always been widely concerned, especially, the reform of PE has captured the scholars' interest in various colleges and universities (Liu, Wilczyńska, Lipowski, & Zhao, 2021; Feng, 2021; Yang & Li, 2019). Since PE (PE) is a part of quality education (Fang, 2022) that PE instructors must be able to bring about innovative teaching methods for elevating the quality of their PE courses (Wu, 2022) including physical activity that can yield a wide range of benefits to students, communities, and society at large (UNESCO, 2021). Accordingly, sports chosen, particularly for PE courses, along with their physical activities play dominant role in promoting students' physical and mental health development, forming physical exercise habits, and lifelong sports concepts and values (Jiceh-Der, Pi-Cheng, & Fong-Jia, 2021; Li & Shen, 2022).

Thus, when it comes to PE teaching reform, it is necessary to emphasize on its shortcomings of those teaching methods that heavily rely only on teacher-centered-single-method that can no longer fully attracted students' enthusiasm for learning (Fan, 2021; Ma, & Zhao, 2019; Yang, 2021; Liu, Sathishkumar, & Manickam, 2022; Jin & Li, 2021). In that respect, it is an urgent call for original PE teaching methods to be reformed and developed as to be more effective (Liu, 2021) in quality-oriented education which will help cultivate not only students' interest in learning but also promote many aspects of learning abilities (Yang, 2021). To develop quality teaching methods for colleges and universities, the current trend and basic requirements are to adopt appropriate teaching methods involving information technology and student-centered approach to teach in PE courses (Tang, 2017; Wang, 2021). However, while the development of PE in universities in China is still in a primary stage of information-based teaching reform

(Li, 2020), it needs to find the right kinds of methods that respond to the new era of big data and cloud computing in that traditional college teaching models and methods need to be revolutionized to adapt to the needs of the new present generation of students (Li & Liu, 2022). As modern network technology provides new ways of teachings in several areas of study, especially at the university level, it is necessary for PE to adopt information technology into PE courses (Bessa, Hastie, Rosado, & Mesquita, 2022; Guan, 2012; Kondratenko, Zaitsev, Nesterenko, Homon, & Chykolba, 2022; Wu, 2022). Accordingly, in order to respond to the Modernization of Education in China 2035, issued by the Chinese government in 2019, it was clearly pointed out that making full use of information technology to enrich and innovate curriculum reforms, constantly reform classroom teaching methods to be able to realize the organic combination of large-scale education and classroom teaching in PE to cultivate students' learning interest and enthusiasm in their learning (Li & Liu, 2022; Zhao, 2020; Yuan, 2021; Zhu, 2019).

As the 21st century teaching and learning methods depending on the wide use of information technology (CNNIC, 2023) that led into a Micro Era of WeChat, Weibo, Micro-store and many other kinds of micro's, the technological teaching method called Micro-lecture has attracted Chinese teachers and instructors since it is believed to be helpful to improve the learning efficiency and promote the development of students' learning ability (Xie, 2022). Based on its brief and refined nature, Micro-lecture is a teaching method using videos as the main carrier, which records the teacher's teaching behavior around a certain knowledge that is composed of videoed classroom teaching clips, teaching design, material courseware, teaching reflection and practice examination and supporting teaching resources such as students' feedback and teachers' evaluation, all of which create a certain organized and topic-based small environment interactive (Lavicza & Habibi, 2022; Peng, 2019; Tang et al., 2017; Zheng, 2022). Using Micro-lecture, the instructors can promote deep knowledge of students' individual differences in absorbing a process of fragmented learning content, material, or process that want to teach (Chun, 2020; Hamidi & Kinay, 2021; Song, 2016; Tianjiao, 2020; Zhang & Xu, 2015).

Previously, Micro-lecture have been applied in different subject areas such as English (Lu, 2021), foreign languages (Bu, 2022), and Business, and Mathematics as to improve students' learning satisfaction and achievement (Jiang, Wijaya, Mailizar, Zulfah, & Astuti, 2022). Micro-lecture, essentially, is a video clip, about a minute or two in length, in which the instructor introduces a concept and summarizes the main points that is in line with the concept of changing the format of the classroom so that students complete their assignments in class with instructor support after watching the lecture at home (Xie, 2022). Recently, some Micro-lecture has been encouraged to apply in practice-oriented-PE to accelerate students' acquisition of sports skills in different flexible teaching techniques that enable the students to learn independently, freely, and repeatedly (Tulaf & Gan, 2022). With the assistance of micro-class, students' learning interest could be improved, along with learners' application ability, learning autonomy, enthusiasm, and self-confidence. (Han, 2019; Yu & Qi, 2020).

In order for the PE Teaching to be well-reformed and developed in a quality-oriented education, more of the teaching methods must be considered. This study, thus, argues that Micro-lecture and Pad Class can be used to fulfill this situation. Since PAD Class is a teaching reform method, proposed by Zhang Xuexin, a Professor from Psychology Department of Fudan University, it features interactive learning in the form of discussion, with half of a class time allocated to teachers and the other half to students of three phrases in a process of presentation, assimilation and discussion (Hu, 2020; Han, 2019) With its three characteristics of learning action linkage -- presentation, assimilation, and discussion, PAD Class is believed to encourage active interaction between teacher and students while students can internalize and absorb their knowledge effectively and deeply (Hu, 2020; Wang, 2021; Wang, 2021; Yue, 2021; Zhao, Qi, Xu, Song, & Zhou, 2022). In medical education in university level, for example, implementation of PAD Class can cause significantly higher levels of students' learning motivation, ability, and strategies in performing of their assigned tasks (Yang, Luo, Qian, & Yang, 2020). While PAD Class is an innovative for students' improvement, it is expected that it will do so in PE (An & Xu, 2020; Song, Gao, Guo, & Sun, 2020; Yang, 2021).

Research has shown that the combination of the characteristics of the constructed course that use Micro-lecture with PAD Class could help classroom teaching to be student-centered with the elevation of enthusiasm, creativity and independent learning to the maximum extent (Meng, 2020). While PAD Class teaching help instructors get a systematic respond from the students at all levels (Hu, 2020; Liu, Zhang, Zhang & Sun, 2021; Yue, 2021), Micro-lecture, in addition, enhance students' independent learning ability with a good balance of lectures and discussions with positive learning motivation (Zhang, 2019). As such, it is illustrated that using both Micro-lecture and PAD Class together can help change the roles of the instructors from that of the main knowledge provider to that of a facilitator with the students will become engaged in constructing their own learning through technologies that are integrated into their learning process as supportive tools rather than being used mainly by teachers as presentation tools (Winter, 2009).

In September 2020, the Ministry of Education in China, along with other departments, released a document called the Opinions on Vigorously Strengthening the Construction and Application of Online Educational and Teaching Resources. This document emphasized the need to support local areas in implementing online educational and teaching reforms, as well as exploring blended teaching models or methods that combine online and offline elements. It also highlighted the importance of promoting effective pedagogies, such as the "PAD class" (Ministry of Education of the People's Republic of China, 2021). Also, in March 2021, the Ministry of Education issued the Guiding Opinions on Strengthening the application of the importance of effective teaching methods, including "PAD Class". The document encouraged all local educational institutions to actively explore new teaching methods in order to enhance classroom efficiency and effectiveness (Ministry of Education of the People's Republic of China, 2021).

Thus, in order to respond to Chinses educational policy and solv the disadvantages problems of using new teaching methods with technology, this study will fill the gap by focusing on a PE traditional Chinese martial art and a popular sport

worldwide, Tai Chi. As Tai Chi is known as a moving meditation, with mind and body exercises, with a low-to-moderate intensity of both of physical and mental health (Zhang, et al., 2022), it is a unique sport that will help students balance both their mind and physical body. Nonetheless, of several styles and forms that involves with sequential and continuous coordinated whole-body movements, the slow, rhythmic movements are connected together in a continuous sequence, while body weight is shifted from one leg to the other. This challenges the balance control system to keep its center within a changing base of support and increases balance, which is a vital aspect of physical functioning affecting safe performance of activities of daily living (Chen et al., 2018).

As can be seen that Tai Chi is a very unique Sport Skills Course that are put into a PE curriculum widely taught by PE instructors in Chinese universities, it is interesting to apply Micro-lecture and PAD Class to teach this course. Other than that, it is urged by the Modernization of Education in China 2035, issued by the Chinese government in 2019, to teach a popular sport among university Chinese students, like Tai Chi using integration of technology with feasible teaching methods to be reformed to meet the needs of the new generations in a quality-oriented education.

Thus, it is obvious according to the Chinese government that using integration of technology in teaching PE course will be beneficial. In this study, as PE course that is of interest is Tai Chi, it is argued that the understanding in PE instructors' intentions to use Micro-lecture and PAD Class in teaching Tai Chi in their future courses will also help prepare the promptness of their future class when it is time to put those of their intentions into action. Since intention is explained as a degree to which a person is committed to acting in a particular way with a willingness to perform a particular thing (Bagozzi, 1992). Intention to teach Tai Chi courses, thus, is closely related to the attitudes and perceptions of the instructors towards this integration.

It is argued that three pivotal factors that impact intentions to use new technologies and teaching methods are attitudes towards use, perceived usefulness and

perceived ease of use in that these three factors are believed to determine individual's inclination to utilize technology and ultimately influence its actual implementation (Chai, Koh, & Tsai, 2010; Phelps, 2020). Ajzen and Fishbein (1980) posited that Technology Acceptance Mode (TAM), originally proposed by David (1986), was developed to explain how people accept technology and use it in their daily lives.

All those three factors are defined and classified into different dimensions as follows: first, attitude toward use -- the positive or negative feeling of individuals in performing and how this feeling can affect particular behavior of use, comprises five dimensions: 1) a good idea 2) a wise idea; 3) fun idea; 4) positive Idea; and 5) interesting idea; second, perceived ease of use -- a person's level of confidence that the use of technology will reduce excess efforts, consists of five dimensions: 1) easy to learn; 2) controllable; 3) clear and understandable; 4) flexible; and 5) easy to become skillful; and 6), finally perceived Usefulness -- a person's tendency to use particular technology or any new thing and to believe that this perception will help him or her do a better work, it has six dimensions divided into two groups: the first group -- Usefulness consisting of 4 dimensions: 1) work more quickly; 2) makes job easier; 3) useful; and 4) increase productivity; the second group -- Effectiveness composed of 2 dimensions: 1) enhance effectiveness; and 2) job performance improvement (David, 1998; Guritno, & Siringoringo, 2013; Widayanto & Nugraha, 2023).

In the Technology Acceptance Model (TAM), the attitude towards use plays a critical role in the adoption of new technology (Alismaiel, Cifuentes-Faura, & Al-Rahmi, 2022). This model suggests that an individual's attitude towards the use of a specific technology directly impacts their willingness to adopt it (Kumar & Krishnan, 2020; Mulyaningsih, 2022). TAM considers the attitude towards use as a mediating variable between intention and actual use (Alismaiel et al., 2022). In other words, a person's attitude directly influences their willingness to use a technology, which in turn affects their actual usage behavior (Namahoot & Rattanawiboonsom, 2022; Widanengsih, 2021).

Attitudes are formed based on the perceived usefulness and ease of use of a technology. When users perceive a technology as useful and easy to use, they tend to develop positive attitudes, which further motivates them to accept and adopt the technology (Asmara & Ratmono, 2021; Sahin & Yilmaz, 2020). The attitude towards use is influenced by the perceived usefulness and ease of use of the technology (Di, Ruggieri, Bonfanti, & Faraci, 2023; Wardana, Saputro, Wahyuddin, & Abas, 2022). Users are more likely to form positive attitudes if they perceive the technology as helpful in their work or life and find it relatively easy to use. This attitude can significantly impact the decision-making process (Weng, Yang, Ho, & Su, 2018; Londa, Worang, & Arie, 2022). When users hold a positive attitude towards a technology, they are more inclined to adopt it and invest time and resources into it (Kelly & Palaniappan, 2023).

In summary, the TAM model highlights attitude towards use as a key determinant of their willingness to adopt new technologies (Monalisa, 2019). Organizations and designers can shape users' perceived usefulness and ease of use of technology to encourage the development of positive attitudes, ultimately leading to increased technology adoption (Bustaman, Aprianingsih, Hidayat, & Dasuki, 2023; Sari, Isnayanti, Ikhsan, Sayoga Aries, & Pradhani, 2021).

Lastly Behavioral Intention (David, 1989) perceived usefulness and perceived ease of use have influence on behavioural intention to use, which is defined as the degree to which a person has formulated conscious plans to perform or not perform some specified future behaviour. The main assumption is that users will have a greater intent to use technology if they feel the technology will be useful for them and they feel it is easy to use. (Brezavšek, 2017) refers to the desire or interest to do specific behaviors, which means someone's willingness to perform the behavior. In behavioral science concept, intention or desire represents an urge to manifest that behavior. Behavioral Intention in this study reflects a person's tendency to use certain technologies to facilitate the achievement of goals. The desire to continue to use, and the desire to influence other users can predict someone's level of technology use. intention to use as is believed to be affected by attitudes towards use, perceived usefulness and perceived ease of use, is

defined as a measure of the strength of a person's interest in performing certain behaviors, which in this case means the use of the technology and certain method. In particular, intention to use is defined as a behavioral of a person to keep using certain technology in that the level of intention to use can be predicted by their behavior towards that certain technology and methods (David, 1986). The indicators that can be used to measure intention to use are: 1) assessment to a system; and 2) prediction to use a system (Widayanto & Nugraha, 2023).

Overall, according to the policies of technological integration in teaching PE courses proposed by the Chinese government, all of the universities must prepare themselves to be able to use new technology and methods into their teaching. To respond to the policy, this study, thus, was based on the TAM model theory, in order to explore the current situations of intentions of PE instructors in using Micro-lecture and PAD Class in teaching Tai Chi in Chinese universities in Guangdong Province. Moreover, the guidelines of how to better the Tai Chi courses for college and university levels will be performed by interviewing PE courses heads/administrators for using Micro-lecture and PAD Class in teaching Tai Chi for PE in universities in Guangdong Province.

1.2 Research Objectives

1.2.1 To explore the level of behavioral intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province;

1.2.2 To explore the influences of attitudes towards use, perceived ease of use and perceived usefulness on behavioral intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province; and

1.2.3 To obtain the guidelines from the Administrators of Tai Chi Courses in using Micro-lecture and PAD Class to better the teaching of Tai Chi for PE in the universities in Guangdong Province.

1.3 Research Questions

1.3.1 What is the level of behavioral intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province?;

1.3.2 What are the influences of attitudes towards use, perceived ease of use and perceived usefulness on behavioral intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province? And

1.3.3 To obtain the guidelines from the Administrators of Tai Chi Courses in using Micro-lecture and PAD Class to better the teaching of Tai Chi for PE in the universities in Guangdong Province?

1.4 The scope of study

1.4.1 This study will explain:

The influences of perceived ease of use and perceived usefulness on intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province. Also, the guidelines from Tai Chi Courses administrators for using Micro-lecture and PAD Class for PE instructors in teaching Tai Chi for college PE in universities in Guangdong Province.

1.4.2 Conceptual Framework

The conceptual framework is shown as follows:

Table 1.1 Research Variables

Independent Variables	Dependent Variables
Attitudes Toward Use	Behavioral Intention to Use Micro-lecture and PAD Class
Perceived Usefulness	
Perceived Ease of Use	

Source: Researcher

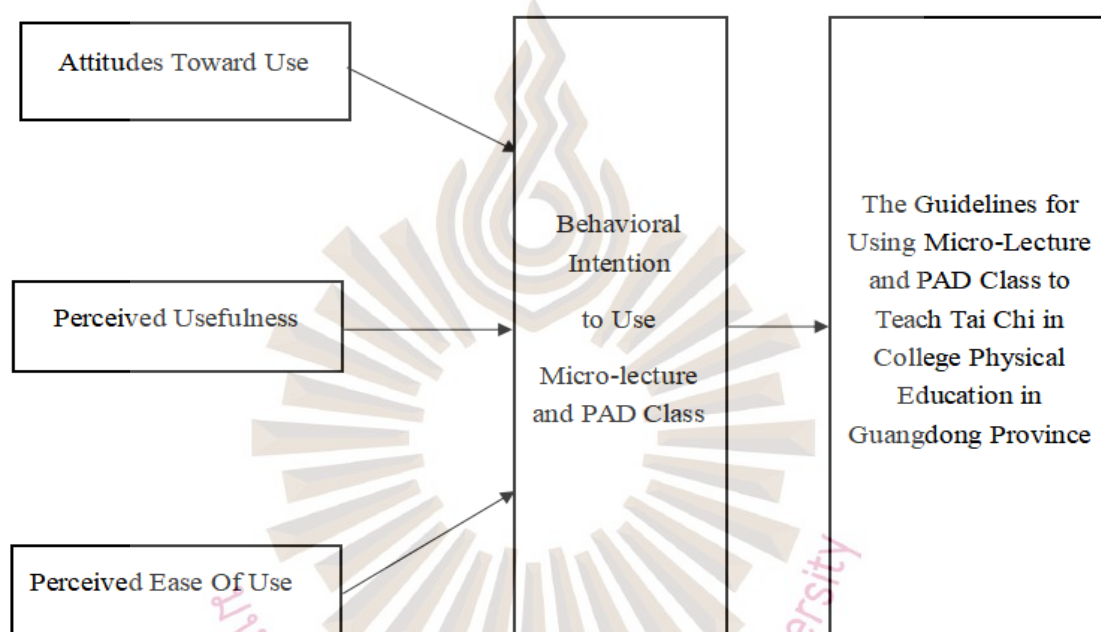


Figure 1.1 Conceptual Framework of Behavioral Intention to Use

Source: Researcher

1.5 Research framework

1.5.1 Population and Sampling

Population

The population was 801 PE instructors from seventeen universities in universities teaching in PE in, Guangdong Province, China.

Sampling

The total sample size turns out to be 291 from six universities for the quantitative purpose. The sample size gained by drawing a name of the universities, at a time, until getting the determined sample size of 260 calculated by Morgan's determination table (1970). The total sample size becomes 303 which are acceptable numbers of a sample size. While in a quantitative data collection and analysis, 291 subjects were administered with questionnaires concerning intentions to use Micro-lecture and PAD Class to teach Tai Chi, in a qualitative part, 12 informants who are course PE head Instructors/administrators was interviewed to gain guidelines for better teaching Tai Chi future courses with Micro-lecture and PAD Class.

1.5.2 Data Analysis

The collected questionnaires were analyzed by using SPSS. The survey data was then processed using various statistical methods such as descriptive statistics and Multiple Regression Analysis.

1.6 Definition of Terms

Micro-lecture: Micro-lecture is a teaching method using a video clip, about a short period of time, in which the instructor introduces a concept and summarizes the main points that is in line with the concept of changing the format of the classroom so that students complete their assignments in class with instructor support after watching the lecture at home video with short recording time, which can teaching activity that reflects a certain teaching link or teaching theme in the classroom is more concise than the traditional teaching video, which generally only lasts about 10 minutes. To summarize, Micro-lecture is a learning resource that is less than 10 minutes in duration, based on course standards, and designed to address specific teaching content using concise language to enhance students' independent learning.

PAD Class: PAD Class [Presentation Assimilation Discussion Class] is teaching method proposed by Professor Zhang, a professor from psychology department of Fudan University. It features interactive learning in the form of discussion, with half of class time allocated to teachers and the other half to students. It consists of three processes: Presentation Assimilation and Discussion.

PE: PE is regarded as the basic form of organization of PE teaching, which mainly enables students to master the basic knowledge of PE and health care or PE and health program. In China educational system, the PE class is the PE and health course taught in the university by the PE instructors.

Tai Chi: Tai Chi is a traditional Chinese martial art composes of a moving meditation, mind, and body exercises with low-to-moderate intensity. Tai Chi has been increasingly practiced in order to promote and obtain benefits of physical and mental health in general population. Tai Chi, regardless of various styles and forms, consists of sequential and continuous coordinated whole-body movements. Tai Chi is performed with a slightly semi-squat position in a controlled and balanced manner and is transited from one movement to another in a smooth flow. Simultaneously, Tai Chi is practiced with cognitively concentrating on each eye-hand-trunk-leg-foot coordinated movement in a gentle and smooth motion while maintaining balanced posture synchronized and rhythmic.

Tai Chi Course: Tai Chi course is a sport course conducted in Chinese universities that are taught by PE instructors.

Behavioral Intention: The degree to which a person is committed to acting in a particular way, also refers to how willing a person is to perform in a particular way. Intentions can be a measure of the likelihood that an individual will engage in a given behavior in the future. In this study, PE instructors' intentions can be defined as their current perspectives (regardless of prior experiences) of using Micro-lecture and PAD Class, in their future teaching Tai Chi course in the PE program at their universities.

PE Instructors: Instructor who has specialized knowledge, skills, and experience in a particular field or area who is responsible for teaching, instructing, or explaining relevant content to help students or learners acquire new knowledge, skills. In this paper, PE instructors are responsible for teaching Tai Chi courses in six universities of Guangdong Province. Their teaching methods, skills and perceptions may affect students' learning outcomes.

TAM: TAM is a theoretical framework that explains how users come to accept and use a new technology. Developed by Fred Davis in the 1980s, TAM suggests that perceived ease of use (PU) and perceived usefulness (PU) are key factors influencing users' acceptance and adoption of technology.

Attitude Toward Use: Attitude Toward Use is the term used to describe an individual's stance regarding the use of a specific technology. This concept underscores the overall emotional and cognitive aspects of an individual's feelings towards the actual use of technology. It holds significant importance in the TAM (Technology Acceptance Model) as it directly influences the individual's subjective intention and their ultimate adoption of the behavior. It serves as a reflection of the individual's attitude during the actual usage process, playing a crucial role in explaining the evolution of their attitude during the process of technology adoption and use.

Perceived Usefulness (PU): is a concept within the Technology Acceptance Model (TAM). It refers to the user's subjective assessment of the extent to which they believe a particular technology will enhance their job performance or overall productivity.

Perceived Ease of Use (PEO): is another concept within the Technology Acceptance Model (TAM). It reflects the user's subjective perception of the simplicity and convenience associated with using a particular technology. A higher PEO is generally associated with a greater likelihood of technology intention to use.

Six Universities in Guangdong Province:

- 1) Zhanjiang University of Science and Technology
- 2) Zhanjiang Preschool Education College
- 3) Lingnan Normal University
- 4) Guangdong Ocean University
- 5) Guangdong Medical University
- 6) Dongguan University of Technology



Chapter 2

Literature Review

This chapter provides an overview of the scholarly literature that is relevant to the research objectives of this study. The main aim of the literature review was to examine perspectives of PE instructors' intentions to use Micro-lecture and PAD Class to teach Tai Chi in University PE in Guangdong Province.

2.1 Micro-lecture

2.1.1 Definition

The term "Micro-lecture" refers to a teaching method where educators concentrate on a specific teaching task, such as a particular knowledge point or skill, both inside and outside the classroom. It primarily involves the use of classroom teaching videos (Xie, 2022). Micro-lecture has emerged due to the rapid advancement of information technology and are widely utilized in the field of education (Huang & Yu, 2022). Various scholars have different definitions and interpretations of Micro-lecture. In a broader sense, it is also referred to as "micro-lecturing," "micro-lesson," "micro-teaching," and "micro-course" (Yang, 2018). The National Institute of Education (NIE), Singapore implemented a Micro-lecture program in 1998, defining the duration of Micro-lecture as 30-60 minutes with specific teaching objectives. They emphasize the creation of learning contexts, development of learning resources, and design of learning activities to facilitate effective teaching for teachers and convenient learning for students (Li & Qu, 2021). According to Penrose David Penrose, the key aspect of Micro-lecture is the seamless integration of instructional objectives and content, with a focus on the connection between the two to provide students with a more targeted learning experience (Yu, 2016).

In China, Prof. Hu Tiesheng was the first to propose the concept of "Micro-lecture". According to him, Micro-lecture is a combination of different teaching resources used by teachers to address specific knowledge points or topics in their teaching activities, in accordance with the requirements of the curriculum standards and aligned with the teachers' teaching practice. This is primarily done through the use of teaching videos (Yang, 2018). Prof. Li Jiahou, from Shanghai Normal University, further defined the length of Micro-lecture. According to him, "Micro-lecture" refers to a short course that is less than ten minutes long, focusing on specific teaching content with clear objectives, enabling teachers to address a single issue effectively (Dan Wei, Qiu, & Yu, 2017).

To summarize, this paper defines Micro-lecture as a learning resource that is less than 10 minutes in duration, based on course standards, and designed to address specific teaching content using concise language to enhance students' independent learning.

2.1.2 Micro-lecture Development Status

The idea of Micro-lecture was initially introduced by David Penrose, a Senior Instructional Designer and Manager of College Online Services at San Juan College in New Mexico, USA, in 2008. He suggested that teachers could condense what used to take hours of preparation into just 60 seconds (Supriadi, Helmiawan, Sofiyan, & Guntara, 2020). However, the concept of micro-courses can be traced back to the Affiliated school of the University of Iowa in 1960 (Xie, 2022), and similar programs and ideas have been proposed by educational institutions in different countries worldwide. For example, the "Microlessons Program" by the National Institute of Education in Singapore in 1998 (Lim & Chan, 2007), and MIT's "OCW Program" in 2001 (Vladoiu, 2011). Furthermore, Khan Academy was established in 2006 and began releasing ten-minute videos covering various subjects. In recent years with the development of the Khan Academy website, short video-based Micro-lecture has started to become popular again (EROL ŞAHİN, 2020). The detailed development process is

presented in Table 2.1.

Table 2.1 Current status of the development of Micro-lecture

Time	Institutions	Concepts Related to Micro-lecture
1960	Affiliated school of the University of Iowa	Minicourse
1980	Dana Atchley	Using digital storytelling for the first time, use 4-5-minute videos in storytelling.
1998	National Institute of Education, Singapore	The National Institute of Education, Singapore, has introduced microlessons in its instructional technology training program for teachers to provide pre-service teachers with the opportunity to design multimedia learning packages using a constructivist approach to teaching and learning.
2001	Massachusetts Institute of Technology	OCW (OpenCourseWare) program: Upload all the excellent course videos online, free for everyone.
2004	British Teachers' Television Channel	Launched in July 2004 in the United Kingdom, the Teachers' Television Channel (www.teacher.tv) is a 24-hour-a-day channel with programs on classroom resources, professional development, news and general. Each program is 15 minutes long and covers a wide range of areas.
2006	Khan Academy	Founded by Salman Khan in October 2006, the website publishes ten-minute learning videos covering a wide range of areas.
2008	David Penrose	He developed "one-minute micro-videos" and called them "Micro-lecture," in which students are guided through an online learning process based on a video in a 1- to 3-minute teaching session.
1960 to present		Video sites such as Udemy, Coursera, Lynda, Open Culture, edX, and Udacity are growing rapidly.

Source: Researcher

2.1.3 The Current Development of Micro-lecture in China

The concept of Micro-lecture was introduced from foreign countries, and China's understanding of Micro-lecture has experienced a gradual process. Micro-lecture started relatively late in China. In 2011, with the rapid development of mobile Internet, Micro-lecture in China began to usher in new opportunities for development (He & Li, 2018). In 2011, Li Yuping produced a teaching and research video to show the research methods and results, which was widely welcomed by teachers. It was later called "micro-course" (Zhang, 2015). In the same year, Hu Tiesheng proposed "Micro-lecture" in his article "Micro-lecture: A New Trend in the Development of regional educational Information Resources" published in "Audio-Visual Education Research", and discussed in detail its concept, composition, characteristics and classification (Hu, 2011). In 2012, Hu Tiesheng's Micro-lecture practice attracted the attention of relevant departments.

In 2011, the National primary and secondary schools and colleges Micro-lecture Competition was launched, and the China Micro-lecture network was opened for everyone to exchange and learn (Xie, 2019). In 2012, The Open University of China was established and initiated the 5-minute course construction project (Li, 2014). Numerous domestic network platforms started releasing Micro-lecture videos, such as NetEase online Khan Academy micro-video courses and the free "Micro-lecture" jointly launched by South China Normal University and Phoenix Satellite Television for global audiences. In 2013, China's Ministry of Education introduced the "Internet + Education" strategy to promote the integration of Internet technology in education and foster educational innovation. This led to an active exploration and promotion of the Micro-lecture teaching model by educational institutions, universities, and enterprises, making Micro-lecture a popular and promising educational technology in education informatization (Wang, Wang, Zhang, Wang, & Shen, 2020). By around 2015, Micro-lecture entered a phase of widespread promotion in China. More and more educational institutions, schools, and enterprises started adopting and utilizing Micro-lecture, covering a wide range of disciplines and fields. Additionally, numerous online education

platforms emerged, offering a wealth of Micro-lecture resources for teachers and students (Jiao & Su, 2019).

During the COVID-19 pandemic, students were unable to attend in-person classes due to public health requirements. As a result, they had to transition to remote learning from home. In addition to live virtual classes, the use of Micro-lecture has emerged as an effective method for supplemental instruction. This approach has seen rapid development in China, with the emergence of numerous platforms specializing in short educational videos. Teachers are able to record key lesson highlights and share them on these platforms for students to review and learn from (Xie & Yang, 2020). This method has been applied not only to traditional academic subjects but also to practical PE classes. Teachers utilize software to efficiently record class content, ensuring that Micro-lecture are kept to a manageable length of 5-8 minutes. Subsequently, students can use these Micro-lectures to review and reinforce their understanding of the material following each class (Guo & Li, 2020).

The extensive utilization of Micro-lecture not only played a crucial role during the COVID-19 pandemic, but also emerged as a significant driving force for the advancement of educational information technology in China. With the continuous advancement of technology, the production methods and dissemination channels for Micro-lecture are increasingly diverse (Li, 2021). For instance, through artificial intelligence technology, tailored Micro-lecture resources can be intelligently delivered based on students' learning needs and progress to achieve personalized teaching (Liu, Yang, & Yuan, 2023). Furthermore, the integration of technologies such as virtual reality (VR) and augmented reality (AR) has enabled Micro-lecture to offer more diverse forms of expression and improve the learning experience (Supriadi et al., 2020).

In the process of promoting Micro-lecture, China's education department has continuously issued relevant policies to encourage and support the development of Micro-lecture. For instance, in 2017, the Opinions of the Ministry of Education on Strengthening and Improving the Ideological and Political Work of Colleges and

Universities in the New Situation explicitly proposed the full utilization of network platforms, innovative methods of ideological and political education, and enhanced educational quality. This provides a policy guarantee for the application of Micro-lecture in the field of ideological and political education. (Ministry of Education of the People's Republic of China, 2017).

The use of Micro-lecture is not confined to basic education but has also shown significant results in higher education (Selvaratnam & Sankey, 2021). Several colleges and universities have implemented Micro-lecture teaching reforms to enhance program quality and foster creative talents (Xie, 2022). In 2017, China initiated the "double first-class" program for high-level university talent cultivation, encouraging universities to share high-quality Micro-lecture resources to advance educational and teaching reforms (Niu & Gao, 2022). Furthermore, Micro-lecture plays a crucial role in vocational training, lifelong education, and other areas, contributing to talent development and skill enhancement in China (Xiexian, Qian, Zhangjian, & Yun, 2021; Kong, Li, Zhang, Jiang, & Mei, 2021).

However, the advancement of Micro-lecture also encounters several challenges. For instance, the quality of Micro-lecture varies, and some lack depth and are overly simplistic (Alfayez, 2021). Furthermore, despite the widespread popularity of Micro-lecture, teachers encounter problems when applying them in teaching, such as insufficient skills and abilities to develop and utilize Micro-lecture effectively (Liu et al., 2023).

To address these challenges, China's education sector and academia must persist in intensifying research and investment in Micro-lecture, enhancing their quality, and promoting their comprehensive development in teaching. In conclusion, as an emerging educational technology, Micro-lecture have exhibited significant achievements in the Chinese education sector. Moving forward, China should continue to prioritize the advancement of Micro-lecture, foster educational and teaching innovation, and contribute to the nurturing of high-quality talents and the modernization

of education.

2.1.4 Characteristics and application scope of Micro-lecture

Micro-lecture as a resource is widely used in the field of education and teaching, summarized, there are three characteristics:

1) Short teaching time and little content

The key features of Micro-lecture include having clear teaching objectives and limited course resources. Micro-lecture is beneficial for students as it helps them overcome learning difficulties and focus on achieving their learning goals. Micro-lecture typically last around 5-8 minutes, with the maximum length not exceeding 10 minutes (Xie, 2022). Therefore, when compared to a 40-45-minute lesson in a traditional classroom, Micro-lecture can be referred to as "lesson segments" or "micro-courses". Unlike traditional classrooms, Micro-lecture is more tailored to address specific issues and topics in the teaching process, thus better meeting the needs of teachers (Wijaya, Cao, Weinhandl, Yusron, & Lavicza, 2022).

2) The theme is prominent and the content is specific

The challenges in Micro-lecture research stem from the practical aspects of education and teaching. It is characterized by independent theme. Micro-lecture focus on specific themes, and the research addresses issues such as teaching reflection, critical thinking, teaching methods, learning strategies, and perspectives on education and teaching (Liu, Xu, & Liu, 2021).

3) Simple content and many modes of dissemination

Micro-lecture has a distinct theme and concise content, making it easier to express research findings and facilitate knowledge exchange. Since Micro-lecture are typically small in size and can be easily shared online, students can access them anytime and anywhere using electronic devices like mobile phones and tablets. This accessibility promotes students' ability to engage in self-directed learning (Jin, 2021). For teachers,

online Micro-lecture resources can assist in lesson preparation and designing pre-class teaching activities. By learning from other teachers' approaches to challenging topics, teachers can enhance their professional quality and lay the groundwork for their own development (Tianjiao, 2020).

Micro-lecture can serve various purposes at different stages of course teaching. Prior to class, Micro-lecture can guide students towards independent learning, allowing them to accurately identify and address difficult problems. This approach enhances classroom efficiency and fosters students' independent learning abilities (Jin, 2021). During class, Micro-lecture can be used to introduce topics, using engaging visuals to pique students' interest and fully immerse them in the learning process (Qin, 2017). When teaching new lessons, Micro-lecture simplify complex concepts and present them in a logical manner, creating an intuitive learning environment that facilitates students' comprehension. After class, Micro-lecture can aid in reviewing and consolidating learned knowledge, enabling students to reflect on the past and apply it to future learning (Zhu, 2018). Additionally, teachers can prepare Micro-lecture as supplementary material to enrich students' knowledge and expand their horizons.

2.1.5 Micro-lecture Summary

By comparing the progress of Micro-lecture in China and other nations, it becomes evident that although Micro-lecture is rapidly advancing both domestically and internationally, the approaches to development differ. In other countries, the development of Micro-lecture is exemplified by platforms like Khan Academy, which primarily consist of video websites that provide Micro-lecture videos to learners for educational purposes. These Micro-lectures are commonly used in primary and secondary school classrooms, covering a wide range of subjects, and have proven to be highly effective in schools. They are integrated into daily teaching, and the flipped classroom teaching model, which utilizes Micro-lecture, has been well-established, indicating the maturity of Micro-lecture in foreign countries. In contrast, in China, Micro-lecture are primarily conducted through Micro-lecture competitions, where many

teachers participate either due to their personal achievements or as a requirement imposed by schools. This approach does not prioritize actual teaching needs or consider the students' needs, and as a result, Micro-lecture does not effectively apply to real teaching situations. Therefore, the limited usage of Micro-lecture in China has led to a situation where theory is progressing faster than practice, which is also a contributing factor to the slow development of Micro-lecture in the country.

The crucial aspect of implementing Micro-lecture lies in the creation of high-quality video content. It is important to succinctly present the main concepts and challenges of the topic within a short duration, enabling students to quickly grasp the essential points. This poses a challenge for teachers producing Micro-lecture videos and significantly impacts the effectiveness of Micro-lecture in practical teaching.

2.2 PAD CLASS

2.2.1 Definition

The "PAD Class" is a new teaching method model proposed by Professor Zhang from Fudan University. In 2014, a teaching experiment was conducted at Fudan University to test this model. The experiment involved dividing the class time into two parts: one for teacher-led instruction and the other for student-led discussions. The model consists of three stages: presentation, assimilation, and discussion (PAD Class) (Zhang, 2014). The three classic modes of PAD Class are "Instant Discussion" and "Delayed Discussion" and "Hybrid mode".

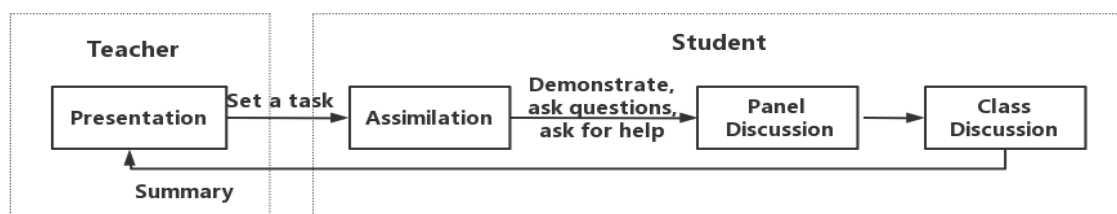


Figure 2.1 Instant Discussion Model

Source: Zhang, 2014

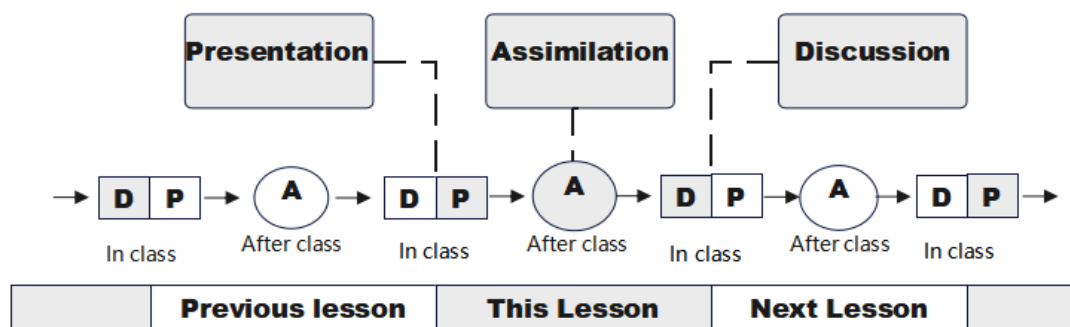


Figure 2.2 Delayed Discussion Model

Source: Zhang, 2014

As shown in Figure 2.1, the "Instant Discussion" mode means to complete the presentation, assimilation, and discussion in this class. The instructor initially presents the main content of the lesson briefly and then set a task to the students. The students engage in group discussions based on the knowledge they have acquired, and then participate in the "Show, Ask and Help" activities. Among these, the aspect that I find most significant, personally benefit from, and gain the most from the learning process is the "Show" component. In this part, the students refine and summarize the content they have learned. Additionally, they demonstrate their understanding of the material and identify areas where other students may struggle by posing questions in the form of a "Test". This allows for testing others in the classroom. Lastly, the students list any uncertainties, lack of knowledge, or areas they wish to explore further through other students. They present these questions to seek "Help" during the class discussion. Finally, the teacher provides a summary evaluation, and students review the material independently after class (Hou & Xue 2023).

The classic model of PAD Class is Delayed Discussion. According to the information presented in Figure 2.2, the primary innovative aspect of the PAD Class is the separation of lecture and discussion. This allows students to have dedicated time in between for independent learning, personalized comprehension, and assimilation of the material. The assimilation part is specifically arranged at the end of each lesson, where the previous lesson's content is reviewed and discussed in the current lesson. This is

referred to as "Delayed Discussion" and forms the core element of the paired classroom approach. Essentially, apart from the initial lesson, there is no immediate discussion. Starting from the second lesson, the class engages in a discussion of the previous lesson's content, followed by the teacher introducing new material, and concluding with assigning homework for students to independently study and fully grasp the content of the previous lesson. This prepares them for the subsequent classroom discussion in the next lesson (Qi, 2018).

Hybrid mode means that according to the specific teaching field and teaching requirements, it can independently choose the appropriate teaching mode and mix the above two teaching methods to achieve the best teaching effect.

2.2.2 Status of development of PAD Class

The "PAD Class" is an innovative teaching model that originated in China and has primarily been studied within China due to limited international data (Zhai et al., 2022). In 2013, Professor Zhang introduced the "PAD Class" teaching mode for the first time during an Introduction to Psychology course at Fudan University. In 2014, Professor Zhang published an article titled "PAD Class": a new teaching method in the *Journal of Educational Research*, formally introducing the concept and theory of the "PAD Class". Subsequently, Prof Zhang published several papers to further explain the goals and values of the PAD Class, providing a comprehensive understanding of its concept, method, and practice. These publications garnered significant attention and praise (Zhang, 2017).

In September 2016, the "Duifene" platform was launched, offering a free Internet-based teaching tool based on the PAD Class model. Currently, over 3,500 schools and more than 5 million teachers and students use this platform for their daily teaching (Duifene, 2016). In September 2020, the Ministry of Education in China, along with other departments, released a document called the *Opinions on Vigorously Strengthening the Construction and Application of Online Educational and Teaching*

Resources in Primary and Secondary Schools. This document emphasized the need to support local areas in implementing online educational and teaching reforms, as well as exploring blended teaching models that combine online and offline elements. It also highlighted the importance of promoting effective pedagogies, such as the "PAD Class" (Ministry of Education of the People's Republic of China, 2021).

In March 2021, the Ministry of Education issued the Guiding Opinions on Strengthening the application of the "Three Classrooms", which further emphasized the importance of effective teaching methods, including the "PAD Class". The document encouraged all local areas to actively explore these methods in order to enhance classroom efficiency and effectiveness (Ministry of Education of the People's Republic of China, 2021). Ever since Professor Zhang introduced the concept of "PAD class", it has garnered significant attention from scholars in China. Many researchers have not only published papers on this topic, but have also implemented it in various educational contexts. In the realm of university English courses, some scholars have conducted teaching experiments and argued that combining the "PAD class" model with "literature circles" in reading programs can enhance teaching effectiveness. These scholars emphasize the crucial role of peer support in reading (Xu, 2020). Additionally, other scholars have conducted empirical studies on the implementation and impact of the English reading teaching model based on "PAD class" for university students. Their findings indicate that "PAD class" greatly benefits the teaching of English reading courses (Yue, 2021). Furthermore, some scholars have developed a blended teaching approach by combining the "mobile learning platform" with the "PAD class" model. They applied this approach to a second foreign language (Japanese) course and observed positive results through continuous practice. The integration of the PAD class model with blended teaching proved to be highly effective (Li & Liao, 2022). Some researchers have conducted studies and experiments on the application of the PAD class teaching mode in university English courses. The findings suggest that there is a significant difference in English achievement between the experimental class that used the PAD class teaching mode and the control class that used traditional teaching methods. This teaching mode has shown positive effects on language proficiency, interactivity, and

independent learning abilities (Li, Wen, & Liao, 2021).

In addition, other scholars have explored and studied the feasibility of applying the PAD classroom teaching mode in professional basic courses, using the plant biology course as an example. They have proposed new ideas for the teaching practice of the "plant biology" course. The adoption of the BOPPPS and PAD classroom mode has been found to improve the academic performance of both male and female students. Furthermore, some scholars have used a blended teaching method by combining the BOPPPS and PAD classroom model in the university computer technology translation course for teaching experiments. The results of the study indicate that the PAD class can effectively enhance students' learning enthusiasm and classroom participation (Hou & Xue, 2023).

Currently, the development of the PAD class is still in its early stages. Its impact is limited and has not yet reached other countries abroad. After conducting extensive research, the author discovered that in October 2017, the Confucius Institute in Muangsonde introduced a lecture on the teaching methodology of the "PAD Class" during the training of Thai native teachers. This marked the first instance of the "PAD Class" teaching methodology being implemented in classrooms in Southeast Asian countries (Overseas Chinese network, 2017). The continuous focus of various scholars, the implementation of policies, and advancements in information technology have created a favorable environment for the growth of collaborative classrooms.

2.2.3 Characteristics of PAD Class

The PAD Class combines the benefits of traditional lecture-style classes and discussion-based classes by finding a balance and making compromises. During the teaching process, the focus is on providing a concise explanation of the knowledge framework and key points, allowing students to explore independently and enhancing their ability for independent inquiry. This approach deviates from the traditional passive teaching methods (Liu, 2021). After the teacher's lectures, a process of internalization

and absorption is introduced, following psychological principles, to help students understand, reflect on, and digest the new content they have learned. Students utilize this time for internalization and assimilation to independently read the textbook, further expanding on the topics taught by the teacher. This prepares them for productive discussions in the classroom, following the "Show, Test, Help" approach, which serves as a supportive structure for students to communicate and engage in discussions (Zhang, 2014).

The concept of "Delayed Discussion" in the PAD Class can enhance students' ability to generate more profound learning questions and encourage effective discourse. By internalizing and assimilating information, students are more likely to develop new ideas and perspectives, which is the essence and innovation of the PAD Class. The teaching approach of the PAD Class includes three modes: "Delayed Discussion," "Instant Discussion," and "Hybrid Mode," with "Delayed Discussion" being the central component. In practical implementation, the division of time does not need to be strictly equal. Teachers can make flexible adjustments based on the specific teaching requirements (Chen, 2017).

2.2.4 PAD Class Summary

The PAD Class, initially a localized teaching model in China, has gained widespread popularity in the field of education. While some studies question its applicability to all subjects, others argue that the PAD Class effectively enhances classroom efficiency and quality. Upon reviewing the available information, it is evident that theoretical research on the PAD Class is continuously improving. Through the collaborative efforts of experts and scholars from both domestic and international backgrounds, some progress has been made. However, there are still several limitations to address. For instance, a significant portion of research on the PAD Class remains theoretical, with minimal utilization of practical references. As the study of the PAD Class becomes more comprehensive, an increasing number of individuals are not only incorporating it into their teaching practices but also combining it with traditional

methods to address discipline-specific shortcomings.

2.3 College PE course — Tai Chi

2.3.1 Definition of Tai Chi course

Tai Chi is a traditional Chinese martial art that has been practiced for centuries. Taking a Tai Chi course is a way to learn the fundamental principles, movements, and routines of Tai Chi (Zhihua, 2008). The course is guided by the philosophy of Tai Chi and aims to improve both physical and mental health, as well as develop martial arts skills and cultural understanding. A typical Tai Chi course is divided into theory and practice. The theory part covers the origins, development, characteristics, and benefits of Tai Chi, while the practical part teaches basic steps, hand forms, breathing techniques, and the 24 postures of Tai Chi. Tai Chi courses offered in universities focus on enhancing students' physical and mental well-being, fostering cultural appreciation, and preserving the rich Chinese cultural heritage. Tai Chi is not only a form of exercise but also a means to cultivate emotional well-being, boost self-confidence, and develop one's character (Liang, 2015). The creation of a Tai Chi course for university PE should take into account the current characteristics of the times and the needs of the students. It is important to continuously innovate the teaching methods and content in order to enhance the quality and effectiveness of the instruction. The ultimate goal of university PE classes is to promote lifelong sportsmanship by providing physical exercise for the body.

2.3.2 Current Development of Tai Chi, Demand for Tai Chi Courses

The origins of Tai Chi can be traced back to the end of the Yuan Dynasty and the beginning of the Ming Dynasty. Over the course of more than three hundred years, it has developed into various schools. Chen's Tai Chi is considered the leader, followed by Yang's, Wu Style, Sun's, and others (Lorini, 2017).

After the founding of the new China, Tai Chi gained attention and support from the state. It has been taught and researched in colleges, universities, PE institutes, and research institutes. Tai Chi has also gained popularity worldwide, becoming a representative of Chinese culture (Wile, 2017).

In the early years after the establishment of the People's Republic of China, the Ministry of Education in China undertook a reform of Tai Chi. This reform aimed to combine the strengths of various Tai Chi schools and make it more accessible for people to learn. As a result, a simplified version of Tai Chi was developed, based on the Yang style, which consisted of 24 movements. The intention behind this was to encourage a greater number of people to engage in the practice of Tai Chi. During the 1960s, Tai Chi was recognized as a traditional martial art and was included in the PE curriculum of colleges and universities. Research has indicated that practicing Tai Chi can have several benefits for students. It can enhance their physical fitness, improve the health of their joints, tendons, and bones, promote mental well-being, and help prevent and alleviate sub-health conditions (Li, 2022).

Starting from the 1980s, there was a resurgence of interest in traditional Chinese culture due to the implementation of Chinese policies. One aspect that gained renewed attention was the practice of Tai Chi. Colleges and universities began to offer more elective courses on Tai Chi, and some even established specialized programs in PE and Wushu majors that focused on Tai Chi. In the 2000s, as the international influence of Tai Chi grew, some educational institutions started offering Tai Chi courses specifically for international students, with the goal of promoting traditional Chinese culture. Recognizing the importance of Tai Chi, the Chinese Ministry of Education issued a document in September 2020 that included Tai Chi as part of classroom teaching and extracurricular sports activities. As scholars worldwide continue to study the functional benefits of Tai Chi, more and more people are becoming interested in practicing it. According to the World Tai Chi Development Report (2019), Tai Chi has been gaining momentum and popularity worldwide. It has become a significant part of people's lives and a positive habit. It is projected that Tai Chi will gradually become the

most popular sport globally, with the largest number of participants. The current population of Tai Chi practitioners has reached approximately 400-500 million (Li et al., 2019).

Despite the numerous benefits of practicing Tai Chi, there is a lack of Tai Chi programs in PE classes at colleges and universities. Consequently, very few students genuinely enjoy it, and most are compelled to learn Tai Chi. In many people's minds, Tai Chi is considered a sport for middle-aged and elderly individuals. Some students find learning traditional culture boring, leading to a lack of enthusiasm. These stereotypes have created a negative cycle in the learning of Tai Chi. (Zhihua, 2008). Currently, there is an urgent need for reforming the Tai Chi curriculum. Scholars both domestically and internationally have conducted extensive research on different teaching methods for Tai Chi. Some scholars have introduced the flipped classroom teaching mode as a means of reforming Tai Chi teaching. The findings from these studies have shown that this approach is beneficial for students in terms of developing their interest in learning, their emotional engagement, and their overall participation experience. However, there is still a need to further explore the deep learning model for Tai Chi education. This would involve incorporating new media or Micro-lecture to facilitate active learning of Tai Chi content (Tong, 2019). One study proposes a virtual reality framework that utilizes deep learning algorithms to enhance martial arts education. The results of this study indicate that most students have a positive attitude towards using virtual reality technology to assist in learning Tai Chi, and it significantly increases their enthusiasm for the subject (Liang & Na, 2022). Several scholars have conducted an analysis of the fundamental patterns and principles of Tai Chi's global spread in order to assess the current state of Tai Chi instruction. This evaluation facilitates the reform of existing teaching methods, the advancement of continuous optimization and sustainable development in Tai Chi instruction, and further enhancement of Tai Chi's international dissemination (Zhibin, 2021). Additionally, other researchers have explored interest stimulation as a means of encouraging students to engage in Tai Chi learning. It is necessary to introduce additional teaching approaches to enhance students' motivation to learn Tai Chi and transform the current situation,

enabling students to actively and effectively acquire the practice.

2.4 Execution of teaching Tai Chi with Micro-lecture and PAD Class

Execution, in the context of enterprise competitiveness, refers to the capacity to carry out strategic intent and achieve predetermined goals. It is the fundamental aspect that transforms enterprise strategy and planning into tangible benefits and outcomes. Execution encompasses the determination to complete tasks, the ability to do so, and the extent to which tasks are accomplished (Bossidy, Charan, & Burck, 2011).

In educational and teaching settings, the ability of teachers to execute has a direct impact on the quality of instructional design and the effectiveness of teaching and learning. Teachers who excel in execution are able to effectively implement teaching and learning designs, plans, and objectives. They guide students' learning through well-organized and planned actions, adapt flexibly to challenges and changes in the teaching process, translate teaching plans into practical actions, create a positive learning environment, and serve as a strong assurance for the achievement of teaching objectives (Costa & Oliveira, 2022).

2.5 How Micro-lecture and PAD Class can improve the effectiveness of teaching Tai Chi.

Micro-lecture and PAD Class are two innovative teaching methods that offer personalized, flexible, and efficient learning resources and environments to students. These modes have their own unique benefits and work together to enhance the learning experience.

One advantage of Micro-lecture is that it simplifies the process of learning Tai Chi. As a learning resource, Micro-lecture utilizes visualization to present abstract concepts in a more tangible way for students. Through multimedia tools such as videos, animations, and pictures, Micro-lecture can effectively demonstrate the essential

movements, techniques, methods, and theoretical knowledge of Tai Chi. This helps students grasp the fundamental skills and deeper meanings of Tai Chi, reducing the challenge of understanding complex sports teachings that rely solely on imitation. PAD Class, on the other hand, enhances learning by tailoring the content to each student's individual needs and learning style. By internalizing and absorbing the material in a way that suits their own learning situation, students can focus on targeted learning, which ultimately reduces the overall difficulty of the subject matter. Overall, the combination of Micro-lecture and PAD Class creates a comprehensive learning experience that addresses the unique challenges of learning Tai Chi while providing students with the necessary resources and support to succeed.

Additionally, it has the ability to cultivate a relaxed learning environment. Prior to the class, Micro-lecture allow students to grasp the fundamental concepts of the subject and gain a comprehensive understanding of Tai Chi movements. During the classroom instruction, students can build upon their pre-class knowledge and follow the teacher's guidance to further deepen their understanding of the movements. This not only reduces the tension in the classroom, but also helps students to enhance their focus and concentration, thereby facilitating their learning process. The communication and discussion in the PAD Class provide a platform for students to express themselves, creating a more dynamic and relaxed atmosphere for learning.

Thirdly, Micro-lecture can help students develop their ability to learn independently. Micro-lecture can be adjusted to meet the specific needs of students by allowing them to choose when and where to access the content. Students can also watch the lectures repeatedly if needed. This flexibility enables students to effectively learn Tai Chi based on their own circumstances and goals. Both Micro-lecture and PAD Class teaching methods focus on shifting students from passive to active learning, accommodating different learning styles. Combining Micro-lecture with PAD class teaching methods ensures that chemistry courses meet the required standards and helps achieve the objectives of the Tai Chi course more effectively.

2.6 Relevant Theories

Piaget, the pioneer of developmental psychology, had a belief that children can enhance their cognitive structures by engaging with the environment around them. He identified assimilation and adaptation as two crucial mechanisms of cognitive development. Assimilation involves incorporating external stimuli into existing cognitive schemas, while adaptation occurs when existing schemas fail to integrate new information and individuals undergo reorganization and modifications to achieve cognitive growth (Pickren, Dewsbury, & Wertheimer, 2012).

On the other hand, Bruner's perspective states that learning is a process where learners actively transform the fundamental structure of a subject into a cognitive structure. The fundamental structure includes the basic concepts, principles, attitudes, and methods of the subject. Bruner emphasizes discovery learning, where teachers do not directly provide students with learning content. Instead, students are placed in specific learning situations where they can explore and find answers to their questions. This approach encourages students to make assumptions, solve problems, and discover knowledge through speculation and judgment, similar to how scientists work. Students have the ability to think like scientists, make assumptions, and use speculation and judgement to solve problems and gain knowledge. It is believed that students should actively engage in independent investigation to master knowledge and take the lead in their own learning process (Takaya, 2008).

The PAD Class teaching method used in this study is based on cognitivism and employs Micro-lecture. This teaching method divides classroom time into two parts, with both the teacher and students playing active roles. The model promotes a significant change in the teacher's role and allows students to participate fully in the classroom. Through their own exploration, students are able to discover and solve problems, which in turn promotes the development of their cognitive abilities.

As constructivism trusts that individuals create or construct their own new understanding or knowledge through the interaction of what they already know and believe in what they see as the new ideas, events, and/or activities in which they come in contact (Cannella & Reiff, 1994; Lerman, 1989). With this notion, to adopt the constructivist's way of learning theory to enhance the teachers' mind of learn how to learn to use knowledge or tools to teach a new thing or using a new type of method to bring the changes in how to acquire knowledge, understandings, skills, and even beliefs to teacher education (Brophy, 1991; Hollingsworth, 1989). Thus, the applications of constructivist learning notion in the use of new technological methods to integrate with student-centered based teaching and learning in the classroom reveal a shift from teacher led classroom to promote meaningful learning that is active, constructive, intentional, authentic, and cooperative (Jonassen, Peck, & Wilson, 1999). Thus, intentions to use any teaching methods with Constructivist views lead to the notion of meaningful teaching and learning for both teachers and students.

The Technology Acceptance Model (TAM), initially proposed by Davis in 1986, is used to explain individuals' acceptance and use of information technology. With the rapid development of information technology, the TAM model has been continuously evolving and has made significant progress in the past five years, being widely applied in multiple domains. TAM comprises two beliefs: perceived ease of use and perceived usefulness. The former refers to users' subjective perception of ease of use, where the easier to use, the more likely IT was accepted. The latter refers to users' subjective perception of the usefulness of IT. The greater the perceived usefulness, the more adoption of IT (Sayginer, 2023; Dramani, Tang, & Coffie, 2022). This understanding influences attitudes and promotes behavior. TAM is used to elucidate and predict the degree of acceptance of IT use, where individuals' usage intentions and behaviors are influenced by two key variables: perceived ease of use and perceived usefulness (Davis, 1989).

A study was conducted at a university on the willingness of Indonesia to use blockchain, surveying 103 respondents. The research findings indicate that the intention

to use the My-T Wallet application is largely influenced by user's positive behavior, showing a close relationship between perceived usefulness and behavioral intention (Saputra & Darma, 2022). Another study investigated factors influencing the behavioral intention of university students in e-learning usage during the COVID-19 pandemic, highlighting the significance of the relationship between different variables and behavioral intention (Mailizar, Burg, & Maulina, 2021).

Another study investigated factors influencing the behavioral intention of university students in e-learning usage during the COVID-19 pandemic, highlighting the significance of the relationship between different variables and behavioral intention (Mailizar et al., 2021). In another study on e-learning intention, an online survey was conducted with 30 teachers and 342 students at a university in the United Arab Emirates, revealing that the mode of learning and teaching both impact the intention of using e-learning behavior (Al-Marroof, Alhumaid, & Salloum, 2020). Numerous studies have demonstrated that teachers' perceived usefulness is often the most critical predictive variable when adopting new technologies, while perceived ease of use and attitude towards use also play significant roles in behavioral intentions (Alkindi, Hafiz, Abulibdeh, Almurshidi, & Abulibdeh, 2022; Eze, Obichukwu, & Kesharwani, 2021).

From an educational perspective, many researchers have extensively investigated TAM. One study utilized the latest TAM paradigm to examine the adoption of e-learning among university students, demonstrating that the TAM framework effectively illustrates how Saudi university students using e-learning systems facilitate plans for sustainable education development (Almulla, 2021). Another study analyzed satisfaction factors in online learning based on TAM, indicating that attitudes towards online learning, perceived usefulness, and ease of use positively influence satisfaction with online learning through behavioral intentions (Shao, 2020). Teachers' positive attitudes toward technology enhance their willingness to use it, and positive teacher attitudes are often one of the foundational conditions for technology adoption. (Bower, DeWitt, & Lai, 2020; Nikolopoulou, Gialamas, & Lavidas, 2021). In the use of educational technology, many studies have also shown that teachers are increasingly

concerned about the ability of technology to actually improve the effectiveness of teaching and learning (Huang & Teo, 2021; Antonietti, Cattaneo, & Amenduni, 2022). Furthermore, a study in Pakistan's higher education sector examined students' attitudes towards using e-learning using TAM, showing that TAM effectively determines students' attitudes towards e-learning (Rafiq, Hussain, & Abbas, 2020). A study on the acceptance of the flipped classroom in primary education validated the high acceptance of the TAM model (Almenara, Tena, Cejudo, & Rodríguez, 2021). In this research, we will explore the relationships between TAM factors to understand the determinants of usage intentions. However, the relationships between TAM models may not always be significant. A study aimed at investigating the intention for continued use of mobile learning collected data from 273 graduate students. The results showed that perceived ease of use and attitude are important predictors for explaining sustained use of mobile learning. However, perceived usefulness and satisfaction do not affect the intention for continued use (Al-Emran, Arpaci, & Salloum, 2020).

From a PE perspective, a researcher questionnaire surveyed 682 Chinese university freshmen and found that perceived usefulness (PU), perceived ease of use (PEU), and attitudes toward technology (ATT) significantly influenced students' willingness to use sports bracelets (Zhang, Wang, & Leung, 2023). Another study, which interviewed 50 PE teachers, showed that the Technology Acceptance Model (TAM) learning model, which measures the impact of students' level of understanding of interactive multimedia learning media on student learning outcomes, and that today's technological demands are important for enhancing learning, also validated the effectiveness of the TAM model on students' perceived learning outcomes (Nugraha, Ekawarna, Ali, & Adhanegara, 2022).

Based on the aforementioned studies, TAM has been widely, effectively, and appropriately applied to elucidate and predict individuals' acceptance of new technologies and methods of use.

Ajzen and Fishbein, 1980 emphasized that intention to integrate technological methods into the classroom helps improve effectiveness on both sides of teaching and learning experiences. This study focuses on PE instructors' intentions in choosing to use technology integration based on their existing attitudes and beliefs in technology integration in teaching and learning that was developed for teaching Tai Chi in their PE course. In investigating their intentions whether to put in actions of technology integration after they asked to choose about using to different methods in teaching Tai Chi for their course will reflect the way in which Tai Chi course was administered for a new era of integrating new methods using technology in the classrooms as Davis and Warshaw (1992) argued that this can challenge individual's self-prediction and intention of the likelihood to perform a certain action in their realm of teaching.

2.7 Related Research

2.7.1 Micro-lecture in Educational Research

While Micro-lecture is commonly used as a supplementary teaching method, is also used as review materials after class, and was found to allow students to learn and watch on their own, preventing students from being overwhelmed by too much content in the classroom and not being able to grasp the classroom material (Bulac, Dolocanog, & Carbonell, 2022). Micro-lecture has been used both before and after class, as researched by Yang and Xu (2021). Reviewed that by using Micro-lecture for pre-class preview and post-class review, the advantages of video feedback in Micro-lecture could be fully utilized to help students better understand and master sports skills and knowledge. In addition to PE classes, Micro-lecture teaching has also been applied to theoretical courses in sports majors. As a result, by visualizing tedious questions, Micro-lecture videos could be used in the classroom to present the key points of knowledge in a simple and intuitive manner (Yang, 2018).

As a supplementary teaching method, one of the biggest advantages of Micro-lecture is that they enhance student learning motivation and interest. Micro-lecture

videos are short in duration, have clear teaching objectives, integrate key classroom content, and include case studies, among other things. Combined with their visually appealing production, Micro-lecture can instantly capture students' attention and make them interested in learning, motivating them to actively engage in the learning process (Li, 2018). This increases student engagement in learning, improves the effectiveness of classroom instruction, and achieves teaching goals.

The creation of the Micro-lecture is crucial to its teaching because it has a direct impact on the lesson's overall effectiveness. Therefore, the first design of a Micro-lecture should be made in a condensed amount of time with a reasonable arrangement of the content and sequence of instruction, the emphasis of instruction, the level of difficulty, and the content of the instruction to be refined (Cheng, 2015), to have a certain level of direction and relevance (Chao, 2020).

2.7.2 PAD Class in Education Teaching

The PAD Class was researched in different locations which provides a local advantage over other teaching methods and is more suitable for the learning situation of local students. In this study, the teaching method can be applied to students of different levels and ages, including college students (Hu, 2020) and high school students (Liao & Guo, 2022). And found that it has potential application value in different educational fields such as:

Interactivity: The PAD Class encourages active participation of students in classroom activities, including interaction between teachers and students, as well as interaction among students, including demonstrations and discussions. This interaction helps to improve student engagement and concentration (Yuan, 2019). The interactivity of the Pad Class helps create a positive classroom atmosphere and stimulates students' interest in learning (Li & Liao, 2022).

Assimilation: Stage "A" (Assimilation) provides an opportunity for students to reflect on and internalize the information they have been taught. This allows for a deeper understanding and absorption of the content (Zhou et al., 2018).

Discussion: Stage "D" (Discussion) encourages students to engage in in-depth discussions about what they have learned. This helps them gain a more thorough understanding of classroom concepts and enhances their self-confidence, communication skills, and sense of responsibility. It also helps to improve their critical thinking abilities (Pan, Zuo, & Wang, 2022).

Collaboration: Students in a PAD Classroom are often required to participate in conversations and cooperate with their classmates. They can develop their teamwork skills in this way (Wang, 2023).

Improved Learning: Through a blended instructional design, the PAD Classroom can be used in conjunction with other teaching strategies to improve students' knowledge, stimulate their active participation in the learning process, and foster their creativity and independent thought (Xiong, 2020).

Accordingly, it is reported that PAD Class can be combined with various teaching methods to enhance students' mastery of knowledge, encourage their individual perspectives, and stimulate their independent innovation through a blended instructional design.

The PAD Class created a novel teaching model that focuses on reconstructing knowledge discourse, promoting mutual rights and responsibilities between teachers and students, and fostering a dialogic approach to modern educational practices. This model offers new possibilities for enhancing the effectiveness of PE classroom teaching (Song, Gao, Guo, & Sun, 2020). During the design process, the model emphasizes the active participation of both teachers and students, strengthening their subjective initiative and fostering interactive engagement. This approach highlights the students'

role in the learning process and aligns with the requirements of PE curriculum (An & Xu, 2020).

Intentions play a crucial role in various academic research fields, such as psychology, consumer psychology, and marketing (Albarrac et al., 2018). The teacher's intention to utilize specific teaching methods and multimedia tools directly influences the implementation and effectiveness of teaching. Similarly, the ease of use of multimedia tools positively impacts the user's intention to use them (Weng et al., 2018).

This will further explain that intentions could be a measure of the likelihood that an individual will engage in a given behavior in the future. In this study, the PE Instructors to use Micro-lecture and PAD Class in their Tai Chi teaching and learning in their future courses.

2.7.3 PE and Tai Chi

PE holds great significance in higher education as it plays a crucial role in enhancing the physical well-being and overall abilities of college students. The primary focus of research and practice in PE is to promote both physical and mental health (Guo, 2020). Recently, Tai Chi, a form of physical activity, has also gained considerable attention (Stanly & Maniazhagu, 2021). The field of PE is constantly evolving with the progress of society and advancements in science and technology. This evolution has led to the introduction of various innovative models and methods that aim to adapt to the changing societal and educational needs. One such model is the integration of modern technology with PE, which allows for a comprehensive approach to education. This integrated model enables students to understand the connections between PE and other disciplines (Yazhong, Huaijin, & Xinyu, 2021).

Recently, Tai Chi has been researched by scholars both domestically and internationally to understand its impact on health. It appeared while Tai Chi is considered not only a skill but also a cultural practice, it complements each other. It was

found that the practice of Tai Chi has been highly beneficial for improving physical fitness and enhancing both physical and mental qualities (Zhang, 2021). Engaging in long-term Tai Chi practice can improve physical fitness, regulate mood, and have significant therapeutic effects on certain diseases in that that practice of Tai Chi has a positive impact on improving both physical and mental health (Gao, 2022).

2.7.4 Micro-lecture and PAD Class: Innovative Teaching Methods

In the field of education, there is always a focus on innovation in teaching methods, this is also true for the teaching of university PE classes. In addition to common teaching methods such as Micro-lecture and PAD Class, several innovative teaching methods have been identified. With relevant teaching method research includes flipped-classroom with cooperative learning in a modern teaching method that focuses on students actively participating in problem-solving and discussions during class, while learning the foundational concepts at home. Micro-lecture is related to this concept in that it utilizes information technology to integrate technology, education, and teaching. From a PE perspective, the Micro-lecture shares with a flipped classroom model in beneficial for students' achievements in motor skills, sports participation, and social adaptation. Cooperative learning emphasizes students working together in groups or teams to solve problems, complete tasks, or acquire new knowledge. The main idea behind this approach is that through interaction and collaboration, students can develop a deeper understanding of the subject matter, enhance each other's learning experiences, and improve their communication and collaboration skills (Bores-García, Hortigüela-Alcalá, Fernandez-Rio, González-Calvo, & Barba-Martín, 2021). The PBL teaching approach is a method of instruction that centers around students actively learning through problem-solving. It emphasizes collaboration and communication among students and aims to foster their independent learning skills. Implementing the PBL teaching method in Micro teaching in university PE classes can enhance classroom engagement and enhance students' understanding of the subject matter (Li, Liu, & Wang, 2021).

2.7.5 Impact of TAM on Teachers' Intention

TAM (Technology Acceptance Modeling) is built upon the Theory of Reasoned Action (TRA) developed by Ajzen and Fishbein in 1980 (Gupta, Tiwari, Hassan, & Gupta, 2023). The original TAM framework emphasizes that attitudes toward intention to use are determined by perceived ease of use and perceived usefulness. These two factors play a crucial role in determining the acceptance of a technology (Davis, 1989). The model contains vital variables of user motivation (i.e., perceived ease of use, perceived usefulness, and attitudes toward technology) and outcome variables (i.e., behavioral intentions and technology use). The variables of perceived usefulness (PU) and perceived ease of use (PEOU) are considered crucial factors that directly or indirectly explain the consequences. (Elsayed & Saad, 2023; Zhong, Oh, & Moon, 2021).

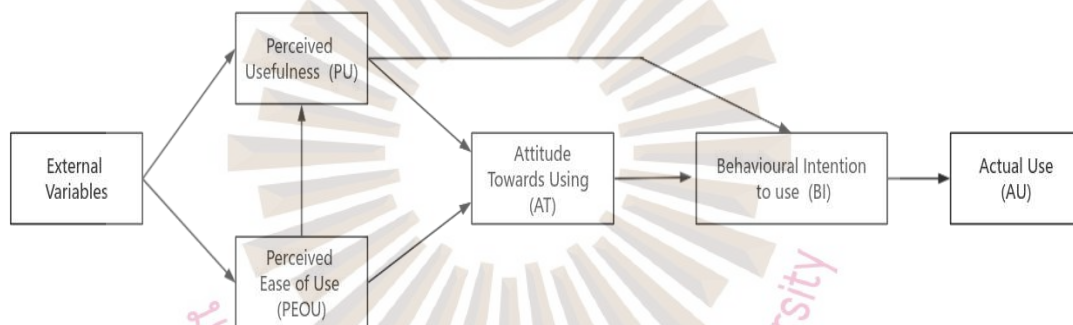


Figure 2.3 Technology Acceptance Model

Source: Davis, 1986

TAM serves as a theoretical framework utilized for elucidating and forecasting an individual's inclination towards embracing new technology. In the context of novel teaching methodologies, TAM offers valuable elucidations pertaining to educators' reception of such methodologies (Alshurideh, Abuanzeh, Kurdi, Akour, & AlHamad, 2023; Chen & Aklikokou, 2020; Amani, 2022).

1) Perceived Ease of Use

In TAM, perceived usefulness pertains to an individual's subjective assessment of whether a specific technology provides practical value in their job or task.

Educators are more inclined to adopt and utilize new teaching methods if they believe that these methods can enhance student learning outcomes, elevate teaching effectiveness, or improve instructional efficiency (Huang, 2017). Moreover, numerous studies have confirmed the significance of PEOU as a primary determinant of attitudes toward technology acceptance (Herlina, Destriana, & Giovanny, 2023; Ngabiyanto, Nurkhin, Widiyanto, Saputro, & Kholid, 2021). Most educators consider operational simplicity and learning costs associated with new technologies to be more important (Qashou, 2021; Al-Adwan, 2020). Simple to use and easier for others to use (Natasia, Wiranti, & Parastika, 2022; Al-Adwan, 2020).

2) Perceived Usefulness

Perceived ease of use (PU) relates to an individual's personal perception of how much a specific technology aids them in accomplishing their objectives. Previous studies have demonstrated that PU is a primary influencer of user attitudes toward technology and also has both direct and indirect impacts on behavioral intentions (Wicaksono & Maharani, 2020). Teachers are more inclined to embrace and implement new teaching methods if they are perceived as comprehensible and easy to use (Prastiawan, Aisjah, & Rofiaty, 2021).

3) Attitudes Toward Use

Teachers' cognitive attitudes encompass their overall perceptions of a new teaching approach, encompassing emotional and mental dimensions. Favorable cognitive attitudes are often linked to stronger inclinations to adopt the method (Weng et al., 2018). The general attitudes of teachers towards integrating new teaching methods play a pivotal role in shaping their intentions. Positive attitudes, whether cognitive or emotional, heighten the probability of teachers embracing novel techniques (Hong, Hwang, Sai, Liu, & Lee, 2022). Teachers are more inclined to explore and consistently employ new teaching methods if they believe in their benefits (Karanezi & Rapti, 2015; Nurhayati, Fitriah, Halimatusadiah, & Azis, 2023).

4) Behavioral Intentions to use

It is the expression of an individual's willingness or likelihood to engage in a specific behavior, particularly in the context of adopting or using a particular technology or service. This concept holds great significance in TAM theory (Gwendolyn et al., 2023). Behavioral intentions are considered predictors of actual behavior. In the realm of technology acceptance, the intention to use a specific technology is viewed as an indicator of the probability that an individual will actually use it. While intentions do not guarantee behavior, they strongly indicate it. The theory posits that individuals with positive intentions are more likely to follow through and engage in behaviors such as adopting and using new technologies (Prieto, Miguel áñez, & García-Peñalvo, 2015).

5) Actual Use:

"Actual Use" denotes the factual and real scenario in which an individual genuinely engages with or utilizes a product, service, technology, or system. It signifies the tangible manifestation of an individual's practical application of technology in real-world usage (Turner, Kitchenham, Brereton, Charters, & Budgen, 2010).



Chapter 3

Research Methodology

This chapter details the study's research design, population and sample selection, data collection and analysis procedures that were used in this study. In addition, the ethical issues and limitations of the study are discussed.

3.1 Research Plan

In this study, an explanatory sequential design was performed, with the quantitative method followed by the qualitative method (Cresswell, 2012).

Quantitative:

After the research topic has been approved from the committee members of the oral defense, questionnaire was developed and presented to the advisor for verifying content validity in order to amend and develop the list more effectively;

Submitted the questionnaire to verify the accuracy and appropriation of the questionnaire by Index of item objective congruence: IOC to 5 experts which include scholars in the field of Education and professionals in the teaching of PE in universities to verify its validity:

Scoring +1 = Certain that the test is congruent with the objectives or content.

Scoring 0 = Uncertain that the test is congruent with the objectives or content.

Scoring -1 = Certain that the test is NOT congruent with the objectives or content;

The IOC result was 1.

The questionnaire was pretested with 30 non-sample PE instructors, and the reliability of the questionnaire had been tested using Cronbach's alpha coefficient (1990).

For the online questionnaire, the "Questionnaire Star" platform was chosen. This platform is a comprehensive tool for data collection, analysis, and management. It offers various features such as online questionnaires, exams, 360-degree evaluations, forms, assessments, and polls. It allows for the distribution of questionnaires through WeChat applet, real-time observation of questionnaire responses, and direct export of recovered questionnaire information. Overall, the platform is stable, convenient, and fast.

Letters of permission were requested from Suryadhep Teachers College for distributing questionnaires to Tai Chi instructors in six colleges and universities in Guangdong Province to collect data; 90 percent of the collated questionnaires with complete answers were received from the respondents and were further analyzed for the results.

3.2 Population and Samples

3.2.1 Population

The population of this study is all of 801 PE instructors with a specific qualification in teaching Tai Chi courses in 17 universities in Guangdong Province. Those colleges and universities are:

- 1) Zhanjiang University of Science and Technology;
- 2) Zhanjiang Preschool Education College and Technology;
- 3) Lingnan Normal University Guangdong;
- 4) Guangdong Ocean University;
- 5) Guangdong Medical University;
- 6) Dongguan University of Technology;
- 7) Dongguan Polytechnic;

- 8) Dongguan City University;
- 9) Guangdong University of Science and Technology;
- 10) Zhaoqing University;
- 11) Guangdong Business and Technology University;
- 12) Guangdong Technology College;
- 13) Guangdong Polytechnic Normal University;
- 14) Guangzhuo Huali College;
- 15) Guangzhou College of Commerce, and
- 16) Guangzhou College of Commerce;
- 17) Guangdong Polytechnic of Industry and Commerce.

3.2.2 Sampling and Sample size

Since this study focused on PE instructors' intentions to use Micro-lecture and PAD Class teaching methods to teach Tai Chi at universities in Guangdong Province. Because of a specific qualification of the population that must be PE instructors that represent a convenience sample taken from a population of 801 PE instructors who teach Tai Chi in the universities in Guangdong Province. A sample size of 303 PE Instructors teaching Tai Chi in PE at 6 different universities in Guangdong Province. the sample size gained by drawing a name of the 17 universities, at a time, until getting the determined sample size of 260 calculated by Krejcie Morgan's determination table (1970). The total sample size turns out to be 291 from six universities for the quantitative purpose, of which are acceptable numbers of a sample size that exceed 260.

During the quantitative data collection and analysis, 291 subjects were administered questionnaires concerning their intentions to use Micro-lecture and PAD Class to teach Tai Chi. In the qualitative part, 12 informants, who were PE head instructors/administrators, were interviewed to gain guidelines for improving future Tai Chi courses using Micro-lecture and PAD Class.

Table 3.1 The sample size from Universities in Guangdong Province.

Serial Number	Colleges/Universities	Type	Number of PE Instructors
1	Zhanjiang University of Science and Technology	Private undergraduate	43
2	Zhanjiang Preschool Education College	Public vocational college	38
3	Lingnan Normal University	Public undergraduate	83
4	Guangdong Ocean University	Public undergraduate	55
5	Guangdong Medical University	Public undergraduate	36
6	Dongguan University of Technology	Public undergraduate	48
7	Dongguan Polytechnic	Public undergraduate	48
8	Dongguan City University	Private undergraduate	34
9	Guangdong University of Science and Technology	Private undergraduate	46
10	Zhaoqing University	Public undergraduate	75
11	Guangdong Business and Technology University	Public undergraduate	52
12	Guangdong Technology College	Public undergraduate	47
13	Guangdong Polytechnic Normal University	Public undergraduate	61
14	Guangzhou Vocational University of Technology	Public undergraduate	28
15	Guangzhuo Huali College	Private undergraduate	38
16	Guangzhou College of Commerce	Private undergraduate	42
17	Guangdong Polytechnic of Industry and Commerce	Public vocational college	27

After sampling, the drawing from 17 universities, the numbers of 291 sample of the PE instructors teaching Tai Chi course for the quantitative and 12 for the qualitative purpose were obtained as listed below:

- 1) Zhanjiang University of Science and Technology (ZUST), a sample of 43;
- 2) Zhanjiang Preschool Education College (ZPEC), a sample of 38;
- 3) Lingnan Normal University (LNU), a sample of 83;
- 4) Guangdong Ocean University, (GOU) a sample of 55
- 5) Guangdong Medical University, (GMU) a sample of 36
- 6) Dongguan University of Technology (DUT), a sample 48

To conclude, in terms of the explanatory sequential research design used in this study, quantitative methods were followed by qualitative methods. The survey research design involved a total of 303 respondents, with 291 subjects provided with questionnaires. Then, a qualitative method with data collection and analysis was conducted, leading to the interpretation, with 12 respondents, who were PE course head instructors/administrators from each university, interviewed through semi-structured interviews.

3.2.3 Instruments

In this paper, a questionnaire survey used with a sample of 303 total population from six universities in Guangdong Province, of which 291 given the questionnaire and PE administrators interviewed to find out their acceptance of using Micro-lecture and PAD class to teach Tai Chi in order to obtain guidelines for teaching Tai Chi with Micro-lecture and PAD class in their future courses.

The questionnaire was included personal information such as gender, education level, job title, and work experience.

In this study, the questionnaire was designed from the following points:

- 1) Micro-lecture and PAD Class Anxiety, Aptitude, and Teaching Practice Performance Questionnaire (MAATPPQ by Olusanya, Omolara Oluwatoyin (2022);
- 2) The Stages of Concern Questionnaire (George, Hall, & Stiegel Bauer, 2013) using a five-point Likert scale.

The questionnaire survey was collected Tai Chi instructors' intention of using Micro-lecture and PAD class in Tai Chi courses through questions on content, design, feedback and influencing factors.

To understand teachers' acceptance of new teaching methods in Tai Chi courses teaching, so as to improve the teaching design of Tai Chi courses.

The questionnaire comprised two parts:

Part I: Personnel Status of Respondent, including gender, age, working school, educational background, professional title, and years of experience.

Part II: Questionnaire of Tai Chi course design based on Micro-lecture and PAD Class. A total of 28 items was included. It was categorized into 4 groups as the following:

- 1) Attitudes towards the use of technology in the use of new teaching methods: Items 1-7;
- 2) Perceived usefulness of new teaching methods: Items 8- items 14;
- 3) Perceived ease of use with new teaching methods: Items 15- 21; and
- 4) Intentions to Use Teaching Methods for Better Future Development and Prospect Course: Items 22-28.

3.3 Data Analysis

The collected questionnaires were analyzed with descriptive and inferential statistics by using Excel and SPSS. The acceptance of PE instructors regarding the use of Micro-lecture and PAD Class in teaching Tai Chi was examined. This analysis aimed to identify the requirements and challenges of classroom teaching and to enhance the overall teaching design of the future Tai Chi courses.

The statistic is illustrated to describe as mean means, standard deviation, percentages, frequencies and the level of agreement analyzed and determined by the study of Best and Kahn (2006).

The Level of Intentions:

The Score of 4.5-5.00 = Strongly Positive Intention

The Score of 3.50-4.49 = Positive Intention

The Score of 2.5-3.49 = Moderately Positive Intention

The Score of 1.50-2.49 = Negative Intention

The Mean scores 1.00-1.49 = Strongly Negative Intention

The Level of Agreement:

The Score of 4.5-5.00 = Strongly Agree

The Score of 3.50-4.49 = Agree

The Score of 2.5-3.49 = Moderately Agree

The Score of 1.50-2.49 = Disagree

The Mean scores 1.00-1.49 = Strongly Disagree

Analyses of reliability by Alpha coefficient of Cronbach, with a value of 0.980, Coefficient Correlation, Survey data was analyzed using descriptive statistics followed by multiple regression.

Qualitative:

In this study, semi-structured interviews were conducted with 12 experienced full-time PE administrators who used to teach Tai Chi teachers with more than 15 years of teaching experience in order to find out their perceptions and feelings about the Tai Chi course based on Micro-lecture and PAD Class. To find out their acceptance of the use of Micro-lecture and PAD Class instruction in Tai Chi course. Results from the questionnaire was developed to use interview outline and questions. The interview was a face-to-face with an audio recording of the interviews, and was transcribed and coded with thematically analysis to extract the experts' strengths, weaknesses, and suggestions about those teaching methods to better teaching and learning in Tai Chi course.

3.3.1 Interview for Guidelines of Better Teaching Tai Chi Course

This interview was performed after distributing and collecting questionnaires. The results gained from questionnaire was written up for the interview questions concerning the use of Micro-lecture and PAD Class in the future Course of teaching Tai Chi. The informants for the interview were 12 PE course head instructors/administrators of 15 years of teaching experience in six universities in Guangdong Province, holding the title of associate professor or above. These 12 administrators will then be individually interviewed in a face-to-face with a semi-structured manner to gain insights into their perspectives regarding the use of Tai Chi courses based on Micro-lecture and PAD Class.

In order to ensure the privacy of the individuals being interviewed, their consent prior to conducting the interviews was obtained. The interviews will take place in a safe secluded environment, where the perspectives of the interviewees were maintained with confidentiality. This approach will allow to gather diverse perspectives from informants with different characteristics, ensuring that the resulting viewpoints are more representative and enhancing the credibility of our study.

The Questions for the interviews was based on the questionnaire results involving.

- 1) Personal information: Including the basic information of the interviewees;
- 2) Intention and acceptance: Towards better Tai Chi Course with Micro-lecture and PAD Class;
- 3) Impact and experiences on Better Tai Chi Course: With Micro-lecture and PAD Class with the views on the problems that arise during the regular teaching of Tai Chi and the impacts that would be brought about by the use of Micro-lecture and PAD Class for teaching Tai Chi;
- 4) Guidance and support: What kind of support and guidance they would like to suggest if using these new methods for teaching; and
- 5) Other relevant questions: About the reform of teaching Tai Chi and the use of Micro-lecture and PAD Class for teaching.

3.3.2 Content Analysis

Content Analysis with thematic (Braun & Clarks, 2006). After obtaining the interviewer's permission, the interview transcripts and recordings was created to facilitate the organization and analysis of the interview content. The interviews will then be transcribed, coded, and analyzed thematically to identify important information and ideas. The codes were categorized into themes, and the logical relationship between these themes was studied.

By establishing the logical connections between the codes and themes and exploring the theoretical relationships, it is crucial to investigate the instructors' intentions and acceptability for using Micro-lecture and PAD Class. This will help understand their impact on pedagogy and develop guidelines for using Micro-lecture and PAD Class in teaching Tai Chi for college PE in universities in Guandong Province.

3.4 Ethical Concerns

In this study, after granted permission for collecting data, regarding the matter of personal information, the private information of the participants in both quantitative and qualitative will not be revealed without consent. All data collected in this study will not be shared without the participants' authorization and will only be used for the purposes of this research.

3.5 Limitation

The purpose of this study was to investigate the level of behavioural intention of PE teachers in Guangdong universities to use Micro-lecture and PAD Class in teaching Tai Chi course, and to understand the effects of attitude towards using Micro-lecture and PAD Class, perceived ease of use and perceived usefulness on behavioural intention of PE teachers in Guangdong universities to use Micro-lecture and PAD Class in teaching Tai Chi course. It is about the transformation of the traditional passive learning methods to involve intentions of PE instructors in improving their teaching methods. However, it is important to note that this research solely focuses on only the first and foremost instructors' choice of whether to use these two methods in teaching Tai Chi which does not cover diverse and various methods or behavioral intentions in other aspects such as application model of teaching methods together, Future research should include instructional design model of using Micro-Lecture and PAD Class teaching Tai Chi course in various regions of universities in China

Chapter 4

Results of Data Analysis

A study of the factors influencing Behavioral Intention to Use Micro-lecture and PAD Class. The study is divided into several steps.

The analysis in this study is as follows:

- 4.1 Descriptive analysis of demographic variables
- 4.2 Descriptive Statistics of Survey Variables
- 4.3 Reliability test of the questionnaire
- 4.4 Validity test of the questionnaire
- 4.5 Comparative analysis of differences in survey variables
- 4.6 Correlation analysis
- 4.7 Multivariate regression analysis
- 4.8 Qualitative Analysis

Abbreviation and symbols:

$\bar{X}$	=	Arithmetic Mean
S.D.	=	Standard Deviation
p	=	Statistical Significance
N	=	Sample Size
R^2	=	Coefficient of Determination
ATU	=	Attitudes Towards Use
PEOU	=	Perceived Ease of Use
PU	=	Perceived Usefulness
ITU	=	Intentions to Use

4.1 Descriptive analysis of demographic variables

4.1.1 Demographic of Respondent

Table 4.1 describes the statistical information of 291 PE teachers from 6 universities in Guangdong Province. In terms of gender distribution among the respondents, the majority are male, accounting for 66% of the total, while females make up 34%; The age group with the highest number of respondents is 25-30 years old., accounting for 44% of the total, with the fewest being those aged 60 and above, only 8 individuals, making up 2.7% of the total. Most respondents fall within the age range of 31-50 years old. Regarding educational background, 170 individuals hold a bachelor's degree, exceeding half of the total (58.4%), while only 23 individuals have a doctoral degree, representing 7.9%. As for Professional Title, lecturers make up 79%, while professors account for only 5.8%. In terms of work experience, the majority of surveyed PE teachers have worked for 1-5 years, making up 51.5%, with 109 individuals having over ten years of work experience, representing 37.5% of the total.

Table 4.1 Frequency and Percentage of Respondents

Demographics of respondents		Frequency	Percentage
Gender	Male	192	66.00%
	Female	99	34.00%
Age	25-30 years	128	44.00%
	31-40 years	75	25.80%
	41-50 years	64	22.00%
	51-60 years	16	5.50%
	Above 60 years old	8	2.70%

Table 4.1 Frequency and Percentage of Respondents (Cont.)

Demographics of respondents		Frequency	Percentage
Level of The Study	Bachelor Degree	170	58.40%
	Master Degree	98	33.70%
	Doctoral Degree	23	7.90%
Professional Title	Lecturer	230	79.04%
	Associate Professor	44	15.12%
	Professor	17	5.84%
Work Experiences	1-5 years	150	51.50%
	6-10 years	32	11.00%
	More than 10 years	109	37.50%

4.2 Descriptive Statistics of Survey Variables

4.2.1 Descriptive statistics

According to Table 4.2, the mean of ATU is 4.127 (S.D. = 0.732), PEOU has a mean of 3.970 (S.D. = 0.713), PU has a mean of 4.072 (S.D. = 0.763), all close to 4 points, where 4 points in the original scale = Agree. Therefore, it can be concluded that, based on this survey, the interviewed PE teachers all believe that ATU, PEOU, and PU will affect ITU.

Table 4.2 Descriptive Statistics

Variable	N	Minimum	Maximum	$\bar{X}$	S.D.
ATU	291	1.86	5.00	4.127	0.732
PEOU	291	1.86	5.00	3.970	0.713
PU	291	1.00	5.00	4.072	0.763
ITU	291	1.00	5.00	4.092	0.793

Table 4.2 Descriptive Statistics (Cont.)

Variable	N	Minimum	Maximum	$\bar{X}$	S.D.
Valid N (listwise)	291				

4.2.2 Descriptive statistics of PE Teachers According to Gender

Table 4.3 describes the statistical data of the respondent PE teachers grouped by gender. From the statistical scale of ATU, the mean value of ATU for PE teachers was 4.127 (S.D.=0.732), where the mean value of ATU for male teachers was higher than the mean value of 4.178 (S.D.=0.723), and the mean value of ATU for female teachers was lower than that of male teachers at 4.029 (S.D.=0.741); From the statistical scale of PEOU, male teachers had a mean value of 4.026 (S.D. = 0.732), and female teachers had a lower mean value than male teachers at 3.86 (S.D. = 0.664); From the statistical scale of PU, male teachers had a mean value of 4.117 (S.D. = 0.776), while female teachers had a lower mean value of 3.984 (S.D. = 0.732); for ITU's statistical scale, the mean value for male teachers was 4.117 (S.D.=0.825) and the mean value for female teachers was 4.043 (S.D.=0.726).

Table.4.3 Descriptive statistics of PE Teachers According to Gender

Gender		N	$\bar{X}$	S.D.
ATU	Male	192	4.178	0.723
	Female	99	4.029	0.741
	Total	291	4.127	0.732
PEOU	Male	192	4.026	0.732
	Female	99	3.860	0.664
	Total	291	3.970	0.713
PU	Male	192	4.117	0.776
	Female	99	3.984	0.732
	Total	291	4.072	0.763

Table.4.3 Descriptive statistics of PE Teachers According to Gender (Cont.)

Gender		N	$\bar{X}$	S.D.
ITU	Male	192	4.117	0.825
	Female	99	4.043	0.726
	Total	291	4.092	0.793

4.2.3 Descriptive statistics of PE Teachers According to Age

Table 4.4 describes the statistical data of surveyed PE teachers grouped by age. From the statistical scale of ATU, the overall evaluations of teachers in the age groups of 31-40 years, 41-50 years, 51-60 years, and above 60 years old are all higher than the average of 4.127 (S.D. = 0.732). Among them, the age group of 31-40 years has the highest mean value of 4.198 (S.D. = 0.691), while the age group of 25-30 years has the lowest mean value of 4.071 (S.D. = 0.731). From the statistical scale of PEOU, only the mean values of teachers in the age groups of 31-40 years and 51-60 years are higher than the average, with values of 4.076 (S.D. = 0.664) and 4.009 (S.D. = 0.870) respectively. The mean values of the other age groups are below the average, with the age group of above 60 years old having the lowest mean value of 3.607 (S.D. = 0.998). According to the statistical scale of PU, the age group of 41-50 years has the highest mean value of 4.120 (S.D. = 0.722), while the age group of above 60 years old has the lowest mean value of 3.321 (S.D. = 1.199). From the statistical scale of ITU, the age group of 31-40 years has the highest mean value above the average, at 4.158 (S.D. = 0.718), while the mean values of teachers in the other age groups are below the average, with the age group of above 60 years old having the lowest mean value of 3.554 (S.D. = 1.267).

Table.4.4 Descriptive statistics of PE Teachers According to Age

	Age	N	$\bar{X}$	S.D.
ATU	25-30 years	128	4.071	0.731
	31-40 years	75	4.198	0.691
	41-50 years	64	4.132	0.715
	51-60 years	16	4.196	0.897
	Above 60 years old	8	4.179	0.986
	Total	291	4.127	0.732
PEOU	25-30 years	128	3.953	0.711
	31-40 years	75	4.076	0.664
	41-50 years	64	3.913	0.690
	51-60 years	16	4.009	0.870
	Above 60 years old	8	3.607	0.998
	Total	291	3.970	0.713
PU	25-30 years	128	4.079	0.722
	31-40 years	75	4.109	0.719
	41-50 years	64	4.121	0.750
	51-60 years	16	4.018	0.965
	Above 60 years old	8	3.321	1.199
	Total	291	4.072	0.763
ITU	25-30 years	128	4.090	0.793
	31-40 years	75	4.158	0.718
	41-50 years	64	4.085	0.756
	51-60 years	16	4.089	0.972
	Above 60 years old	8	3.554	1.267

Table.4.4 Descriptive statistics of PE Teachers According to Age (Cont.)

Age		N	$\bar{X}$	S.D.
	Total	291	4.092	0.793

4.2.4 Descriptive statistics of PE Teachers According to Level of The Study group

Table 4.5 describes the statistical data of surveyed PE teachers grouped by Level of The Study. From the statistical scale of ATU, teachers with a doctoral degree have the highest mean at 4.323 (S.D.=0.699), while teachers with bachelor's and master's degrees have means below the average, at 4.106 (S.D.=0.756) and 4.118 (S.D.=0.695) respectively; From the statistical scale of PEOU, teachers with a bachelor's degree have the highest mean at 4.008 (S.D.=0.714), with teachers from other groups having means below the average. From the statistical scale of PU, teachers with a bachelor's degree also have the highest mean at 4.113 (S.D.=0.740), with teachers from other groups having means below the average; From the statistical scale of ITU, once again, teachers with a bachelor's degree have the highest mean at 4.117 (S.D.=0.792), with teachers from other groups having means below the average.

Table.4.5 Descriptive statistics of PE Teachers According to Level of The Study group

Level of The Study		N	$\bar{X}$	S.D.
ATU	Bachelor Degree	170	4.106	0.756
	Master Degree	98	4.118	0.695
	Doctoral Degree	23	4.323	0.699
	Total	291	4.127	0.732
PEOU	Bachelor Degree	170	4.008	0.714
	Master Degree	98	3.908	0.685

Table.4.5 Descriptive statistics of PE Teachers According to Level of The Study group
(Cont.)

Level of The Study		N	$\bar{X}$	S.D.
	Doctoral Degree	23	3.944	0.825
	Total	291	3.970	0.713
PU	Bachelor Degree	170	4.113	0.740
	Master Degree	98	4.026	0.752
	Doctoral Degree	23	3.963	0.967
	Total	291	4.072	0.763
ITU	Bachelor Degree	170	4.117	0.792
	Master Degree	98	4.063	0.749
	Doctoral Degree	23	4.031	0.988
	Total	291	4.092	0.793

4.2.5 Descriptive statistics of PE Teachers According to Professional Title group

Table 4.6 describes the statistical data of surveyed PE teachers grouped by Professional Title. From the statistical scale of ATU, teachers with the title of Professor have the highest mean, above the average of 4.445 (S.D.=0.8), while all other groups are below the average. The group with the lowest mean is teachers with the title of Associate Professor, with a mean of 3.997 (S.D.=0.783). From the statistical scale of PEOU, teachers with the title of Professor have the highest mean, above the average of 4.109 (S.D.=0.826), and the group with the lowest mean is teachers with the title of Associate Professor, with a mean of 3.744 (S.D.=0.751), below the average. The means for all other groups are above the average. From the statistical scale of PU, only the mean of teachers with the title of Associate Professor is below the average, at 3.866 (S.D.=0.825), while the means of all other groups are above the average. Teachers with the title of Professor have the highest mean at 4.109 (S.D.=1.107). From the statistical

scale of ITU, teachers with the title of Professor have the highest mean at 4.210 (S.D.=1.103), while teachers with the title of Associate Professor have the lowest mean at 3.860 (S.D.=0.836).

Table.4.6 Descriptive statistics of PE Teachers According to Professional Title group

Professional Title		N	$\bar{X}$	S.D.
ATU	Lecturer	230	4.129	0.712
	Associate Professor	44	3.997	0.783
	Professor	17	4.445	0.800
	Total	291	4.127	0.732
PEOU	Lecturer	230	4.003	0.691
	Associate Professor	44	3.744	0.751
	Professor	17	4.109	0.826
	Total	291	3.970	0.713
PU	Lecturer	230	4.108	0.717
	Associate Professor	44	3.867	0.825
	Professor	17	4.109	1.107
	Total	291	4.072	0.763
ITU	Lecturer	230	4.127	0.753
	Associate Professor	44	3.860	0.836
	Professor	17	4.210	1.103
	Total	291	4.092	0.793

4.2.6 Descriptive statistics of PE Teachers According to Work Experiences group

Table 4.7 presents the statistical data of the surveyed PE teachers categorized by work experience. From the statistical scale of ATU, teachers with over 10 years of

work experience had the highest mean value at 4.228 (S.D.=0.740), while those with less than 5 years had the lowest mean value. From the statistical scale of PEOU, teachers with 6-10 years of experience had the highest mean value at 4.063 (S.D.=0.707), and those with less than 5 years had the lowest at 3.930 (S.D.=0.700). From the statistical scale of PU, teachers with 6-10 years of experience had the highest mean value at 4.112 (S.D.=0.842), and those with less than 5 years had the lowest at 4.035 (S.D.=0.703). From the statistical scale of ITU, teachers with 6-10 years of experience had the highest mean value at 4.192 (S.D.=0.804), while those with less than 5 years had the lowest at 4.052 (S.D.=0.774).

Table.4.7 Descriptive statistics of PE Teachers According to Work Experiences group

Work Experiences		N	$\bar{X}$	S.D.
ATU	1-5 years	150	4.054	0.728
	6-10 years	32	4.125	0.701
	More than 10 years	109	4.228	0.740
	Total	291	4.127	0.732
PEOU	1-5 years	150	3.930	0.700
	6-10 years	32	4.063	0.707
	More than 10 years	109	3.997	0.734
	Total	291	3.970	0.713
PU	1-5 years	150	4.035	0.703
	6-10 years	32	4.112	0.842
	More than 10 years	109	4.110	0.821
	Total	291	4.072	0.763
ITU	1-5 years	150	4.052	0.774
	6-10 years	32	4.192	0.804
	More than 10 years	109	4.117	0.818
	Total	291	4.092	0.793

4.3 Reliability test of the questionnaire

Reliability analysis can be used to determine whether the inter-volume sample data is reliable, that is, whether the sample truly responds to the questionnaire items. This study employs Cronbach's alpha reliability coefficient to test the measurement reliability of the sample. If the questionnaire data exhibits good internal consistency, it signifies high reliability of the questionnaire. Only with high reliability of the inter-volume, the theoretical model and specific data constructed in the article have analytical and research significance. Cronbach's alpha reliability coefficient specific evaluation criteria: if it is above 0.8, then the reliability of the test or scale is very good, reliability coefficient above 0.7 is acceptable; if it's above 0.6, the scale should be revised but still retains its value; if it's below 0.6, the scale needs to be redesigned.

According to Table 4.8, internal consistency is 0.942 for ATU; 0.908 for PEOU; 0.951 for PU; and 0.954 for ITU; all greater than 0.9, indicating high internal consistency and reliability. Further research can be conducted.

Table 4.8 Reliability test

Variable	Cronbach's Alpha	No. of Items
ATU	0.942	7
PEOU	0.908	7
PU	0.951	7
ITU	0.954	7
Organizational Performance	0.980	28

4.4 Validity test of the questionnaire

The validity test is a method used to measure the validity of questionnaires and the effectiveness of measurement factors. It can examine whether the results of the

questionnaire survey correspond to reality and validate whether the survey questionnaire can achieve its purpose. The criterion for judgment is: a KMO value greater than 0.5 indicates that the data obtained from this questionnaire is suitable for factor analysis; Bartlett's test of sphericity significance less than 0.05 indicates that the survey questionnaire data has reached a significant level.

According to the data analysis in Table 4.9, the overall questionnaire's KMO value is $X > 0.6$, indicating that there are more common factors among different variables. Bartlett's test of sphericity shows that the significance probability of the chi-square statistic is $P < 0.05$, indicating that the overall questionnaire data has reached a significant level, and the original data feedback of the questionnaire is highly suitable. Through the analysis above, it can be concluded that this survey questionnaire has high validity, and the collected information can accurately reflect the issues.

Table 4.9 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.968
Bartlett's Test of Sphericity	Approx. Chi-Square	8836.255
	df	378
	Sig.	0

4.5 Comparative analysis of differences in survey variables

Test of Difference can be used to compare two or more sets of data to determine if there is a statistically significant difference between them. Based on the questionnaire setup, the test of difference was conducted in five areas: gender, age, Level of The Study, Professional Title and Work Experiences.

4.5.1 Independent Samples t-test Based on Gender

According to the results of independent samples t-test in Table 4.10, it can be seen that the differences of each variable on gender. the test value of the significance of

the differences of the four variables ATU, PEOU, PU and ITU on gender is greater than 0.05, which means that the differences of the selection of teaching methods of PE teachers in different genders are small, and there is no statistically significant difference on gender. Based on the mean values, it can be seen that males perform slightly higher than females in all variables.

Table 4.10 Independent Samples Test for Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
ATU	Equal variances assumed	.788	.376	1.651	289	.100	.14897	.09025
	Equal variances not assumed			1.637	193.775	.103	.14897	.09097
PEOU	Equal variances assumed	.711	.400	1.891	289	.060	.16601	.08781
	Equal variances not assumed			1.951	215.910	.052	.16601	.08510
PU	Equal variances assumed	.079	.779	1.409	289	.160	.13269	.09420
	Equal variances not assumed			1.435	208.508	.153	.13269	.09246

Table 4.10 Independent Samples Test for Gender (Cont.)

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
ITU	Equal variances assumed	1.150	.284	.749	289	.454	.07353	.09814
	Equal variances not assumed			.780	221.582	.436	.07353	.09422

4.5.2 Independent samples t-test based on Age

According to the results of one-way ANOVA on age in Table 4.11, it can be seen that among the four dimensions, the results of the significance test for ATU, PEOU, PU, and ITU are 0.792, 0.373, 0.081, and 0.379, respectively, which are significantly greater than 0.05, indicating that the dimensions have less variability in terms of age.

Table 4.11 Independent samples t-test based on Age

Age		Sum of Squares	df	Mean Square	F	Sig.
ATU	Between Groups	.874	4	.219	.405	.805
	Within Groups	154.319	286	.540		
	Total	155.193	290			
PEOU	Between Groups	2.168	4	.542	1.068	.373

Table 4.11 Independent samples t-test based on Age (Cont.)

Age		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	145.195	286	.508		
	Total	147.363	290			
PU	Between Groups	4.812	4	1.203	2.100	.081
	Within Groups	163.857	286	.573		
	Total	168.668	290			
ITU	Between Groups	2.651	4	.663	1.056	.379
	Within Groups	179.530	286	.628		
	Total	182.180	290			

4.5.3 Independent samples t-test based on Level of The Study

According to the results of one-way ANOVA on Level of The Study at Table 4.12, it can be seen that among the four dimensions, the results of the significance test for ATU, PEOU, PU, and ITU are 0.412, 0.534, 0.522, and 0.805, respectively, which are significantly greater than 0.05, indicating that the dimensions have less variability on Level of The Study. There is less difference on it. In terms of means, Master Degree teachers were slightly higher in the PEOU, PU, and ITU dimensions, and Doctoral Degree teachers were slightly higher in the ATU dimension.

Table 4.12 Independent samples t-test based on Level of The Study

Level of The Study		Sum of Squares	df	Mean Square	F	Sig.
ATU	Between Groups	.967	2	.484	.903	.407
	Within Groups	154.226	288	.536		
	Total	155.193	290			
PEOU	Between Groups	.641	2	.320	.629	.534
	Within Groups	146.722	288	.509		
	Total	147.363	290			
PU	Between Groups	.760	2	.380	.652	.522
	Within Groups	167.908	288	.583		
	Total	168.668	290			
ITU	Between Groups	.274	2	.137	.217	.805
	Within Groups	181.906	288	.632		
	Total	182.180	290			

4.5.4 Independent samples t-test based on Professional Title

According to the results of one-way ANOVA on Professional Title in Table 4.13, it can be seen that among the four dimensions, the results of the significance tests of ATU, PEOU, PU, and ITU are 0.1, 0.061, 0.154, and 0.1, respectively, which are greater than 0.05, which indicates that the dimensions are less different in Professional Title. There is less variability on.

Table 4.13 Independent samples t-test based on Professional Title

Professional Title		Sum of Squares	df	Mean Square	F	Sig.
ATU	Between Groups	2.470	2	1.235	2.329	.099
	Within Groups	152.723	288	.530		
	Total	155.193	290			
PEOU	Between Groups	2.829	2	1.415	2.819	.061
	Within Groups	144.534	288	.502		
	Total	147.363	290			
PU	Between Groups	2.174	2	1.087	1.880	.154
	Within Groups	166.494	288	.578		
	Total	168.668	290			
ITU	Between Groups	2.884	2	1.442	2.317	.100
	Within Groups	179.296	288	.623		
	Total	182.180	290			

4.5.5 Independent samples t-test based on Work Experiences

According to the results of one-way ANOVA on Table 4.14 about Work Experiences, it can be seen that among the four dimensions, the results of the significance test of ATU, PEOU, PU, and ITU are 0.169, 0.555, 0.704, and 0.611 respectively, which are significantly greater than 0.05, indicating that the dimensions have less variability in Work Experiences. There is less difference on the differences.

Table 4.14 Independent samples t-test based on Work Experiences

Work Experiences		Sum of Squares	df	Mean Square	F	Sig.
ATU	Between Groups	1.906	2	.953	1.791	.169
	Within Groups	153.287	288	.532		
	Total	155.193	290			
PEOU	Between Groups	.601	2	.301	.590	.555
	Within Groups	146.762	288	.510		
	Total	147.363	290			
PU	Between Groups	.411	2	.206	.352	.704
	Within Groups	168.257	288	.584		
	Total	168.668	290			
ITU	Between Groups	.621	2	.311	.493	.611
	Within Groups	181.559	288	.630		
	Total	182.180	290			

4.6 Correlation analysis

Table 4.15 shows the results of the correlation analysis of the relationship between ITU and ATU, PEOU and PU. It can be seen that: all the above means are less than 0.01 and the results are all significant. ATU has a strong positive correlation with ITU ($P=0.793$); PEOU has a strong positive correlation with ITU ($P=0.869$); and PU has a strong positive correlation with ITU ($P=0.917$) and it is close to 1, which shows that PU has a very strong influence on ITU.

Table 4.15 Correlation analysis of ITU with ATU, PEOU, PU

Variable	ITU	ATU	PEOU	PU
ITU	1			
ATU	.793**	1		

Table 4.15 Correlation analysis of ITU with ATU, PEOU, PU (Cont.)

Variable	ITU	ATU	PEOU	PU
PEOU	.869**	.815**	1	
PU	.917**	.786**	.897**	1

** (P<0.01) * (P<0.05)

4.7 Multivariate regression analysis

4.7.1 Multiple regression analysis of the effects of ATU, PEOU, and PU on ITU of PE teachers

According to Table 4.16, Table 4.17 and Table 4.18, it can be concluded that the fit of this linear regression model is good, $R^2=0.858>0.6$, which means that the results of this operation can reflect the influence of ATU, PEOU and PU on ITU very real and reliable. There is no multicollinearity among the four independent variables, and the VIFs are all less than 10. The regression equation is significant, $F=579.328$, $P<0.001$, which means that at least one of the four independent variables can significantly influence the dependent variable ITU. ATU can significantly and positively influence ITU ($B=0.159>0$, $P<0.05$); PEOU can significantly and positively influence ITU ($B=0.172>0$, $p<0.05$); PU can significantly and positively influence ITU ($B=0.689>0$, $p<0.05$).

Multiple predictor model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

where

Y is ITU

X_1 is ATU

X_2 is PEOU

X_3 is PU

β_0 is the intercept

$\beta_{1..3}$ is the coefficient

ϵ is the error aka residual

Based on the coefficients provided, the multiple regression equation

predicting intention to use based on ATU, PEOU, and PU is as follows:

Finally, the following regression equation is derived:

$$Y = -0.051 + 0.159(X_1) + 0.172(X_2) + 0.689(X_3)$$

Table 4.16 Model Summary^b of the effects of ATU, PEOU, and PU on ITU of PE teachers

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.926a	.858	.857	.29994

a. Predictors: (Constant), PEOU, ATU, PU

b. Dependent Variable: ITU

Table 4.17 ANOVA^a of the effects of ATU, PEOU, and PU on ITU of PE teachers

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	156.360	3	52.120	579.328	.000b
	Residual	25.820	287	.090		
	Total	182.180	290			

a. Dependent Variable: ITU

b. Predictors: (Constant), PEOU, ATU, PU

Table 4.18 Coefficientsa of the effects of ATU, PEOU, and PU on ITU of PE teachers

Coefficientsa								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.051	.105		-.485	.628		
	ATU	.159	.043	.147	3.740	.000	.321	3.116
	PEOU	.172	.061	.155	2.817	.005	.164	6.110
	PU	.689	.054	.663	12.860	.000	.186	5.376

a. Dependent Variable: ITU

b Predictors: (Constant), PU, ATU, PEOU

4.7.2 Multiple regression analysis of the effect of questionnaire ATU, PEOU and PU grouping questions on ITU of PE teachers

According to Table 4.19, Table 4.20, and Table 4.21, it can be concluded that the fit of this linear regression model is good, $R^2=0.655>0.6$, which means that the results of this operation can reflect the influence of Q1 to Q7 on ITU in the questionnaire about ATU in a very real and reliable way. There is no multicollinearity among the seven questions and VIF is less than 5 for all of them. The regression equation is significant, $F=76.791$, $p<0.001$, can significantly and positively affect ITU.

Multiple predictor model:

$$Y = \beta_0 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

where

Y is ITU

X_4 is Q5

X_5 is Q6

X_6 is Q7

β_0 is the intercept

$\beta_{4..6}$ is the coefficient

ϵ is the error aka residual

Finally, the following regression equation is derived:

$$Y = 0.664 + 0.247(X_4) + 0.186(X_5) + 0.236(X_6)$$

Table 4.19 Model Summary^b of the effects of Questionnaire Q1-Q7 and ITU

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.809 ^a	.655	.647	.47120

a. Predictors: (Constant),

b. Dependent Variable: ITU

Table 4.20 ANOVA^a Model Summary^b of the effects of Questionnaire Q1-Q7 and ITU

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	119.347	7	17.050	76.791	.000 ^b
	Residual	62.833	283	.222		
	Total	182.180	290			

a. Dependent Variable: ITU

b. Predictors: (Constant),

Table 4.21 Coefficients^a ANOVA^a Model Summary^b of the effects of Questionnaire Q1-Q7 and ITU

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.664	.164		4.047	.000		
	Q1	.043	.054	.047	.796	.427	.348	2.877

Table 4.21 Coefficients^a ANOVA^a Model Summary^b of the effects of Questionnaire Q1-Q7 and ITU (Cont.)

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	Q2	.044	.058	.045	.752	.453	.333	3.001
	Q3	.031	.057	.031	.550	.583	.373	2.681
	Q4	.043	.062	.043	.696	.487	.312	3.204
	Q5	.247	.060	.278	4.088	.000	.264	3.794
	Q6	.186	.053	.216	3.508	.001	.320	3.124
	Q7	.236	.058	.249	4.037	.000	.320	3.123

a. Dependent Variable: ITU

b. Predictors: (Constant),

According to Table 4.22, Table 4.23, and Table 4.24, it can be concluded that the fit of this linear regression model is good, $R^2=0.778>0.6$, which means that the results of this calculation can reflect the influence of Q8 to Q14 on the questionnaire about the PEOU on the ITU in a very real and reliable way. There is no multicollinearity among the seven questions, and VIF is less than 5. The regression equation is significant, $F=141.923$, $p<0.001$, which means significantly and positively affect ITU.

Multiple predictor model:

$$Y = \beta_0 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \epsilon$$

where

Y is ITU

X_7 is Q9

X_8 is Q11

X_9 is Q12

X_{10} is Q13

X_{11} is Q14

β_0 is the intercept

$\beta_{7..11}$ is the coefficient

ϵ is the error aka residual

Finally, the following regression equation is derived:

$$Y = 0.286 + 0.083(X_7) + 0.251(X_8) + 0.163(X_9) + 0.186(X_{10}) + 0.18(X_{11})$$

Table 4.22 Model Summary^b of the effects of Questionnaire Q8-Q14 and ITU

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882a	.778	.773	.37779

a. Predictors: (Constant),

b. Dependent Variable: ITU

Table 4.23 ANOVA^a of the effects of Questionnaire Q8-Q14 and ITU

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	141.790	7	20.256	141.923	.000b
	Residual	40.391	283	.143		
	Total	182.180	290			

a. Dependent Variable: ITU

b. Predictors: (Constant),

Table 4.24 Coefficients^a of the effects of Questionnaire Q8-Q14 and ITU

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.286	.127		2.251	.025		

Table 4.24 Coefficientsa of the effects of Questionnaire Q8-Q14 and ITU (Cont.)

Coefficientsa								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	Q8	.027	.034	.031	.785	.433	.517	1.935
	Q9	.083	.034	.094	2.414	.016	.521	1.921
	Q10	.065	.036	.074	1.788	.075	.463	2.159
	Q11	.251	.037	.299	6.739	.000	.398	2.515
	Q12	.163	.045	.180	3.651	.000	.323	3.094
	Q13	.186	.041	.197	4.498	.000	.407	2.456
	Q14	.180	.036	.194	4.977	.000	.515	1.940

a. Dependent Variable: ITU

b Predictors: (Constant),

According to Table 4.25, Table 4.26, and Table 4.27, it can be concluded that the fit of this linear regression model is good, $R^2=0.867>0.6$, which means that the results of this calculation can reflect the influence of Q15 to Q21 on ITU in the questionnaire about PU in a very real and reliable way. There is no multicollinearity among the seven questions and VIF is less than 5 for all of them. The regression equation is significant, $F=263.131$, $P<0.001$, which means that at least one of the seven questions can significantly affect the dependent variable ITU. Q17 does not have a significant effect on ITU ($P>0.05$). Q15 ($B=0.104>0, P<0.05$), Q16 ($B=0.102>0, P<0.05$), Q18 ($B=0.081>0, P<0.05$), Q19 ($B=0.083>0, P<0.05$), Q20 ($B=0.112>0, P<0.05$), and Q21 ($B=0.416>0, P<0.05$), can significantly and positively influence the ITU.

Multiple predictor model:

$$Y = \beta_0 + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{11}X_{15} + \beta_{16}X_{16} + \beta_{17}X_{17} + \epsilon$$

where

Y is ITU

X_{12} is Q15

X_{13} is Q16

X_{14} is Q18

X_{15} is Q19

X_{16} is Q20

X_{17} is Q21

β_0 is the intercept

ϵ is the error aka residual

$\beta_{12..17}$ is the coefficient

Finally, the following regression equation is derived:

$$Y = 0.227 + 0.104(X_{12}) + 0.102(X_{13}) + 0.081(X_{14}) + 0.083(X_{15}) + 0.112(X_{16}) + 0.416(X_{17})$$

Table 4.25 Model Summary^b of the effects of Questionnaire Q15-Q21 and ITU

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.931 ^a	.867	.864	.29272

a. Predictors: (Constant),

b. Dependent Variable: ITU

Table 4.26 ANOVA^a of the effects of Questionnaire Q15-Q21 and ITU

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	157.932	7	22.562	263.313	.000 ^b
	Residual	24.249	283	.086		
	Total	182.180	290			

a. Dependent Variable: ITU

b. Predictors: (Constant),

Table 4.27 Coefficientsa of the effects of Questionnaire Q15-Q21 and ITU

Coefficientsa								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	.227	.095		2.396	.017		
	Q15	.104	.040	.118	2.584	.010	.226	4.423
	Q16	.102	.042	.116	2.453	.015	.210	4.761
	Q17	.042	.039	.045	1.096	.274	.276	3.630
	Q18	.081	.035	.084	2.332	.020	.362	2.762
	Q19	.083	.040	.089	2.087	.038	.261	3.830
	Q20	.112	.033	.125	3.441	.001	.356	2.806
	Q21	.416	.042	.454	9.864	.000	.222	4.499

a. Dependent Variable: ITU

b. Predictors: (Constant)

In summary, after removing the variables that do not respond to Y. Based on the above data, the final regression equation is:

$$Y = 1.177 + 0.247(X_4) + 0.186(X_5) + 0.236(X_6) + 0.083(X_7) + 0.251(X_8) + 0.163(X_9) + 0.186(X_{10}) + 0.18(X_{11}) + 0.104(X_{12}) + 0.102(X_{13}) + 0.081(X_{14}) + 0.083(X_{15}) + 0.112(X_{16}) + 0.416(X_{17})$$

where

Y is ITU

X_4 is Q5

X_5 is Q6

X_6 is Q7

X_7 is Q9

X_8 is Q11

X_9 is Q12

X_{10} is Q13

X_{11} is Q14

X_{12} is Q15

X_{13} is Q16

X_{14} is Q18

X_{15} is Q19

X_{16} is Q20

X_{17} is Q21

β_0 is the intercept

ϵ is the error aka residual

$\beta_{1..17}$ is the coefficient

4.8 Qualitative Analysis

4.8.1 Participants Information

All respondents were PE teachers from six surveyed schools in Guangdong Province. All held the academic titles of associate professor or professor, with four individuals holding a Ph.D. degree. Each respondent had over 10 years of experience in PE teaching, with three having worked for more than 30 years. The majority served as heads of the PE department or vice deans/deans at their respective schools, all possessing extensive experience in PE teaching.

Table 4.28 Participants Information

Participants	Introduce
1	Zhu Lihong, Professor, Director of the Department of PE, Zhanjiang University of Science and Technology, has been engaged in PE for over 30 years.
2	Wang Dongxu, Ph.D., Associate Professor, Zhanjiang University of Science and Technology, has been engaged in PE for over 20 years.
3	Su Fuzhi, Ph.D., Associate Professor, Director of the Department of PE, Dongguan University of Technology, has been engaged in PE for over 20 years.
4	Gao Feng, Associate Professor, Director of the Department of PE, Dongguan University of Technology, has been engaged in PE for over 15 years.
5	Su Xiong, Ph.D., Professor, Vice Dean of the College of PE, Guangdong Ocean University, has been engaged in PE for over 30 years.

Table 4.28 Participants Information (Cont.)

Participants	Introduce
6	Zhai Qingwen, Associate Professor, Director of the Department of Public PE, Guangdong Ocean University, has been engaged in PE for over 30 years.
7	Nie Jing, Associate Professor, Deputy Director of the Department of PE, Zhanjiang Preschool Teachers College, has been engaged in PE for over 10 years.
8	Dai Fengjian, Associate Professor, PE Lecturer at Zhanjiang Preschool Teachers College, has been engaged in PE for over 15 years.
9	Liang Liqi, Ph.D., Associate Professor, Vice Dean of the School of Physical Science, Lingnan Normal University, has been engaged in PE for over 15 years.
10	Liu Rui, Associate Professor, PE Lecturer at the School of Physical Science, Lingnan Normal University, has been engaged in PE for over 20 years.
11	Li Tonghui, Associate Professor, PE Lecturer at the Department of Public PE, Guangdong Medical University, has been engaged in PE for over 15 years.
12	Zhang Zhishang, Associate Professor, Director of the Department of Public PE, Guangdong Medical University, has been engaged in PE for over 20 years.

4.8.2 Attitudes Towards Use

Based on the interview content, all respondents believe that Micro-lecture and PAD Class methods are viable options for teaching Tai Chi. They express strong support for both approaches. They view Micro-lecture as a modern teaching tool that offers convenience for Tai Chi instruction. The flexibility, visualization, resource richness, concise content, and short duration of Micro-lecture allow students to learn anytime and anywhere. This format aids students in mastering Tai Chi techniques more accurately. The introduction of the PAD Class method enhances interactivity and places students at the center, catering to their diverse learning needs. They believe that combining both

teaching methods, which complement each other, is full of "innovation" and "challenge."

Table 4.29 How do you see Micro-lecture or PAD Class as optional methods for teaching Tai Chi?

Participants	Answer
1	Micro-lecture and PAD Class each have their strengths. Micro-lecture provide flexibility, visualization, and a wealth of resources, helping students accurately grasp Tai Chi techniques.
2	It is very feasible to use Micro-lecture and PAD classe in teaching Tai Chi .
3	PAD class is very practical as the primary method for pre-class preparation and post-class review.
5	Micro-lecture can meet personalized learning needs.
6	Micro-lecture and PAD Class have theoretical and practical feasibility in teaching Tai Chi .
7	Unlike traditional teaching methods, PAD Class allow students to take a leading role in the classroom.
8	I find it feasible. Micro-lecture enable students to preview new knowledge and movements in Tai Chi and review them after class with videos.
9	Micro-lecture and PAD Class are relatively novel teaching methods compared to traditional sports classes and can effectively enhance students' learning interest.
10	Both Micro-lecture and PAD Class can effectively improve the quality and outcomes of teaching Tai Chi .
11	Micro-lecture are typically presented as short videos, which are concise, short in duration, and convenient for students to learn anytime, anywhere.
12	I believe Micro-lecture and PAD Class are well-suited for Tai Chi classroom teaching, as they can showcase the culture of Tai Chi.

Table 4.30 What is your overall perception for PE instructors to use Micro-lecture and PAD Class to teach Tai Chi?

Participants	Answer
1	Using Micro-lecture and PAD Class can enhance students' autonomy in learning while improving the teaching effect.
2	I agree. Combining different teaching methods can yield unexpected results.
3	Micro-lecture, as a modern teaching method, bring convenience to teaching Tai Chi .
4	PE teachers using Micro-lecture and PAD Class to teach Tai Chi can diversify teaching methods, improve teaching quality, and meet students' diverse learning needs.
5	The application of these two teaching methods in teaching Tai Chi is definitely beneficial, as it integrates modern and traditional teaching, which is overall a step forward.
6	I generally approve.
7	These methods can effectively motivate students in class, enhance problem-solving abilities, and significantly improve teaching efficiency.
8	My overall view is “innovation” + “challenge.”
9	Tai Chi involves many technical details, and Micro-lecture allow students to observe demonstrations in advance. PAD Class can enhance students' thinking about Tai Chi techniques.
10	I believe PE teachers using Micro-lecture and PAD Class to teach Tai Chi is an effective and innovative teaching method.
11	By combining Micro-lecture and PAD Class, PE teachers can organize teaching activities more flexibly, making teaching Tai Chi livelier and more interesting.
12	I believe Micro-lecture and PAD Class are well-suited for teaching Tai Chi, especially in university PE classes, though they place high demands on teachers' professional abilities and teaching quality.

According to the interview content, all respondents believed that using Micro-lecture and PAD class to teach Tai Chi is a very wise choice. They argued that a diverse teaching model improves the efficiency of skill-based instruction and practice. This approach aligns with modern educational philosophy and meets students' personalized learning needs. It enhances classroom interaction and teaching engagement by placing students at the center of the learning process, thereby increasing their subjective initiative in learning.

Table 4.31 How do you think of PE teachers to use Micro-lecture and PAD Class to teach Tai Chi is a wise decision? Why?

Participants	Answer
1	PE teachers using Micro-lecture and PAD Class to teach Tai Chi is a beneficial attempt, enriching teaching resources, improving student autonomy, and enhancing teaching effectiveness.
2	Yes, Micro-lecture can be used for pre-class preparation and post-class review, while PAD Class can transform traditional teaching methods, encouraging students to learn proactively.
3	I think it is a wise decision because it aligns with modern educational philosophy, improves teaching efficiency, and enhances learning interactivity.
4	It is a wise decision. It can increase student interest and facilitate self-directed learning.
5	The advantages of Micro-lecture and PAD Class in teaching are evident. PE teachers using these methods in Tai Chi teaching can maximize their strengths and improve teaching quality.
6	It is a wise decision. By using Micro-lecture and PAD Class, students' visual perception, understanding of technical concepts, and learning efficiency can be enhanced.
7	Yes, compared to traditional teaching methods, it encourages students to learn more proactively, promoting deeper thinking.
8	I believe it is wise because "practice makes perfect."
9	Yes, a diversified teaching model can improve the efficiency of skill-based teaching and practice.

Table 4.31 How do you think of PE teachers to use Micro-lecture and PAD Class to teach Tai Chi is a wise decision? Why? (Cont.)

Participants	Answer
10	It is not only a wise decision but also aligns with the trend of modern education development.
11	As modern teaching methods, Micro-lecture and PAD Class can better accommodate students' learning habits and needs.
12	I think it is a wise choice, demonstrating positive thinking and innovation. Innovative teaching models can make the classroom more dynamic.

Table 4.32 What are the advantages do you perceive in encouraging PE instructors to use Micro-lecture and PAD Class for teaching?

Participants	Answer
1	They can promote personalized learning experiences, enhance students' self-directed learning, increase learning interest, and optimize the teaching process by providing more resources and facilitating feedback and assessment.
2	These methods transform traditional Tai Chi teaching, increasing students' interest.
3	They improve teaching interaction, adapt to modern teaching needs, and foster independent learning.
4	They provide personalized learning experiences, break time and space constraints, offer high-quality resources, and provide timely feedback and adjustment.
5	Flexibility, emphasis on key points, visual teaching, and personalized instruction are the primary advantages.
6	Micro-lecture emphasize key and difficult points, while PAD Class offer notable strengths in organizing the teaching process.
7	These methods engage students beyond just preparing for exams, enhancing their learning enthusiasm.

Table 4.32 What are the advantages do you perceive in encouraging PE instructors to use Micro-lecture and PAD Class for teaching? (Cont.)

Participants	Answer
8	Timeliness and flexibility are the advantages, enriching teaching methods and increasing student interest.
9	These methods center on the students, boosting their initiative and learning autonomy.
10	The standout advantages are flexibility, personalized teaching, enhanced student participation, improved teaching outcomes, and saving classroom time.
11	Students can choose when and how often to view Micro-lecture, enabling personalized learning. PAD Class encourage discussion and interaction among students.
12	Micro-lecture visually present the variations and depth of Tai Chi, while PAD Class give students more time to explore and understand the essence of Tai Chi.

4.8.3 Perceived Ease of Use

According to the interview content, everyone encourages PE teachers to use Micro-lecture and PAD Class teaching in Tai Chi instruction. To effectively utilize Micro-lecture and PAD Class methods, one must embrace experimentation, trust in their capabilities, and engage in continuous learning, trial, and adjustment. Each innovation aims to enhance the educational experience for students. One must believe in themselves and maintain effective communication. Even when facing difficulties and challenges, perseverance is essential.

Table 4.33 Could you say something to encourage the PE instructors to use Micro-lecture and PAD Class with ease in their Tai Chi classes?

Participants	Answer
1	Be open-minded and let students take the lead in the classroom.
2	Encourage innovation through teaching competitions or student showcase events to motivate PE teachers to try new methods.
3	Don't be afraid to try new things. Every brave step forward improves the student learning experience and hones your teaching skills.
4	Be bold in trying these new methods. You will provide students with a fresh learning experience, opening up an exciting journey of discovering Tai Chi's mysteries.
5	Don't fear innovation. Every attempt to innovate improves the student learning experience. Believe in your professional abilities and take the step forward to create something special in your Tai Chi classes.
6	Teaching reform is a process of experimenting with theory and practice, constantly innovating and enhancing professional teaching abilities. PE teachers should boldly attempt new teaching methods to improve outcomes.
7	Trust that Micro-lecture and PAD Class are not insurmountable technical barriers but wings that help Tai Chi teaching soar.
8	Believe in yourself, communicate well, and never give up, even when facing difficulties and challenges.
9	Learn, try, and adjust continuously.
10	Believe in yourself and try new teaching methods. You'll find that Micro-lecture and PAD Class are helpful tools in your teaching, providing a better learning experience for your students.
11	Taking the first step is half the success. Trust in your abilities.
12	Tai Chi is a treasure of Chinese sports culture and should be promoted among young people in China.

According to interview content, the interviewed experts generally believe that Micro-lecture and PAD Class are valuable tools for teaching Tai Chi. Compared to traditional teaching methods, these new approaches align better with modern educational concepts. They emphasize active learning, personalized learning, and deep learning while significantly improving the efficiency and quality of Tai Chi teaching. The traditional “teacher demonstration-student imitation” model proves too monotonous, failing to engage students' proactive involvement, resulting in a dull classroom atmosphere. The use of Micro-lecture and PAD Class will undeniably enhance teaching effectiveness. Experts hope that PE teachers can adapt to and accept these new teaching concepts, deepen their subject knowledge, and effectively promote curriculum practice. They also look forward to teachers adjusting their methods flexibly based on the characteristics of Tai Chi and students' needs, thereby creating teaching models that better align with modern educational values and student demands.

Table 4.34 What do anticipate with the PE instructors' intention to use these methods in teaching Tai Chi?

Participants	Answer
1	I hope that through Tai Chi teaching, teachers will instill in students a sense of physical and mental well-being, helping them relax and balance their body and mind while learning to manage emotions and relieve stress.
2	I expect these innovative teaching methods will help promote traditional sports culture.
3	PE teachers should be courageous in trying new methods and tools in Tai Chi teaching, constantly exploring teaching models that fit students' needs.
4	I hope that using these methods in Tai Chi teaching will genuinely inspire students to love and take interest in Tai Chi.
5	I hope teachers can achieve better learning outcomes in the classroom, master Tai Chi's basic skills and theoretical knowledge, and improve teaching methods based on feedback to enhance quality.

Table 4.34 What do anticipate with the PE instructors' intention to use these methods in teaching Tai Chi? (Cont.)

Participants	Answer
6	I expect PE teachers will adapt to and accept new teaching concepts, deepen their understanding of the subject, and advance course practice
7	I hope these methods will help teachers better understand students' learning needs and concerns, adjust teaching strategies, and improve teaching quality.
8	I hope PE teachers will view these teaching methods positively and adopt an open mindset toward learning to apply them in Tai Chi classes.
9	I expect that under these new teaching models, students will enjoy PE classes more, take an interest in practicing Tai Chi, and develop a stronger bond with their PE teachers.
10	I hope these methods will enhance Tai Chi teaching, improve the student learning experience, and allow for a more personalized, efficient, and engaging education.
11	I expect PE teachers to tailor their teaching methods to suit both the characteristics of Tai Chi and student needs, creating a teaching model that aligns with modern education concepts.
12	PE teachers using these methods should encourage students' enthusiasm for exploration, making Tai Chi techniques clearer and improving teaching effectiveness.

Table 4.35 How do you evaluate the efficiency of these teaching methods compared to traditional methods in teaching Tai Chi?

Participants	Answer
1	Teachers can flexibly choose and apply different teaching methods based on objectives, student needs, and the teaching environment, thus improving teaching efficiency and quality.
2	Micro-lecture and PAD Class emphasize developing students' critical thinking and teamwork skills, enabling them not only to acquire knowledge and skills but also to cultivate comprehensive

Table 4.35 How do you evaluate the efficiency of these teaching methods compared to traditional methods in teaching Tai Chi? (Cont.)

Participants	Answer
	competencies during the learning process.
3	Micro-lecture can focus on key techniques or difficult points in Tai Chi, allowing students to concentrate on crucial details and enhance learning outcomes.
4	Compared to traditional methods, combining Micro-lecture and PAD Class better meets the diverse learning needs of students, thus improving teaching efficiency.
5	Micro-lecture and PAD Class offer flexibility, focus, and interactivity in Tai Chi teaching.
7	Traditional teaching is teacher-led, whereas new teaching methods center on the students, and active learning is always more efficient than passive learning.
10	The efficiency of Micro-lecture and PAD Class in Tai Chi teaching typically surpasses traditional methods, particularly in enhancing student participation, personalization, and learning outcomes, while offering more flexibility.
12	Traditional Tai Chi teaching, where teachers demonstrate and students mimic, is often monotonous and fails to engage students. Using Micro-lecture and PAD Class undoubtedly improves teaching efficiency.

Table 4.36 Do you consider these teaching methods valuable tools for teaching Tai Chi?

Participants	Answer
1	Micro-lecture and PAD Class hold value in multiple aspects, including intuitive demonstrations, flexible autonomous learning, rich teaching resources, promoting active learning, fostering collaboration, and enabling personalized instruction.
2	Yes. A single method may have limitations, but combining these two teaching methods offers an excellent approach to Tai Chi instruction.
3	Yes, I believe Micro-lecture and PAD Class align with modern educational concepts, emphasizing self-directed, personalized, and in-depth learning, while significantly improving the efficiency and quality

Table 4.36 Do you consider these teaching methods valuable tools for teaching Tai Chi?
(Cont.)

Participants	Answer
	of Tai Chi teaching.
4	Without a doubt, these teaching methods are valuable tools for Tai Chi instruction. They enrich teaching approaches and are better suited to modern students' learning characteristics and needs.
5	I believe Micro-lecture and PAD Class are valuable tools for Tai Chi teaching, as they provide flexible, visual learning methods that meet students' personalized needs.
6	Yes, I think these methods are valuable tools that can enhance Tai Chi teaching.
7	Yes, these methods add a modern touch to Tai Chi teaching and are highly valuable instructional tools.
9	Micro-lecture and PAD Class, as emerging teaching methods with interconnections, hold significant application value and promotion potential in Tai Chi teaching.
10	As tools for teaching Tai Chi, Micro-lecture and PAD Class not only improve learning outcomes and student engagement but also allow for personalized instruction and flexible learning.
12	Yes, they are very valuable.

4.8.4 Perceived Usefulness

According to the interview content, most experts believe that in Tai Chi teaching, utilizing Micro-lecture for pre-class preparation and post-class review, as well as using the PAD Class to divide sessions into teaching and discussion components, enhances interaction, provides immediate feedback, and enables personalized guidance. Micro-lecture, presented through short videos, can visually demonstrate the techniques and underlying concepts of Tai Chi. The PAD Class approach allows for more classroom time dedicated to student-led inquiry. These strategies make Tai Chi teaching more engaging, interesting, intuitive, and effective. Experts assert that Micro-lecture enable students to learn independently based on their progress and needs, improving their

learning satisfaction and motivation, while the PAD Class boosts student participation and enhances the learning experience.

Table 4.37 How do you think Micro-lecture and PAD Class assist in teaching Tai Chi?

Participants	Answer
1	The discussion sessions in PAD Class encourage collaboration and communication among students. Micro-lecture, filmed from multiple angles, allow students to clearly see detailed movements.
2	Micro-lecture enables students to intuitively understand Tai Chi techniques and watch repeatedly as needed. PAD Class foster proactive learning and collaboration, helping students consolidate Tai Chi techniques more effectively.
3	Micro-lecture in Tai Chi teaching: 1. Personalization; 2. Reviewing anytime; 3. Promoting deep understanding; 4. Enhancing interactive communication.
4	1. Providing intuitive demonstrations; 2. Facilitating pre-class preparation and post-class review; 3. Encouraging self-directed learning; 4. Stimulating thought and discussion; 5. Increasing learning initiative;
5	Tai Chi movements can be complex, and Micro-lecture can break down and demonstrate each movement in detail. PAD class discussions promote interaction and communication.
6	Micro-lecture help students gain in-depth, intuitive knowledge of Tai Chi, while PAD Class boost student motivation and cultivate teamwork.
7	Use Tai Chi Micro-lecture videos for pre-class preparation and post-class review. In class, apply PAD Class to highlight the students' central role, with teachers focusing on answering questions and correcting mistakes.
8	Micro-lecture should be concise and focused, while PAD Class should carefully manage the time spent on explanations and discussions.
9	Tai Chi techniques involve many details. Watching instructional videos before class helps visualize the movements, while PAD Class encourage students to think more deeply about the techniques,

Table 4.37 How do you think Micro-lecture and PAD Class assist in teaching Tai Chi?
(Cont.)

Participants	Answer
	improving quality.
10	The combination of Micro-lecture and PAD Class significantly assists Tai Chi teaching. Micro-lecture provide learning resources, while PAD Class enhance interaction, collectively improving teaching quality and outcomes.
11	PAD Class help ignite students' interest and enthusiasm, promote deep learning and reflection, and strengthen teacher-student interactions, creating a conducive learning environment.
12	Micro-lecture visually present Tai Chi techniques and philosophy, while PAD Class allow students more time for exploration, making Tai Chi teaching more lively, interesting, intuitive, and efficient.

Table 4.38 What impact do you believe in using Micro-lecture and PAD Class has on the quality of PE teaching in Tai Chi?

Participants	Answer
1	Using Micro-lecture and PAD Class significantly improves the quality of Tai Chi teaching, helping students better grasp Tai Chi knowledge and techniques, while also encouraging teaching innovation and improvement.
2	These methods increase student participation and make the classroom student-centered, boosting their engagement and thus enhancing teaching quality.
3	The use of Micro-lecture and PAD Class positively and significantly impacts Tai Chi teaching quality. These methods enrich teaching approaches, increase student interest and engagement, and optimize the teaching process, contributing to students' overall development.
4	The use of Micro-lecture and PAD Class in Tai Chi teaching positively affects teaching quality by improving outcomes, diversifying teaching methods, and fostering student development.

Table 4.38 What impact do you believe in using Micro-lecture and PAD Class has on the quality of PE teaching in Tai Chi? (Cont.)

Participants	Answer
5	These methods enhance learning interest, deepen knowledge understanding, and increase classroom participation, thereby improving the quality of Tai Chi teaching.
6	Micro-lecture and PAD Class enhance student participation in Tai Chi teaching and improve their sense of accomplishment in learning.
7	These methods can increase student active learning, which, in turn, raises teaching quality.
8	Micro-lecture improves teaching effectiveness, and PAD Class help refine the precision and coherence of technical movements.
9	The combination of Micro-lecture and PAD Class makes Tai Chi teaching more efficient, interactive, and personalized, thereby significantly enhancing teaching quality.
10	These methods increase teaching efficiency, personalize learning, and foster student interaction and participation, thus improving the quality and effectiveness of PE teaching.

Table 4.39 Do you think using Micro-lecture and PAD Class in teaching Tai Chi affects the PE instructors' confidence and ability to achieve their teaching goals?

Participants	Answer
1	Using Micro-lecture and PAD Class in Tai Chi teaching can have a positive impact on instructors' confidence and ability to achieve their teaching goals, though it may also pose challenges.
2	Yes, increasing student engagement and creating a lively classroom atmosphere can greatly boost teachers' confidence and make it easier to achieve teaching goals.
3	Using Micro-lecture and PAD Class in Tai Chi teaching enhances teaching confidence, reduces teaching pressure, and promotes professional development.
4	I believe that using Micro-lecture and PAD Class in Tai Chi teaching can boost PE teachers' confidence and their ability to achieve teaching goals.

Table 4.39 Do you think using Micro-lecture and PAD Class in teaching Tai Chi affects the PE instructors 'confidence and ability to achieve their teaching goals?' (Cont.)

Participants	Answer
5	I think using Micro-lecture and PAD Class in Tai Chi teaching will have a positive impact on PE teachers.
6	Using Micro-lecture and PAD Class in Tai Chi teaching can improve teachers' professional confidence and help them achieve teaching goals.
9	Mastering various teaching methods can effectively enhance teachers' practical skills and adaptability, improve teaching quality, and boost teaching confidence.
10	Using Micro-lecture and PAD Class has a positive and significant impact on the quality of Tai Chi teaching.

Table 4.40 How do you think using Micro-lecture and PAD Class affects students' motivation and engagement in learning Tai Chi?

Participants	Answer
1	Using Micro-lecture and PAD Class significantly increases students' motivation and engagement in learning Tai Chi, bringing new energy and effectiveness to Tai Chi teaching.
2	Micro-lecture help students better prepare and review, while PAD Class put students at the center, allowing them to learn actively, which enhances their sense of participation and achievement.
3	The impact on motivation includes 1. increased interest in learning; 2. clearer learning goals. The impact on engagement includes 1. greater classroom participation; 2. enhanced learning experience.
4	Using Micro-lecture and PAD Class positively influences students' motivation and engagement in learning Tai Chi by boosting learning initiative and enhancing participation and self-directed learning.
5	Micro-lecture can increase students' interest in learning, and PAD Class can enhance their ability to learn independently.

Table 4.40 How do you think using Micro-lecture and PAD Class affects students' motivation and engagement in learning Tai Chi? (Cont.)

Participants	Answer
6	These methods improve students' motivation, stimulate their perceptual abilities, and increase their sense of accomplishment in mastering skills.
7	Teachers shift from delivering knowledge to guiding student learning, while both teachers and students can engage more actively in discussions, greatly improving interaction.
8	I believe these methods increase students' motivation to participate in learning Tai Chi. When students engage in self-directed learning, they tend to explore techniques more deeply, increasing their involvement.
9	Watching Micro-lecture videos before and after class, combined with PAD Class that allow all students to engage in discussions and practice, can effectively boost students' motivation to learn Tai Chi.
10	The use of Micro-lecture and PAD Class significantly boosts students' motivation and engagement in learning Tai Chi by stimulating their interest and participation.
11	Micro-lecture allows students to learn at their own pace, which increases their satisfaction and motivation.
12	Micro-lecture makes Tai Chi teaching more interesting and intuitive, while PAD Class foster student initiative and motivation.

4.8.4 Intentions to Use

Based on the interview content, most interviewed experts believe that Micro-lecture and PAD Class can meet students' diverse needs. They promote professional development for teachers and enhance communication between teachers and students. Additionally, they foster teachers' innovative awareness, improve teaching effectiveness, and elevate classroom teaching quality. This benefits both students and teachers by facilitating comprehensive growth. Experts suggest that to better utilize Micro-lecture and PAD Class for educational purposes, specific guidance and resource support are needed in areas such as technical training, teaching resource libraries, instructional

design guidance, teaching model training, discussion topic databases, and evaluation and feedback mechanisms. Experts recommend actively integrating and using Micro-lecture and PAD Class to construct a scientific and systematic new teaching system and mindset.

Table 4.41 What suggestions do you have for PE instructors in using Micro-lecture and PAD Class in future teaching Tai Chi?

Participants	Answer
1	When using Micro-lecture, ensure the demonstration movements are accurate and clear, filmed from multiple angles so students can observe the details. Allocate teaching time wisely.
2	Teaching methods should be adaptable. Micro-lecture videos should highlight key points, and explanations in class should be concise. Teachers should pose questions at appropriate times to encourage proactive learning.
3	1.Design Micro-lecture content carefully. 2. Use PAD Class flexibly. 3. Utilize modern technology to support teaching.
4	For PE teachers using Micro-lecture and PAD Class in future Tai Chi teaching, I suggest: 1. Carefully produce Micro-lecture. 2. Manage PAD class time wisely. 3. Guide students to effectively utilize Micro-lecture. 4. Encourage active participation in PAD class discussions. 5. Reflect and continuously improve.
5	1.Carefully design Micro-lecture content. 2. Keep explanations concise, clear, and engaging. 3. Highlight key points and difficult areas. 4. Control Micro-lecture duration. 5. Provide various forms of demonstrations. 6. Use different shooting locations. 7. Supplement with learning resources.
6	PE teachers should actively incorporate Micro-lecture and PAD Class to build a scientifically sound, systematic new teaching approach and thinking model.
7	Make good use of online tools, and deliver targeted key points effectively.
8	1.Improve video recording and offline teaching quality. 2. Monitor students' progress closely and effectively. 3.Promote communication among teachers and reflect regularly.

Table 4.41 What suggestions do you have for PE instructors in using Micro-lecture and PAD Class in future teaching Tai Chi? (Cont.)

Participants	Answer
9	Carefully design classroom activities, provide clear guidance, promote interaction, offer real-time feedback, and adjust teaching based on student needs.
10	When using Micro-lecture and PAD Class in Tai Chi teaching, PE teachers should emphasize clear teaching goals, high-quality content, a balance of interaction, and periodic updates and optimizations.
11	1.Carefully design Micro-lecture content. 2. Strengthen training for PE teachers on multimedia technology.
12	Micro-lecture videos should be concise and focus on key points.

Table 4.42 What motivates you to encourage PE instructors to continue using these teaching methods in Tai Chi classes?

Participants	Answer
1	These teaching methods meet the diverse needs of students, promote professional development for teachers, strengthen communication between teachers and students, and foster overall growth for both teachers and students.
2	Sports education reform is ongoing. By continually trying new methods, teachers can discover what best suits their teaching style.
3	The motivation includes: 1. Promoting professional development for teachers; 2. Cultivating students' self-directed learning abilities; 3. Meeting the demands of modern education.
4	The motivation to encourage PE teachers to continue using these methods lies in improving teaching quality, adapting to the needs of the times, and promoting professional growth for teachers.
5	1.Enhancing teaching effectiveness; 2. Stimulating students' interest; 3. Promoting professional development for teachers.

Table 4.42 What motivates you to encourage PE instructors to continue using these teaching methods in Tai Chi classes? (Cont.)

Participants	Answer
	you'll find the most suitable method.
6	The motivation stems from encouraging teachers' innovation, improving teaching outcomes, and enhancing the quality of classroom teaching.
7	Traditional didactic teaching often overlooks student engagement, lacks classroom interaction, and leads to low motivation, resulting in unsatisfactory overall teaching outcomes. These new methods have the potential to change that.
8	1. Reducing teacher pressure; 2. Providing valuable experience for future educators; 3. Refining teaching methods.
9	If you have an idea, go ahead and practice it. In continuous exploration,
10	Micro-lecture and PAD Class not only align with the trends of modern education but also produce noticeable results and benefits in practice, encouraging teachers to actively adopt and continue using these tools.
11	Mastering modern teaching technologies and incorporating them into PE courses is the mainstream of sports education reform.
12	Promoting Tai Chi, a treasure of Chinese sports culture, throughout campuses is a great motivator.

Table 4.43 What specific guidance or resources do you think are needed to help you better use Micro-lecture and PAD Class in teaching Tai Chi courses?

Participants	Answer
1	To better use Micro-lecture and PAD Class in Tai Chi courses, resources are needed in areas such as technical training, teaching model training, discussion topics, and evaluation and feedback mechanisms.
2	1. Policy support; 2. Equipment and material support; 3. Training on relevant theory and technology.
3	Technical support and resources related to teaching and internet support.

Table 4.43 What specific guidance or resources do you think are needed to help you better use Micro-lecture and PAD Class in teaching Tai Chi courses?
(Cont.)

Participants	Answer
4	To better use Micro-lecture and PAD Class in Tai Chi courses, specific resources are needed in the following areas: 1. Micro-lecture production training; 2. PAD class teaching case studies; 3. Online teaching platform support; 4. Tai Chi teaching resource library.
5	1. Technical support; 2. Teaching content design; 3. A shared resource platform; 4. Training on teaching methods; 5. Discussion topic design; 6. Establishing an evaluation mechanism.
6	There is a need for a Micro-lecture platform, a complete resource library, and technical training.
7	Guidance on the application of technology, such as creating PowerPoint presentations or sourcing teaching videos, as well as training on classroom time management in PAD Class.
8	Relevant skill training for teachers is necessary, such as Micro-lecture production.
9	High-quality Tai Chi Micro-lecture videos and shared teaching plans and materials for PAD Class.
10	Professional training for Micro-lecture production should be provided to help teachers master video recording, editing, and content design techniques. A communication platform should also be established to share experiences and feedback, continuously optimizing teaching methods.
11	Training on Micro-lecture production techniques; Support for teaching equipment.
12	The use of Micro-lecture and PAD Class places high demands on teachers' comprehensive abilities, requiring specialized workshops or experience-sharing sessions to help teachers who have not yet used these methods.

Table 4.44 How do you encourage your PE colleagues to use Micro-lecture and PAD Class in teaching Tai Chi?

Participants	Answer
1	Share successful cases where Micro-lecture and PAD Class were effectively applied in Tai Chi teaching, highlighting how these methods increased student engagement and improved learning outcomes, as well as the teachers' sense of achievement.
2	Encourage peer observation and mutual improvement through teaching demonstrations.
3	1.Share success stories; 2. Establish an incentive mechanism; 3. Provide technical support and resources.
4	1.Share successful experiences; 2. Organize teaching observations; 3. Hold research activities; 4. Provide technical support.
5	Hold regular teaching experience exchange sessions, where peers can critique and learn from each other.
6	Promote teaching reform by incorporating Micro-lecture and PAD Class to delve into new teaching ideas, frameworks, and concepts, leading to more diverse and humanized Tai Chi teaching.
9	Although the preliminary work of producing Micro-lecture may be time-consuming, it significantly improves the effectiveness and convenience of later teaching, making it a worthwhile investment.
10	Encourage colleagues by showcasing successful case studies, offering training and support, emphasizing the advantages of these teaching methods, sharing resources and tools, fostering collaboration and discussion, establishing pilot projects, and recognizing achievements.
11	1.Share success stories; 2. Organize special exchange meetings, inviting experienced teachers or experts to share and guide.
12	Teaching seminars and classroom observations can demonstrate the benefits of Micro-lecture and PAD Class.

4.8.5 Conclusion:

Based on the interview content, most experts believe that PE teachers should dare to apply Micro-lecture and PAD Class in Tai Chi teaching. They should integrate theory with practice, incorporating elements of traditional culture. To improve the implementation of Micro-lecture and PAD Class in Tai Chi teaching, it is necessary to enhance the quality of Micro-lecture production and diversify content formats. Additionally, they should encourage interdisciplinary integration and mix online and offline PE teaching. Gathering and utilizing feedback from both students and teachers will help continuously optimize teaching content and methods, fostering collaboration between teachers and students.

Table.4.45 Do you have any other thoughts or insights on improving the implementation of Micro-lecture and PAD Class in teaching Tai Chi?

Participants	Answer
1	PAD Class should not just focus on theoretical discussions but should be combined with practical teaching.
3	The main goal is to encourage PE teachers to try using Micro-lecture and PAD Class in Tai Chi teaching.
4	For improving the implementation of Micro-lecture and PAD Class in Tai Chi teaching, 1. Micro-lecture videos can incorporate traditional culture; 2. Emphasize personalized instruction; 3. Encourage interdisciplinary integration; 4. Strengthen evaluation and feedback mechanisms.
5	Micro-lecture needs to improve in quality, enrich content formats, and emphasize personalized learning.
8	I believe the implementation of these teaching methods presents challenges for both teachers and students. However, it also provides an excellent learning opportunity. I hope that these teaching methods was widely applied soon, not only enhancing Tai Chi classes but also providing effective learning strategies for other PE courses.

Table.4.45 Do you have any other thoughts or insights on improving the implementation of Micro-lecture and PAD Class in teaching Tai Chi? (Cont.)

Participants	Answer
10	To improve the implementation of Micro-lecture and PAD Class in Tai Chi teaching, we can combine theory with practice, increase interaction and participation, and continuously collect and use feedback from students and teachers to optimize teaching content and methods, fostering greater collaboration between teachers and students.
11	1.Emphasize the complementary nature of different teaching methods; 2. Take into account individual differences among students; 3. Integrate online and offline PE; 4. Continuously improve and innovate teaching methods.

4.8.6 Summary

Through this interview, I gained insights into the interviewee's views on utilizing Micro-lecture and PAD Class in Tai Chi teaching. The interviewee supports the application of Micro-lecture and PAD Class in Tai Chi teaching, believing it can enhance teaching quality and more effectively achieve educational goals compared to traditional methods. The interviewee emphasizes that PE teachers should boldly explore new teaching approaches, improve their competencies in modern educational tools, and pursue continuous innovation and learning. To better implement Micro-lecture and PAD Class, it is essential to strengthen skills training for PE teachers, provide instructional guidance and relevant resource support, and establish corresponding evaluation systems and communication platforms, thereby effectively serving the educational process.

Chapter 5

Conclusion and Recommendations

This chapter summarizes and discusses the research findings through quantitative and qualitative data analysis. By examining the findings, I gained insights into the behavioral intention levels of PE teachers in Guangdong province regarding the use of Micro-lecture and PAD Class in Tai Chi course instruction, as well as how their attitudes, perceived ease of use, and perceived usefulness influence these behavioral intentions. These results align with existing theories and the context of related research. Additionally, I explored the limitations of the study and offered recommendations for future research.

5.1 Research Objectives and Summary

This study investigated the intentions of PE teachers in six colleges in Guangdong province to use Micro-lecture and PAD Class in teaching Tai Chi. I conducted a comprehensive analysis of how attitudes towards use (ATU), perceived usefulness (PEOU), and perceived ease of use (PU) affect the intention of PE teachers to employ Micro-lecture and PAD Class in Tai Chi instruction. The correlation and differences among these factors were discussed, verifying both the consistencies and discrepancies of this study's findings compared to existing research.

5.1.1 Quantitative Research

This study conducted a questionnaire survey of PE teachers from six universities in Guangdong Province, utilizing the Technology Acceptance Model (TAM) for quantitative analysis.

The results indicate that ATU, PU, and PEOU all have significant positive correlations with ITU. Among these, PU has the most pronounced impact on ITU, suggesting that teachers are more likely to adopt innovative teaching methods when they perceive them as useful. Multiple regression analysis further corroborated the significant and reliable influence of ATU, PEOU, and PU on ITU, highlighting the critical role these factors play in determining whether teachers adopt Micro-lecture and PAD Class for Tai Chi teaching. In the analysis of differences, although factors such as gender, age, education level, professional title, and work experience did not show significant effects on ATU, PEOU, PU, and ITU, the data suggest that male teachers, those aged 31-40, and teachers holding a master's degree or professor title exhibited relatively higher acceptance of these innovative teaching method

5.1.2 Qualitative Research

Through in-depth interviews with participating PE Teachers, the study further explored the underlying reasons behind the quantitative data:

Most interviewed teachers believe that employing Micro-lecture and PAD Class can enhance the efficiency of Tai Chi teaching, stimulate students' interest in learning Tai Chi, and assist in achieving educational objectives. This viewpoint aligns with the high correlation of PU found in the quantitative study. Teachers also noted that while innovative teaching methods can improve instructional effectiveness, there may still be concerns regarding the operation of certain technological applications and the scheduling of time, reflecting challenges related to PEOU in specific contexts. Generally, teachers perceive both teaching methods to have practical value for Tai Chi teaching, capable of enhancing the quality of teaching and self-confidence, which corresponds with the positive correlation results between ATU and ITU in the quantitative research.

5.1.3 Research Objectives

To achieve the research objectives, this study conducted an in-depth exploration of the intentions and influencing factors of PE Teachers in utilizing micro-lectures and PAD classrooms in Tai Chi instruction, encompassing both quantitative and qualitative research components.

The first objective was to investigate the level of intention among PE Teachers regarding the use of micro-lectures and PAD classrooms in Tai Chi teaching. A questionnaire survey was administered, collecting data from 291 PE Teachers on their attitudes towards the use of micro-lectures and PAD classrooms, perceived ease of use, perceived usefulness, and their intention to use these methods. Through descriptive statistics and multiple regression analysis, the overall acceptance level of teachers towards these new teaching methods and their intention to use them were clearly presented. This objective laid the groundwork for understanding teachers' behavioral intentions.

The second objective was to analyze the key factors influencing PE Teachers' intentions to use micro-lectures and PAD classrooms. Quantitative analysis revealed that perceived usefulness (PU) and perceived ease of use (PEOU) are the primary factors affecting teachers' intentions. Notably, perceived usefulness was found to be highly positively correlated with intention to use, while perceived ease of use indirectly influenced intention through enhancing perceived usefulness. These findings provide empirical support for optimizing teaching strategies.

The third objective was to gain a deeper understanding of the practical challenges and needs faced by PE Teachers in adopting new teaching methods through qualitative research. In the qualitative phase, semi-structured interviews with 12 PE administrators and teachers were conducted to further explore the specific experiences and feedback of teachers in actual teaching scenarios. The results indicated that teachers generally recognized the educational value of micro-lectures and PAD classrooms but

expressed a desire for more technical support, professional training, and backing from school policies. Based on the interview findings, specific recommendations were proposed to optimize course design and enhance teachers' digital teaching capabilities.

In summary, this study comprehensively achieved its established research objectives through a combination of quantitative and qualitative methodologies. It not only elucidated the intentions and influencing factors behind PE Teachers' adoption of innovative teaching methods in Tai Chi courses but also provided valuable practical recommendations for future educational reforms and policy development.

5.2 The Influence of ATU, PEOU, and PU on PE Teacher' ITU

Based on the descriptive statistical analysis of all questionnaire data, the results reveal that the mean score for ATU is 4.127 (S.D.=0.732), for PEOU is 3.970(S.D.=0.713), and for PU is 4.072 (S.D.=0.763), all closely approaching 4, which indicates agreement in the original scale. Thus, it can be concluded that the surveyed physical educators believe that ATU, PEOU, and PU significantly affect ITU.

In the comparative analysis of variances in the survey variables, this study examined differences across five dimensions: gender, age, level of study, professional title, and work experience. The results indicate that the significance levels for ATU, PEOU, PU, and ITU across these variables exceed 0.05, indicating no significant statistical differences among them. From a mean perspective, male respondents exhibited slightly higher performance across all variables than female respondents; educators aged 31-40 scored higher in ATU, PEOU, and ITU; those with Master's degrees had higher scores in PEOU, PU, and ITU; professors exhibited slightly higher scores across all four dimensions; and teachers with 6-10 years of work experience scored higher in PEOU, PU, and ITU. This suggests that among the surveyed physical educators, male teachers demonstrate a higher acceptance of new teaching methods than their female counterparts, indicating that different genders may perceive the characteristics of a technology in varied ways, thereby influencing their adoption

decisions (Zhong et al., 2021). Teachers aged 31-40 and those with 6-10 years of experience are seen as young backbone educators in China, possessing rich teaching experience, youthful enthusiasm for innovation, and a willingness to embrace new teaching methods. Furthermore, educators with Master's degrees bring extensive practical experience and high professional expertise, ensuring the implementation of new teaching methodologies. Professors, being industry experts, possess rich theoretical and practical knowledge, and are equipped to keenly grasp policy directions, ultimately steering the course of teaching reform.

5.3 Analysis of the correlation between ITU, ATU, PEOU, and PU

From the correlation analysis based on the relationships among ITU, ATU, PEOU, and PU, it is evident that all mean values are below 0.01, indicating statistically significant results. A strong positive correlation exists between ATU and ITU ($P=0.793$); a strong positive correlation is also observed between PEOU and ITU ($P=0.869$); and there is a strong positive correlation between PU and ITU ($P=0.917$), approaching 1, signifying that PU has a significantly strong influence on ITU. This suggests that a majority of the surveyed PE Teachers hold a positive attitude towards utilizing Micro-lecture and PAD classes for teaching Tai Chi, perceiving this technology as easy to use and with a low learning cost. They believe that Micro-lecture and PAD classes provide practical value or enhance the efficiency of Tai Chi instruction in higher education, thereby increasing their behavioral intention to employ these methods.

The multiple regression analysis concerning ATU, PEOU, PU, and ITU reveals that the impacts of ATU, PEOU, and PU on ITU are very real and reliable, with no multicollinearity among the four independent variables. A significant positive correlation is noted between ATU and ITU in the context of Micro-lecture and PAD classes ($B=0.159>0$, $P<0.05$); a significant positive correlation exists between PEOU and ITU ($B=0.172>0$, $P<0.05$); and a significant positive correlation is present between PU and ITU ($B=0.689>0$, $P<0.05$).

5.4 Consistency and contradictions with related studies

5.4.1 Consistency with related studies

The validation of the TAM model in this study corroborates its core hypothesis, indicating that ATU, PU, and PEOU all have a significant positive influence on ITU. This aligns with many technology acceptance studies based on the TAM model (Saygıner, 2023; Dramani et al., 2022). Numerous studies have demonstrated that teachers' perceived usefulness is often the most critical predictive variable when adopting new technologies, while perceived ease of use and attitude towards use also play significant roles in behavioral intentions (Alkindi et al., 2022; Eze et al., 2021).

The positive impact of ATU. The research findings indicate a significant positive correlation between ATU and ITU ($B=0.159$, $P<0.05$), suggesting that teachers' positive attitudes toward technology will enhance their intention to use it. This result is consistent with numerous studies, particularly those exploring the application of educational technology, which indicate that positive attitudes among teachers are often one of the foundational conditions for technology use (Bower et al., 2020; Nikolopoulou et al., 2021).

PU as the strongest predictive variable. This study finds that PU has the most substantial effect on ITU ($B=0.689$, $P<0.05$), with the coefficient in the regression analysis nearing 1, indicating that perceived usefulness is a key factor determining whether teachers will use Micro-lecture and PAD classes for Tai Chi instruction. This aligns with classic research in TAM theory, which generally posits that perceived usefulness is the most significant variable affecting technology use intentions (Chen & Aklikokou, 2020; & Amani, 2022). In the application of educational technology, many studies have also indicated that teachers are increasingly concerned with the tangible enhancement of their teaching effectiveness by technology, with PU becoming the strongest predictive variable for behavioral intent (Huang & Teo, 2021; Antonietti et al., 2022).

The significance of Perceived Ease of Use (PEOU) This study demonstrates that PEOU has a notable positive impact on Intention to Use Technology (ITU) ($B=0.172$, $P<0.05$), aligning with numerous findings in educational technology research. Most educators consider the operational simplicity and learning costs associated with new technology (Qashou, 2021; Al-Adwan, 2020). If a technology is user-friendly and requires no additional learning burden, teachers are more likely to accept and utilize it. This is widely supported in existing literature (Natasia, Wiranti, & Parastika, 2022; Al-Adwan, 2020).

5.4.2 Contradictions with Related Research

The relative influence of PEOU is relatively limited. While this study establishes a significant positive effect of PEOU on ITU, the effect size is modest ($B=0.172$), which contrasts with findings by Aslam et al. (2023) and Andavara et al. (2021), who assert that PEOU can sometimes be more critical than Perceived Usefulness (PU). In certain studies focused on technology acceptance, particularly among teacher populations that are relatively unfamiliar with technology, PEOU can be a vital factor influencing usage intention, occasionally surpassing the impact of PU. However, the results of this study indicate that the influence of PU far exceeds that of PEOU, suggesting that these PE Teachers may already possess a considerable degree of familiarity with the technology's operation, thus placing greater importance on its utility rather than its operational complexity.

The role of Attitude Towards Use (ATU) appears to be relatively weak. In this study, although ATU significantly influences ITU, its effect size ($B=0.159$) is notably weak, especially in comparison to PU. This contrasts with research that emphasizes the importance of attitude. In some studies, ATU is deemed a primary driver of technology acceptance, particularly when educators' express skepticism towards technology; a positive usage attitude typically exerts a stronger influence on usage intention (Nurhayati et al., 2023). However, in this research, the impacts of PU and PEOU on ITU are more pronounced, indicating that these PE Teachers have developed a clear understanding of the technology's usefulness and ease of use.

5.4.3 Summary

Overall, the findings of this study align with the theoretical framework of the Technology Acceptance Model (TAM) and a substantial body of existing research, particularly emphasizing the predominant role of perceived usefulness in influencing behavioral intentions (To & Trinh, 2021; Sorce & Issa, 2021; Muljo et al., 2020). However, the relative impact of perceived ease of use and attitudes towards use was found to be smaller, suggesting that these educators may already possess a certain level of confidence regarding the practical implementation of Micro-lecture and PAD classes, with a greater focus on their enhancement of teaching effectiveness. These results offer valuable insights into understanding the technological acceptance of college PE Teachers in Tai Chi instruction and indicate that future research could further explore additional factors influencing technology acceptance, such as external support and school policies.

5.5 Impact on Tai Chi Instruction in Higher Education

This research reveals that PE Teachers' attitudes towards the utilization of innovative teaching tools, as well as their perceived usefulness and perceived ease of use, directly influence their acceptance and application of Micro-lecture and PAD classes. This has brought about positive transformations in Tai Chi instruction at the university level, not only fostering innovation in teaching methods but also enhancing teaching effectiveness and student learning experiences. This innovative model also provides an effective direction for future college PE instruction, encouraging more educators to employ modern technological means to improve teaching content and quality.

5.6 Future Research

This study provides valuable insights into the use of micro-lectures and PAD courses by PE Teachers to teach Tai Chi, yielding results that are somewhat region-

specific. Within the framework of the Technology Acceptance Model (TAM), this study only examined the effects of attitude toward use (ATU), perceived usefulness (PU), and perceived ease of use (PEOU) on teachers' willingness. Future research can enhance the understanding of this topic by expanding the sample size, adding more variables to the study, and utilizing a variety of data collection methods to provide a more practical guide to the use of technology in PE

5.7 Recommendations

Strengthening Technical Training and Support for PE Teachers: Although perceived ease of use significantly influences PE Teachers' intent to use technology, the extent of this impact is relatively minor. Therefore, schools should further enhance the technical training provided to PE Teachers, facilitating their proficiency in operating Micro-lecture and PAD classes, thereby lowering the technological barrier and boosting teachers' confidence through ongoing technical support.

Enhancing Perceived Usefulness: Given that perceived usefulness is the strongest predictor variable, schools and educational institutions should further emphasize the practical value of Micro-lecture and PAD classes in teaching Tai Chi. For instance, by showcasing successful teaching cases and sharing specific data illustrating improvements in teaching effectiveness, educators can be guided to recognize how these technologies directly assist in achieving educational objectives.

Fostering Teachers' Attitudes: Since usage attitudes significantly affect teachers' intent to use such technologies, schools should cultivate positive attitudes towards Micro-lecture and PAD classes by encouraging innovative teaching methods, organizing teacher exchange meetings, and sharing experiences. This approach can enhance teachers' initiative and enthusiasm further.

Promoting the Dissemination and Application of Educational Technologies: To elevate the quality of PE in higher education, relevant governmental education

departments should formulate policies that promote the dissemination and application of innovative teaching technologies like Micro-lecture and PAD classes, helping more teachers recognize and embrace these methods to improve teaching efficiency, particularly in traditional sports such as Tai Chi.

5.8 Conclusion

This study investigated and analyzed the behavioral intentions of PE Teachers from six universities in Guangdong Province regarding the use of Micro-lecture and PAD classes for teaching Tai Chi. The results revealed that Attitude Towards Use (ATU), Perceived Usefulness (PU), and Perceived Ease of Use (PEOU) all exert significant positive influences on teachers' Intent to Use (ITU), with PU having the most substantial effect on behavioral intentions. Multiple regression analysis further validated the applicability of the Technology Acceptance Model (TAM) in predicting the behavioral intentions of PE Teachers using Micro-lecture and PAD classes for Tai Chi instruction. These insights can guide reforms in Tai Chi teaching at universities and contribute to the development of more efficient PE course reform initiatives in higher education.

References

- Abuhassna, H., Yahaya, N., Zakaria, M. A. Z. M., Zaid, N. M., Samah, N. A., Awae, F., ... Alsharif, A. H. (2023). Trends on using the technology acceptance model (TAM) for online learning: a bibliometric and content analysis. *International Journal of Information and Education Technology*, 13(1), 131-142. <https://doi.org/10.18178/ijiet.2023.13.1.1788>
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Al-Adwan, A. S. (2020). Investigating the drivers and barriers to MOOCs adoption: The perspective of TAM. *Education and information technologies*, 25(6), 5771-5795.
- Alareifi, R. (2021). *Comparing students' academic achievement and attitudes in undergraduate flipped and non-flipped classrooms: A mixed-methods study* (Doctoral Dissertation) and Theses Database.
- Albarracín, D., Sunderrajan, A., Lohmann, S., Chan, M. P. S., & Jiang, D. (2018). The psychology of attitudes, motivation, and persuasion. In *The handbook of attitudes, volume 1: Basic principles* (pp. 3-44). n.p.: Routledge.
- Al-Emran, M., Arpaci, I., & Salloum, S. A. (2020). An empirical examination of continuous intention to use m-learning: An integrated model. *Education and information technologies*, 25, 2899-2918.
- Alfayez, Z. H. (2021). Designing Educational Videos for University Websites Based on Students' Preferences. *Online Learning*, 25(2), 280-298.
- Alismaiel, O. A., Cifuentes-Faura, J., & Al-Rahmi, W. M. (2022). Social Media Technologies Used for Education: An Empirical Study on TAM Model During the COVID-19 Pandemic. *Frontiers in Education*, 7, 882831. <https://doi.org/10.3389/feduc.2022.882831>

References (Continued)

- Alkindi, M. Z. H., Hafiz, A. D., Abulibdeh, E., Almurshidi, G., & Abulibdeh, A. (2022). Moderating Effect of Faculty Status in the Relationship between Attitude, Perceived Usefulness, Perceived Ease of Use, Behavioral Intention, Subjective Norms on Mobile Learning Applications. *Journal of Positive School Psychology*, 6(5), 5359-5379.
- Almulla, M. (2021). Technology Acceptance Model (TAM) and e-learning system use for education sustainability. *Academy of Strategic Management Journal*, 20(4), 1-13.
- Alshammari, S. H., & Rosli, M. S. (2020). A review of technology acceptance models and theories. *Innovative Teaching and Learning Journal (ITLJ)*, 4(2), 12-22.
- Alshurideh, M., Abuanzeh, A., Kurdi, B., Akour, I., & AlHamad, A. (2023). The effect of teaching methods on university students' intention to use online learning: Technology Acceptance Model (TAM) validation and testing. *International Journal of Data and Network Science*, 7(1), 235-250.
- An, J., & Xu, P. (2020). PAD class Mode of PE Course Teaching and Its Practice Research. *International Journal of Intelligent Information and Management Science*, 9(4), 286-289.
- Andavara, V., Sundaram, B., Bacha, D., Dadi, T., & Karthika, P. (2021). The impact of perceived ease of use on intention to use mobile payment services for data security applications. In *2021 Second International Conference on Electronics and Sustainable Communication Systems (ICESC)* (pp. 1875-1880). IEEE.
- Antonietti, C., Cattaneo, A., & Amenduni, F. (2022). Can teachers' digital competence influence technology acceptance in vocational education?. *Computers in Human Behavior*, 132, 107266.
- Arora, R. (2022). Perceived Usefulness, Perceived Trust and Ease of Use in Adoption of Online Banking Services. *Journal of Pharmaceutical Negative Results*, 13, 1-7.

References (Continued)

- Ashrafi, A., Zareravasan, A., Rabiee Savoji, S., & Amani, M. (2022). Exploring factors influencing students' continuance intention to use the learning management system (LMS): a multi-perspective framework. *Interactive Learning Environments*, 30(8), 1475-1497.
- Aslam, W., de Luna, I. R., Asim, M., & Farhat, K. (2023). Do the preceding self-service technologies influence mobile banking adoption?. *IIM Kozhikode Society & Management Review*, 12(1), 50-66.
- Asmara, E., & Ratmono, D. (2021). The Effect of Perceived Usefulness, Perceived Ease of Use on Attitudes and Interest in Using Regional Financial Management Information Systems. In *Proceedings IAPA Annual Conference 2021: "Governance and Public Policy in The Society 5.0"* (pp. 134-143). <https://doi.org/10.30589/proceedings.2021.521>
- Bessa, C., Hastie, P., Rosado, A., & Mesquita, I. (2022). Dispositions for learning in sport education questionnaire - (DFL-SE). *Journal of PE and Sport*, 22(5), 1277-1288. <https://doi.org/10.7752/jpes.2022.05160>
- Best, J.W. & Kahn, J.V. (2006) *Research in Education* (10th ed.). Cape Town: Pearson Education Inc.
- Bores-García, D., Hortigüela-Alcalá, D., Fernandez-Rio, F. J., González-Calvo, G., & Barba-Martín, R. (2021). Research on Cooperative Learning in PE: Systematic Review of the Last Five Years. *Research Quarterly for Exercise and Sport*, 92(1), 146–155. <https://doi.org/10.1080/02701367.2020.1719276>
- Bossidy, L., Charan, R., & Burck, C. (2011). *Execution: The discipline of getting things done*. New York: Random House.
- Bower, M., DeWitt, D., & Lai, J. W. (2020). Reasons associated with preservice teachers' intention to use immersive virtual reality in education. *British Journal of Educational Technology*, 51(6), 2215-2233.

References (Continued)

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 101. <https://doi.org/10.1191/1478088706qp063oa>
- Brezavšček, A., Šparl, P., & Žnidaršič, A. (2016). Factors Influencing the Behavioral Intention to Use Statistical Software: The Perspective of the Slovenian Students of Social Sciences. *EURASIA Journal of Mathematics, Science and Technology Education*, 13(3). <https://doi.org/10.12973/eurasia.2017.00652a>
- Brophy, J. (1991). Elementary Social Studies Series: Critique of a Representative Example by Six Experts. *Social Education*, 55(3), 155-60.
- Bu, X. (2022). An Empirical Study on the Effect of Mobile Learning-Based Hybrid Teaching on Students' Critical Thinking—Taking Intensive Reading as an Example. In *2022 10th International Conference on Information and Education Technology (ICIET)* (pp. 279-283). IEEE.
- Bulac, G. M. G., Dolocanog, M. M., & Carbonell, V. L. L. (2022). Effectiveness of the Developed Micro Lesson in Dance Exercise. *ACPES Journal of PE, Sport, and Health (AJPESH)*, 2(2), 85–87. <https://doi.org/10.15294/ajpesh.v2i2.62100>
- Bustaman, M. K., Aprianingsih, A., Hidayat, M., & Dasuki, R. E. (2023). The Impact of Trust, Perceived Usefulness, Perceived Ease of Use, and Customer Intentions on Customer Attitudes Toward the Use of Technology. *Almana : Jurnal Manajemen Dan Bisnis*, 7(2), 230–241. <https://doi.org/10.36555/almana.v7i2.2133>
- Cabero Almenara, J., Romero Tena, R., Llorente Cejudo, M. D. C., & Palacios Rodríguez, A. D. P. (2021). Academic performance and technology acceptance model (TAM) through a flipped classroom experience: Training of future teachers of primary education. *Contemporary Educational Technology*, 13(3).

References (Continued)

- Cannella, G. S., & Reiff, J. C. (1994). Individual constructivist teacher education: Teachers as empowered learners. *Teacher Education Quarterly*, 21(3), 27–38.
- Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2010). Facilitating preservice teachers' development of technological, pedagogical, and content knowledge (TPACK). *Journal of Educational Technology & Society*, 13(4), 63-73.
- Chao, C. (2020). Research on the Application of Micro-Classes in Computer Teaching in Higher Education. *International Journal of New Developments in Education*, 2(1), 26-28.
- Chen, L., & Aklikokou, A. K. (2020). Determinants of E-government adoption: testing the mediating effects of perceived usefulness and perceived ease of use. *International Journal of Public Administration*, 43(10), 850-865.
- Chen, Y. (2017). Preview or Not: An Innovation by the PAD Class Paradigm in English Extended Courses. In *2nd International Conference on Humanities Science and Society Development (ICHSSD 2017)* (pp. 518-521). Atlantis Press.
- Cheng, C. (2015). Thinking on the Problems in Design and Application of Micro-lecture. In *Proceedings of the 2015 International Conference on Economics, Management, Law and Education* (pp. 383-386).
<https://doi.org/10.2991/emle-15.2015.88>
- China Internet Network Information Center. (2023). *China Internet Network Information*. Retrieved from <http://www.cnnic.net.cn>

References (Continued)

- Chun, Y. (2020). Application and Exploration of Micro-lecture in Integrated English Teaching—A Case Study in University of Chinese Academy of Social Sciences. *US-China Foreign Language*, 18(11), 319-324 doi:10.17265/1539-8080/2020.11.001
- Costa, I. E. F., & Oliveira, S. R. B. (2022). *A Syllabus to Support Teaching and Learning of Exploratory Test Design and Execution*. In *14th International Conference on Computer Supported Education (CSEDU 2022)* (Vol. 2, pp. 303-315). doi:10.5220/001955300003182
- Dan Wei, D., Qiu, L. X., & Yu, H. (2017). *Research on design and development of high-quality Micro-lecture resources*. In *12th International Conference on Computer Science and Education (ICCSE)* (pp.634 - 638). <https://doi.org/10.1109/ICCSE.2017.8085570>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
- Davis, F. D., & Warshaw, P. R. (1992). What do intention scales measure?. *Journal of General Psychology*, 119(4), 391–407.
- Davis, F. D., Granić, A., & Marangunić, N. (2023). The technology acceptance model 30 years of TAM. *Technology*, 1(1), 1-150.
- Di Stefano, G., Ruggieri, S., Bonfanti, R. C., & Faraci, P. (2023). Entrepreneurship on Social Networking Sites: The Roles of Attitude and Perceived Usefulness. *Behavioral Sciences*, 13(4), 323. <https://doi.org/10.3390/bs13040323>
- Eksail, F. A. A., & Afari, E. (2020). Factors affecting trainee teachers' intention to use technology: A structural equation modeling approach. *Education and Information Technologies*, 25(4), 2681-2697.
- Elsayed, A. A. E., & Saad, M. (2023). Determinants of Intention to Use online Training Based on the TAM Model in Telecom Egypt Company. *Journal of Business*, 11(1), 1-21.

References (Continued)

- Erol Şahin, A. Y. Ş. E. G. Ü. L. (2020). Using the flipped classroom model in the history course: A learning experience. *International Journal of Educational Methodology*, 6(1).
- Eze, N. U., Obichukwu, P. U., & Kesharwani, S. (2021). Perceived usefulness, perceived ease of use in ICT support and use for teachers. *IETE Journal of Education*, 62(1), 12-20.
- Fan, K. (2021). Research on the relationship between computer educational teaching and college PE reform. *Journal of Physics: Conference Series*, 1915(3). <https://doi.org/10.1088/1742-6596/1915/3/032040>
- Fang, P. (2022). *Analysis of practical training characteristics and teaching system reform path of college PE curriculum based on deep learning*. <https://doi.org/10.1155/2022/9614356>
- Feng, G. (2021). On the Reform of PE in Colleges and Universities under the Background of Healthy China. *Journal of Human Movement Science*, 2(4), 40-43. doi:10.23977/JHMS.2021.020410.
- Gao, M. (2022). Experimental Study on the Effect of Taijiquan on the Physical Function and Mental Health of College Students. *Applied Bionics and Biomechanics*, 1-8.
- Gao, N. (2018). Construction and implementation of teaching mode for digital mapping based on interactive micro-course technology. *International Journal of Emerging Technologies in Learning (Online)*, 13(2), 21.
- Guan, S. (2012). Network education and new ideas for the reform of college PE. *Procedia Engineering*, 29, 3562-3566.
- Guo, H. (2020). Effect of Curriculum Planning for PE in Colleges on Innovation Ability. *International Journal of Emerging Technologies in Learning (IJET)*, 15(12), 103. <https://doi.org/10.3991/ijet.v15i12.14527>

References (Continued)

- Guo,B.,& Li,H.(2020). Guidance Strategies for Online Teaching during the COVID-19 Epidemic: A Case Study of the Teaching Practice of Xinhui Shangya School in Guangdong, China. *Science Insights Education Frontiers*, 5(2), 547-551.
<https://doi.org/10.2139/ssrn.3565627>
- GuoQin, Z. (2017). A Practical Research on Digital Electronic Technology Classroom Teaching Based on CDIO Concept Combination of Micro-lecture. In *2017 7th International Conference on Social Network, Communication and Education (SNCE 2017)* (pp. 194-198). Atlantis Press.
- George, A. A., Hall, G. E., Stiegelbauer, S. M., & Litke, B. (2008). *Stages of concern questionnaire*. Austin, TX: Southwest Educational Development Laboratory.
- Gupta, S. K., Tiwari, S., Hassan, A., & Gupta, P. (2023). Moderating Effect of Technologies into Behavioural Intensions of Tourists toward Use of Mobile Wallets for Digital Payments: TAM Model Perspective. *International Journal of Hospitality & Tourism Systems*, 16(1), 44-57.
- Guritno, S., & Siringoringo, H. (2013). Perceived usefulness, ease of use, and attitude towards online shopping usefulness towards online airlines ticket purchase. *Procedia-Social and Behavioral Sciences*, 81, 212-216.
- Halverson, L. R., & Graham, C. R. (2019). Learner engagement in blended learning environments: A conceptual framework. *Online Learning*, 23(2), 145-178.
- Hamidi, N. B., & Kinay, I. (2021). An Analysis of Preservice Teachers' Opinions about Micro Teaching Course. *International Journal of Progressive Education*, 17(5), 226-240.

References (Continued)

- Han, J. L. (2019). Micro-lecture Teaching for Improving the Learning Effect of Non-English Majors at North China Electric Power University. *English Language Teaching*, 12(6), 209-216.
- HanLiang, Z., & LiNa, Z. (2022). Investigation on the use of virtual reality in the flipped teaching of martial arts Taijiquan based on deep learning and big data analytics. *Journal of Sensors*, 2022(1), 1-14.
- He, J., & Li, J. (2018). Study on the application of Micro-lecture method in the popularization of sports table tennis in colleges and universities in southwest China. In *2018 International Conference on Management and Education, Humanities and Social Sciences (MEHSS 2018)* (pp. 23-26). Atlantis Press.
- Herlina, Destriana Widyaningrum, & Giovanni Theotista. (2023). Tipologi Financial Technology Paylater: Technology Acceptance Model (TAM). *Formosa Journal of Multidisciplinary Research*, 2(1), 207–216.
<https://doi.org/10.55927/fjmr.v2i1.2417>
- Hollingsworth, S. (1989). Prior beliefs and cognitive change in learning to teach. *American Educational Research Journal*, 26(2), 160–189.
- Hong, J. C., Hwang, M. Y., Tsai, C. M., Liu, M. C., & Lee, Y. F. (2022). Exploring teachers' attitudes toward implementing new ICT educational policies. *Interactive Learning Environments*, 30(10), 1823-1837.
- Hou, J., & Xue, J. (2023). Impact of the Blended Teaching Model on Learning Outcomes. *International Journal of Emerging Technologies in Learning (IJET)*, 18(05), 192–202. <https://doi.org/10.3991/ijet.v18i05.37997>
- Hu, T. S. (2011). Microclasses: A new trend in the development of regional educational information resources. *Research on Electrochemical Education*, 10(6).

References (Continued)

- Hu, Z. (2020). Research on the reform of advanced financial accounting course based on the PAD class teaching model under computer-aided analysis. *Journal of Physics: Conference Series*, 1648(4), 1-4. <https://doi.org/10.1088/1742-6596/1648/4/042035>
- Huang, J. (2021). The Influence of Taijiquan on the development of pe and mental health education from the perspective of healthy China. *Psychiatria Danubina*, 33(8), 366-367.
- Huang, F., & Teo, T. (2021). Examining the role of technology-related policy and constructivist teaching belief on English teachers' technology acceptance: A study in Chinese universities. *British Journal of Educational Technology*, 52(1), 441-460.
- Huang, J., & Yu, D. (2022). Application of Deep Learning in College PE Design under Flipped Classroom. *Computational Intelligence and Neuroscience* 2022(11), 1-9.
- Huang, L. (2017). Acceptance of mobile learning in classroom instruction among college English teachers in China using an extended TAM. In *2017 International conference of educational Innovation through technology (EITT)* (pp. 283-287). IEEE.
- Huang, Y., Yao, J., & Huang, G. (2021). Application of intelligent information technology in the reform of hybrid teaching courses in colleges and universities. *Journal of Physics: Conference Series*, 1852(2), 1-8. <https://doi.org/10.1088/1742-6596/1852/2/022065>
- Jiang, P., Wijaya, T., Mailizar, M., Zulfah, Z., & Astuti, A. (2022). How Micro-lecture Improve Learning Satisfaction and Achievement: A Combination of ECM and Extension of TAM Models. *Mathematics*, 10(19), 3430.
- Jiang, Y. (2021). Design and Implementation of Hybrid Teaching Reform Platform for Marketing Based on Micro Lecture. In *2021 6th International Conference on Smart Grid and Electrical Automation (ICSGEA)* (pp. 92-96). IEEE.

References (Continued)

- Jiao, Q., & Su, D. (2019). Research on the hybrid teaching model based on MOOC and Micro-lecture. In *2nd International Conference on Contemporary Education, Social Sciences and Ecological Studies (CESSES 2019)* (pp. 363-365). Atlantis Press.
- Jiceh-Der, D., Pi-Cheng, T., & Fong-Jia, W. (2021). The impact of PE classes on health and quality of life during the COVID-19. *Applied Sciences*, 11(19), 8813. <https://doi.org/10.3390/app11198813>
- Jin, H., & Li, S. (2021). Research on computer network distance teaching and college PE reform. *Journal of Physics: Conference Series*, 1915(3), 1-5. <https://doi.org/10.1088/1742-6596/1915/3/032061>
- Jin, Y. (2021). Influencing Factors of Microlecture on the Teaching Effect of Ideological and Political Courses in Colleges. *Wireless Communications and Mobile Computing*, 2022(1), 1–7. <https://doi.org/10.1155/2021/6309221>
- Jonassen, D. H., Peck, K., & Wilson, B. G. (1999). *Learning with technology: A constructivist approach*. Upper Saddle River, NJ: Prentice-Hall.
- Kamal, S. A., Shafiq, M., & Kakria, P. (2020). Investigating acceptance of telemedicine services through an extended technology acceptance model (TAM). *Technology in Society*, 60(4), 101212. <https://doi.org/10.1016/j.techsoc.2019.101212>
- Karanezi, X., & Rapti, E. (2015). Teachers' attitudes and perceptions: Association of teachers' attitudes toward traditional and modern teaching methodology according to RWCT as well as teachers' perceptions for teaching as a profession. *Creative Education*, 6(06), 623.
- Kelly, A. E., & Palaniappan, S. (2023). Using a technology acceptance model to determine factors influencing continued usage of mobile money service transactions in Ghana. *Journal of Innovation and Entrepreneurship*, 12(1), 34. <https://doi.org/10.1186/s13731-023-00301-3>

References (Continued)

- Khanacademy. (2023). *A personalized learning resource for all ages*. Retrieved from <https://www.khanacademy.org/about>
- Kim, J.-H., & Kang, E. (2023). An Empirical Research: Incorporation of User Innovativeness into TAM and UTAUT in Adopting a Golf App. *Sustainability*, 15(10), 8309. <https://doi.org/10.3390/su15108309>
- Kondratenko, V., Zaitsev, A., Nesterenko, A. M., Homon, L. V., & Chykolba, G. N. (2022). Modern information technologies in the process of PE in universities of Ukraine. *Pedagogy and Psychology*, 7(2), 101-108.
- Kong, Z., Li, T., Zhang, Z., Jiang, J., & Mei, J. (2021). Application of microlecture teaching methods in standardized residency training during COVID-19 in Wuhan: a randomized, controlled study. *Ann Palliat Med*, 10(4), 4017-24.
- Kumar, M. S., & Krishnan, D. S. G. (2020). Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioural Intension to Use (BIU): Mediating effect of Attitude toward Use (AU) with reference to Mobile wallet Acceptance and Adoption in Rural India. *Test Engineering & Management*, 83, 933–941.
- Lerman, S. (1989). Constructivism, mathematics and mathematics education. *Educational studies in mathematics*, 20(2), 211-223.
- Lawson, G.M., Julie Sarno Owens, J.S., Mandell D.S., Tavlin, S., Rufe, S. & Power, T.J. (2023). Exploring Teachers' Intentions to Use Behavioral Classroom Interventions. *Evidence-based practice in child and adolescent mental health*, 9(1), 78-86. <https://doi.org/10.1080/23794925.2023.2183434>
- Li, H. (2021). Application and Analysis of Internet and Information Technology in Higher Education Computer Teaching. In *2021 4th International Conference on Information Systems and Computer Aided Education* (pp. 843-846). <https://doi.org/10.1145/3482632.348033>

References (Continued)

- Li, H. C., & Shen, S. F. (2022). The Reform of Basketball Curriculum Model for Students' Physical Development under the National Fitness Environment. *Journal of Environmental and Public Health*, (5), 1-11.
- Li, J., & Liu, L. (2022). The Reform of University Education Teaching Based on Cloud Computing and Big Data Background. *Computational Intelligence and Neuroscience*, (02), 1-9 doi:10.1155/2022/8169938.
- Li, L. (2018). The Application of Micro-curriculum on College Education Teaching. In *2018 International Conference on Educational Technology, Training and Learning (ICETTL 2018)* (pp. 111-114). China: Clausius Scientific Press.
- Li, Q., Liu, Y., & Wang, Y. (2021). Reform of Public PE Teaching Mode in Colleges and Universities Based on PBL Teaching Concept. In *2nd International Conference on Computers, Information Processing and Advanced Education*, (pp.551–554). <https://doi.org/10.1145/3456887.3457011>
- Li, S. (2020). Analysis on the teaching reform of college PE informationization based on computer technology. *Journal of Physics: Conference Series*, 1648(3), 1-5. <https://doi.org/10.1088/1742-6596/1648/3/032042>
- Li, S., Li, M., Gong, S., Su, J., & Liu, G. (2019). *World Tai Chi Development*. Shanghai: Social Science.
- Li, W. (2014). A new engine for building a learning society: A case study of the Open University of China. *International Journal of Continuing Education and Lifelong Learning*, 7(1), 139-152.
- Li, Y. (2022). Adjustment of taijiquan traditional health sports to college students' mental health. *Psychiatria Danubina*, 34 (suppl 1), 156-157.
- Li, Y., & Liao, X. (2022a). Research and Practice of Blended Teaching Mode Based on Mobile Learning Platform and PAD Class. *Creative Education*, 13(06), 2126–2132. <https://doi.org/10.4236/ce.2022.136133>
- Li, Y., & Liao, X. (2022b). Research on the Application of PAD Class in the Second Foreign Language (Japanese) Course. *Creative Education*, 13(07), 2246–2251. <https://doi.org/10.4236/ce.2022.137141>

References (Continued)

- Li, Y., & Qu, W. (2021). A blended teaching mode of university mathematics based on “micro class” and “rain class” under the internet plus background. *Advances in Applied Sociology*, 11(12), 716-723.
- Li, Y., Wen, X., & Liao, X. (2021). Study on the Practice of “PAD Class” Teaching Mode in English Teaching of Medical Colleges. *Advances in Applied Sociology*, 11(05), 275–280. <https://doi.org/10.4236/aasoci.2021.115024>
- Liang, S. Y. (2015). *Simplified Tai Chi Chuan: 24 postures with applications and standard 48 postures*. Wolfeboro, NH: YMAA Publication Center.
- Liao, H., & Guo, Q. (2022). The Research on the Teaching Design of English Reading in Junior Middle School Based on the Model of PAD Class. *International Journal of Education and Humanities*, 5(1), 75-81.
- Lim, C. P., & Chan, B. C. (2007). Micro Lessons in teacher education: Examining pre-service teachers' pedagogical beliefs. *Computers & Education*, 48(3), 474-494.
- Liu, F. (2021). The reform of college PE teaching methods under the background of big data. *Journal of Physics: Conference Series*, 1744(3), 1-7. <https://doi.org/10.1088/1742-6596/1744/3/032005>
- Liu, H., Xu, S., & Liu, S. (2021). An online course mode based on micro lecture videos: Using CAD geometric modeling course as an example. *Computer Applications in Engineering Education*, 29(5), 1300-1311.
- Liu, H., Yang, J., & Yuan, P. (2023). Research on improving the information application ability of teachers in local application-oriented undergraduate colleges based on the construction of Micro-lecture. *Journal of Education, Humanities and Social Sciences*, 7, 65-68.
- Liu, J. (2021). The important role of Pad Classteaching Mode in Enlightening College Students' Thinking. *Curriculum and Teaching*, 4, 6-10.

References (Continued)

- Liu, L., Zhang, Y., Zhang, P., & Sun, W. (2021). The application of PAD teaching method in computer network course. *IOP Conference Series Earth and Environmental Science*, 693(1), 1-6. <https://doi.org/10.1088/1755-1315/693/1/012016>
- Liu, T., Wilczyńska, D., Lipowski, M., & Zhao, Z. (2021). Optimization of a sports activity development model using artificial intelligence under new curriculum reform. *International Journal of Environmental Research and Public Health*, 18(17), 9049. <https://doi.org/10.3390/ijerph18179049>
- Liu, Y., Sathishkumar, V. E., & Manickam, A. (2022). Augmented reality technology based on school PE training. *Computers and Electrical Engineering*, 99, 107807.
- Londa, D. R., Worang, F. G., & Arie, F. V. (2022). The Influence of Perceived Credibility, Perceived Ease of Use, and Perceived Usefulness toward Customer Satisfaction in Using BSGtouch. *Jurnal EMBA: Jurnal Riset Ekonomi, Mana-jemen, Bisnis dan Akuntansi*, 10(4), 934-945.
- Lorini, W. (2017). *A Complete Guide to Tai Chi*. New York, NY: Enslow Publishing.
- Lu, H. (2021). Research on the advantages and application strategies of micro lecture in college English teaching. *Transactions on Comparative Education*, 3(2), 70-74.
- Lynch, T., & Soukup, G. J. (2016). “PE”, “health and PE”, “physical literacy” and “health literacy”: Global nomenclature confusion. *Cogent Education*, 3(1). <https://doi.org/10.1080/2331186X.2016.1217820>
- Ma, T., & Zhao, Y. (2019). *Problems in the Reform of PE Teaching in Colleges and Universities and Countermeasure Study*. In *2nd International Workshop on Education Reform and Social Sciences (ERSS 2019)* (pp. 8-12). Atlantis Press.

References (Continued)

- Mailizar, M., Burg, D., & Maulina, S. (2021). Examining university students' behavioral intention to use e-learning during the COVID-19 pandemic: An extended TAM model. *Education and Information Technologies*, 26(6), 7057-7077.
- Meng, L. (2020). Research on the Curriculum Reform of International Freight Forwarding Course Based on the Teaching Model of “Micro-lecture+PAD class+Simulation Practice”. In *Proceedings of the 2020 5th International Conference on Humanities Science and Society Development (ICHSSD 2020)*. (pp.540-543). Atlantis Press.
- Minaz, M., Tabassum, R., & Idris, M. (2017). An experimental study of the performance of prospective teachers of flipped classroom and non-flipped classroom maksal minaz, rabia tabassum & muhammad idris. *Pakistan Journal of Education*, 34(2), 167-182.
- Ministry of Education of the People's Republic of China. (2017). 共青团中央 教育部关于印发《关于加强和改进新形势下高校共青团思想政治工作的意见》的通知. Retrieved from http://www.moe.gov.cn/jyb_xxgk/moe_1777/moe_1779/201709/t20170914_314466.html
- Ministry of Education of the People's Republic of China. (2021). 教育部等五部门关于大力加强中小学线上教育教学资源建设与应用的意见 Retrieved from http://www.moe.gov.cn/srcsite/A06/s3325/202102/t20210207_512888.html
- Monalisa S. (2019). Inclusion of Perceived Risk with TAM in Measuring Attitude Toward Online Banking. *European Journal of Business and Management*, 11(2), 66-74. <https://doi.org/10.7176/EJBM/11-2-08>

References (Continued)

- Mu, D., Liu, C. L., & Luo, H. N. (2019). The Expand Application of Micro-lecture in Flipped Classroom in the Reform of Bilingual Teaching of Physical Chemistry Experiment -Taking Physical Chemistry Experiment Bilingual Course in Zaozhuang University as an Example. In *2nd International Seminar on Education Research and Social Science (ISERSS 2019)* (pp. 228-231). Atlantis Press.
- Muljo, H. H., Pardamean, B., Perbangsa, A. S., Purwandari, K., Mahesworo, B., Hidayat, A. A., & Cenggoro, T. W. (2020). TAM as a Model to Understand the Intention of Using a Mobile-Based Cancer Early Detection Learning Application. *International Journal of Online & Biomedical Engineering*, 16(2), 80-93.
- Mulyaningsih, S. (2022). *The effect of perceived usefulness, perceived ease of use in digital banking services toward customer loyalty with user's trust as mediator* (Unpublished Doctoral Dissertation). Universitas Bakrie, Indonesia.
- Nader Ganayem, A., & Zidan, S. W. (2018). 21st Century Skills: Student Perception of Online Instructor Role. *Interdisciplinary Journal of E-Skills and Lifelong Learning*, 14, 117–141. <https://doi.org/10.28945/4090>
- Nadlifatin, R., Miraja, B. A., Persada, S. F., Belgiawan, P. F., Redi, A. A. N. P., & Lin, S.-C. (2020). The Measurement of University Students' Intention to Use Blended Learning System through Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) at Developed and Developing Regions: Lessons Learned from Taiwan and Indonesia. *International Journal of Emerging Technologies in Learning (iJET)*, 15(09), 219. <https://doi.org/10.3991/ijet.v15i09.11517>
- Namahoot, K. S., & Rattanawiboonsom, V. (2022). Integration of TAM Model of Consumers' Intention to Adopt Cryptocurrency Platform in Thailand: The Mediating Role of Attitude and Perceived Risk. *Human Behavior and Emerging Technologies*, 2022, 1–12. <https://doi.org/10.1155/2022/9642998>

References (Continued)

- Natasia, S. R., Wiranti, Y. T., & Parastika, A. (2022). Acceptance analysis of NUADU as e-learning platform using the Technology Acceptance Model (TAM) approach. *Procedia Computer Science*, 197, 512-520.
- Ngabiyanto, Nurkhin, A., Widiyanto, Saputro, I. H., & Kholid, A. M. (2021). Teacher's intention to use online learning; an extended technology acceptance model (TAM) investigation. *Journal of Physics: Conference Series*, 1783(1), 1-6. 012123. <https://doi.org/10.1088/1742-6596/1783/1/012123>
- Nikolopoulou, K., Gialamas, V., & Lavidas, K. (2021). Habit, hedonic motivation, performance expectancy and technological pedagogical knowledge affect teachers' intention to use mobile internet. *Computers and Education Open*, 2, 100041.
- Niu, Q., & Feng, J. (2021). Application of Micro-lecture in Table Tennis Teaching for Children. In *2021 2nd International Conference on Information Science and Education (ICISE-IE)* (pp. 1210-1216). IEEE.
- Niu, X., & Gao, S. (2022). *Flipped-Blended Model Based on MOOC and Micro-lecture*. Cham Switzerland: Springer International Publishing.
- Nugraha, U., Ekawarna, E., Ali, M., & Adhanegara, T. A. (2022). The effect of teachers' perceptions of the TAM learning model seen on the student's learning outcomes in high school. *Jurnal Keolahragaan*, 10(2), 282-291.
- Nurhayati, N., Fitriah, E., Halimatusadiah, E., & Azis, R. (2023). Use of E-Learning System in Technology Acceptance Model (TAM) on Accredited PTS Students in BAN-PT Bandung. *KnE Social Sciences*, 221-232.
- Olusanya, O. O. (2022). *Influence of micro-teaching on anxiety, aptitude and teaching practice performance of business education students in colleges of education* Retrieved from <https://www.proquest.com/dissertations-theses/influence-micro-teaching-on-anxiety-aptitude/docview/2709946220/se-2>
- Overseas Chinese network. (2017). 泰国曼松德大学孔院首推“对分课堂”教学模式. Retrieved from <http://www.chinaqw.com/hwjy/2017/10-19/165152.shtml>

References (Continued)

- Pan, S., Zuo, T., & Wang, Y. (2022). Application of the Teaching Mode of “PAD Class” in the Teaching of Civil Engineering Specialty in Higher Vocational Colleges. In *Proceedings of the 2022 International Conference on Social Sciences and Humanities and Arts (SSHA 2022)*. Nanjing, China.
<https://doi.org/10.2991/assehr.k.220401.144>
- Peng, Y. (2019). Application of Micro-lecture in Computer Teaching. *IOP Conference Series: Earth and Environmental Science*, 234, 012053. doi:10.1088/1755-1315/234/1/012053.
- Phelps, A. N. (2020). *Attitudes towards technology use: an investigation on the perspectives of preservice PE Teachers* (Doctoral dissertation). Retrieved from <http://hdl.handle.net/2152/86894>
- Pickren, W., Dewsbury, D. A., & Wertheimer, M. (2012). *Portraits of pioneers in developmental psychology*. New York: Psychology Press.
- Pomerantz, J. R. (2006). *Perception: overview*. Hampshire, England: McMillan/Nature Published Group.
- Prastiawan, D. I., Aisjah, S., & Rofiaty, R. (2021). The Effect of Perceived Usefulness, Perceived Ease of Use, and Social Influence on the Use of Mobile Banking through the Mediation of Attitude Toward Use. *Asia Pacific Management and Business Application*, 009(03), 243–260.
<https://doi.org/10.21776/ub.apmba.2021.009.03.4>
- Prieto, J. C. S., Migueláñez, S. O., & García-Peñalvo, F. J. (2015). Behavioral intention of use of mobile technologies among pre-service teachers: Implementation of a technology adoption model based on TAM with the constructs of compatibility and resistance to change. In *2015 International Symposium on Computers in Education (SIIE)* (pp. 120-125). IEEE.
- Qashou, A. (2021). Influencing factors in M-learning adoption in higher education. *Education and information technologies*, 26(2), 1755-1785.

References (Continued)

- Olusanya, O. O. (2022). *Influence of Micro-Teaching on Anxiety, Aptitude and Teaching Practice Performance of Business Education Students in Colleges of Education* (Doctoral dissertation) Retrieved from ProQuest Dissertation and Theses database. (Order No. 29391442)
- Qi, X. (2018). Teachers' Roles in China's EFL Classes Adopting the PAD Mode. *Journal of Language Teaching and Research*, 9(4), 798.
<https://doi.org/10.17507/jltr.0904.17>
- Rafiq, F., Hussain, S., & Abbas, Q. (2020). Analyzing students' attitude towards e-learning: A case study in higher education in Pakistan. *Pakistan Social Sciences Review*, 4(1), 29.
- Rao, A., Hilton III, J., & Harper, S. (2017). Khan Academy videos in Chinese: A case study in OER revision. *The International Review of Research in Open and Distributed Learning*, 18(5), 306-315.
- Rosli, M. S., Saleh, N. S., Md. Ali, A., Abu Bakar, S., & Mohd Tahir, L. (2022). A Systematic Review of the Technology Acceptance Model for the Sustainability of Higher Education during the COVID-19 Pandemic and Identified Research Gaps. *Sustainability*, 14(18), 11389.
<https://doi.org/10.3390/su141811389>
- Saeed Al-Marroof, R., Alhumaid, K., & Salloum, S. (2020). The continuous intention to use e-learning, from two different perspectives. *Education Sciences*, 11(1), 6.
- Sahin, D., & Yilmaz, R. M. (2020). The effect of Augmented Reality Technology on middle school students' achievements and attitudes towards science education. *Computers & Education*, 144, 103710.
<https://doi.org/10.1016/j.compedu.2019.103710>
- Saputra, U. W. E., & Darma, G. S. (2022). The intention to use blockchain in Indonesia using extended approach technology acceptance model (TAM). *CommIT (Communication and Information Technology) Journal*, 16(1), 27-35.

References (Continued)

- Sari, C. L., Isnayanti, H., Ikhsan, R. B., Sayoga, R. Y., Aries, & Pradhani, R. A. (2021). The Impact of Perceived Usefulness, Lifestyle, and Trust on Attitudes and Intentions to Use M-Wallet. In *5th International Conference on Informatics and Computational Sciences (ICICoS)*, (pp.99–103). <https://doi.org/10.1109/ICICoS53627.2021.9651828>
- Saygıner, C. (2023). Examining university students' behavioral intention to distance learning during covid-19: an extended tam model. *Turkish Online Journal of Distance Education*, 24(2), 325-336.
- Selvaratnam, R. M., & Sankey, M. D. (2021). An integrative literature review of the implementation of micro-credentials in higher education: Implications for practice in Australasia. *Journal of Teaching and Learning for Graduate Employability*, 12(1), 1-17.
- Shao, C. (2020). An empirical study on the identification of driving factors of satisfaction with online learning based on TAM. In *5th international conference on economics, management, law and education (EMLE 2019)* (pp. 1067-1073). Atlantis Press.
- Song, S. H., Gao, C. G., Guo, P. P., & Sun, Z. (2020). Influence of PAD Class on Learning Motivation, Learning Flow and Self-Esteem of PE College Students. *International Conference on Social Science and Education*, 123-130.
- Song, Y. (2016). The application of micro lecture in college English teaching process in China. *Open Access Library Journal*, 3(6), 1-6.
- Sorce, J., & Issa, R. R. (2021). Extended Technology Acceptance Model (TAM) for adoption of Information and Communications Technology (ICT) in the US Construction Industry. *Journal of Information Technology in Construction (ITcon)*, 26(2021), 227-248. doi: 10.36680/j.itcon.2021.013

References (Continued)

- Stanly, S. L., & Maniazhagu, D. (2021). Individual and combined interventions of Tai Chi, pilates and yogic practices on muscular endurance of B. Ed. trainees. *International Journal of PE Sports Management and Yogic Sciences*, 11(4), 39-47.
- Stefaniak, J. E., & Hwang, H. (2021). A systematic review of how expertise is cultivated in instructional design coursework. *Educational Technology Research & Development*, 69(6), 3331–3366.
- Supriadi, F., Helmiawan, M. A., Sofiyan, Y. Y., & Guntara, A. (2020). A Model of Virtual Learning Environments Using Micro-lecture, MOODLE, and SLOODLE. In *2020 8th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-4). IEEE.
- Takaya, K. (2008). Jerome Bruner's theory of education: From early Bruner to later Bruner. *Interchange*, 39, 1-19.
- Tang, F. (2017). Reform Strategies on Universities PE in the Background of Quality Education. In *2017 3rd International Conference on Economics, Social Science, Arts, Education and Management Engineering (ESSAEME 2017)*. Atlantis Press.
- Tang, J., Wijaya, T. T., Weinhandl, R., Houghton, T., Lavicza, Z., & Habibi, A. (2022). Effects of Micro-lecture on junior high school students' achievements and learning satisfaction in mathematics lessons. *Mathematics*, 10(16), 2973.
- Tianjiao, L. (2020). Design and application of Micro-lecture in personalized teaching of computer network. *Journal of Physics: Conference Series*, 1678(1), 012108. <https://doi.org/10.1088/1742-6596/1678/1/012108>
- To, A. T., & Trinh, T. H. M. (2021). Understanding behavioral intention to use mobile wallets in Vietnam: Extending the tam model with trust and enjoyment. *Cogent Business & Management*, 8(1), 1891661.
- Tong, L. (2019). *Research on the Application of Flipping Classroom in Taijiquan Teaching in Colleges and Universities*. Basel Switzerland: MDPI.

References (Continued)

- Toraman, Y. (2022). User Acceptance of Metaverse: Insights from Technology Acceptance Model (TAM) and Planned Behavior Theory (PBT). *EMAJ: Emerging Markets Journal*, 12(1), 67–75.
<https://doi.org/10.5195/emaj.2022.258>
- Tulaf, A., & Gan, S. (2022). Research on the Teaching Model Focusing on Micro-courses in Sports Mixed Teaching Under the Club Model. In *2nd International Conference on Education: Current Issues and Digital Technologies (ICECIDT 2022)* (pp. 195-203). Atlantis Press.
- Turner, M., Kitchenham, B., Brereton, P., Charters, S., & Budgen, D. (2010). Does the technology acceptance model predict actual use? A systematic literature review. *Information and software technology*, 52(5), 463-479.
- UNESCO. (2021). *Making the case for inclusive quality PE policy development: A policy brief*. Paris, France: Author.
- University of China. (2014). *International Journal of Continuing Education and Lifelong Learning*, 7(1), 139-152.
- Vladoiu, M. (2011). State-of-the-art in open courseware initiatives worldwide. *Informatics in Education-An International Journal*, 10(2), 271-294.
- Wagner, W. H., & Edwards, M. (1993). Best execution. *Financial Analysts Journal*, 49(1), 65-71.
- Wang, H. (2021). How to use computer new media technology to reform and innovate the integration mode of sports and education in colleges and universities. *Journal of Physics: Conference Series*, 1992(4)
<https://doi.org/10.1088/1742-6596/1992/4/042027>
- Wang, J. (2021). The Influence of Micro-teaching on Teaching Abilities of Students Majoring in PE in Physical Schools. In *E3S Web of Conferences* (Vol. 251, p. 03077). EDP Sciences.

References (Continued)

- Wang, J., Li, C., Wu, J., & Zhou, G. (2023). Research on the Adoption Behavior Mechanism of BIM from the Perspective of Owners: An Integrated Model of TPB and TAM. *Buildings*, 13(7), 1745. <https://doi.org/10.3390/buildings13071745>
- Wang, Y. (2023). The Application of PAD Class in Advanced Chinese Comprehensive Course: —An Experiment Using SPSS Software. In B. Majoul, G. Guan, & N. Groom (Eds.), *Proceedings of the 4th International Conference on Language, Art and Cultural Exchange (ICLACE 2023)* (Vol. 766, pp. 387–395). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-094-7_49
- Wardana, A. A., Saputro, E. P., Wahyuddin, M., & Abas, N. I. (2022). The Effect of Convenience, Perceived Ease of Use, and Perceived Usefulness on Intention to Use E-Wallet: (Empirical Study on Generation Z in Surakarta). *International Conference on Economics and Business Studies (ICOEBS 2022)*. <https://doi.org/10.2991/aebmr.k.220602.051>
- Weng, F., Yang, R.-J., Ho, H.-J., & Su, H.-M. (2018). A TAM-Based Study of the Attitude towards Use Intention of Multimedia among School Teachers. *Applied System Innovation*, 1(3), 36. <https://doi.org/10.3390/asi1030036>
- Wang, D., Wang, H., Zhang, W., Wang, H., & Shen, X. (2020). Online teaching during the “School is Out, but Class is On” period: Based on 33,240 online questionnaire surveys across China. *Best Evidence in Chinese Education*, 6(1), 753-767.
- Wicaksono, A., & Maharani, A. (2020). The Effect of Perceived Usefulness and Perceived Ease of Use on the Technology Acceptance Model to Use Online Travel Agency. *Journal of Business Management Review*, 1(5), 313–328. <https://doi.org/10.47153/jbmr15.502020>
- Widanengsih, E. (2021). Technology acceptance model to measure customer's interest to use mobile banking. *Journal of Industrial Engineering & Management Research*, 2(1), 73-82.

References (Continued)

- Wijaya, T. T., Cao, Y., Weinhandl, R., Yusron, E., & Lavicza, Z. (2022). Applying the UTAUT model to understand factors affecting Micro-lecture usage by mathematics teachers in china. *Mathematics*, 10(7), 1008.
<https://doi.org/10.3390/math10071008>
- Wile, D. (2017). Fighting words: Four new document finds reignite old debates in Taijiquan historiography. *Martial Arts Studies*, 4, 17-35.
- Wu, B. (2022). Thinking on promoting the reform of college PE by integrating college PE with social PE. *The Educational Review, USA*, 6(6), 188-191.
<https://doi.org/10.26855/er.2022.06.002>
- Wu, M. (2022). Discussion on the Problems and Countermeasures of College PE Reform. *International Journal of Social Sciences in Universities*, 169.
- Wu, S., Cen, J., Wang, S., Jiang, M., Wang, X., & Wen, Y. (2018). Effect of tai chi ... Medical Science Monitor Basic Research. *Medical Science Monitor Basic Research*, 24, 210–215.
- Wu, Y., Liu, S., Man, Q., Luo, L., Zheng, Y., Yang, S., ... Zhang, Y. (2022). Application and Evaluation of the Flipped Classroom Based on Micro-Video Class in Pharmacology Teaching. *Frontiers in public health*, 10, 838900.
<https://doi.org/10.3389/fpubh.2022.838900>
- Xiaxian, O., Qian, Z., Zhangjian, C., & Yun, W. (2021). Application of micro lecture combined with scene simulation teaching in an integrated experimental teaching of occupational hygiene. *Chinese Journal of Medical Education*, 41(7), 597.
- Xie, Q. (2022). The Factors Influencing Chinese University Teachers' Intentions for Using the Micro-lecture in the Post COVID-19 Era. *International Journal of Environmental Research and Public Health*, 19(22), 14887.
- Xie, S. (2019). Research on the Innovation Path of Piano Teaching in Colleges and Universities in the" Micro-era. In *5th International Workshop on Education, Development and Social Sciences (IWEDSS 2019)* (pp.830-834). n.p.

References (Continued)

- Xie, Z., & Yang, J. (2020). Autonomous learning of elementary students at home during the COVID-19 epidemic: A case study of the second elementary school in Daxie, Ningbo, Zhejiang Province, China. Ningbo, Zhejiang Province, China. *Best Evidence of Chinese Education*, 4(2), 535-541.
- Xiong, D. (2020). Teaching Reform in the Course of Corporate Image Design Based on the Teaching Method of Combining Cooperative Learning and PAD Class. In *Proceedings of the International Conference on Education Studies: Experience and Innovation (ICESEI 2020)*. <https://doi.org/10.2991/assehr.k.201128.095>
- Xu, J. (2020). The Construction of College English Teaching Model Based on PAD Class. *English Language Teaching*, 13(2), 28-31.
- Yang, T., & Li., Q. (2019). Research on Reform of PE Teaching Model in Colleges and Universities based on Talent Training. *International Journal of New Developments in Engineering and Society*, 3(1), 179-185.
- Yang, J. (2018). Research on the Teaching Model Reform of PE Theoretical Courses Based on the Teaching Approaches. In *4th International Conference on Arts, Design and Contemporary Education (ICADCE 2018)*. <https://doi.org/10.2991/icadce-18.2018.167>
- Yang, S., & Xu, L. (2021). Research on the Application of “Micro-learning” in Tai Chi Teaching. In *2021 International Conference on Information Technology and Contemporary Sports (TCS)* (pp.529–532). <https://doi.org/10.1109/TCS52929.2021.00113>
- Yang, Y. (2018). Micro-lecture Application in College Ideological and Political Theory Teaching. In *Proceedings of the Asia-Pacific Social Science and Modern Education Conference (SSME 2018)*. <https://doi.org/10.2991/ssme-18.2018.27>
- Yang, Y. L., Luo, L., Qian, Y., & Yang, F. (2020). Cultivation of undergraduates' self-regulated learning ability in Medical Genetics based on PAD class. *Hereditas (Beijing)*, 42(11), 1133-1139.

References (Continued)

- Yang, Z. (2021). Research on the practice path of college PE reform from the perspective of quality education based on big data. *Journal of Physics: Conference Series*, 1992(2) <https://doi.org/10.1088/1742-6596/1992/2/022135>
- Yazhong, Y., Huaijin, Z., & Xinyu, F. (2021). Research on the coupling of the party construction of the public sports department and the ideological and political reform of the public sports curriculum in Colleges and Universities. *Advances in Educational Technology and Psychology*, 5(7), 23-28.
- Yosef, P. (2020). Technology Acceptance Model (TAM) Approach in the Financial Services Platform for Msme Sector. *Conference Series*, 3(1), 385–397.
- Yosi, A., Endang, S. A., Andriani, K., & Yusri, A. (2021). Analysis of the Effect of Perceived Risk, Perceived Usefulness and Attitude on Usage Intention with TAM (Case Study: Go-Jek Application). *Jurnal AKSI (Akuntansi dan Sistem Informasi)*, 5(1), 41-44. <https://doi.org/10.32486/aksi.v5i1.38>
- Yu, Y., & Qi, A. (2020). Five stars teaching mode of sports training based on APP microcourse. *International Journal of Emerging Technologies in Learning (iJET)*, 15(6), 152-165.
- Yuan, F. (2019). Application and Exploration of PAD Class in the Course of Modeling Foundation. In *3rd International Conference on Economics, Management Engineering and Education Technology (ICEMEET 2019)* (pp.1631-1635).n.p.
- Yuan, M. (2021). Research on the influence of network distance teaching on the reform of college PE. *Journal of Physics: Conference Series*, 4(1915). <https://doi.org/10.1088/1742-6596/1915/4/042055>
- Yue, Y. (2021). Integrating PAD class to college English reading teaching. *Open Access Library Journal*, 8(6), 1-8. <https://doi.org/10.4236/oalib.1107479>
- Zhai, J., Dai, L., Peng, C., Dong, B., Jia, Y., & Yang, C. (2022). Application of the presentation–assimilation–discussion class in oral pathology teaching. *Journal of Dental Education*, 86(1), 4-11.

References (Continued)

- Zhao, S. (2020). The Effective Application of Modern Educational Technology in the Reform of PE Teaching. *International Journal of New Developments in Education*, 2(5), 34-37.
- Zhang, C. (2019). The Practical Research of Micro Lecture+ PAD class in English Major Writing Teaching Based on We Media Platform. In *9th International Conference on Management, Education and Information (MEICI 2019)*. (pp.274-277). n.p.
- Zhang, L., Wang, D., Xie, C., Liu, S., Chi, L., Ma, X., & Ren, F. F. (2022). The effects of Tai Chi on the executive functions and physical fitness in middle-aged adults with depression: a randomized controlled trial. *Evidence-based Complementary and Alternative Medicine* 2022(7), 1-16.
- Zhang, Q. (2021). Study on the value of Taijiquan in Healthy Chinese Vision. *The Journal of the International Society of Chinese Health Practices*, 2(1), 128-133.
- Zhang, X. (2017). The PAD Class, a new paradigm for university classroom teaching. In *14th Conference on Education and Training in Optics and Photonics (ETOP 2017)*.n.p.
- Zhang, X., & Xu, J. (2015). Integration of micro lectures into the blended learning discourse in tertiary education. *Asian Association of Open Universities Journal*, 10(2), 13-28.
- Zhang, X., Wang, Y., & Leung, S. O. (2023). Technology Acceptance Model (TAM) and sports bracelets usage in PE for freshmen: the role of gender and self-efficacy. *Technology, Pedagogy and Education*, 32(1), 45-63.
- Zhang, X. (2014). PAD Class: A new attempt in university teaching reform. *Fudan Education Forum*, 12(5), 5-10.
- Zhang, Y. (2015). The origin and development of Micro-lecture. *Scholar: Theory Edition*, (20), 8-8.

References (Continued)

- Zhao, Q., Qi, J., Xu, J., Song, B., & Zhou, R. (2022). Application of PAD Class in Geography Teaching -Taking “The Causes of Natural Disasters” as an Example. In *2022 International Academic Conference on Art, Educational Innovation and Information Technology (AEIIT 2022)* (pp.167-173).n.p.
- Zhibin, X. (2021). Research on Taijiquan Teaching Reform Based on International Communication. *Journal of Human Movement Science*, 2(4), 74-77.
- Zhihua, T. (2008). The Application of Interest Stimulation in Taijiquan Teaching in Universities. In *2008 International Workshop on Education Technology and Training & 2008 International Workshop on Geoscience and Remote Sensing* (Vol. 1, pp. 60-62). IEEE.
- Zhong, Y., Oh, S., & Moon, H. C. (2021). Service transformation under industry 4.0: Investigating acceptance of facial recognition payment through an extended technology acceptance model. *Technology in Society*, 64, 101515.
- Zhou, Y., Jin, C., Peng, K., Jin, W., Hu, Y., Liu, X., & Liu, T. (2018). Application of “PAD Classroom” Teaching Mode in Professional Basic Courses and Its Research Taking the Course of Phyto biology as an Example. In *Proceedings of the International Conference on Contemporary Education, Social Sciences and Ecological Studies (CESSSES 2018)*.<https://doi.org/10.2991/cesses-18.2018.15>
- Zhu, L., & Zhang, L. (2022). Research on data mining of college students' physical health for PE reform. *Wireless Communications & Mobile Computing*, 1(2022), 1-9. <https://doi.org/10.1155/2022/8681732>
- Zhu, Q. T., & Zhu, M. (2017). The C programming Micro lecture designing mode study in mobile learning circumstance. *ITM Web of Conferences* (12), 01028.
- Zhu, Y. (2018). Micro-lecture Design & Practice in Marine Engineering English Teaching in Higher Vocational Colleges. In *2nd International Conference on Culture, Education and Economic Development of Modern Society (ICCSE 2018)* (pp. 139-142). Atlantis Press.

References (Continued)

- Zhu, Y. (2019). New national initiatives of modernizing education in China. *ECNU Review of Education*, 2(3), 353-362.







Appendix A

An IOC for survey research

An IOC for A Survey Research

Topic: Intention To Use Innovative Instructional Methods For College Physical Education In Teaching Tai Chi in Guangdong Province : Investigating Micro-Lecture And PAD Class

Dear Expert:

This research is to fulfill the dissertation for Doctor of Education Program in Educational Studies, Suryadhep Teachers College, Rangsit University. Its topic is Behavioral Intentions to Use Micro-Lecture and PAD Class to teach Tai Chi: PE Instructors in Guangdong Province and the objectives of the study are:

1. To explore the level of behavioral intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province;
2. To explore the influences of attitudes towards use, perceived ease of use and perceived usefulness on behavioral intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province; And
3. To obtain the guidelines from the Administrators of Taichi Courses in using Micro-lecture and PAD Class to better the teaching of Tai Chi for Physical Education in the universities in Guangdong Province.

This questionnaire is a part of a quantitative method as to gain the Acceptance of PE instructors of Universities in Guangdong Province on Teaching Tai Chi course Using Micro-lecture and PAD Class. After that, the data obtained will be used to write up for the interview questions as to gain insights into the intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province.

Your answers will be valuable in terms of validating the information containing in this questionnaire which will be beneficial for understanding the overall picture and situations pertaining this topic.

Accordingly, the researcher would like to show great appreciation and gratitude for your valuable time and comments for the validity of this research instrument.

Mr. Zou Heng
ID Number: 6304995
Ed. D. Student in Educational
Studies, Suryadhep Teachers
College, Rangsit University

Instructions:

Please rate each statement by ticking ✓ on the most relevant scale from +1 to -1

Congruent = + 1

Questionable = 0

Incongruent = - 1

This questionnaire contains 2 parts:

Part 1: Respondent's demographic information

Part 2: Items of intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province.

Part 1: Demographic Information

ITMES	-1	0	+1	Suggestion
1. Gender: ☐ Male ☐ Female			✓	
2. Age: ☐ 25 to 30 ☐ 31 to 35 ☐ 35 to 40 ☐ 41 to 50 ☐ 51 and above			✓	
3. Level of the study: ☐ Bachelor Degree ☐ Master Degree ☐ Doctoral Degree			✓	
4. Professional Title:				

☐ Lecturer ☐ Associate Professor ☐ Professor					
5. Work Experiences: ☐ 1-5 Years ☐ 6-10 Years ☐ More than 10 Years					

Part 2: Items of intentions to use Micro-lecture and PAD Class in teaching Tai Chi course of the PE instructors in the universities in Guangdong Province

Attitudes Towards Use	-1	0	+1	Suggestions
1. I can accept to use two different types of teaching methods such as Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	
2. I think using Micro-lecture and PAD Class to teach Tai Chi in my PE class will be a wise decision.			✓	
3. I think it will be beneficial to teach Tai Chi with Micro-lecture and PAD Class in my PE class.			✓	
4. I am happy to use different types of teaching methods, especially, Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	
5. I have no problem to use Micro-Lecture and PAD Class to teach Tai Chi in my PE class because it will help me to be a professional instructor.			✓	
6. I prefer Micro-Lecture and PAD Class because I think they are the effective methods for teaching Tai Chi in my PE class.			✓	
7. I think Micro-Lecture and PAD Class will satisfy me in teaching Tai Chi in my PE class.			✓	
Perceived Ease of Use	-1	0	+1	Suggestions
8. I think I will have no difficulty using Micro-lecture and PAD Class to teach Tai Chi in my PE Class.			✓	
9. I think it will be at ease for me to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	
10. It will be efficient for me to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	

11. It is not a burden for me to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	
12. I think that using Micro-lecture and PAD Class to teach Tai Chi in my PE class will turn out to be easy, understandable, and effective.			✓	
13. Overall, I will have no problem in choosing Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	
14. Overall, I believe that the more I use Micro-lecture and PAD Class to teach Tai Chi in my PE class, the more effective I will become.			✓	
Perceived Usefulness	-1	0	+1	Suggestions
15. I believe that to use both Micro-lecture and PAD Class together to teach Tai Chi in my PE class will be very useful.			✓	
16. I am certain that using Micro-lecture and PAD Class to teach Tai Chi will be beneficial to my PE class.			✓	
17. I think that to use Micro-lecture and PAD Class to teach Tai Chi in my PE class will be very productive.			✓	
18. I believe that to use Micro-lecture and PAD Class to teach Tai Chi in my PE class will help promote my teaching performance.			✓	
19. I think that Micro-lecture and PAD Class will help boost my confidence in teaching Tai Chi in my PE class.			✓	
20. I perceive that Micro-lecture and PAD Class will help me achieve my goals in teaching Tai Chi in my PE class.			✓	
21. I trust that Micro-lecture and PAD Class will help motivate my students to learn Tai Chi better in my PE class.			✓	
Intentions to Use	-1	0	+1	Suggestions
22. Overall, I will be happy to use Micro-lecture and PAD Class in my PE class.			✓	
23. Overall, I believe that Tai Chi teaching and learning through Micro-lecture and PAD Class in my PE class will be enjoyable.			✓	
24. I think it is rewarded to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	
25. I intend to use Micro-lecture and PAD Class to prepare for the effective Tai Chi lessons in my PE class.			✓	
26. I have a strong intention to use Micro-lecture and PAD Class to better my Tai Chi teaching in my PE class.			✓	
27. I intend to gain more knowledge and skills in order effectively use Micro-lecture and PAD Class to teach Tai Chi in my PE class.			✓	
28. I definitely not hesitate to encourage my colleges to use Micro-lecture and PAD Class to teach Tai Chi to better their teaching and learning in their PE classes.			✓	



Appendix B

Research Instruments

Questionnaire

Dear Sir/Madam :

This is a questionnaire to understand about the intention to teach TaiChi in Guangdong Province colleges and universities, the data of this questionnaire is only used for the writing of the paper.

Thank you for taking your time to participate in this survey. Your viewpoints hold significant value in comprehending the Micro-lecture and PAD class in college PE and the research work of Tai Chi teaching. Moreover, Your comments will serve as a basis for developing guidelines for teaching Tai Chi in Micro lecture and PAD classes in universities and colleges in Guangdong Province.

Kindly utilize the provided five-level scale to express your level of agreement with each statement.

Section1: Respondent's demographic information.

Explanation: Please check ☒ according to an appropriate choice for you.

Gender	☐ Male ☐ Female
Age	☐ 25-30 years ☐ 31-40 years ☐ 41-50 years ☐ 51-60 years ☐ Above 60 years old
Level of The Study	☐ Bachelor Degree ☐ Master Degree ☐ Doctoral Degree
Professional Title	☐ Lecturer ☐ Associate Professor ☐ Professor
Work Experiences	☐ 1-5 Years ☐ 6-10Years ☐ More than 10 Years

Section2:

**Intention To Use Innovative Instructional Methods For College PE
In Teaching Tai Chi in Guangdong Province: Investigating Micro-
lecture And PAD Class**

Explanation: Please check ☒ for the most appropriate choice according to your experiences. There is no right or wrong answer, check only one option for each item in the questionnaire. Use the scale below to answer each question.

5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1= Strongly Disagree



Items		1	2	3	4	5
Attitudes Towards Use						
1	I can accept to use two different types of teaching methods such as Micro-lecture and PAD Class to teach Taichi in my PE class.					
2	I think using Micro-lecture and PAD Class to teach Tai Chi in my PE class was a wise decision.					
3	I think it was beneficial to teach Tai Chi with Micro- lecture and PAD Class in my PE class.					
4	I am happy to use different types of teaching methods, especially, Micro-lecture and PAD Class to teach Tai Chi in my PE class.					
5	I have no problem to use Micro-lecture and PAD Class to teach Tai Chi in my PE class because it will help me to be a professional instructor.					
6	I prefer Micro-lecture and PAD Class because I think they are the effective methods for teaching Tai Chi in my PE class.					
7	I think Micro-lecture and PAD Class will satisfy me in teaching Tai Chi in my PE class.					
Perceived Ease of Use						
8	I think I will have no difficulty using Micro-lecture and PAD Class to teach Tai Chi in my PE Class.					
9	I think it was at ease for me to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.					
10	It was efficient for me to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.					
11	It is not a burden for me to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.					
12	I think that using Micro-lecture and PAD Class to teach Tai Chi in my PE class will turn out to be easy, understandable, and effective.					
13	Overall, I will have no problem in choosing Micro-lecture and PAD Class to teach Tai Chi in my PE class.					
14	Overall, I believe that the more I use Micro-lecture and PAD Class to teach Tai Chi in my PE class, the more effective I was come.					

Items		1	2	3	4	5
Perceived Usefulness						
15	I believe that to use both Micro-lecture and PAD Class together to teach Tai Chi in my PE class was very useful.					
16	I am certain that using Micro-lecture and PAD Class to teach Tai Chi was beneficial to my PE class.					
17	I think that to use Micro-lecture and PAD Class to teach Tai Chi in my PE class was very productive.					
18	I believe that to use Micro-lecture and PAD Class to teach Tai Chi in my PE class will help promote my teaching performance.					
19	I think that Micro-lecture and PAD Class will help boost my confidence in teaching Tai Chi in my PE class.					
20	I perceive that Micro-lecture and PAD Class will help me achieve my goals in teaching Tai Chi in my PE class.					
21	I trust that Micro-lecture and PAD Class will help motivate my students to learn Tai Chi better in my PE class.					
Intentions to Use						
22	Overall, I was happy to use Micro-lecture and PAD Class in my PE class.					
23	Overall, I believe that Tai Chi teaching and learning through Micro-lecture and PAD Class in my PE class was enjoyable.					
24	I think it is rewarded to use Micro-lecture and PAD Class to teach Tai Chi in my PE class.					
25	I intend to use Micro-lecture and PAD Class to prepare for the effective Tai Chi lessons in my PE class.					
26	I have a strong intention to use Micro-lecture and PAD Class to better my Tai Chi teaching in my PE class.					
27	I intend to gain more knowledge and skills in order effectively use Micro-lecture and PAD Class to teach Tai Chi in my PE class.					
28	I definitely not hesitate to encourage my school colleagues to use Micro-lecture and PAD Class to teach Tai Chi to better their teaching and learning in their PE classes.					

Thank you very much for your valuable comments!

Interview:

SectionI: Interview Introduction:

1. Interviewer Introduction:

- Briefly introduce the interviewer and the purpose of the interview.
- Explain the confidentiality and duration of the interview.

2. Purpose of the Interview:

- To explore experts' intentions and opinions on using Micro-lecture and PAD Class in Tai Chi teaching.
- To understand the advantages, challenges, and overall effectiveness of these methods.

SectionII: Interview Questions for administrators:

Part 1: Attitudes Towards Use

1. How do you see Micro-lecture or PAD Class as optional methods for teaching Tai Chi?
2. What is your overall perception for PE instructors to use Micro-lecture and PAD Class to teach Tai Chi?
3. How do you think of PE teachers to use Micro-lecture and PAD Class to teach Tai Chi is a wise decision? Why?
4. What are the advantages do you perceive in encouraging PE instructors to use Micro-lecture and PAD Class for teaching?

Part 2: Perceived Ease of Use

5. Could you say something to encourage the PE instructors to use Micro-lecture and PAD Class with ease in their Tai Chi classes?
6. What do anticipate with the PE instructors' intention to use these methods in teaching Tai Chi?
7. How do you evaluate the efficiency of these teaching methods compared to traditional methods in teaching Tai Chi?
8. Do you consider these teaching methods valuable tools for teaching Tai Chi?

Part 3: Perceived Usefulness

9. How do you think Micro-lecture and PAD Class assist in teaching Tai Chi?
10. What impact do you believe in using Micro-lecture and PAD Class has on the quality of PE teaching in Tai Chi?
11. Do you think using Micro-lecture and PAD Class in Tai Chi teaching affects the PE instructors' confidence and ability to achieve their teaching goals?
12. How do you think using Micro-lecture and PAD Class affects students' motivation and engagement in learning Tai Chi?

Part 4: Intentions to Use

13. What suggestions do you have for PE instructors in using Micro-lecture and PAD Class in future Tai Chi teaching?
14. What motivates you to encourage PE instructors to continue using these teaching methods in Tai Chi classes?
15. What specific guidance or resources do you think are needed to help you better use

Micro-lecture and PAD Class in teaching Tai Chi courses?

16. How do you encourage your PE colleagues to use Micro-lecture and PAD Class in Tai Chi teaching?

Conclusion:

17. Do you have any other thoughts or insights on improving the implementation of Micro-lecture and PAD Class in Tai Chi teaching?

Thank the interviewee for their valuable time and insights.



Biography

Name	Zou Heng
Date of birth	September, 29 1983
Place of birth	Jingshan City,Hubei Province, China
Education background	Wuhan Sports University Bachelor of PE Major, 2006 Wuhan Sports University Master of PE Major, 2013 Rangsit University Doctoral of Education in Educational Studies, 2024
Address	No.2, Xuezhi Road, Mazhang District, Zhanjiang City,Guangdong Province, China
Email Address	4248297@qq.com
Place of work	No.2, Xuezhi Road, Mazhang District, Zhanjiang City,Guangdong Province, China
Work position	PE Teacher, Zhanjiang University of Science and Technology