DEVELOPING AN ONLINE CHINESE CLASS PLATFORM FOR FOREIGNERS RESIDING IN THAILAND UTILIZING THE TPACK MODEL

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Abstract

Although more people are learning Chinese every day in Thailand, there are not enough educational resources to support their progress. Recently, however, network development has led to a new learning model that breaks the restriction. Learning is no longer restricted to the traditional classroom; instead, everyone can choose an online Chinese class that offers a series of thorough lessons and sporadic real-time sessions, which are not time- or space-bound. This is making learning easier and more flexible. However, the requirement for a platform for learners has also become more important. This study constructed a framework model through literature research and explored the factors that affect teachers' information-based teaching behavior intentions, considering both cognitive and emotional aspects. Two types of target groups, learners and teachers, were identified throughout the research, and the psychology of the target users was analyzed by using the interview method. There are four types of users using Chinese Online Learning Mobility Platforms. Summarize the requirement by building a user model. Based on the requirements for developing TPACK for Chinese online teachers, the

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TPACK model is constructed. When combined with the needs of Chinese online teachers, it provides a framework for developing online teaching platforms and enhancing the learning experience.

Keywords: Chinese Online Learning, TPACK, learning platform

Introduction

People's methods for learning have undergone significant changes due to the ongoing growth of the Internet and information technology. The development of the Internet has provided a good platform for distance education (CACHEIRO-GONZALEZ, Medina-Rivilla, Dominguez-Garrido, & Medina-Dominguez, 2019). As a new educational model, online classes played a significant role in promoting Chinese language classes.

In the friendly environment between China and Thailand, and within the global context of "learning Chinese", the number of people studying Chinese in Thailand is increasing year by year. By the end of 2021, more than 4,000 schools in Thailand had offered Chinese courses, with a total of over 1 million students (Caijun, 2022). Chinese teaching resources are increasingly insufficient. Due to the impact of COVID-19, Chinese teachers are unable to travel to Thailand, and the classroom format has primarily shifted to online. The demand for online Chinese classes has increased. It is more important to understand the requirements of the Thai students' Chinese online learning mobile platform. It is a crucial factor in determining whether a product can succeed in the market (Hassenzahl, 2013). The separation of teachers and students in online class poses a higher challenge to teachers, not only need to have the knowledge content that attracts online learners, but also understand how to stimulate students' interest in learning in the online environment and

choose appropriate information representation methods to understand the interrelationship of technology, pedagogy and content.

Objectives

To know the requirements of Online Chinese learning on a mobile platform in Thailand. Based on the model, combine Teacher TPACK Ability Development in Online Education.

To study the influencing factors of teachers' information-based teaching behavior intention from the perspective of cognition and emotion.

Literature Review

E-learning

Thailand, from traditional classrooms to MOOCs, to flipped classrooms. Nowadays, there are various online learning methods, and online learning is increasingly being accepted by an increasing number of learners (Kew & Tasir, 2022). Online learning enables learners to effectively utilize their time and access fragmented learning opportunities using mobile phones or other mobile devices, anytime, anywhere. This learning mode breaks the limitations of time and space, fully saves learners' time, and is liked by most people (Muilenburg & Berge, 2005). The conception and suggestion of three problems that must be solved in online education are the monitoring and certification of learning quality(Harman & Bich, 2010), the design and development of an online learning platform, and the construction of a teaching support service system. Theoretical research from the user's point of view emphasizes the importance of emotion in distance education, focusing on enhancing the learner's experience and developing the basic interactive process design for online distance education courses. (Park & Lim, 2019). The emotional concept is applied in the design of online courses, and the application strategies,

principles, and processes of emotional design in online course design are proposed from the levels of feeling, behavioral experience, and reflection. Interaction design plays a vital role in whether learners achieve their learning goals. Designers should take the perspective of users, guide learners effectively, and design an emotionally engaging interface.

User Experience and E-Learning Mobility Platforms

Between 2018 and 2022, the compound annual growth rate of the global education application market is expected to reach 27.46% (Silveus & Ekpe, 2022). In addition to individual mobile learning applications, there are also mobile learning applications launched by popular learning management systems (LMS) on the market, as well as online training and learning platforms developed by some companies, supporting both PC and mobile (It can be integrated with Dingding, KK and other mobile APPs), which can fully meet the needs of employees to use fragmented time for mobile learning. As application development improves, mobile applications can offer a better user experience, characterized by smooth, uncluttered navigation, enhanced visual appeal, responsive design, and more.

Miniature Private Online Course (SPOC) (Loharungsikul, Eumbunnapong, Nilsook, & Panjaburee, 2022) is a small-scale, restricted online course. The emergence of this model addresses the shortcomings of MOOC, primarily by limiting the number of students and their characteristics. The number of students is smaller, and their characteristics are restricted in certain aspects. Compared with MOOC, SPOC can improve the teaching efficiency of teachers and the learning efficiency of students. This teaching mode combines online video courses with in-person classroom sessions to form a new hybrid teaching approach.

Online courses based on the B2C model (Nilashi et al., 2022) refer to a business-to-consumer (B2C) e-commerce and retail model that sells products and services directly to consumers. Based on the above definition, we can explain the online education model as a B2C model for enterprises or platforms that directly provide students with learning products and services. Online courses are one of the learning products. Chinese online courses based on the B2C model have experienced rapid growth in recent years. Most Chinese platforms primarily offer Chinese online courses as learning products and services, such as the more well-known Lingoace and Wukong Chinese.

"Experience" means to know the things around you through practice and experience by yourself. (Spreafico & Landi, 2022). In "User Experience and Product Innovation Design", it is mentioned that experience has four characteristics: situational, differentiated, persistent, unique, and innovative. User-Centered Design is an efficient approach to user experience that considers the user throughout the process, discovering their needs, goals, and preferences. (Ronen, 2022). The purpose of user experience is to meet the expectations of users and provide them with valuable experiences. Experience value is one of the core driving factors of customer perception value, initially, and it is the culmination of service value, which brings spiritual satisfaction to the heart and leaves a lasting impression and memory. The value of experience in Internet products stems from user expectations. The higher the user's expectations are, the higher the user experience value will be. From the user experience level of the product, when the product is improved from a functional to a brand level, the more experience value the user has, the higher the user stickiness, which is the most effective way for the product to achieve its commercial value, as shown in Figure 1.

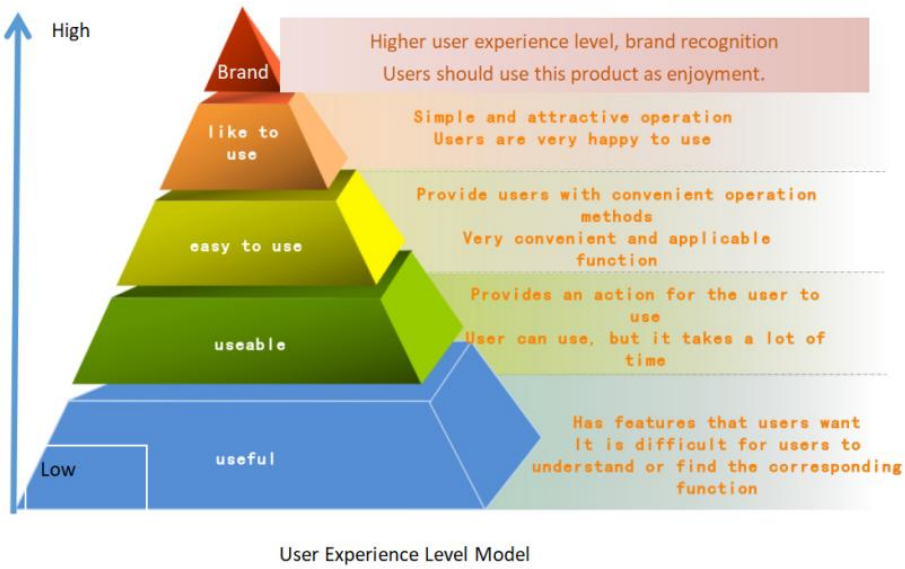


Figure 1: Learner Experience Model

Maslow creatively proposed five hierarchy theories of physiological needs (Taormina, Gao, & Kuok, 2022), safety requirements, social requirements, respect requirements, and self-requirements in the paper "The Theory of Human Motivation" in 2008, in ascending order. Maslow's Hierarchy of Needs Theory proposes that five levels of needs can be experienced, ranging from sensory needs to self-actualization needs. Sensory needs refer to the five senses of a product or system, such as vision, hearing, touch, taste, and smell, which are the primary means of experiencing a product or system. If the same product or user lacks any prior usage experience, their interaction with the product's design determines whether they will buy it or find it aesthetically pleasing. The requirements for interacting with systems or products for humans are known as interaction requirements. It includes the time and efficiency required to complete the task, as well as whether there are errors in the process and whether it is smooth. "Usability research of user experience,

that is, intrinsic usability, focuses on interaction requirements, including learnability, efficiency, memorability, fault tolerance, and satisfaction during operation.

Emotional demands refer to the emotions that people experience while using a product or system. There are two kinds of emotions, positive and negative. The designer's responsibility is to make people feel happy, satisfied, and engaged with the product itself or during the process of using it. (Wu, 2022)Emotional demands require products to be storytelling, interactive, entertaining, and meaningful. User experience-oriented design not only pays attention to the visual beauty, functionality, and convenience of products, but also places greater emphasis on the emotional resonance between people and products.

Society requirements. After the material is satisfied, people begin to pursue achievement, hoping to be recognized by society. Demand is that the product should meet the needs of self-pursuit and individuality. The requirements at this level are high-level requirements. The higher the level of demand is satisfied, the higher the user experience satisfaction. Designers need to consider not only basic needs but also higher-level needs, which make products more differentiated, personalized, and competitive, as shown in Figure 2.

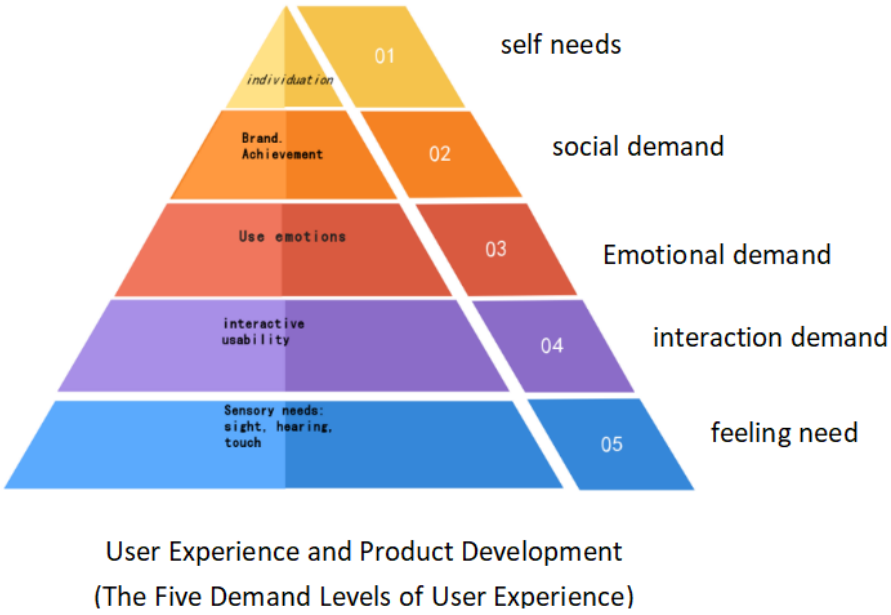


Figure 2: User Experience and Product Development Model

TPACK (Technological Pedagogical Content Knowledge) in online learning

Proposed by Koehler, Shin, and Mishra (2012), the framework includes three core elements: subject content knowledge, pedagogical knowledge, and technical knowledge; and four composite elements: subject teaching knowledge, subject content knowledge integrating technology, pedagogical knowledge integrating technology, and subject integrating technology.

TPACK, as a knowledge framework (Groff & Mouza, 2008), should be combined with the actual teaching content of different disciplines to carry out specific analysis. As far as Chinese as a foreign language is concerned, content knowledge is the understanding and learning of the Chinese syllabus, and an in-depth analysis of the content of each knowledge section, to find out the important and challenging points of different

content and the connection between different learning sections; teaching knowledge is the teacher Whether you have a Chinese teacher qualification certificate, the teaching methods and skills that you should have in the process of teaching Chinese as a foreign language online; technical knowledge, including the teacher's PPT courseware production ability, the use of computer multimedia, etc. It requires teachers to possess high information literacy to master a high level of technical knowledge (Figure 3).

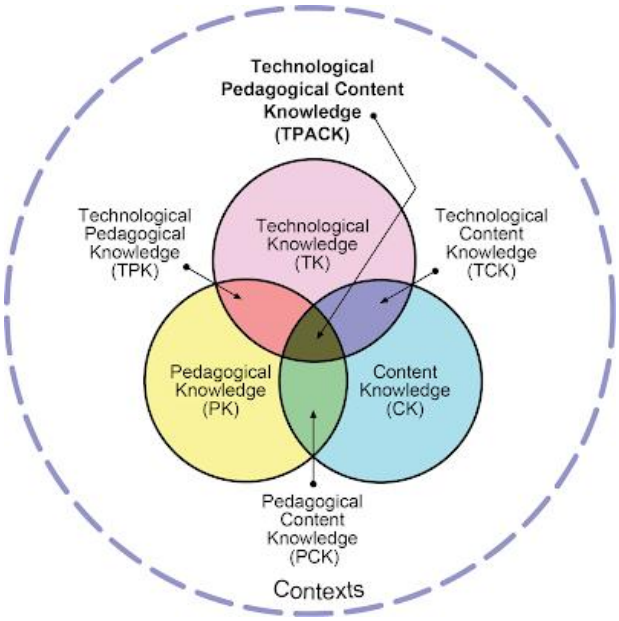


Figure 3: TPACK Model

Researchers Qiao et al. (Joo et al., 2018) explored the TPACK

The influence of the whole on teachers' technology teaching application behavior intention was found before.

Davis et al. (1989) proposed the Technology Acceptance Model (TAM) through the relationship between belief, attitude, intention, and behavior to illustrate the user's acceptance of technology. They believed that the individual's intention to use technology is affected by their use attitude

and the individual's perception of technology. The direct or indirect impact of usability and perceived usefulness, as well as perceived ease of use, affects perceived usefulness, which, in turn, influences users' attitudes towards technology use. The Theory of Planned Behavior (TPB) proposed by Ajzen (1991 believes that in addition to technology use, behavioral attitudes, subjective norms, and perceived behavioral control are also predictors of behavioral intentions. Taylor & Todd (1995 believed that the technology acceptance model ignored the influence of factors other than behavioral attitudes on individual behavioral intentions.

Proposed Decomposed Theory of Planned Behavior. This model retains the three core concepts of the Theory of Planned Behavior model and decomposes them into more detailed dimensions. The behavioral attitude is decomposed into the dimensions of perceived usefulness, perceived ease of use, and compatibility. The subjective norm is decomposed into the dimensions of peer influence and superior influence. The perceived behavioral control is decomposed into the dimensions of self-efficacy, resource promotion conditions,, and technology promotion conditions.

This study also examines the impact of teachers' knowledge and emotions on their intention to engage in information-based teaching behavior. Consequently, certain variables from the structural planning behavior model are selected as predictor variables for teachers' intention to engage in information-based teaching behavior. First, for the three core elements affecting behavioral intention in the original model, and for the three sub-dimensions of attitude, this study retains perceived ease of use and perceived usefulness. Numerous international studies have found that perceived ease of use, perceived usefulness, behavioral attitudes, technology use self-efficacy, and perceived behavioral control variables

are significant predictors of teachers' technology use behavior intentions. However, the basic education culture, as well as the level and characteristics of teachers' information-based education, are quite different from those in Western countries. Therefore, it is necessary to test the above five important variables, which international researchers have proved to have an impact on teachers' technology teaching application behavior. This study aims to explore whether these factors influence online teachers' information-based teaching behavior intentions and provide suggestions based on online teachers' information-based teaching behavior intentions. Based on theory as follows:

H1: Teachers' technical knowledge (TK) has a positive impact on teachers' information-based teaching behavior intention.

H2: Teachers' content knowledge (CK) has a positive impact on teachers' information-based teaching behavior intention.

H3: Teachers' pedagogical knowledge (PK) has a positive impact on teachers' information-based teaching behavior intention.

H4: Teachers' subject teaching knowledge (PCK) has a positive impact on teachers' information-based teaching behavior intention.

H5: Teachers' subject content knowledge (TCK) of integrating technology has a positive impact on teachers' information-based teaching behavior intention.

H6: Teachers' pedagogical knowledge (TPK) of integrating technology has a positive impact on teachers' information-based teaching behavior intention.

H7: Technological pedagogical content knowledge (TPCK) has a positive impact on teachers' information-based teaching behavior intention.

H8: The perceived usefulness of technology teaching applications has a positive impact on teachers' information-based teaching behavior

intention.

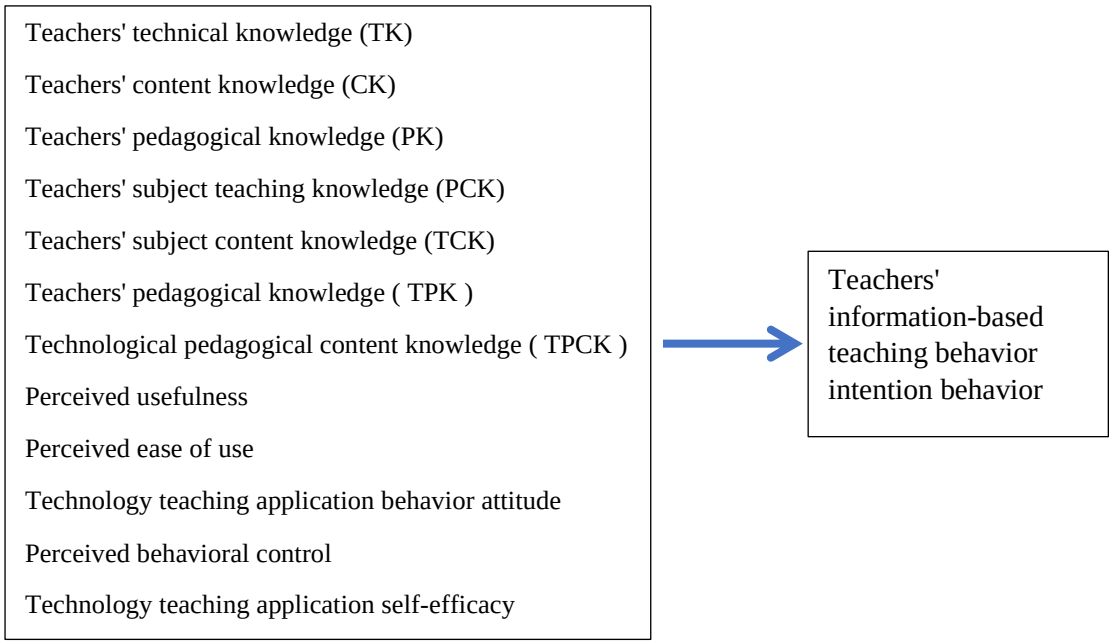
H9: Perceived ease of use of technology teaching application has a positive impact on teachers' information-based teaching behavior intention.

H10: The technology teaching application behavior and attitude have a positive impact on teachers' intention to implement informatization teaching behavior.;

H11: Perceived behavioral control of technology teaching application has a positive impact on teachers' information-based teaching behavior intention.

H12: Technology teaching application self-efficacy has a positive impact on teachers' intention to engage in information-based teaching behavior.

The hypothesis framework is as follows:



Research Methodology

The user interview method is one of the most commonly used methods for user research (Cameron & Englin, 1997; Wilson, 2013). It focuses not on sample representativeness but on the needs of the research purpose. Interviews are typically conducted with individuals who possess the required experience for the research and are willing to participate in the study. The questionnaire primarily collects data on the surface characteristics of the behavior. At the same time, in-depth interviews enable researchers to obtain qualitative data that reveals the phenomenon's underlying aspects, including the user's perception of the relevant product, as well as their expectations and concerns regarding its use.

Population and sample size

In interviews, "4-15" respondents can achieve interview saturation (McLafferty, 2004). Choose six students who have used mobile online learning platforms to learn Chinese in Thailand. 6 Chinese teachers who have used a mobile online teaching platform to teach.

Research instrument

According to the elements of user experience, the design process of online education products is primarily divided into the requirements research and establishment stage, the interaction design stage, the visual design stage, and the usability testing stage.

Learning users: (Cameron & Englin, 1997) The in-depth interview method is used in the stage of demand research and establishment, where users are subdivided to build a model and discover user needs. For users of online education products, conduct user-participatory research to understand their different habits, needs, and expectations. The selection of subjects excluded young children who could not make objective

statements about learning strategies through introspection, and selected students over 8 years old as the research subjects, who had studied for more than a year.

Teacher users: Teachers who have more than one year of online teaching experience.

Data collection

Arrange a time with the interviewee in advance (Harris & Brown, 2010), and send the questionnaire in advance by email to inform the interviewee of the interview's content, as formal interview notes are taken during the call. The interview time is approximately 30-40 minutes.

Data analysis

Based on interviews with six learners who have used mobile online learning platforms to learn Chinese in Thailand. A series of psychological requirements for learning in the Internet environment is summarized. Analyze the psychological characteristics of target users and find out products that meet their psychological needs. In the traditional education of survival psychology, there are concepts of the same table and class in class. However, the Internet makes learners scattered in various corners, unable to communicate directly with classmates, and puts them in an isolated situation, causing a sense of loneliness. In the process of human learning, one's sense of existence is essential. It enables users to actively engage in learning and participate in challenging discussions, thereby enhancing their learning efficiency. With the widespread use of the Internet, it is normal for users to have doubts about things they cannot physically see or touch. Using the Internet as a medium, courses and teacher resources on online education products are challenging to use without an authoritative identification. Students develop a sense of trust and doubts about the quality of the courses they study. When people

with a herd mentality choose a course, the teacher will not only check whether it meets their own needs but also assess the teacher's click-through rate and grades.

Description of the needs of target users: The first impression of the product is fundamental to them. Clutter, information overload, and unsightly visual design will make them want to give up immediately. Additionally, they will consider whether the course content is relevant to their interests and whether it is easy to find. The required courses are critical. The learning content is fixed, and it prioritizes material with high practical value. It needs to have a clear goal. The course content, time, and other aspects have been thoroughly planned, and the content that users want can be found accurately and quickly. Before the class, you can learn about the general content and situation of the course in detail, and you can ask questions. You can focus on or collect your favorite courses. Users will worship teachers who teach better courses, so the attention and collection of course teachers are also essential, which enables users to track the teacher's dynamics more quickly. Users with low frequency are willing to try various Chinese courses. To expand their knowledge horizons, they have taken up learning Chinese as a hobby. Because users are active in learning, they hope to have more popular courses recommended to them.

Respondents in Group 2, comprising 6 Chinese teachers, use a mobile online teaching platform to teach Thai students Chinese. The TPACK basic abilities that Chinese teachers need to have are summarized from the following aspects.

TK is a technical knowledge-ability structure composed of general technical knowledge and technical knowledge that assists teaching. The sense of efficiency for teachers is reflected in whether online teachers can

use appropriate tools to help students grow. In the context of online Chinese teaching, computers and networks have matured, and technologies that are not yet widely popular will be constantly updated as the application context evolves.

PK is a pedagogical knowledge-ability structure composed of general teaching knowledge and subject-related teaching. The teacher's sense of teaching is reflected in whether online Chinese teachers know how to organize online teaching activities. Teachers can use learners' cognitive abilities, ability levels, experience needs, learning behaviors, and other procedural data to design online learning activities, provide personalized teaching support services promptly, encourage participants in collaborative learning, and stimulate online learners' willingness to continue learning through synchronous or asynchronous discussions.

A Chinese teacher's sense of topic is represented in the teaching assignment, and the content-knowledge-ability (CK) structure comprises knowledge relevant to Chinese learning, indicating that online teachers are capable of handling any content. It must be grounded in actual situations in the real world, in addition to paying attention to theoretical elements such as concepts and principles, in order to address the needs and interests of online learners. In terms of content representation, teachers are required to provide various forms of learning resources, update curriculum resource packages promptly, and design personalized and interactive learning content tailored to different types of learners.

PCK refers to the ability of online teachers to transform their understanding of specific content into knowledge that online learners easily understand. TPK refers to the ability of teachers to utilize emerging technologies to conduct specific online teaching activities or adjust their

strategies. TCK is the ability of teachers to characterize specific teaching content with the help of emerging technologies.

TPCK refers to the process by which teachers transform specific teaching content into knowledge that is easily understood by online learners, utilizing emerging technologies and targeted online teaching activities.

Discussion

Online Chinese education can draw the principle of consistency from the triangle model analysis. Feeling requirement is the lowest requirement in the user experience requirement hierarchy, but it serves as the basis for constructing the layer requirement. Feeling requirements necessitate that products or systems provide users with a positive initial impression, given the learner's fragmented learning preference. Online education products typically include not only a web terminal but also a web client, a mobile terminal, a tablet terminal, and more.

In the same product on different devices, consistency of visual elements and operational methods should be maintained. In this case, learners and teachers can use the product more quickly and proficiently. The Convenience of the product and the overall brand image can also be further enhanced. The interactivity of online education products includes interface interactivity and "human" interactivity. The interaction requirements at the level of user experience necessitate the usability of products and systems, specifically the convenience of interface interaction. Products provide opportunities and places for learners to communicate and discuss with teachers and other learners. It will help stimulate their motivation to learn Chinese.

Emotional demand is crucial for learners acquiring knowledge through online education, as interaction is more important. Drawing on

the traditional teaching mode, the traditional teaching links are moved online, providing features such as downloading PPTs, watching teaching videos, practicing tests, submitting assignments, and engaging in discussions between teachers and students. Learners can check assignments, exchange questions, make friends, or ask teachers questions in the discussion area. The settings of these functions can not only encourage the learner's initiative in learning but also allow them to learn from traditional interactive learning methods, which can reduce the time required for the learner to use the product, improve efficiency, and provide a positive experience.

Brand requirement. The teacher's photo background, along with high-quality and transparent pictures, is accompanied by a concise text introduction that reflects the quality of the brand and instills confidence in the learners.

Personalization of Chinese mobile learning platforms is evolving in today's Internet and big data technology landscape, where personalization has a different meaning. The Chinese mobile learning application determines the user's location using the mobile phone and displays Chinese content relevant to the user's current location. Technology provides the learner with a learning experience. Serve learners better through big data. By recording the learner's behavior data, we can understand the learner's characteristics and learning process, provide a new teaching experience, and deliver personalized service.

Contribution

Online Chinese language learning platforms often provide a poor experience, which can reduce the efficiency of learners or even lead them to abandon their use. Through the experience of learners, the product can be more competitive, and it is also a key factor for enterprise

development. Enhance the user experience by understanding the user's satisfaction needs and integrating the theory of user experience with online education. TPACK model analysis can enhance the knowledge of Chinese online teachers, thereby increasing demand. On the other hand, it can also promote the continuous development of Chinese Language Online Learning Mobility Platforms and contribute to the overall improvement of the teaching quality platform.

Conclusion

Recently, learning Chinese has become more important than it was before—many companies focusing on investing in China are making it a more significant priority. Due to the COVID-19 pandemic from 2019 to 2022, onsite studies were restricted by Chinese government regulations. Therefore, studying in China can be pretty challenging. To solve this issue, the online Chinese Learning Platform is becoming popular for foreigners whose Chinese is not their mother language. Thailand is named “China’s Brother Country”; we have a very close relationship with China. Many foreigners residing in Thailand want to study Chinese online. This study aims to develop an Online Chinese Class Platform for Foreigners Residing in Thailand, utilizing the TPACK Model. By doing this, the researchers collect data from interviewing 12 persons, 6 of whom are international students and the rest are Chinese Teachers. The questionnaires have been sent to interviewees in advance by email, and the interviewer calls on the phone to collect the data. After the data is collected, the researchers characterize the psychological characteristics and identify products that meet their psychological needs.

Limitations and Future Research

Data do not support this research paper. The model's hypothesis cannot be verified. In future research, researchers can further verify the hypothesis through quantitative research, data collection, and analysis.

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