

Chinese Traditional Health Exercises in Blended Learning Modality: Its Effectiveness and Students' Satisfaction

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Abstract: The purpose of this research is to assess the effectiveness and satisfaction levels of Chinese Traditional Health Exercises (CTHE) instruction within a blended learning modality and develop a reinforcement program which focused on improving the teaching and learning. Utilizing a descriptive-comparative research design, 154 students and 5 teachers from Changsha Medical University were randomly selected for participation. Key findings indicate that supplementary materials, clear explanations, effective time management, appropriate balance between online and offline components, flexibility in course scheduling, and effective delivery of instruction contribute to enhanced learning experiences for students. Despite encountering technical, engagement, adaptation, communication, time management, assessment, and resource-related challenges, the blended model was perceived more positively than traditional learning. Successful implementation of learning activities and media positively influenced learner satisfaction and perception. Addressing these challenges through strategic solutions, teacher training, and resource accessibility is crucial for ensuring a more engaging and satisfactory learning experience for students.

Keywords: Chinese Traditional Health Exercises; Blended Learning.

1. Introduction

Traditional exercise is a comprehensive course in physical education. Traditional exercise emphasizes slow rhythm, spiritual peace, and a small amount of exercise. The teaching of a combination of static and dynamic, qi (represents a concept related to energy, breath, or life force in traditional Chinese culture and medicine) and spirit, and internal and external training is significantly different from other physical education courses. In significant colleges and universities in China, exercises are mainly organized according to regular face-to-face teaching, including complete demonstration, broken down practice, thorough practice, corrective practice, and other steps. The teacher-\$L centered teaching mode requires the learning rhythm of the whole class to be consistent (Liu, 2021). Each student needs to understand the content to the same degree, and students need access to teacher guidance outside the classroom. Limited classroom time makes it difficult for instruction to meet student differences and limits teachers' opportunities to provide personalized advice and attention (Papastergiou, 2021). In addition, physical education is practice-oriented, and many teachers place less emphasis on theoretical learning and spiritual and emotional development (Xie, 2020). Although students can acquire particular athletic abilities, students only passively accept the knowledge provided in the classroom, which may reduce students' enthusiasm, participation, and lifelong awareness of physical exercise.

The emergence of ICT has had a positive impact on education. Computer network technology has created new opportunities for teaching in higher education. ICT learning is recognized as a provider of learning benefits and FTF teaching and a complement to traditional curricula. Blended Learning (BL) is a new learner-centered teaching model that combines the advantages of online and face-to-face learning

to support educational differentiation. It is worth noting that BL is not only the integration of learning methods but also the combination of teaching elements such as teaching methods, teaching resources, teaching environment, and teaching objectives (Megahed, 2021). For the online component, careful planning is required to maximize active learning strategies based on analyzing learner needs, learning content, and learning environment. Learning platforms such as MOODLE and learning videos provided by teachers are the primary learning materials in the online portion. In addition, Massive Open Online courses (MOOCs), as a new type of blended learning, have been adopted as part of face-to-face formal university courses. All forms of BL promote learner-centered active learning strategies, which means that learners can determine their own pace of learning. Researchers have noted that by moving from traditional teaching models to problem-based BL, students can develop higher-level cognitive processes, knowledge mastery and application, engagement, and active learning (Shim, 2020). BL has been applied to many courses, such as psychology (Wong, 2019), Business (Lin, 2020), Mathematics (Ulfa, 2020), nursing (Saiz-Manzanares, 2020) and English learning (Genaia, 2022; Hashemi, 2021).

Several publications have confirmed that BL can improve students' academic performance, satisfaction (Berga, 2021; Chango, 2021; Yang, 2021), Physical Skill Development (Østerlie, 2020) problem-solving and higher order thinking. The previous research on the influence of primary teaching on some subjects is worthy of encouragement. Still, the evaluation of the effectiveness of blended learning in the teaching of traditional exercises in college sports is lacking.

2. Statement of the Problem

The study aimed to determine the effectiveness of teaching Chinese Traditional Health Techniques in a blended learning

modality in order to propose an enhancement program that had improved the implementation of the mentioned endeavor:

Specifically, this sought answers to the following questions:

1. What is the profile of the respondents, in terms of:
 - 1.1 age
 - 1.2 sex
 - 1.3 grade level
2. What is the level of effectiveness of teaching Chinese Traditional Health Exercises in blended learning modality, in terms of:
 - 2.1 Clarity of Information;
 - 2.2 Time Schedule; and
 - 2.3 Delivery of Instruction?
3. Is there a significant difference between the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to profile?
4. What is the level of satisfaction among students in learning Chinese Traditional Health Exercises in blended learning modality, in terms of:
 - 4.1 Clarity of Information;
 - 4.2 Time Schedule; and
 - 4.3 Delivery of Instruction?
5. Is there a significant difference in the assessment of the level of satisfaction in learning Chinese Traditional Health Exercises in blended learning modality when grouped according to profile?
6. What challenges did the teachers encounter in teaching Chinese Traditional Health Exercises in a blended learning modality?
7. What enhancement program may be proposed based on the results of the study?

3. Research Hypothesis

Ho1 There is no significant difference in the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to profile.

Ho2 There is no significant difference in the assessment of the level of satisfaction in learning Chinese Traditional Health Exercises in blended learning modality when grouped according to profile.

4. Research Design

The study shall employ the descriptive-comparative research design. The study used the descriptive method of research to interpret the data gathered from the survey questionnaire and describe the interrelationships of the variables used in the study. From the consolidated assessment, the effectiveness of Chinese Traditional Health exercises in blended learning modality and students' satisfaction were identified from the researcher to propose an intervention program. Descriptive research is a type of study that describes the features of the population or subject under investigation. Descriptive research is a type of quantitative study that aims to gather measurable data for statistical analysis of a population sample. The goal of descriptive research is to draw and classify the phenomenon. Moreover, the descriptive method of research was used in this study because of its appropriateness to answer the problems posed by the researcher. This design was chosen to meet the objectives of the study, which is to determine the effectiveness of Chinese Traditional Health exercises using a blended learning

approach.

A comparative research design is a research approach that involves comparing two or more groups, variables, conditions, or phenomena to identify similarities, differences, patterns, or relationships. This type of research design is commonly used in various fields, including social sciences, economics, education, and political science, among others. Comparative research allows researchers to gain insights into the relationships between variables and to make informed comparisons that can lead to a deeper understanding of the subject matter.

5. Sampling Method

The study was conducted in Changsha, Hunan Province, China. The research was conducted at Changsha Medical University. To ensure a more reliable assessment, this study utilized university teachers as survey respondents. This study involved the mixed learning scheme of traditional Chinese health exercise, including three teaching modes; that is, synchronous, asynchronous, and in-person. This study was mainly aimed at the teaching of traditional Chinese health exercises. These learners all adopted the courses of "Chinese Traditional Health Exercise" in Super Star Learning Pass and implemented a common school calendar. The study covered students enrolled in Superstar SuperStar Learning Pass during the first semester of the 2023-2024 academic year, one semester after Blended Learning fully implemented the program. In this course, 154 respondents out of 250 students were randomly selected as a research sample using the Slovin's Formula. Student respondents were selected from the register of the Superstar Learning Pass website by simple random sampling. To support the data collected from the students, 5 teachers from the traditional kung fu teaching team were interviewed.

Table 1. Interview list of Chinese Traditional Sports Teachers

Informant	Sex	Age	teaching experience	Teaching content
1	female	5	25	Da Wu, Yin Jinjing
2	male	40	20	Ba Duanjin
3	female	25	5	Mawangdui Daoyin Exercises
4	female	28	8	12-Step Daoyin Health Preservation Exercises
5	male	30	10	Wu Qin xi

6. Research Instrument

The primary instrument used in the study was the questionnaire of Keith D. Ailey (2012) which had been used in the Curriculum Interaction and satisfaction survey in his research. "Learning strategies for student interaction and satisfaction" had also been used as a basic structural instrument. It was designed according to the Rubric Scenario (2010).

The researcher had used the questionnaire as a research tool to collect data and information related to the research topic. It consisted of a set of various questions and inquiries that were linked to each other in a way that achieved the goal that the researcher sought to achieve in the subject and the problem he chose for his research (Kandalchi, 2019). Thus, it had

contained 33 questions divided into three sections, which were as follows:

The first section (Profile of the respondents). The second section (Effectiveness of teaching in blended learning modality). The third section (Students' satisfaction).

In this study, the questionnaire had been given to student respondents and the interview had been given to physical education teachers.

The interview method had often been used in conjunction with the questionnaire method to better illustrate the existence of the problem and to be more convincing. The interview questionnaire to be used in this study had been self-administered by the researcher based on the content of the questionnaire and the relevant influencing factors, and with reference to the questionnaires used in previous studies to form the final interview questionnaire for teachers, with some modifications made by the researcher especially for the highly applicable areas of Changsha Medical University. Respondents had used a four-point scale ranging from 1 (very low) to 4 (very high) to indicate their level of agreement with the effectiveness. In addition to the primary instrument of questionnaires, unstructured interviews had been used. Informal interviews had been done when the researcher distributed the questionnaire and conducted the study. A guiding question had also been used as supporting information for the answers obtained from the questionnaire.

In this study, the questionnaire was given to student respondents and the interview was given to physical education teachers. The interview method was often used in conjunction with the questionnaire method to better illustrate the existence of the problem and be more convincing. The interview questionnaire, which was self-administered by the researcher based on the content of the questionnaire and relevant influencing factors, with reference to previous studies, and modified specifically for the highly applicable areas of Changsha Medical University, showed high validity and reliability. The Cronbach's alpha coefficient for the questionnaire was 0.85, indicating good internal consistency. In addition, the construct validity was supported by a significant correlation with an established measure. The use of unstructured interviews and guiding questions further enhanced the validity of the data collected. The reliability of the instrument was ensured through rigorous testing and modifications based on the test results.

7. Results and Discussion

This chapter presents the results, analysis, and interpretation of the following data: profiles of respondents, such as their age, sex, and grade level and the effectiveness of teaching Chinese Traditional Health Exercises in Blended Learning Modality and the level of satisfaction on learning Chinese Traditional Health Exercises in Blended Learning Modality.

7.1. The Profile of the Participants

The profile of student respondents is presented in Table 2. As indicated in the table, The frequency analysis showed that the proportion of age 18 (51.948%) was the highest, and the proportion of age 23 (0.649%) was the lowest. The proportion of annual 1 (85.065%) was the highest, and that of annual 4 (1.299%) was the lowest. The proportion of sex 2 (74.675%) was the highest, and the proportion of sex 1 (25.325%) was

the lowest. The study included a total of 115 female respondents (74.7%) and 39 male respondents (25.3%) which is most of the respondents are female since in a Medical University. Respondents per grade level were achieved as computed previously with Grade 1 having the greatest number of students (n = 131, 85.1%), followed by Grade 2 (n = 16, 10.4%). On the other hand, the number of Grade 3 and Grade 4 students were almost the same with 5 (3.25%) and 2 (1.29%) respondents, respectively.

Table 2. The Profile of The Students

Profile	options	Frequency	Percentage (%)
age	18	80	51.948
	19	43	27.922
	20	11	7.143
	17	10	6.494
	21	7	4.545
	22	2	1.299
	23	1	0.649
Total		154	100.000
grade level	1	131	85.065
	2	16	10.39
	3	5	3.247
	4	2	1.299
Total		154	100.000
sex	female	115	74.675
	male	39	25.325
Total		154	100.000

7.2. The Level of Effectiveness of Teaching Chinese Traditional Health Exercises in Blended Learning Modality, in Terms of:

7.2.1. Clarity of Information

The level of effectiveness of teaching Chinese Traditional Health Exercises in blended learning modality, in terms of clarity of information by Real-time is presented in Table 3. All statements pertaining to clarity of information by Real-time were scored as *low level of effectiveness* with an overall mean of 2.473 and SD of 1.11. Among the strongest areas of clarity of information by Real-time is that "Supplementary materials are helpful in enhancing my understanding of Chinese Traditional Health Exercises" with a mean score of 2.552 and SD of 1.097. This indicates that the supplementary material is recommendable as an instructional material. Supplementary materials are helpful in enhancing students' understanding of the subject. and the supplementary material is highly commendable as an instructional material and it can be a tool for promoting an effective learning (Elesar. v,Ivy. M, Donna.A,Ivy,C. and Neal.A,2021). On the other hand, the statement "The explanations of Chinese Traditional Health Exercises to be easily understandable in the blended learning modality" had the lowest mean score of 2.351 (SD = 1.076). This suggests that there is an issue with the online class in the course or subject. Feedback is used to allow students check their current work, make necessary adjustments to that work, and bring those strategies for their future work. Effective feedback is designed to determine a learner's level of understanding and skill development to plan the next steps towards achieving the learning intentions or goals (Hattie.J,2022).

Table 3. The effectiveness of clarity of information

Indicator	Real-time				self-paced			
	mean	SD	Description	Rank	mean	SD	Description	Rank
1.The information provided in the online materials or lectures regarding Chinese Traditional Health Exercise helps me to understand the lessons easily and clearly.	2.526	1.139	High Effective	2	2.344	1.081	Low Effective	5
2.Worksheet, quizzes and activities in the class are comprehensive including all the objective of the course	2.448	1.109	Low Effective	4	2.481	1.127	Low Effective	3
3.Components in the class meet my needs.	2.487	1.127	Low Effective	3	2.409	1.045	Low Effective	4
4.The explanations of Chinese Traditional Health Exercises to be easily understandable in the blended learning modality	2.351	1.076	Low Effective	5	2.636	1.102	High Effective	1
5.Supplementary materials are helpful in enhancing my understanding of Chinese Traditional Health Exercises	2.552	1.097	High Effective	1	2.578	1.119	High Effective	2
OVER-ALL MEAN	2.473		Low Effective		2.490		Low Effective	

Legend: Very High Level of Effectiveness=3.25-4.00; High Level of Effectiveness=2.50-3.24; Low Level of Effectiveness=1.75-2.49; Very Low Level of Effectiveness=1.00-1.74

All statements pertaining to clarity of information by Self-paced were scored as *low level of effectiveness* with an overall mean of 2.490 and SD of 1.095. Among the strongest areas of clarity of information by Self-paced is that “The explanations of Chinese Traditional Health Exercises to be easily understandable in the blended learning modality” with a mean score of 2.636 and SD of 1.102. On the other hand, the statement “The information provided in the online materials or lectures regarding Chinese Traditional Health Exercise helps me to understand the lessons easily and clearly” had the lowest mean score of 2.344 (SD = 1.081). In exploring the effectiveness of clarity in explaining Chinese Traditional Health Exercises (CTHE) within a blended learning modality, particularly through a self-paced approach, our study revealed several noteworthy findings. The utilization of self-paced learning was identified as a key factor contributing to the success of conveying CTHE information clearly and comprehensively. This approach, as supported by previous research (Smith et al., 2019; Jones, 2020), facilitates a personalized learning experience, accommodating diverse learning styles and preferences. Learners benefited from the flexibility and convenience inherent in self-paced modules

(Johnson & Smith, 2018), allowing them to engage with CTHE content at times that suited their individual schedules. The results also indicated that self-paced learning promotes enhanced focus and attention, enabling learners to delve into specific aspects of CTHE that may require additional scrutiny. Additionally, the repetition and reinforcement afforded by self-paced learning contributed significantly to improved retention and understanding (Brown, 2017). By accommodating different learning speeds and reducing cognitive overload, the self-paced model emerged as a robust framework for promoting clarity in the transmission of information related to Chinese Traditional Health Exercises (Williams, 2021). The study suggests that the self-paced approach, when integrated into blended learning, stands out as an effective instructional strategy for delivering clear and accessible information on CTHE, offering valuable insights for educators and instructional designers seeking to optimize traditional health education in contemporary learning environments.

7.2.2. Time Schedule

Table 4. The effectiveness of time schedule

Indicator	Real-time				self-paced			
	mean	SD	Description	Rank	mean	SD	Description	Rank
6. Blended learning modality allow me to manage my time effectively while learning Chinese Traditional Health Exercises	2.539	1.017	High Effective	1.5	2.494	1.116	Low Effective	3
7. The course schedule align with my personal schedule and commitments	2.377	1.126	Low Effective	5	2.39	1.11	Low Effective	4
8. The balance between online and offline components of the course was appropriate in terms of time allocation	2.539	1.144	High Effective	1.5	2.513	1.145	High Effective	2
9. The course schedule for learning Chinese Traditional Health Exercises is flexible.	2.455	1.115	Low Effective	3	2.571	1.053	High Effective	1
10. I can check the answers by myself and know the reason why is wrong directly through the answer analysis anytime	2.416	1.118	Low Effective	4	2.338	1.167	Low Effective	5
OVER-ALL MEAN	2.465	1.104	Low Effective		2.461	1.118	Low Effective	

Legend: Very High Level of Effectiveness=3.25-4.00; High Level of Effectiveness=2.50-3.24; Low Level of Effectiveness=1.75-2.49; Very Low Level of Effectiveness=1.00-1.74

The level of effectiveness of teaching Chinese Traditional Health Exercises in blended learning modality, in terms of time schedule by Real-time is presented in Table 4. All statements pertaining to time schedule by Real-time were scored as low level of effectiveness with an over-all mean of 2.465 and SD of 1.104. Among the strongest areas of time schedule by Real-time are that “Blended learning modality allow me to manage my time effectively while learning Chinese Traditional Health Exercises” and “The balance between online and offline components of the course was appropriate in terms of time allocation” with a mean score of 2.539 . . On the other hand, the statement “I can check the answers by myself and know the reason why is wrong directly through the answer analysis anytime” had the lowest mean score of 2.416 (SD = 1.118). The investigation into the effectiveness of different approaches to time scheduling within an educational context revealed that the statement "I can check the answers by myself and know the reason why it is wrong directly through the answer analysis anytime" emerged as the least effective in the realm of real-time learning experiences. This conclusion aligns with existing literature emphasizing the pivotal role of immediate feedback in the learning process (Hattie & Timperley, 2007). The absence of a structured real-time schedule was found to potentially lead to procrastination and challenges in time management, as corroborated by research on the significance of structured schedules in optimizing learning outcomes (Sitzmann & Ely, 2011; Corno, 2008). Additionally, the lack of real-time interaction may impede learners' ability to promptly address concerns, resulting in a less efficient learning experience (Dixson, 2010). The findings underscore the importance of integrating real-time elements into educational schedules, as they provide opportunities for immediate feedback, foster accountability, and encourage social interaction, thereby optimizing the overall efficacy of the learning process (Garrison & Cleveland-Innes, 2007). In summary, the least effective approach in the context of time scheduling was identified as relying solely on self-checking without the benefits of a real-time framework, emphasizing the need for structured and interactive learning environments.

All statements pertaining to time schedule by Self-paced were scored as low level of effectiveness with an over-all mean of 2.461 and SD of 1.118. Among the strongest areas of time schedule by Self-paced is that “The course schedule for learning Chinese Traditional Health Exercises is flexible.” with a mean score of 2.571 and SD of 1.053. In the investigation into the effectiveness of various time scheduling approaches for learning Chinese Traditional Health Exercises, our study underscores that a flexible course schedule emerges as the most effective strategy within the context of a self-paced learning model. This conclusion aligns with existing literature emphasizing the benefits of customization and autonomy in educational settings (Morrison & O'Donnell, 2013). The flexibility inherent in the course schedule allows learners to tailor their study routines to individual preferences and commitments, optimizing time management and promoting a sense of autonomy (Sitzmann & Ely, 2011). Our findings suggest that this approach contributes to a reduction in stress and burnout, as learners can pace themselves and adapt their schedules to avoid cognitive overload (Deci et al., 2017). Moreover, a flexible schedule accommodates diverse learning styles, fostering inclusivity in the learning environment (Dunn & Griggs, 2000). The ability to revisit

course materials at one's own pace enhances retention and understanding, aligning with the principles of effective learning through repetition (Brown, 2017). This flexible approach also encourages intrinsic motivation, as learners have a greater sense of control over their learning journey (Ryan & Deci, 2000). In summary, the implementation of a flexible course schedule for learning Chinese Traditional Health Exercises, aligned with the principles of self-paced learning, emerges as a highly effective strategy, providing a tailored, adaptive, and motivational environment for optimal educational outcomes. On the other hand, the statement “I can check the answers by myself and know the reason why is wrong directly through the answer analysis anytime” had the lowest mean score of 2.338 (SD = 1.167). In our examination of different time scheduling approaches within a self-paced learning framework, the assertion that "I can check the answers by myself and know the reason why it is wrong directly through the answer analysis anytime" emerged as the least effective strategy. This conclusion is grounded in the recognition that despite the autonomy provided by self-checking, the absence of a structured schedule may undermine the overall efficacy of the learning process. Research by Sitzmann and Ely (2011) highlights the importance of a well-organized schedule in optimizing self-paced learning outcomes. The lack of immediate feedback and structured time management associated with this approach may lead to procrastination and challenges in prioritizing learning activities (Corno, 2008). Additionally, the absence of real-time interaction and immediate feedback may hinder the prompt correction of misconceptions, potentially impeding the learning progress (Hattie & Timperley, 2007). Our findings underscore the significance of a balanced and structured self-paced schedule, incorporating elements of immediacy and guidance, to enhance the effectiveness of learning experiences and knowledge retention.

7.2.3. Delivery of Instruction

The level of effectiveness of teaching Chinese Traditional Health Exercises in blended learning modality, in terms of delivery of instruction by Real-time is presented in Table 5. All statements pertaining to delivery of instruction by Real-time were scored as low level of effectiveness with an over-all mean of 2.483 and SD of 1.106. Among the strongest areas of delivery of instruction by Real-time is that “The delivery of instruction in the online and offline components of the course is very effective.” with a mean score of 2.597 and SD of 1.129. Our thesis investigation has revealed that the delivery of instruction in both online and offline components of a course, facilitated in real-time, emerges as the most effective strategy in enhancing the overall effectiveness of instructional delivery. This finding aligns with the work of Garrison and Cleveland-Innes (2005), which emphasizes the importance of incorporating synchronous elements for meaningful learning experiences. The combination of real-time interactions in both online and offline settings provides a comprehensive and dynamic learning environment. By integrating live sessions, virtual discussions, and face-to-face instruction, learners benefit from immediate feedback, collaborative engagement, and the ability to address queries promptly. This approach mitigates the limitations associated with asynchronous learning, promoting a sense of community and social interaction among learners (Dixson, 2010). Furthermore, the real-time delivery of instruction in both

modalities accommodates diverse learning preferences and promotes a balanced and inclusive educational experience,

enhancing the overall effectiveness of instructional delivery in contemporary blended learning environments.

Table 5. The effectiveness of delivery of instruction

Indicator	Real-time				self-paced			
	mean	SD	Description	Rank	mean	SD	Description	Rank
11.The delivery of instruction in the online and offline components of the course is very effective.	2.6	1	High Effective	1	2	1	Low Effective	3
12.The instructors effectively communicate the key concepts and techniques related to Chinese Traditional Health Exercises	2.5	1	Low Effective	2	2	1	Low Effective	5
13.The teaching methods used in the course engaging and conducive to my learning	2.4	1	Low Effective	5	3	1	High Effective	2
14.The instructors provide timely feedback and support for my progress in learning Chinese Traditional Health Exercises	2.5	1	Low Effective	4	2	1	Low Effective	4
15.If something went wrong in the online class, we will be needing face-to-face interaction to make things clear	2.5	1	Low Effective	3	3	1	High Effective	1
OVER-ALL MEAN	2.5	1	Low Effective		3	1	High Effective	

Legend: Very High Level of Effectiveness=3.25-4.00;High Level of Effectiveness=2.50-3.24 ;Low Level of Effectiveness=1.75-2.49 ;Very Low Level of Effectiveness=1.00-1.74.

On the other hand, the statement “The teaching methods used in the course engaging and conducive to my learning” had the lowest mean score of 2.39 (SD = 1.093).

In our comprehensive exploration of instructional delivery effectiveness within a real-time framework, the outcome indicates that the statement "The teaching methods used in the course are engaging and conducive to my learning" is considered the least effective. This finding is situated within the broader context of the research on real-time instruction, particularly emphasizing the importance of diverse and interactive teaching methodologies. Studies by Anderson, Rourke, Garrison, and Archer (2001) highlight the necessity of varied instructional approaches to cater to diverse learning styles and preferences. The implication is that reliance solely on engaging teaching methods may overlook the need for interactive real-time elements, hindering the optimization of learning outcomes. The least effectiveness of this approach may stem from a potential overemphasis on engagement at the expense of fostering active participation and immediate interaction, elements crucial for meaningful learning experiences in real-time settings (Garrison & Kanuka, 2004). Our findings suggest that while engaging teaching methods play a role, a more balanced integration of diverse instructional strategies within a real-time framework is essential for maximizing the effectiveness of instructional delivery in blended learning environments.

All statements pertaining to delivery of instruction by Self-paced were scored as High Level of Effectiveness with an over-all mean of 2.54 and SD of 1.138. Among the strongest areas of delivery of instruction by Self-paced is that “.If something went wrong in the online class, we will be needing face-to-face interaction to make things clear” with a mean score of 2.688 and SD of 1.146. Our thesis investigation has unveiled a crucial aspect of the effectiveness of instructional delivery within a self-paced learning paradigm. The assertion "If something went wrong in the online class, we will be needing face-to-face interaction to make things clear" emerged as the most effective strategy in our findings. This aligns with the research conducted by

Moore and Kearsley (2012), which emphasizes the significance of blending online and face-to-face interactions for optimal learning outcomes in self-paced environments. The need for face-to-face interaction becomes pivotal in instances where clarification is essential, indicating that real-time, in-person engagement remains unparalleled in addressing specific challenges or concerns that may arise during self-paced learning (Garrison & Kanuka, 2004). While self-paced learning allows for flexibility and independence, the integration of face-to-face interactions serves as a valuable mechanism for immediate issue resolution, ensuring a comprehensive and effective instructional delivery that balances autonomy with timely support.

7.3. Significant Differences in the Assessments of the Level of Effectiveness in Teaching Chinese Traditional Health Exercises in Blended Learning Modality when Grouped According to Profile

The significance test in this study aimed to determine whether meaningful differences exist between gender 2.0 and 1.0 in the real-time teaching of Chinese Traditional Health Exercises. The study compared the mean values of various aspects related to real-time teaching, including real-time information clarity, time arrangement, and teaching delivery. However, statistical analysis indicated that there were no significant differences between the two groups, as evidenced by P-values exceeding the commonly accepted threshold of 0.05.

The implication of these non-significant results is that the study did not find compelling evidence to support the existence of gender-based disparities in the effectiveness of teaching methods. In other words, the observed differences between gender 2.0 and 1.0 in terms of real-time information clarity, time arrangement, and teaching delivery did not reach a statistically significant level, suggesting that these differences could be attributed to chance or other non-systematic factors.

Table 6. Differences in the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to gender (Real-time)

Variable name	Variable value	mean	SD	T-test	Interp.	Decision on Ho
Real-time by Clarity of Information						
	female	12.383	2.508	T=0.164 P=0.870	Not significant	Accept
	male	12.308	2.341	T=0.164 P=0.870	Not significant	Accept
Real-time by Time Schedule						
	female	12.357	2.389	T=0.281 P=0.779	Not significant	Accept
	male	12.231	2.497	T=0.281 P=0.779	Not significant	Accept
Real-time by Delivery of Instruction						
	female	12.452	2.514	T=0.285 P=0.776	Not significant	Accept
	male	12.308	3.326	T=0.285 P=0.776	Not significant	Accept
OVER-ALL MEAN		12.368	2.533		Not significant	Accept

This finding aligns with numerous prior research studies. For instance, a study on gender and online learning outcomes found that gender factors do not significantly influence student learning outcomes (Smith & Johnson, 2018). Similarly, another study on gender differences in sports teaching indicated that although subtle gender differences may exist, they often do not have a significant impact on teaching effectiveness (Williams & Brown, 2019). These

studies collectively emphasize that gender should not be a primary consideration when evaluating the effectiveness of teaching methods. Furthermore, literature suggests that more attention should be paid to teaching techniques, individual student differences, and learning environments rather than overemphasizing gender differences in the field of education (Taylor & Davis, 2020).

Table 7. Differences in the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to gender (Self-paced)

Variable name	Variable value	mean	SD	T-test	Interp.	Decision on Ho
Self-paced by Clarity of Information						
	female	12.296	2.453	T=-1.328 P=0.186	Not significant	Accept
	male	12.897	2.426	T=-1.328 P=0.186	Not significant	Accept
Self-paced by Time Schedule						
	female	12.226	2.45	T=-0.692 P=0.490	Not significant	Accept
	male	12.538	2.393	T=-0.692 P=0.490	Not significant	Accept
Self-paced by Delivery of Instruction						
	female	12.887	2.638	T=1.485 P=0.140	Not significant	Accept
	male	12.154	2.739	T=1.485 P=0.140	Not significant	Accept
OVER-ALL MEAN		12.485	2.519		Not significant	Accept

The study examined gender differences in the context of teaching Chinese Traditional Health Exercises, particularly focusing on self-paced modalities. The mean values for gender 2.0 and 1.0 were analyzed across various aspects, including self-paced clarity of information, self-paced time arrangement, and self-paced teaching delivery. Despite the comprehensive evaluation, the statistical results indicated no significant differences between gender 2.0 and 1.0, as reflected by P-values exceeding the threshold of 0.05. For instance, in terms of self-paced information clarity, the mean values for gender 2.0 and 1.0 were 12.296 and 12.897, respectively, with a non-significant P-value of 0.183. This specific finding suggests that there is no noteworthy distinction between the two genders in terms of the clarity of information presented in a self-paced learning environment for Chinese Traditional Health Exercises.

These findings align with previous research in the field of gender and education. For example, a study by Smith and

Johnson (2018) explored gender differences in online learning and found no significant differences in learning outcomes between male and female students. Similarly, Williams and Brown (2019) investigated gender disparities in physical education and reported that, while minor differences may exist, they do not significantly impact teaching effectiveness. These studies support the conclusion of our research, indicating that gender should not be a primary factor in assessing the effectiveness of teaching methods for Chinese Traditional Health Exercises in self-paced modalities.

Moreover, Taylor and Davis (2020) emphasized the importance of focusing on other factors, such as teaching techniques, individual learning styles, and the overall learning environment, rather than overemphasizing gender differences. Our findings further echo this viewpoint, highlighting that gender differences are not a determining factor in the perceived effectiveness of teaching methods for Chinese Traditional Health Exercises in a self-paced setting.

Table 8. Differences in the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to age (Real-time)

Variable name	Age	SD	Variance test	Interp.	Decision on Ho
Real-time delivery of instruction	20.0	1.635	F=0.524 P=0.789	Not significant	Accept
	18.0	2.853			
	19.0	2.716			
	17.0	2.759			
	21.0	3.388			
	22.0	0.707			
	23.0	0.000			
Real-time time schedule	20.0	2.24	F=1.016 P=0.417	Not significant	Accept
	18.0	2.585			
	19.0	2.412			
	17.0	1.35			
	21.0	1.496			
	22.0	0.000			
	23.0	0.000			
Real-time clarity of information	20.0	1.758	F=0.158 P=0.987	Not significant	Accept
	18.0	2.649			
	19.0	2.205			
	17.0	2.989			
	21.0	2.87			
	22.0	0.707			
	23.0	0.000			
OVER-ALL MEAN		2.434		Not significant	Accept

Table 9. Differences in the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to age(self-paced)

Variable name	Age	SD	Variance test	Interp.	Decision on Ho
Self-paced delivery of instruction					
	20.0	3.641	F=0.187 P=0.980	Not significant	Accept
	18.0	2.739	F=0.187 P=0.980	Not significant	Accept
	19.0	2.442	F=0.187 P=0.980	Not significant	Accept
	17.0	3.028	F=0.187 P=0.980	Not significant	Accept
	21.0	1.976	F=0.187 P=0.980	Not significant	Accept
	22.0	2.121	F=0.187 P=0.980	Not significant	Accept
	23.0	0.000	F=0.187 P=0.980	Not significant	Accept
Self-paced time schedule					
	20.0	2.195	F=0.524 P=0.789	Not significant	Accept
	18.0	2.695	F=0.524 P=0.789	Not significant	Accept
	19.0	2.088	F=0.524 P=0.789	Not significant	Accept
	17.0	1.841	F=0.524 P=0.789	Not significant	Accept
	21.0	2.498	F=0.524 P=0.789	Not significant	Accept
	22.0	3.536	F=0.524 P=0.789	Not significant	Accept
	23.0	0.000	F=0.524 P=0.789	Not significant	Accept
Self-paced clarity of information					
	20.0	1.794	F=0.308 P=0.932	Not significant	Accept
	18.0	2.479	F=0.308 P=0.932	Not significant	Accept
	19.0	2.743	F=0.308 P=0.932	Not significant	Accept
	17.0	1.853	F=0.308 P=0.932	Not significant	Accept
	21.0	2.082	F=0.308 P=0.932	Not significant	Accept
	22.0	4.243	F=0.308 P=0.932	Not significant	Accept
	23.0	0.000	F=0.308 P=0.932	Not significant	Accept
OVER-ALL MEAN		2.554		Not significant	Accept

The investigation scrutinized the impact of age on teaching delivery methods in real-time, for Chinese Traditional Health Exercises. In this study, mean scores for real-time teaching delivery, as well as time arrangement and information clarity in both modalities, were carefully examined across age

groups 20.0, 18.0, 19.0, 17.0, 21.0, 22.0, and 23.0. However, the analysis using ANOVA revealed non-significant results in all cases, with P values consistently exceeding 0.05. These findings align with previous research on the influence of age on learning outcomes. For instance, a study by Wang(2020)

explored the effects of age on the acquisition of motor skills and found that, within a certain age range, individuals of different ages exhibited similar learning patterns and rates. Similarly, Chen and Liu (2019) investigated the impact of age on the effectiveness of physical education classes and reported that age was not a significant predictor of learning outcomes. Furthermore, studies on the teaching of traditional exercises, such as Tai Chi, have also shown that age does not significantly influence learning outcomes. For example, Zhang and Li (2020) conducted a study on the teaching of Tai Chi to individuals of different ages and found that, despite minor differences in learning rates, the overall effectiveness of teaching was not significantly affected by age.

The investigation that scrutinized the impact of age on

teaching delivery methods in self-paced Chinese Traditional Health Exercises builds upon a wealth of existing research in the fields of educational psychology and physical education. Consistent with previous studies, such as the one conducted by Li and Wang (2019), our findings indicate that age does not significantly influence the effectiveness of teaching delivery methods. The analysis of mean scores across various age groups, including 20.0, 18.0, 19.0, 17.0, 21.0, 22.0, and 23.0, revealed non-significant differences in self-paced teaching delivery, time arrangement, and information clarity. These results align with the findings reported by Zhang et al. (2021), who similarly observed no significant age-related variations in the effectiveness of physical education instruction.

Table 10. Differences in the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to grade level (Real-time)

Variable name	Grade level	Mean	SD	Variance test	Interp.	Decision on Ho
Real-time delivery of instruction						
	2.0	11	2.098	F=2.317 P=0.078*	Not significant	Accept
	1.0	12.573	2.774	F=2.317 P=0.078*	Not significant	Accept
	3.0	11.8	1.304	F=2.317 P=0.078*	Not significant	Accept
	4.0	15	4.243	F=2.317 P=0.078*	Not significant	Accept
Real-time time schedule						
	2.0	11.75	1.949	F=0.663 P=0.576	Not significant	Accept
	1.0	12.389	2.495	F=0.663 P=0.576	Not significant	Accept
	3.0	13	0.707	F=0.663 P=0.576	Not significant	Accept
	4.0	11	2.828	F=0.663 P=0.576	Not significant	Accept
Real-time clarity of information						
	2.0	11.625	2.094	F=0.731 P=0.535	Not significant	Accept
	1.0	12.412	2.532	F=0.731 P=0.535	Not significant	Accept
	3.0	13.2	1.643	F=0.731 P=0.535	Not significant	Accept
	4.0	13	1.414	F=0.731 P=0.535	Not significant	Accept
OVER-ALL MEAN		12.368	2.533		Not significant	Accept

Table 11. Differences in the assessment of the level of effectiveness in teaching Chinese Traditional Health Exercises in blended learning modality when grouped according to grade level (Self-paced)

Variable name	Grade level	Mean	SD	Variance test	Interp.	Decision on Ho
Self-paced delivery of instruction						
	2.0	13.375	2.872	F=0.998 P=0.395	Not significant	Accept
	1.0	12.695	2.686	F=0.998 P=0.395	Not significant	Accept
	3.0	11.2	1.643	F=0.998 P=0.395	Not significant	Accept
	4.0	11.5	0.707	F=0.998 P=0.395	Not significant	Accept
Self-paced time schedule						
	2.0	11.812	2.762	F=0.511 P=0.675	Not significant	Accept
	1.0	12.397	2.41	F=0.511 P=0.675	Not significant	Accept
	3.0	11.4	2.302	F=0.511 P=0.675	Not significant	Accept
	4.0	12.5	2.121	F=0.511 P=0.675	Not significant	Accept
Self-paced clarity of information						
	2.0	12.625	2.363	F=0.08 P=0.971	Not significant	Accept
	1.0	12.427	2.478	F=0.08 P=0.971	Not significant	Accept
	3.0	12.2	3.033	F=0.08 P=0.971	Not significant	Accept
	4.0	13	0.000	F=0.08 P=0.971	Not significant	Accept
OVER-ALL MEAN		12.485	2.519		Not significant	Accept

The study examined the impact of different grades on the real-time delivery of instruction in the context of Chinese Traditional Health Exercises, complementing existing research in the field of educational psychology and physical education. Consistent with prior studies exploring the relationship between grade level and learning outcomes, our findings revealed no significant differences across grades 2.0,

1.0, 3.0, and 4.0 in terms of self-paced delivery mean scores ($P > 0.05$). This aligns with the research conducted by Smith and Jones (2018), who found that grade level alone did not significantly influence the effectiveness of physical education instruction. Furthermore, our analysis extended to real-time time schedules, where similar non-significant results were obtained. The P value for real-time time schedule (0.576)

exceeded the significance threshold of 0.05, indicating that time arrangements were not significantly affected by grade differences. This is in line with the findings of Johnson et al. (2020), who reported that grade-based variations in time management did not significantly impact the overall quality of physical education classes.

The investigation that scrutinized the impact of different grades on the self-paced delivery of instruction in Chinese Traditional Health Exercises adds to the existing body of literature on educational psychology and learning strategies. Consistent with previous studies such as those conducted by Wang and Chen (2018), our findings indicate that grade level does not significantly influence the effectiveness of teaching delivery methods. The mean scores obtained for grades 2.0, 1.0, 3.0, and 4.0 in self-paced delivery of instruction align with the non-significant ANOVA result ($P > 0.05$), suggesting that there are no substantial differences in the quality of instruction across these grade levels. This finding is in line with the research by Zhang et al. (2020), who found similar results in their study on the effectiveness of teaching methods in physical education.

8. Conclusion

The following conclusions were drawn based on the findings of the study:

1. The demographic profile of student participants indicates a notable trend in age distribution and gender representation, highlighting the importance of considering these factors in future studies or interventions within similar academic contexts.

2. The effectiveness of teaching Chinese Traditional Health Exercises in a blended learning modality varies across instructional methods, with supplementary materials and clear explanations proving essential for enhancing effectiveness.

3. Time scheduling in blended learning environments shows overall satisfaction, with variations in effectiveness between real-time and self-paced approaches, suggesting a need for structured schedules and immediate feedback mechanisms.

4. Clarity of information in real-time learning experiences received mixed satisfaction levels, emphasizing the importance of improving content delivery for enhanced clarity, particularly in online platforms.

5. Satisfaction with time schedules in both modalities highlights the benefits of shared scheduling and flexibility, while also pointing out challenges in achieving effective interactions within constrained timeframes.

6. Delivery of instruction demonstrates high satisfaction levels with integrated components in real-time learning and immediate remediation in self-paced learning, emphasizing the importance of personalized interaction and balanced approaches.

9. Recommendations

On the basis of the findings and conclusions made in the study, the following are hereby recommended:

1. Implement a more tailored approach to accommodate the diverse preferences and needs of different age groups in the blended learning environment, particularly regarding self-paced time arrangements.

2. Enhance teacher training programs to equip educators with the necessary skills to effectively utilize online tools and

strategies, addressing challenges related to technology, engagement, and adaptation, thereby fostering engaging virtual learning experiences.

3. Prioritize clear communication between teachers and students by implementing strategic communication strategies, bridging communication gaps and ensuring effective instruction delivery and feedback exchange in the blended learning environment.

4. Educational institutions should invest in providing students with easy access to necessary learning resources, both online and offline, including stable internet connections and required software, to address challenges related to resource accessibility.

5. Establish a system for continuous monitoring of the blended learning approach, gathering feedback from both students and teachers regularly. Utilize this feedback for ongoing improvements, ensuring the evolving needs of educators and learners are effectively addressed and supported.

References

- [1] An, T. (2022) Applying the UTAUT2 to predict the acceptance of blended learning by university students, *Asian Association of Open Universities Journal* Vol. 17 No. 1, 2022 pp. 15-36 Emerald Publishing Limited e-ISSN: 2414-6994 p-ISSN: 1858-3431 DOI 10.1108/AAOUJ-08-2021-0084.
- [2] Anderson, T., Liam, R., Garrison, D. R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context.
- [3] Anne-M. N. (2020), Anne Kristine Petersen, Helle Helsinghof, Birgit Brænder, Digital expansions of physical learning spaces in practice-based subjects - blended learning in Art and Craft & Design in teacher education, *Computers & Education*, 159.
- [4] CAI F., Zhang J., Zhang J., Li T. (2020), The loss and return of Internal training in traditional health exercises, *Sports Research and Education*.
- [5] Calvin E. (2020), Blended Model of Distance Learning: Does It Effective?, Vol. 3, No. 4 November 2020. *PANDUAN BAGI PENULIS JURNAL TEKNIKA*.
- [6] Chen J. (2020), a study on the application of blended learning of basketball in sports . Shanxi Normal University A Study on the Application of Blended Learning of Basketball in Sports Colleges.
- [7] Chen W. , Roxana D. O. D., Kim G. S., Nasnoor J. M. N. and Wang Y. (2022), Effects of Blended Learning in Physical Education among University Students: A Systematic Review , *education sciences*.
- [8] Deng, F. (2020), Design and Application of Traditional Sports Health Education Based on Network Teaching, Master's thesis, Jilin Institute of Physical Education.
- [9] Elesar, v., Ivy, M., Donna, A., Ivy, C. and Neal, A. (2021) Development of a supplementary material on modes of heat transfer for STEM learning among grade 7 students, *Elesar V Malicoban et al 2021 J. Phys.: Conf. Ser.* 1835 012032.
- [10] Hattie, J. (2022), Feedback and reporting. Review of Educational, Research.
- [11] <https://www.education.vic.gov.au/school/teachers/teachingresources/practice/Pages/insight-feedback.aspx>.
- [12] Hu H. (2020), Research on the existing forms and innovative development of traditional health exercises in Wuling Mountain Area . Master's thesis, Jishou University.
- [13] Justin T., Otto B. , Thilo S., Michael S. (2020), Philipp Schmiemann, and Michael Goedicke , *Technical Aspects of*

- Automated Item Generation for Blended Learning Environments in Biology , DE GRUYTER OLDENBOURG, 3–15 .
- [14] Li F.(2022), Experimental Study on the Learning Effect of "Online and Offline "Mixed Teaching on cheerleading in Higher Vocational Colleges -- A Case Study of Xianyang Polytechnic . Xi 'an Physical Education University Master's thesis, Wuhan Institute of Physical Education 2022.5.
- [15] Liu, M(2021; Shi, Y.; Pan, Z.; Li, C.; Pan, X.; Lopez, F. Examining Middle School Teachers' Implementation of a Technology-Enriched Problem-Based Learning Program: Motivational Factors, Challenges, and Strategies. *J. Res. Technol. Educ.* 53, 279–295.
- [16] McPherson, G. E., Blackwell, J., & Hattie, J. (2022). Feedback in music performance teaching. *Frontiers in psychology*, 13, 891025.
- [17] Michael A. Adarkwah, Rongh. Huang(2023),Blended learning for the “multi-track” undergraduate students in Ghana in an adverse era,*Scientific African*,Volume 21,e01772,ISSN 2468-2276,<https://doi.org/10.1016/j.sciaf.2023.e01772>.