

A Comparative Study on Online and Traditional Teaching Aerobics in Selected Colleges and Universities in Jiangsu, Province, China.

Ying Wang

Adamson University, 900 San Marcelino St, Ermita, Manila, 1000 Metro Manila, Philippines

Abstract

In response to the Covid-19 pandemic, online learning has been introduced in many countries and various online learning models have been promoted and put into practice. The dramatic change in physical education teaching is a great challenge for all physical education teachers as they are utilizing the traditional way, i.e. face-to-face. The purpose of this paper is to compare the effectiveness of teaching aerobics online and traditional teaching modes in selected universities in Jiangsu Province, China, and to explore the influence of individual factors of teachers and participants on teaching effectiveness. This study used a quantitative research design with 116 teachers randomly selected from five universities in Jiangsu Province, China, to conduct questionnaires and actual evaluations.

Keywords

Online and traditional teaching aerobics, Comparative study, Jiangsu.

1. Introduction

In order to explore the suitable physical education teaching mode and analyze the advantages and disadvantages of physical education teaching mode in Chinese colleges and universities, this paper will study the effectiveness of network teaching mode and traditional physical education teaching mode in some colleges and universities in Jiangsu Province through literature retrieval, expert interview and other methods. The basic structure of the mixed teaching mode of physical education which is specific to aerobics training is analyzed. According to the tasks and objectives of physical education, an effective physical education model should be established to help students develop good physical behavior and lifelong exercise habits, and promote the overall reform of physical education in colleges and universities.

2. Results, Analysis, And Interpretation

2.1. Work stress level of physical education teacher respondents

This section provides respondents' assessment of the online and traditional modes aerobics training. It includes curriculum, teaching methodology, instructional materials, teaching strategies and assessment and Evaluation.

The mean of the curriculum dimension for the online mode of instruction was 2.83, while the mean of the curriculum dimension for the traditional mode of instruction was 3.29. This result suggests that the traditional mode of instruction focuses more on the delivery of curriculum standards and instructional methods. Since the traditional teaching mode focuses on presenting the curriculum standards for the grade level, the interviewed teachers may pay more attention to the teaching methods and approaches in curriculum development to ensure that students can better understand and master the course content. The online teaching model focuses more

on diverse online platforms and resources. Online teaching models focus on using different online platforms and resources to help students master course content and competencies, and interviewed teachers may focus more on using various online tools and resources to provide better instructional services and support.

Table 1. Assessment of respondents as regards online and traditional modes in Terms of Curriculum

Curriculum	Mean	SD	Qualitative Description	Interpretation
Online Teaching Mode				
I have a deep understanding of the curriculum used in online classes particularly in Aerobics.	2.85	.963	Often	High Level
I am not struggling to teach the curriculum content on Aerobics during online classes.	2.63	.993	Often	High Level
I am able to follow the curriculum guide of the learning area being taught on Aerobics during online classes.	2.88	1.029	Often	High Level
I use different online learning platforms to teach what the curriculum contains including standards or the essential knowledge that students need to learn in Aerobics.	2.90	1.114	Often	High Level
5. I have the ability to set a long-term vision of what learners need for their aerobics training during online classes.	2.83	1.046	Often	High Level
I include performance standards or the abilities and skills learners need to demonstrate in relation to the knowledge they have learned about Aerobics using online platforms.	2.80	.843	Often	High Level
I am able to demonstrate the curriculum standards of the year level through video.	2.80	1.054	Often	High Level
I can aid learners in mastering the content and competencies of the curriculum on Aerobics using different online platforms.	2.93	1.034	Often	High Level
I make use of multiple resources that are available to them including video demonstrations, articles and journals to support the curriculum on Aerobics.	2.93	1.010	Often	High Level
I am able to plan my instruction by following the curriculum guide for teaching Physical Education Aerobics through online teaching mode.	2.80	.954	Often	High Level
Composite Mean	2.83	.886	Often	High Level
Traditional Teaching mode				
I have a deep understanding of the curriculum particularly in Aerobics.	3.23	.727	Often	High Level
I am not struggling to teach the curriculum content on Aerobics.	3.06	.976	Often	High Level
I am able to follow the curriculum guide of the learning area being taught.	3.40	.665	Often	High Level
I plan many ways to teach what the curriculum contains including standards or the essential knowledge that students need to learn in Aerobics.	3.38	.698	Often	High Level
I have the ability to set a long-term vision of what learners need for their aerobics training.	3.28	.743	Often	High Level
I include performance standards or the abilities and skills learners need to demonstrate in relation to the knowledge they have learned about Aerobics.	3.23	.691	Often	High Level
I am able to demonstrate the curriculum standards of the year level.	3.43	.705	Often	High Level
I can aid learners in mastering the content and competencies of the curriculum on Aerobics progressively.	3.25	.769	Often	High Level
I make use of multiple resources that are available to them including the teacher's guide and learning materials.	3.25	.736	Often	High Level
I am able to plan my instruction by following the curriculum guide for Physical Education Aerobics training	3.40	.626	Often	High Level
Composite Mean	3.29	.587	Often	High Level

N=161Teachers.

1.00-1.50,Strongly Disagree;1.51-2.50,Disagree;2.51-3.50,Agree;3.51-4.00, Strongly Agree.

Table 2. Assessment of respondents as regards online and traditional modes in Terms of Teaching methodology

Teaching methodology	Mean	SD	Qualitative Description	Interpretation
Online Teaching Mode				
I am challenged to make relevant all the topics and instruction in Aerobics using online platforms.	2.45	.894	Seldom	Low Level
I connect the discussion to construction of new learning in order to perform in Aerobics exercise better during online classes.	2.85	.853	Often	High Level
I facilitate opportunities for students to be Creative in Aerobics exercises in their video demonstrations.	2.98	.790	Often	High Level
I show video presentations during online classes and ask the students to give their feedback on the different exercises performed.	2.73	.837	Often	High Level
I facilitate time for students to learn collaboratively through group work activities in online platforms related to Aerobics.	2.88	.842	Often	High Level
I engage students in online learning activities to deepen their knowledge on the benefits of Aerobics exercise.	3.06	.808	Often	High Level
I follow a specific routine from the beginning until the end of the online classes.	2.73	.849	Often	High Level
I discuss the theories which are important in learning Aerobics during our synchronous classes.	2.73	.949	Often	High Level
I employ a variety of interactive learning activities in teaching Aerobics during our asynchronous classes.	2.75	.942	Often	High Level
I support to improve students' practical performance in Academics through video demonstrations.	2.88	.842	Often	High Level
Composite Mean	2.80	.559	Often	High Level
Traditional Teaching mode				
I am challenged to make relevant all the topics and instruction in Aerobics.	2.52	1.007	Often	High Level
I connect the discussion to construction of new learning in order to perform in Aerobics exercise better.	3.25	.664	Often	High Level
I facilitate opportunities for students to be Creative in Aerobics exercises.	3.40	.665	Often	High Level
I use a meaningful and authentic learning content in a real-world context to teach Aerobics.	3.28	.743	Often	High Level
I facilitate time for students to learn collaboratively through group work activities related to Aerobics.	3.53	.663	Always	Very High Level
I engage students in experiential learning on Aerobics that is challenging.	3.25	.736	Often	High Level
I empower students to use their prior knowledge to construct new learning on Aerobics.	3.13	.751	Often	High Level
I use multiple ways to teach aerobics exercise to arouse students' learning.	3.48	.708	Often	High Level
I employ a variety of interactive learning techniques in teaching Aerobics through content application.	3.20	.717	Often	High Level
I support to improve students' practical performance in Academics in different ways.	3.40	.585	Often	High Level
Composite Mean	3.25	.383	Often	High Level

N=161Teachers.

1.00-1.50,Strongly Disagree;1.51-2.50,Disagree;2.51-3.50,Agree;3.51-4.00, Strongly Agree.

The teacher respondents differed in their assessment of the online and traditional modes of instruction in terms of teaching methods. For the online mode of instruction, the mean assessment level was 2.80, which is interpreted as a high level, while for the traditional mode of instruction, the mean assessment level was 3.29, which is also interpreted as a high level. In

the online mode of instruction, teacher respondents focused most on engaging students in online learning activities to deepen their understanding of the benefits of aerobics, and the challenge was to use the online platform to make all topics and instructional content of aerobics relevant. In the traditional teaching model, teacher respondents focused most on facilitating students' time for collaborative learning through group work activities related to aerobics, while the challenge was to make all topics and instructional content of aerobics relevant.

Table 3. Assessment of respondents as regards online and traditional modes in Terms of Instructional material

Instructional material	Mean	SD	Qualitative Description	Interpretation
Online Teaching Mode				
I provide online learning resources for Aerobics.	3.30	.949	Often	High Level
I make PowerPoint presentations for our discussions during synchronous classes.	2.80	.872	Often	High Level
I ask students to use improvised equipment needed for activities before the Aerobics class.	2.68	.849	Often	High Level
I demonstrate proper usage of exercise equipment like dumbbells and kettlebells by video recording.	2.80	.927	Often	High Level
I allow students to use different exercise equipment in their recorded video performances.	3.10	.970	Often	High Level
I give enough time for all students to demonstrate aerobic exercise during online classes by showing their recorded videos.	2.75	.888	Often	High Level
I encourage students to create a portfolio of their different exercise routine.	2.93	.755	Often	High Level
I continuously look for other helpful materials which can aid in our online Aerobics class.	2.78	.962	Often	High Level
I create activities for asynchronous classes to ensure continuation of learning of the Aerobics course.	2.98	.908	Often	High Level
I use journals and other literature for students' reading to widen their knowledge on Aerobics training.	3.00	.742	Often	High Level
Composite Mean	2.88	.746	Often	High Level
Traditional Teaching mode				
I list down the references and other learning resources that I use for instruction.	3.13	.751	Often	High Level
I include the particular pages of the teachers' guides, learners' manual, textbook etc. whenever I give leaning materials for the students.	3.06	.839	Often	High Level
I prepare the supplies, equipment, tools and other non-print materials needed for activities before the Aerobics class.	3.58	.544	Always	Very High Level
I demonstrate proper usage of exercise equipment like dumbbells and kettlebells.	3.48	.593	Often	High Level
I allow students to use different exercise equipment during class.	3.08	.758	Often	High Level
I give enough time for all students to experience using the different exercise equipment during our aerobics class.	3.18	.805	Often	High Level
I facilitate the maintenance of the different exercise equipment used in Aerobics class.	3.40	.665	Often	High Level
I continuously look for other helpful materials which can aid in our face-to-face Aerobics class.	3.08	.821	Often	High Level
I create activities for face-to face classes to ensure continuation of learning of the Aerobics course.	3.40	.626	Often	High Level
I use journals and other literature for students' reading to widen their knowledge on Aerobics training.	3.20	.815	Often	High Level
Composite Mean	3.26	.539	Often	High Level

N=161Teachers.

1.00-1.50,Strongly Disagree;1.51-2.50,Disagree;2.51-3.50,Agree;3.51-4.00, Strongly Agree.

In online teaching mode the overall composite mean is 2.88, which is interpreted as high level. It can be inferred that the online instructors surveyed performed well overall on the assessment of instructional materials, with average scores above moderate.

In traditional teaching mode the overall composite mean is 3.26, which is interpreted as high level. It can be inferred that the teacher respondents did a good job in preparing for class, using appropriate materials, and providing diverse teaching materials, and that the quality of the teaching materials was high.

Table 4. Assessment of respondents as regards online and traditional modes in Terms of Teaching strategies

Teaching strategies	Mean	SD	Qualitative Description	Interpretation
Online Teaching Mode				
I usually demonstrate proper form and execution in performing the different aerobics exercises through recorded videos.	2.78	1.037	Often	High Level
I encourage group work and collaboration during asynchronous classes in performing different aerobic exercises.	2.88	1.053	Often	High Level
I explore utilizing different online instructional strategies that considers learners' varying characteristics on performing aerobics exercises.	2.88	1.053	Often	High Level
I use online games/play to capture students' interest in performing aerobics training.	2.83	1.070	Often	High Level
I assign different students to record videos for the stretching and warm up exercises for our aerobic activities.	2.95	1.023	Often	High Level
I give opportunities for students to observe aerobic activities in youtube and ask them to share their learnings during our class.	2.83	.997	Often	High Level
I assign students to create and record their own aerobic exercise routine.	2.78	1.037	Often	High Level
I encourage students to use the learned exercises in their daily life activities.	2.85	.963	Often	High Level
I ask students to keep a journal of their daily physical activities to monitor their active lifestyle and discuss them during our synchronous classes.	2.75	.994	Often	High Level
I encourage students to mentor one another using online meetings for the improvement of their performance in Aerobics.	2.88	1.053	Often	High Level
Composite Mean	2.84	.923	Often	High Level
Traditional Teaching mode				
I usually demonstrate proper form and execution in performing the different aerobics exercises.	3.13	.717	Often	High Level
I encourage group work and collaboration in performing different aerobic exercises.	3.53	.671	Always	Very High Level
I explore utilizing different instructional strategies that considers learners' varying characteristics on performing aerobics exercises.	3.13	.784	Often	High Level
I use games/play to capture students' interest in performing aerobics training.	3.33	.756	Often	High Level
I assign different students to lead the stretching and warm up exercises for our aerobic activities.	3.28	.743	Often	High Level
I give opportunities for students to observe aerobic activities of the community surrounding them and ask them to share their learnings during our class.	3.01	.840	Often	High Level
I assign students to create their own aerobic exercise routine.	3.03	.762	Often	High Level
I encourage students to use the learned exercises in their daily life.	3.20	.751	Often	High Level
I ask students to record their daily physical activities to monitor their active lifestyle.	3.11	.834	Often	High Level
I encourage students to mentor one another for the improvement of their performance in Aerobics.	3.40	.626	Often	High Level
Composite Mean	3.21	.572	Often	High Level

N=161Teachers.

1.00-1.50,Strongly Disagree;1.51-2.50,Disagree;2.51-3.50,Agree;3.51-4.00, Strongly Agree.

In online teaching mode, the overall composite mean is 2.84, which is interpreted as high level. It can be inferred that the interviewed teachers performed better in terms of teaching strategies in the online teaching mode, scoring above average in most indicators. The interviewed teachers have some experience and ability in teaching strategies, but they also need to further improve their level.

In traditional teaching mode, the overall composite mean is 3.21, which is interpreted as high level. It can be inferred that the teacher respondents did relatively well in teaching strategies and they used various strategies in their teaching. Their teaching strategies can help students to better understand the concept of aerobics and improve their learning outcomes.

Table 5. Assessment of respondents as regards online and traditional modes in Terms of assessment and evaluation

Assessment and Evaluation	Mean	SD	Qualitative Description	Interpretation
Online Teaching Mode				
I prepare an assessment plan, specifically a formative assessment plan to assess their aerobic performance using online platforms	2.70	.954	Often	High Level
Through online assessment, I am able to identify students' strength and weaknesses in Aerobic training	2.68	1.105	Often	High Level
I integrate formative assessment plan into instruction and align with the instructional objectives	2.75	1.019	Often	High Level
I rely on multiple ways of assessing learning inside the online classroom	2.78	1.037	Often	High Level
I assess students' performance in aerobics before and after the online aerobics course	2.88	1.029	Often	High Level
I use written exams to assess students' knowledge on theories related to aerobics using online platforms	2.39	.950	Seldom	Low Level
I conduct practical tests on each topic covered to determine students' performance on Aerobics by asking students to submit video presentations	2.68	.849	Often	High Level
I involve my students in their assessment and let them identify their strengths and weaknesses in the Aerobics course through online meetings	2.75	.942	Often	High Level
I use the gathered data from the assessment to continually adjust instruction on online classes	2.98	.790	Often	High Level
I talk to my students one by one virtually to give feedback on their performance in Aerobics class.	2.73	.894	Often	High Level
Composite Mean	2.73	.689	Often	High Level
Traditional Teaching mode				
I prepare an assessment plan, specifically a formative assessment plan to assess their aerobic performance	3.20	.784	Often	High Level
Through assessment, I am able to identify students' strength and weaknesses in Aerobic training	3.08	.821	Often	High Level
I integrate formative assessment plan into instruction and align with the instructional objectives ²	2.98	.794	Often	High Level
I rely on multiple ways of assessing learning inside the classroom.	2.96	.839	Often	High Level
I assess students' performance in aerobics before and after the course	3.13	.751	Often	High Level
I use written exams to assess students' knowledge on theories related to aerobics	2.49	1.031	Seldom	Low Level
I conduct practical tests on each topic covered to determine students' performance on Aerobics	2.96	.777	Often	High Level
I involve my students in their assessment and let them identify their strengths and weaknesses in the Aerobics course	3.25	.736	Often	High Level
I use the gathered data from the assessment to continually adjust instruction.	3.11	.771	Often	High Level
I talk to my students one by one to give feedback on their performance in Aerobics class.	3.30	.750	Often	High Level
Composite Mean	3.05	.506	Often	High Level

N=161 Teachers.

1.00-1.50, Strongly Disagree; 1.51-2.50, Disagree; 2.51-3.50, Agree; 3.51-4.00, Strongly Agree.

In online teaching mode, the overall composite mean is 2.73, which is interpreted as high level. It can be inferred that the teacher respondents performed well in assessment and evaluation in the online teaching model, but there is still room for improvement.

In traditional teaching mode, the overall composite mean is 3.05, which is interpreted as high level. It can be inferred that the teacher respondents had a relatively high level of assessment and evaluation, valued communication and feedback with their students, and experimented with a variety of different assessment methods to evaluate student performance.

2.2. Summary Table on the Assessment of respondents as regards the online and traditional modes

This findings shows that in Jiangsu universities, the traditional teaching mode has higher mean scores than the online teaching mode in curriculum, teaching methods, teaching materials, teaching strategies, assessment and evaluation. This implies that the traditional teaching model has some advantages in these aspects.

Table 6. Summary Table on the Assessment of respondents as regards the online and traditional modes

Teach modes	online		traditional		Qualitative Description	Interpretation
	Mean	SD	Mean	SD		
Curriculum	2.83	.886	3.29	.587	Often	High Level
Teaching methodology	2.80	.559	3.25	.383	Often	High Level
Instructional materials	2.88	.746	3.26	.539	Often	High Level
Teaching strategies	2.84	.923	3.21	.572	Often	High Level
Assessment and Evaluation	2.73	.689	3.05	.506	Often	High Level
Over-all Mean	2.82	.736	3.21	.485	Often	High Level

N=161Teachers.

1.00-1.50, Strongly Disagree; 1.51-2.50, Disagree; 2.51-3.50, Agree; 3.51-4.00, Strongly Agree.

The overall mean score is 2.82 and 3.21, which is a high level of assessment. This indicates that teacher respondents performed better overall in assessing both online and traditional teaching models, both at a high level. In particular, traditional teaching models scored higher on curriculum, instructional methods, instructional materials, and instructional strategies, while online teaching models scored higher on assessment and evaluation. This suggests that in the traditional model, teachers focus more on interacting and collaborating with students in the classroom, while the online model focuses more on using data to adapt and improve instruction. Also, the overall assessment scores indicate that teachers have a high level of recognition and satisfaction with both instructional models.

2.3. Differences in levels of teach modes when respondents are grouped by online and traditional

This section presents the differences in teach modes levels of PE teachers when grouped according to teach modes variables such as online and traditional.

Table 7. Differences in levels of teach modes when respondents are grouped by online and traditional

INDICATORS	teach modes	Mean	SD	Computed T-value	Sig	Decision on Ho	Interpretation
Curriculum	traditional	3.29	.587	5.472	0.000	Rejected	Significant
	online	2.83	.885				
Teaching methodology	traditional	3.24	.383	8.313	0.000	Rejected	Significant
	online	2.80	.559				
Instructional materials	traditional	3.25	.538	5.222	0.000	Rejected	Significant
	online	2.88	.746				
Teaching strategies	traditional	3.21	.571	4.400	0.000	Rejected	Significant
	online	2.83	.922				
Assessment and Evaluation	traditional	3.04	.505	4.694	0.000	Rejected	Significant
	online	2.73	.688				
Over-all	traditional	3.21	.484	5.687	0.000	Rejected	Significant
	online	2.81	.735				

N=161Teachers.

1.00-1.50,Strongly Disagree;1.51-2.50,Disagree;2.51-3.50,Agree;3.51-4.00, Strongly Agree.

Table 19 shows the respondents' assessment levels of teach modes and when grouped by online and traditional, there were a significant differences in the dimensions of curriculum, teaching methodology, instructional materials, teaching strategies,and assessment and evaluation. The findings were as follows:the overall significant value of 0.000, or interpreted as a significant, is less than the significant value criterion of 0.05, this indicates that when grouped by online and traditional, teach modes is a significant factor affecting curriculum, teaching methodology, instructional materials, teaching strategies,and assessment and evaluation.

3. Summary of the Study Findings

3.1.Assessment of the online and traditional modes of physical education teacher respondents.Teacher respondents performed better overall when assessing both online and traditional modes of instruction, both at a high level. The overall mean was greater for the traditional instructional model than for the online instructional model. The highest scoring dimension for the traditional model was curriculum, followed by instructional materials, instructional methods, instructional strategies, and assessment and evaluation. Whereas, the highest scoring dimension of the online teaching model was instructional materials, followed by instructional strategies, instructional materials, instructional methods, assessment and evaluation in that order.

3.2.There is a significant difference between the online and traditional modes of teaching Physical Education specific to aerobics training.When grouped by instructional mode, there were significant differences between the online and traditional instructional modes in terms of curriculum, instructional methods, instructional materials, instructional strategies, and assessment and evaluation. And the scores of all dimensions and total scores of traditional teaching mode were higher than those of online teaching mode.

3.3.The traditional teaching model outperformed the online teaching model in terms of curriculum, instructional materials, teaching methods, teaching strategies and assessment and evaluation. The online teaching model scored higher on the instructional materials dimension, but scored relatively lower on the other dimensions. The traditional teaching model performs better on course design, teaching methods, and assessment and evaluation, but can draw on the

strengths of the online teaching model in terms of instructional materials and instructional strategies.

4. Recommendations

Based on the findings of the study, the following recommendations are made.

4.1. For the online teaching mode, special training courses should be offered for older teachers to help them better master skills in curriculum, teaching methods, teaching materials, teaching strategies, assessment and evaluation, and improve their teaching level.

4.2. In the traditional teaching mode, more attention should be paid to teachers' academic qualifications and years of teaching experience, and teachers should be encouraged to continuously improve their academic qualifications, while professional skills training should be enhanced for teachers with higher teaching experience in order to improve their teaching quality and level.

4.3. For the differences between online and traditional teaching modes, more in-depth research can be conducted to explore the advantages and shortcomings of the two modes and how to combine them to achieve better teaching results.

References

- [1] Allen I Seaman J.(2018).Sizing the Opportunity: The Quality and Extent of Online Education in the United States,2002 and 2003.Sloan Consortium, (23) :659-673.
- [2] Chen Jianbo, Qi Shunbin.(2019). Practice and Research of Online and Offline Mixed Teaching Model based on Cloud Classroom . Vocational Technology,(02):64-68..
- [3] Chen Lei, Wang Lin. (2019).The Cultivation of college students' autonomous Learning Ability under the humanistic Theory . Literary Education (II),(12):74-75.
- [4] Chen Xirong. (2019).An Analysis of Blended Teaching Model based on CBI Teaching Concept -- A Case study of "Business English" course teaching . China Audio-Visual Education,(12):129-134.
- [5] Cui Yanhui, Wang Yi.(2017). Flipped classroom and its application in College English Teaching. China Audio-Visual Education, (11) : 116-121.
- [6] Ding Cuihong. (2017).Research on Multi-dimensional Interactive SPOC Blended teaching model . Modern Educational Technology,27(07):102-108.
- [7] Peng Feixia, Yang Wen. (2021).How Mixed learning deepens learning -- and how educational Big data supports learning analysis . Modern Distance Education,(02):31-39.
- [8] REN Guangli.(2019). Analysis on Primary School Physical Education Teaching Model under the Concept of "Flipped Classroom" . China Information Technology Education,(24):130-131.
- [9] Gao Yi. (2021).A Comparative Study of Traditional Geography Teaching Model and SPOC+ Flipped Classroom Teaching Model in high school. Qinghai Normal University.