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Effects of Video Micro Teaching Plan to Improve Archery Technique in University Students

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Abstract

Background and Aims: Video microteaching not only improves student learning outcomes but also optimizes the teaching process for instructors. By making effective use of video resources, teachers can dedicate more class time to individual tutoring, helping students who need more attention to overcome learning challenges. Therefore, the objectives of this research were: (1) to study the effect of a video microteaching program on the improvement of archery skills at Jilin University, and (2) to compare the effect of video a microteaching plan on improving archery technique at Jilin University.

Materials and Methods: 60 students who participated in the archery course were selected from the 300 first-year students at Jilin University to complete the questionnaire survey, and 30 students were randomly selected from the 60 students to conduct the experimental research. They were divided into 15 students in the experimental group and 15 in the control group. They participated in the 8-week video teaching experiment and tested once every two weeks to compare the effect of different teaching methods. The research methods included a questionnaire survey, a focus group interview, and an experimental intervention. Mean, standard deviation, independent t-test, and dependent t-test were used to analyze the data.

Results: Video instruction significantly improved students' academic performance in archery courses. After 8 weeks of intervention, the experimental group using the video teaching plan had significantly improved performance than the control group using the traditional teaching method.

Conclusion: The dependent t-test results showed that video teaching helps students to better understand and replicate archery movements, reduce learning errors, and improve motor memory and skill acquisition through vivid movement demonstrations and detailed technical explanations.

Keywords: Academic Achievement; Archery; Video Teaching

Introduction

Archery courses have been gaining increasing attention in university physical education. As a sport that enhances both concentration and physical coordination, it has attracted many students. However, the current teaching model for archery faces several problems, hindering students' skill development and long-term interest in the sport. The main issues lie in the traditional teaching methods that fail to provide individualized instruction. There are significant differences in students' learning progress, and teachers are unable to offer enough personalized guidance to each student within the limited class time, resulting in some students failing to master proper techniques. Additionally, archery is a highly skill-dependent sport that relies on practice. Merely demonstrating techniques in class and providing limited practice time make it difficult for students to fully grasp the necessary skills. This learning approach not only obstructs the improvement of students' archery techniques but also leads to frustration during the learning process, which, in turn, affects their interest and enthusiasm for the sport. To address these issues in archery courses, a new teaching method is needed to complement traditional classroom instruction. Video micro-teaching, as an emerging educational tool, can effectively solve the challenges students encounter during their learning. By creating short instructional videos that break down the basic archery techniques into easily understandable steps, students can watch the videos any time after class, repeatedly practicing and imitating the actions. This approach not only makes learning more flexible but also provides students with more time and space to digest and understand the techniques. The slow-motion playback and multiple angles in the videos help students observe the details more clearly and improve through self-correction. Moreover, teachers can recommend specific videos based on each student's problems, helping them continue learning outside of class and overcoming the limitations of time and resources in classroom teaching (Liu, 2014).

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Beyond individual practice flexibility, video microteaching also fosters interaction between teachers and students. Teachers can use standard movements in the videos to provide precise feedback and guidance to students, while students can review their performance in class by comparing it to the standard actions in the videos. This feedback mechanism not only enhances teaching effectiveness but also helps students quickly master the skills. With continuous practice and teacher guidance, students can gradually correct mistakes and improve their technical abilities (Guo and Shi, 2001).

Traditional methods of teaching archery may not fully address the needs of all students, especially those who struggle with mastering complex techniques. A video micro-teaching plan provides an opportunity for students to repeatedly view demonstrations of key archery techniques, which could lead to better understanding and performance. This research would fill a gap in traditional instruction methods, offering a modern approach. Once these teaching problems are addressed, the overall teaching effectiveness of archery courses will significantly improve. Students will gain more autonomy and flexibility in their after-class learning, gradually developing self-learning and reflective abilities that will have a lasting impact on their future studies and lives. Through video microteaching, students can not only master standardized archery techniques in a shorter time but also improve learning efficiency, allowing them to save class time and focus more on skill enhancement and practical application. This teaching method can also serve as a reference for other sports courses, especially in activities that require repeated practice and precise movements, where video micro-teaching will play a more prominent role (Ba, 2007).

Research Objectives

1. To study the effect of a video microteaching program on the improvement of archery skills at Jilin University.

2. To compare the effect of the video microteaching plan on improving archery technique at Jilin University.

Literature Review

1. Archery Video Teaching micro-teaching plan

He et al (1997) Another benefit of the video micro-teaching plan is its capacity to democratize access to high-quality instruction. In large university settings, the ratio of instructors to students is often suboptimal, meaning that many students do not receive the individualized attention they need to excel. Video resources can help bridge this gap by providing all students with the same high-quality instructional materials. For students who may struggle to keep up with the pace of in-person lessons or those who require more time to master specific techniques, the ability to revisit lessons outside of class hours is a game-changer. This model creates a more equitable learning environment, where all students, regardless of their starting level or learning speed, have the opportunity to succeed.

He et al (2002) Moreover, video micro-teaching in archery promotes a more data-driven approach to skill development. As students record their practice sessions and compare them with instructional videos, they can track their progress over time with greater precision. This approach allows for a more objective evaluation of skill acquisition and provides both the student and the instructor with concrete data to inform future instruction. For instance, a student may observe that their release technique has improved significantly over several weeks, but their stance remains inconsistent. This type of detailed, actionable feedback is difficult to achieve through traditional methods alone, but it becomes readily accessible with video micro-teaching.

2. Video Teaching Tools

Liu (2015) The use of different camera angles in video teaching is particularly beneficial when analyzing the relationship between the archer, bow, and target. High-definition cameras can capture movements from various perspectives—such as over the shoulder or from directly behind the target—giving students a fuller picture of how their posture and movements influence the bow's performance and the arrow's path. This holistic view helps them

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comprehend not just the isolated actions of drawing, aiming, and releasing the arrow but also how these actions interact to create a cohesive shooting technique. Without video, students may struggle to visualize this process, as it happens in real-time too quickly to dissect in the classroom setting.

Liang (2011) Video teaching also brings to light the importance of peripheral equipment, such as arm guards and finger tabs, which are often overlooked in traditional instruction. These tools, while supplementary, have a direct impact on safety and performance. Video demonstrations allow instructors to show how improper use or neglect of such equipment can lead to injury or inconsistency in shooting. By repeatedly highlighting their correct use in slow-motion footage or close-up shots, students gain a better appreciation for how even small tools contribute to the overall success of their shooting technique. These insights are critical, especially for beginners who may not yet understand the value of using all available equipment correctly.

Liu (2015) proposal on the benefits of multimedia for learning highlighted that incorporating multiple media formats such as text, images, and animations can significantly enhance understanding, particularly for complex subjects or techniques. Our study affirmed this by demonstrating that multimedia formats provide diverse ways to represent information, catering to various learning styles and helping learners grasp difficult concepts more effectively. This multimodal approach can support retention, comprehension, and engagement in educational settings, especially in skill-based learning like sports or technical disciplines.

Ai (2019) research emphasized the active role of students in learning archery techniques through the use of multimedia resources, specifically video observation. The study showed that students were able to watch videos of professional archers, imitate their form, and then make self-adjustments based on their performance. This process of observation, imitation, and self-correction facilitated a deeper understanding of the technical aspects of archery. By actively engaging with the material, students became more autonomous in their learning, developing not only physical skills but also critical thinking and self-assessment abilities.

3. Archery Teaching Methods

The current archery course integrates traditional instruction with video micro-teaching to enhance students' mastery of the sport. Week 1 covers safety and basic archery awareness, enriched with Chinese traditional shooting culture. Practical skills like bowstring manipulation are introduced in Week 2, with video demonstrations simplifying complex techniques. Week 3 focuses on advanced mechanics, while Week 4 emphasizes etiquette and precision. By Week 5, students practice aiming and shooting, supported by video reviews. Mental focus is developed in Week 6 through blind shooting techniques. Weeks 7 and 8 involve review, self-assessment, and final tests, combining theory and practice for comprehensive learning. Men (2012) Virtual reality (VR) is another emerging teaching tool in the world of archery that offers an immersive learning experience. VR allows students to practice their technique in a simulated environment that closely mimics real-world conditions. This method provides a safe, controlled space where learners can experiment with different techniques and receive immediate feedback on their form and accuracy. VR training programs often incorporate gamification elements, such as target-based challenges or performance metrics, which help to maintain student engagement and motivation over time. By combining the realism of a physical environment with the flexibility of a digital platform, VR is helping to bridge the gap between theoretical instruction and practical application.

Nankai & Pang (2007) Newer teaching methods also place a greater emphasis on the psychological aspects of archery, recognizing that mental focus and discipline are just as important as physical technique. Mindfulness and visualization techniques are increasingly being integrated into archery training programs, teaching students to develop mental resilience and concentration under pressure. Video tutorials, for example, may include sections on breathing exercises or mental rehearsal strategies that help students remain calm and focused during competition. This holistic approach to archery training acknowledges that success in the sport depends not only on mastering physical skills but also on cultivating a strong mental game.

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Shen et al. (2007) Another advantage of modern teaching methods is their scalability. While traditional archery instruction is often limited by the number of students a coach can work with at one time, video-based teaching tools can be distributed to an unlimited number of learners simultaneously. This makes it easier to provide consistent, high-quality instruction to large groups, without sacrificing the individual attention needed for skill development. Online platforms that host video lessons and performance-tracking tools also allow students to learn from a wider range of experts, accessing coaching insights that might not be available in their local area.

Lou (2021) cognitive load theory emphasizes the importance of phased learning when tackling complex tasks, particularly in the realm of sports and physical education. The theory proposes that breaking down intricate tasks into smaller, manageable phases helps ease the cognitive load on learners. This allows students to process information more effectively and enhances their ability to master new skills. Lou's study highlighted that while phased learning is useful for reducing cognitive strain, additional teacher guidance remains crucial, especially when learners are dealing with more intricate movements or techniques. This personalized instruction helps clarify doubts, offers real-time feedback, and ensures that learners apply correct techniques, which is essential for both learning efficiency and skill retention.

4. Related Research

Zhang et sal (2008) and others proposed that in China, the application of video teaching is gradually becoming popular, especially in higher education and vocational education fields. With the development of information technology, an increasing number of universities have begun to introduce video teaching and use video resources for course teaching and guidance. Particularly in physical education, video teaching is seen as an important means to improve teaching quality and efficiency. Jilin University in China has introduced video teaching in its archery courses, helping students master archery techniques, enhance learning interest and motivation, and achieve significant teaching results through recording and playing high-quality instructional videos.

Feng et al (2001) and others proposed that the theoretical basis of video teaching includes constructivist learning theory and multimedia learning theory. Constructivist learning theory emphasizes the active construction process of knowledge, where students actively build their knowledge systems through interaction with learning materials. The multimedia learning theory points out that the combination of various media forms such as text, images, animations, and sound can improve learners' information processing efficiency and learning effectiveness. In archery courses, video teaching helps students better understand and master archery techniques through multimedia teaching videos, thereby enhancing learning efficiency and effectiveness.

Summary

The integration of video micro-teaching in archery has enhanced learning outcomes by allowing students to review complex movements at their own pace, deepening their technical understanding. Video tools complement traditional teaching by offering flexible instruction, enabling self-assessment, and supporting after-class learning to reinforce skills like muscle memory. Teachers benefit from using video resources to provide standardized content and personalized feedback, improving lesson focus. Video teaching also allows for data-driven feedback, optimizing training through objective evaluations. As technology advances, video instruction will continue to innovate archery education, offering more systematic and comprehensive learning experiences.

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Conceptual Framework

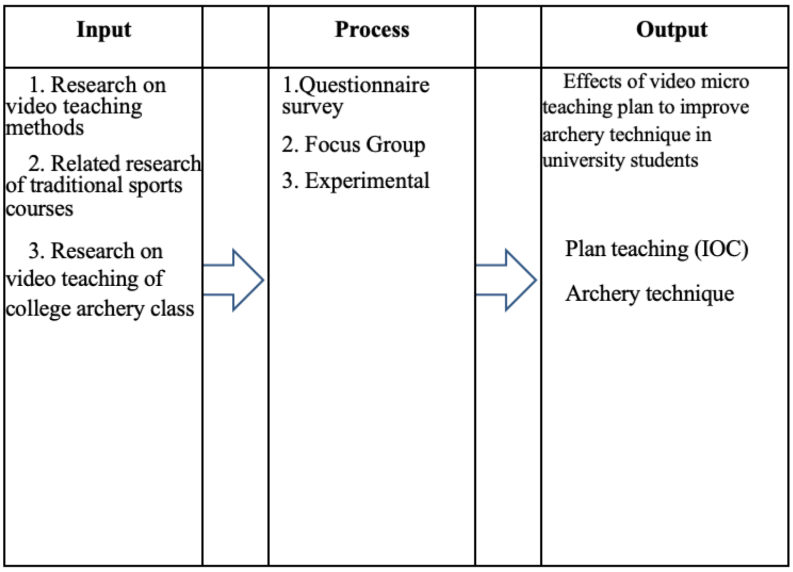

Figure 1 Conceptual framework

Methodology

1. Research Tool

In this research, research tools are as follows: (1) Interview Questionnaire; (2) Questionnaire for 60 Students; (3) Focus Group Discussion Form; and (4) Lesson Plan for Video Teaching.

2. Population and sample

Population

This study investigates archery video teaching for first-year students at Jilin University, surveying 300 students across six classes. A systematic sampling method was used to randomly select one class of 60 students, who were divided into two groups based on an initial archery skills test. A lottery system then determined the control and experimental groups, ensuring balance and comparability.

Sample size and identification

A sample of 30 students was selected through systematic sampling from 60 first-year university students enrolled in an archery course. These 30 students participated in the experiment, and a questionnaire survey was conducted to understand the current situation of archery video teaching methods.

Research Participants

3. Data collection

1) Face-to-face interviews with 10 instructors and student representatives will collect qualitative data on video teaching, addressing opinions, challenges, and feedback. This will help identify teaching deficiencies and areas for improvement.

2) Pre- and post-course questionnaires will assess 60 students' archery knowledge and skills, along with satisfaction surveys in weeks 1 and 8. Comparing results will analyze course effectiveness in skill enhancement.

3) A survey will gather feedback from 60 students on course satisfaction, challenges, and suggestions, providing insights into the course's implementation and potential improvements.

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4) A focus group discussion with 7 experts will collect professional opinions on video teaching's effectiveness, video quality, and student engagement, aiding course content improvements.

5) Weekly feedback on the 8-week lesson plan will assess students' progress in archery basics, technique, and ceremonial norms. The collected data will be summarized to evaluate course objectives and guide future design.

4. Data analysis

1. The questionnaire survey used mean value, standard deviation, and percentage to analyze the data.

2. Expert interviews and focus group discussions were used for content analysis to analyze the data.

3. The test data of a sample of 30 students during the 8-week experiment were analyzed, and the results of the pre-test and post-test were compared with the dependent t-test.

4. The test data of a sample between the experimental group and the control group during the 8-week experiment were compared with the independent t-test.

Results

Table 1 Distribution of scores for 30 students at Jilin University after the experiment on drawing and releasing

Examination Content	Class A Experimental group
Number of rings	42.70±3.30
Density (cm)	18.60±2.80

The results of archery competitions are determined by the number of rings hit on the target, with more rings awarded for closer proximity to the center. As seen from the data in Table 1, both Class A and Class B showed better scores in total points and average ring numbers compared to the previous stage, indicating significant training effectiveness. According to the t-test, $P < 0.05$, indicates a significant difference, with Class A outperforming Class B in post-test ring scores, showing significant differences.

Table 2 Distribution of scores for 30 students at Jilin University after the experiment on standing action evaluation

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	9	5	0	0	86.50±4.00
Class B (Male)	9	5	0	0	85.90±4.50

From the data in Table 2, we can see the distribution of scores for standing action skill assessment. In terms of the number of excellence, there was no difference between Classes A and B, with equal numbers. The average values for each class were: 86.50 for Class A and 85.90 for Class B. According to the t-test, $P > 0.05$, indicating no significant difference in performance between the two classes in training, and no significant difference between Class A and Class B, showing that the role of videotapes in training was not significant.

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Table 3 Distribution of scores for 30 students at Jilin University after the experiment on drawing action evaluation

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	7	6	2	0	82.70±6.40
Class B (Male)	3	5	4	3	74.80±9.50

As shown in Table 3, the distribution of scores for the drawing hand technique assessment shows that Class A has 7 excellent students, while Class B has 3 excellent students; Class A has no unqualified students, but Class B has 3 unqualified students. The average scores for each class are 82.70 for Class A and 74.80 for Class B. Due to the short experiment time, the average scores are not very high, but from various indicators, it can be seen that Class A's average score is much higher than Class B's, with many top students in Class A and no unqualified students. According to the t-test, $P < 0.05$, indicating a significant difference, Class A's drawing hand action skill score is superior to that of Class B.

Table 4 Distribution of scores for 30 students at Jilin University after the experiment on action-in-place evaluation

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	7	5	3	0	81.80±6.10
Class B (Male)	0	9	5	1	73.60±7.70

From the data in Table 4, the distribution of scores for the skill assessment of being in place can be seen. Class A had 7 excellent students, while Class B had none; Class A had 3 poor-performing students; Class B had 5 poor-performing students; there were no unqualified students in Class A, but there was 1 unqualified student in Class B; the average scores for each class were: 81.50 for Class A and 73.60 for Class B. From these aspects, it can be seen that the average scores and the number of excellent students in Class A are much higher than those in Class B. According to the t-test, $P < 0.05$, indicating a significant difference, with the skill score of being in place in Class A being superior to that of Class B.

Table 5 Distribution of scores for 30 students at Jilin University after the experiment on continuously using force evaluation

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	0	7	6	2	73.00±5.70
Class B (Male)	0	2	7	6	58.60±5.60

Therefore, from the data in Table 5, the distribution of scores for continuous force skill assessment can be seen. There were no excellent students in either Class A or Class B; Class A had 6 poor-performing students, and Class B had 7 poor-performing students; Class A had 2 unqualified students, but Class B had 6 unqualified students; the average scores for each class were: 73.00 for Class A and 58.60 for Class B. From the statistics, it can be seen that the average score of Class A is higher than that of Class B, and there are more students with good learning performance in Class A, with no unqualified students. According to the t-test, P <

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0.05, indicates a significant difference, with Class A's score in continuous force skill assessment being superior to that of Class B.

Table 6 Distribution of archery technique evaluation scores for 30 students after experiment at Jilin University

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	5	8	2	0	81.60±6.40
Class B (Male)	2	7	4	2	75.30±7.60

The data in Table 6 shows the distribution of archery technique evaluation scores, where Class A has 5 excellent students, and Class B has 2 excellent students; Class A has 2 poor-performing students, and Class B has 4 poor-performing students; there are no unqualified students in Class A, while Class B has 2 unqualified students. The average scores for each class were: Class A 81.60, Class B 75.30. Therefore, it can be seen that Class A has significantly more top students than Class B, with a similar number of excellent students. Class A has only one poor student and no failing students, with a significant difference indicated by the t-test, $P<0.05$. Therefore, overall, Class A's archery technique is superior to that of Class B.

Table 7 T-test group comparison: pre-test between experimental and control groups

	(Mean ± standard deviation)		t	p
	Control group (n=15)	Experimental group (n=15)		
Pre-test	1.85±0.62	1.88±0.60	-0.15	0.88

From the t-test results in Table 7, it can be seen that the mean values (Mean ± standard deviation) for the experimental group and control group in the pre-test were 1.88±0.60 and 1.85±0.62, respectively. The t-value was -0.15, and the p-value was 0.88, which is greater than 0.05. This indicates that there is no significant difference between the two groups' pre-test scores, and the null hypothesis cannot be rejected. This suggests that the two groups of students were at a similar level before the experiment began.

Table 8 T-test group comparison: post-test between experimental and control groups

	(Mean ± standard deviation)		t	p
	Control group (n=15)	Experimental group(n=15)		
Post-test	1.56±0.56	2.63+0.59	-7.71	0.00**

From the table, it can be seen that the mean values (Mean ± standard deviation) for the experimental group and control group in the post-test were 2.63±0.59 and 1.56±0.56, respectively. The t-value was -7.71, and the p-value was 0.00, which is less than 0.05, indicating a significant difference between the two groups. The experimental group performed significantly better than the control group, demonstrating that the archery video teaching had a notable effect on improving the experimental group's scores. This validates the effectiveness of video teaching.

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Table 9 Distribution of recovery technique evaluation scores for 30 students after the experiment at Jilin University

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	13	2	0	0	87.60±4.10
Class B (Male)	6	7	2	0	82.70±5.60

The data in Table shows that in the distribution of scores for ending skill assessment, Class A has 13 excellent students, while Class B has 6 excellent students; Class A has 2 good students, and Class B has 7 good students; the worst-performing students are not in Class A but in Class B, with 2 students; neither Class A nor Class B has any students who failed; the average scores for all classes are: Class A 87.60, Class B 82.70. From this data, it can be seen that Class A has significantly more top students than Class B, with a significant difference indicated by the t-test, $P<0.05$. Therefore, it can be observed that the overall completion of the recovery action in Class A is superior to that in Class B.

Table 10 Distribution of individual technique evaluation total scores for 30 students after the experiment at Jilin University

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	5	8	2	0	82.20±4.60
Class B (Male)	0	7	6	2	76.80±6.30

The standardization, stability, and continuity of youth archery programs are very important, as reflected more clearly in Table 10. The distribution of total skill evaluation scores is as follows: Class A has 5 excellent students, while Class B has none; Class A has 8 good students, and Class B has 7; Class A has 2 poor-performing students, while Class B has 6; Class A has no unqualified students, while Class B has 2 unqualified students. The average scores for all classes are: Class A 82.20, Class B 76.80. From the data, it can be seen that Class A's excellent, good, and average scores are all higher than those of Class B, with a significant difference indicated by the t-test, $P<0.05$. It can be seen that Class A's total individual technical evaluation scores are higher than those of Class B. This indicates that there is a difference in the learning of youth archery technical actions between video teaching and traditional teaching methods.

Table 11 Overall distribution of technique evaluation scores for 30 students at Jilin University

Class	Number of Excellent	Number of Good	Number of Fair	Number of Fail	Average Score
Class A (Male)	3	5	2	0	82.20±5.20
Class B (Male)	2	3	3	2	76.00±7.50

Through statistical analysis of the experimental data, it is concluded that in the total technical assessment score, Class A has 3 excellent technical evaluation actions, while Class B has 2; there are 8 excellent students, with 3 in Class B; Class A has 2 poor-performing students, and Class B has 3; Class A has no unqualified technical actions, while Class B has 2. The average scores of the three classes are: Class A 82.20±5.20, Class B 76.00±7.50. Through the

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t-test, P<0.05, there is a significant difference. The skill evaluation score of experimental Class A is significantly higher than that of Class B.

Table 12 Average scores and standard deviations of archery test results for students who did not watch archery teaching videos and those who did watch archery teaching videos for 4 weeks (n=30)

Stage	Control group	Experimental group
	Mean± SD	**Mean± SD**
Week 1 Test	4.35 ±1.29	5.15 ± 1.43
Week 2 Test	4.95 ±1.14	6.23 ± 1.35
Week 4 Test	5.02 ± 0.97	7.35 ± 1.12
Week 8 Test	5.17 ±1.23	9.88 ± 1.02

Table 12 showed that students who watched the archery teaching videos consistently outperformed those who did not, with the score gap increasing from 0.8 points in week 1 to 4.71 points by week 8. This indicates a significant improvement in skills for the experimental group using video instruction over time.

Table 13 Comparison of test scores of 30 testers who did or did not watch archery teaching videos via t-test(n=30)

Stage	Viewed	Mean ± SD	D	df	t	p
Week 1 Test	Control group	4.35 ± 1.29	4.48	29	10.65	.01*
Week 2 Test	Control group	4.95 ±1.14	3.65	29	10.65	.01*
Week 4 Test	Control group	5.02 ± 0.97	3.77	29	10.59	.01*
Week 8 Test	Control group	5.17 ± 1.23	3.81	29	10.69	.01*

*p<.05

Table 13 showed statistically significant differences between the control group and those who watched the archery teaching videos across all testing stages ($p < .05$). The experimental group consistently outperformed the control group, with significant t-values ranging from 10.59 to 10.69. This confirms that video teaching had a substantial positive effect on students' archery performance.

Table 14 Satisfaction survey results of archery video teaching for the experimental group (n = 15)

Variables	Mean ± SD.	Satisfaction
1. Watching videos helps improve understanding of archery techniques.	2.71±0.46	Very satisfied
2. Improving skills by imitating excellent actions in videos.	2.62±0.49	Very satisfied
3. Teaching videos inspire learners' practice motivation.	2.60±0.46	Very satisfied
4. Videos demonstrate common errors, facilitating correction.	2.63±0.47	Very satisfied

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5. Multiple replays aid in consolidating techniques.	2.72±0.46	Very satisfied
6. Visual learning helps better understand skills.	2.76±0.45	Very satisfied
7. Video learning enhances autonomy and efficiency.	2.63±0.49	Very satisfied
8. Mastering correct techniques boosts confidence.	2.71±0.46	Very satisfied
9. Video comparisons promote self-reflection and improvement.	2.73 ±0.45	Very satisfied

*p<.05

Table 14 showed high levels of satisfaction among students in the experimental group regarding archery video teaching, with all variables rated as "very satisfied" (Mean scores ranging from 2.60 to 2.76). Key benefits highlighted include improved understanding of techniques, motivation for practice, error correction, and enhanced confidence through video learning. The results suggest that video teaching effectively supports skill acquisition and boosts learner autonomy.

Conclusion

The research results showed that a video micro-teaching program significantly improved students' archery skills compared to traditional methods. The experimental group showed better performance in key actions like drawing, releasing, and maintaining consistent force, with higher scores and precision in tests. A t-test confirmed the statistical significance of these improvements. The experimental group consistently outperformed the control group in technical aspects, such as drawing and release actions, and showed better force consistency. Students also valued the flexibility of video lessons, which allowed them to replay and refine techniques independently, boosting confidence and motivation.

Discussion

In comparing the effects of the video microteaching plan with traditional instruction, this study revealed that the video-based approach resulted in superior skill development in several ways. When contrasted with the findings of previous research, such as Li (2016) proposal on the benefits of multimedia for learning, our study affirmed the advantages of integrating multiple media formats like text, images, and animations to aid in understanding complex techniques. Similarly, the constructivist learning theory proposed by Ai (2019) was reflected in how students actively built their understanding of archery techniques through video observation, imitation, and self-adjustment. However, unlike Lou (2021) cognitive load theory, which suggests phased learning of complex tasks to ease cognitive strain, this study found that additional teacher guidance remains essential, particularly for more intricate movements. While the video micro-teaching plan provided considerable benefits in terms of skill mastery, the need for personalized instruction for students with varied abilities persisted, ensuring that each student maximized their learning potential. Overall, the comparison highlights that video teaching significantly outperforms traditional methods, fostering better technical proficiency and engagement in archery courses at Jilin University.

Recommendation

Recommendation for this research

1. The research design can be strengthened by increasing the sample size and improving

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the randomness of participant selection. Expanding the sample beyond the current 30 students in the experimental group and 60 students surveyed would enhance the generalizability of the findings.

2. Diversifying data collection methods, such as incorporating interviews and classroom observations would provide a more comprehensive assessment of student feedback and teaching effectiveness.

Recommendation for further research

1. Establishing long-term tracking mechanisms to monitor students' sustained performance and skill consolidation post-instruction will also offer valuable insights into the enduring effects of video teaching.

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