Smashing Success: Development and Validation of Instructional Video in Mastering Pickleball

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Abstract

Pickleball, a sport combining elements of tennis, badminton, and ping pong, has been incorporated into college Physical Education programs. However, some students face challenges in maintaining interest, understanding videos, or overcoming physical difficulties, which can impact engagement. This study assessed the effectiveness and acceptability of an instructional video on pickleball at Panay National High School, Sto. Niño, South Cotabato. A descriptive-experimental design with clustered sampling was used, where one section was randomly selected for the study. Data were analyzed using mean, standard deviation, and T-test. The results showed that the instructional video was highly effective, with teachers rating it an average score of 4.71 for its comprehensive content, logical structure, and high-quality visuals. Students gave it an overall score of 4.51, highlighting its clarity and accessibility. The video significantly improved student learning, with the experimental group showing a higher mean gain (3.23) compared to the control group (2.20). A T-test confirmed a significant difference (p = 0.00033), indicating the video's impact on skill development. While teachers had higher expectations in technical aspects, both teachers and students agreed on its overall usability and relevance. These findings support the integration of technology in Physical Education to enhance engagement and learning outcomes. Recommendations for future improvements include clearer explanations, interactive features, enhanced visuals, and group activities to further improve the video's effectiveness in student learning.

Keywords: *Validation. Acceptability, Pickleball, Instructional Video*

INTRODUCTION

Pickleball, a growing sport combining tennis, badminton, and ping pong, was popular for its accessibility and easy-to-learn rules. Recently, it had been added to college Physical Education programs to promote physical activity and skill development, and I wanted to include this in my grade 11 lessons. However, some students lacked interest, struggled with understanding the videos, or faced physical and skill challenges, which could have affected their engagement. This study aimed to create and validate instructional videos that effectively taught pickleball skills, improving students' understanding, engagement, and performance across varying skill levels.

Globally, Pickleball, a rapidly growing sport that combined elements of tennis, badminton, and ping pong, had gained global popularity due to its accessibility and easy-to-learn rules. In the United States, Maddox et al. (2020) highlighted its increasing popularity among all age groups, particularly for its positive impact on physical fitness and social engagement. Additionally, the sport was particularly praised for being easy to learn and offering low-impact exercise, making it an ideal choice for physical education programs. A study by Keller and Gibbons (2019) emphasized that pickleball was increasingly being integrated into physical education curricula, as it engaged students in physical activity and promoted skill development. Instructional videos became a valuable tool in sports education, as noted by Hodges et al. (2016), who argued that visual learning helped students grasp complex techniques and movements, enhancing their learning experience, particularly when direct teaching was not possible.

In the ASEAN context, the integration of diverse sports like pickleball in Southeast Asia was discussed by Tan (2018), who underscored its importance in engaging students. Non-traditional sports became more prevalent in schools in the region, offering opportunities for students to develop both physical and social skills. Wong and Ng (2017) explored the growing popularity of pickleball in urban Asian schools, highlighting its benefits for promoting teamwork and communication skills. Sato et al. (2020) further addressed the challenges faced by Southeast Asian countries in incorporating such sports into school curricula, emphasizing the importance of teacher training and the use of instructional videos to support students at varying skill levels.

Locally, the Philippine educational system had been gradually incorporating more diverse sports, including pickleball, into physical education programs to promote active living among students. Laquian et al. (2019) highlighted this trend, noting that urban and rural schools alike adopted non-traditional sports to offer students alternative forms of physical activity. Additionally, Dizon (2018) found that instructional materials, particularly videos, were effective in enhancing students' understanding of sports techniques. This was especially important in sports like pickleball, which required coordination and technique. Ramos (2021) further identified barriers to participation in physical education in the Philippines, such as lack of motivation and limited access to resources, and suggested that instructional videos could help address these challenges by allowing students to learn at their own pace, overcoming physical and skill limitations.

Hence, conducting this study was essential to address the challenges faced by students in learning pickleball, such as lack of interest, difficulty understanding instructional videos, and physical or skill limitations. By developing and validating instructional videos, this study aimed to enhance students' engagement, understanding, and performance in pickleball, supporting their overall skill development and promoting physical activity.

Objective of the Study

The overall objective of this study was to develop and validate the acceptability of Instructional Video in mastering pickleball. Specifically, this study had the following aims (1) explore the level of of validity and acceptability of teachers in the instructional video in mastering pickleball in terms of its content, Instructional Quality, Presentation, Technical quality, Appropriateness, and Usability. (2) the level of acceptability of students in the instructional video in mastering pickleball in the same categories that of the teachers, (3) Determine the significant difference in the level of acceptability of instructional video between teachers and students, (4) determine the significant difference in the pretest and posttest between the control group and experimental group.

METHODS

To obtain the necessary data needed for the study, quantitative research was utilized. Vaidya (2018) defined it as a method of research that relies on measuring variables using a numerical system, analyzing these measurements using any of a variety of statistical models, and reporting relationships and associations among the studied variables.

Likewise, descriptive- experimental research design was employed by the researcher, Specifically, the descriptive component focused on evaluating the validity and acceptability of the instructional video on pickleball by examining its content, instructional quality, presentation, technical quality, appropriateness, and usability. Descriptive research was effective for systematically describing the characteristics and components of a subject or phenomenon (Snyder, 2019).

Meanwhile, the experimental component assessed the impact of the instructional video on students' performance by comparing pre-test and post-test scores. Experimental research was particularly useful in determining cause-and-effect relationships by manipulating an independent variable and measuring its effects on a dependent variable (Creswell & Creswell, 2018).

For the sampling technique, this study employed a clustered sampling technique to select participants efficiently and practically from a larger population. The target population consisted of Grade 11 students enrolled at Panay National High School for School Year 2024 - 2025 and Grade 11 Home Economics section was randomly selected as respondents. This approach was chosen to simplify the data collection process and ensure logistical feasibility, especially given the structured nature of class schedules in schools.

For the statistical tool, Mean Scores and Standard Deviation were used. The researcher utilized this statistical tool to measure the level of validity of the instructional video for pickleball in terms of content, instructional quality, presentation, technical quality, appropriateness, and usability. Additionally, it determined the extent of the acceptability of the instructional video in these same areas. Furthermore, the study evaluated the students' level of performance during the pre-test and compared it to their performance in the post-test.

The researcher utilized T-test to investigate whether there was a significant difference in the students' performance between the pre-test and post-test, as well as to examine if there was a significant difference in the mean gain score of the students. According to Field (2023), the T-Test is a widely used statistical tool in educational research, as it allows researchers to compare two sets of data, such as pre-test and post-test scores, to determine whether there is a statistically significant difference. This test was essential for evaluating the effectiveness of interventions and understanding how students' performance may have improved over time.

RESULTS AND DISCUSSION

Table 1. Summary of the Level of Validation of Teachers in thein the Instruction Video of Pickleball
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VI. Statements	Mean	sd	Description
1. Content	4.68	0.19	Outstanding
2. Instructional Quality	4.68	0. 31	Outstanding
3. Presentation	4.75	0.25	Outstanding
4. Technical Quality	4.61	0.38	Outstanding
5. Appropriateness	4.71	0.49	Outstanding
6. Usability	4.65	0.20	Outstanding
Grand Mean	4.50	0.48	Outstanding

The result in table 1 reveals that the highest rating was observed in the Presentation component (M=4.75), indicating that teachers particularly appreciated the video's clear visuals, engaging layout, and well-structured format. This supports the findings of Mayer (2024), who emphasized the significance of multimedia design principles such as signaling, segmenting, and coherence in enhancing viewer comprehension and retention. A strong

presentation not only captures attention but also facilitates the learning process by clearly organizing content and reducing cognitive overload.

On the other hand, the video's Technical Quality (M=4.61), while slightly lower than other components, still falls within the "Outstanding" range. This suggests that although minor improvements may be possible in areas like sound quality or editing polish, the overall technical execution is still highly effective. Higgins and Moseley (2021) support the idea that clear audio-visual quality is critical to minimizing distractions and enhancing learner focus.   Finally, Table 8 reveals that teacher-validators rated the instructional video for pickleball with a grand mean of 4.65 and a standard deviation of 0.20, interpreted as **"**Outstanding**."** This consistently high evaluation across all six components content, instructional quality, presentation, technical quality, appropriateness, and usability demonstrates the instructional video's effectiveness, relevance, and practical utility in Physical Education settings. These results support recent findings by Graham et al. (2023), who emphasized that high-quality instructional materials must be both pedagogically sound and visually engaging to support skill acquisition and student engagement. In sum, the outstanding ratings across all categories validate the instructional video's effectiveness and readiness for classroom implementation. These findings also suggest that the video can serve as a model for developing future multimedia resources in Physical Education, particularly for teaching skills-based sports like pickleball (Almacen & Labitad, 2024).

Table 2. Level of Acceptability of Teachers on the Instructional Video of Pickleball.

VI. Statements	mean	sd	Description
1. Content	4.71	0.22	Outstanding
2. Instructional Quality	4.79	0.27	Outstanding
3. Presentation	4.75	0.20	Outstanding
4. Technical Quality	4.82	0.19	Outstanding
5. Appropriateness	4.54	0.42	Outstanding
6. Usability	4.64	0.45	Outstanding
Grand Mean	4.71	0.23	Outstanding

The results of Table 2 demonstrate that teacher-validators found the instructional video highly acceptable across all dimensions, with all mean scores rated as "Outstanding." This consistency affirms the video's effectiveness, relevance, and quality in instructional delivery. The following discussion focuses on the highest-rated, lowest-rated, and overall (grand mean) evaluation scores.

Among all components, *technical quality* received the highest rating from teachers, indicating strong approval of aspects such as video resolution, audio clarity, editing, and overall production quality. This suggests that the video met or exceeded technical standards expected by educators for instructional materials.

This aligns with recent studies emphasizing the significance of multimedia quality in facilitating learning. High technical quality minimizes distractions and enhances learner engagement, making the instructional content more accessible and effective (Fiorella & Mayer, 2023). As teachers increasingly integrate multimedia resources into their teaching strategies, professionally produced videos are seen as vital for successful implementation (Choe et al., 2020).

The lowest mean score, though still classified as *Outstanding*, was recorded for *appropriateness*. This dimension covers the relevance of the content to the learner's context, the pacing of instruction, and the suitability for the target audience. The slightly lower rating may reflect varied interpretations of how well the video aligns with different teaching contexts or curricular levels.

Despite this, the score remains high, which indicates overall satisfaction. Research supports that even small variations in perceived appropriateness can occur due to differences in classroom settings or instructional goals (Lazarevic & Bentz, 2021). Nevertheless, the feedback suggests minor adjustments may further enhance alignment with specific curricular standards.

The grand mean of 4.71, also interpreted as *Outstanding*, reflects the teachers' overall satisfaction with the instructional video. This strong endorsement confirms the video's readiness for implementation

in Physical Education settings and highlights its capacity to serve as a model for future instructional video development.

Recent literature has emphasized the importance of aligning instructional content with pedagogical goals and technological standards to maximize learning outcomes (Kay, Leung, & Tang, 2022). The outstanding grand mean suggests that the video succeeded in doing so across multiple domains, from content and presentation to technical quality and usability.

Table 3. Level of Acceptability of Students in the Instructional Video of Pickleball.

VI. Statements	mean	sd	Description
1. Content	4.39	0.43	Outstanding
2. Instructional Quality	4.49	0.41	Outstanding
3. Presentation	4.53	0.39	Outstanding
4. Technical Quality	4.44	0.44	Outstanding
5. Appropriateness	4.52	0.37	Outstanding
6. Usability	4.68	0.36	Outstanding
Grand Mean	4.51	0.27	Outstanding

Table 3 presents the level of acceptability of the instructional video on pickleball as evaluated by student respondents. Among the components,

Usability received the highest mean rating of 4.68, with a standard deviation of 0.36. This indicates that students found the instructional video easy to navigate, accessible across different devices, and supportive of individual learning preferences. This finding was consistent with Seale (2023), who emphasized that user-friendly multimedia materials with intuitive navigation features enhanced inclusivity and improved the overall learning experience. The high usability score implied that the video was well-suited for diverse learners and could be flexibly used for both guided and independent learning. On the other hand, the *Content* component received the lowest mean score of 4.39, albeit still within the "Outstanding" category. While this score reflected strong approval, it suggested that there might have been slight areas for improvement in terms of the depth, clarity, or relevance of the instructional material presented. As noted by Brophy (2024), ensuring strong content validity and alignment with student expectations was critical in developing instructional media. Addressing any minor gaps in content presentation could have further enhanced the instructional video's effectiveness and impact.

Overall, the findings indicated that the video received an "Outstanding" rating across all six components, with a grand mean of 4.51 and a standard deviation of 0.27. This high level of acceptability

suggested that the video successfully met student expectations in terms of content delivery, usability, and instructional effectiveness. According to Tolentin et al. (2023), when instructional videos were designed to be engaging and learner-centered, they significantly enhanced student satisfaction and promoted meaningful learning experiences—outcomes clearly supported by this grand mean.

Furthermore, these findings reinforced the value of multimedia in Physical Education, particularly when instructional materials were carefully tailored to learners' needs and technological preferences. Moreover, the results underscored the video's readiness for widespread classroom or blended learning integration, in alignment with current best practices in digital pedagogy (Almacen & Labitad, 2024).

Table 4. Significant Difference Between the Level of Acceptability of the Teachers and the Students.

	GROUP	MEAN	SD	tTest	pvalue
I. Content	Teachers	4.71	0.22	2.60	0.01
	Students	4.39	0.43		
II. Instructional Quality	Teachers	4.79	0.27	2.43	0.02
	Students	4.49	0.41		
III. Presentation	Teachers	4.75	0.20	2.00	0.05
	Students	4.53	0.39		
IV. Technical Quality	Teachers	4.82	0.19	2.78	0.01
	Students	4.44	0.44		
V. Appropriateness	Teachers	4.54	0.42	0.83	0.41
	Students	4.52	0.37		
VI. Usability	Teachers	4.64	0.45	0.29	0.77
	Students	4.68	0.36		
Grand Mean	Teachers	4.71	0.23	2.70	0.01
	Students	4.51	0.27		

The results in Table 4 reveal a significant difference in the level of acceptability between teachers and students regarding various dimensions of the pickleball instructional video. Specifically, there is a statistically significant difference in the areas of Content, Instructional Quality, Presentation, Technical Quality, and the Overall level of acceptability, with p-values of 0.01, 0.02, 0.05, and 0.01, respectively. These results suggest that teachers and students have distinct perceptions about these aspects of the instructional video. Teachers tend to rate these areas higher than students, indicating that they may have higher expectations for the material in terms of its alignment with educational objectives, instructional strategies, and technical quality. On the other hand, Appropriateness and Usability show no significant difference between the two groups, with p-values of 0.41 and 0.77, respectively. This implies that both teachers and students share similar views on these aspects, particularly in terms of how well the content flow, explanations, and pacing meet their needs and how easy the video is to navigate.

For *Content*, teachers rated the video more favorably (mean = 4.71) than students (mean = 4.39), with a significant difference (p = 0.01). This could have been attributed to teachers' emphasis on the depth and clarity of the content, which aligned with their focus on meeting specific learning objectives. As

Gagne, Wager, and Golas (2005) suggested, teachers tended to have higher expectations for educational materials that were comprehensive and educationally sound.

Similarly, in terms of *Instructional Quality*, teachers (mean = 4.79) again rated the video higher than students (mean = 4.49), with a statistically significant difference (p = 0.02). Teachers likely evaluated instructional materials based on how well they facilitated critical thinking, engagement, and skill development. This could explain their higher ratings, as supported by Marzano (2007), who highlighted the importance of quality in instructional materials for promoting effective teaching and learning.

The Presentation dimension showed a similar pattern, with teachers giving a higher rating (mean = 4.75) compared to students (mean = 4.53), and the difference being significant (p = 0.05). This could indicate that teachers perceive the presentation as better structured, logical, and clear in terms of delivering key points, which aligns with their professional focus on clarity and pedagogical effectiveness. Regarding Technical Quality, teachers rated the video higher (mean = 4.82) than students (mean = 4.44), with a significant difference (p = 0.01). This result suggested that teachers were more attuned to technical aspects like video resolution, audio clarity, and overall smoothness, which they considered vital for effective learning. Mayer (2017) emphasized the importance of high-quality production in educational videos to ensure the best learning experience.

Interestingly, *Appropriateness* showed no significant difference between teachers (mean = 4.54) and students (mean = 4.52), with a p-value of 0.41, indicating that both groups agreed on the suitability of the presentation's pacing, content flow, and clarity.

Similarly, *Usability* was also found to have no significant difference, with teachers rating the video at 4.64 and students at 4.68 (p = 0.77). Both groups found the video to be intuitive, user-friendly, and accessible across different devices, indicating that usability did not pose a major concern for either group.

Finally, the *Overall Acceptability* of the video was rated higher by teachers (mean = 4.71) compared to students (mean = 4.51), with a statistically significant difference (p = 0.01). Teachers' overall higher ratings may have reflected their professional experience in evaluating educational resources and their expectations for instructional materials to be pedagogically sound, engaging, and of high quality.

In conclusion, the findings suggested that teachers generally had higher expectations and were more critical of instructional materials compared to students, particularly in terms of content, instructional quality, presentation, and technical quality. However, both teachers and students agreed on the appropriateness and usability of the instructional video.

These results underscored the need to design educational materials that not only met the educational standards and expectations of teachers but also engaged and accommodated the learning preferences of students, as suggested by Mayer (2009).

Table 5. Level of the Pickleball Performance of Students in the Pre-Test and Post-Test in the Control and Experimental Group.

	Control		experimental	
	mean	sd	mean	sd
Pretest	3.63	1.53	5.47	1.73
Post	5.53	2.24	8.40	1.53
mean gain	2.20	1.22	3.23	1.47

Table 5 presents the level of pickleball performance of students in the control and experimental groups during the pre-test and post-test. The results indicate that both groups demonstrated improvement in their performance, as reflected in their mean scores.

In the control group, the pre-test mean score was 3.63 (SD = 1.53), which increased to 5.53 (SD = 2.24) in the post-test. This reflects a mean gain of 2.20 (SD = 1.22). Meanwhile, the experimental group had a higher initial performance, with a pre-test mean score of 5.47 (SD = 1.73). Their post-test score significantly improved to 8.40 (SD = 1.53), resulting in a mean gain of 3.23 (SD = 1.47).

The greater mean gain in the experimental group suggests that the intervention introduced—likely a structured training program or digital reinforcement tool—had a more substantial impact on enhancing students' pickleball skills compared to the conventional method used in the control group. This finding aligned with studies indicating that structured, technologysupported, or innovative instructional methods yielded greater improvements in motor skills and sports performance among students (Casey & Kirk, 2023; Haibach-Beach et al., 2022). The notable increase in the post-test scores within the experimental group could be attributed to a more engaging, systematic, and student-centered learning approach that promoted skill acquisition and mastery (Rink, 2020).

In addition, previous research highlighted that digital reinforcement tools and interactive training strategies significantly improved skill retention, motivation, and performance in sports education (Chen et al., 2021; Kirk, 2021). The results supported the growing body of evidence suggesting that modern pedagogical approaches, such as integrating technology and differentiated instruction in physical education, enhanced students' engagement and skill development more effectively than traditional methods.

Consequently, these findings emphasized the importance of adopting evidence-based teaching strategies to optimize student learning outcomes in sports education.

Table 6. The Significant Difference in the Post-Test Pickleball Performance of Students Level Between the Control and Experimental Groups as Controlled by the Pre-Test

	Control		experimental	
	mean	sd	mean	sd
pre	3.63	1.53	5.47	1.73
post	5.53	2.24	8.40	1.53
mean gain	2.20	1.22	3.23	1.47
p (T-Test)	0.00033			

The findings presented in Table 6 highlight a statistically significant difference in the post-test pickleball performance between the control and experimental groups, as controlled by the pre-test pickleball performance (p = 0.00033). The pre-test scores indicate that the experimental group (M = 5.47, SD = 1.73) performed better than the control group (M = 3.63, SD = 1.53). This suggests that students in the experimental group had a higher baseline performance level before the intervention.

After the intervention, the post-test results showed a considerable improvement in both groups. However, the experimental group (M = 8.40, SD

= 1.53) demonstrated a greater improvement compared to the control group (M = 5.53, SD = 2.24). The mean gain scores further emphasized this improvement, with the experimental group showing a higher mean gain (M = 3.23, SD = 1.47) compared to the control group (M = 2.20, SD = 1.22). The significant p-value (p = 0.00033) indicated that the difference in post-test performance was not due to chance but was likely attributed to the intervention applied to the experimental group.

Moreover, these results aligned with research emphasizing the role of structured interventions in skill acquisition and motor performance improvement in sports education. Studies showed that targeted instructional strategies and technology-enhanced learning could significantly enhance students' physical education performance (Casebolt et al., 2023; Kirk, 2022).

Therefore, the findings supported the effectiveness of specialized training programs in pickleball, suggesting that structured instructional approaches led to better skill development and athletic performance.

CONCLUSION AND RECOMMENDATIONS

In conclusion, the findings of this study confirmed the instructional video's effectiveness in teaching pickleball to Grade 11 students, as evidenced by high ratings from both teachers and students. The video excelled in key areas—content, instructional quality, presentation, technical quality, and appropriateness—receiving strong approval across all evaluation dimensions.
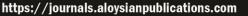
Teachers, who held higher expectations regarding technical aspects, rated the video slightly higher than students, particularly in terms of resolution, audio clarity, and structured content delivery. Students, on the other hand, valued the video's accessibility, ease of use, and engaging format. The instructional quality was particularly notable, as it aligned well with the curriculum and supported both self-paced and independent learning.

Nonetheless, slight improvements were suggested in areas such as content articulation, inclusion of teamwork-based activities, and enhanced user navigation to further enrich the overall learning experience. The impact of the video was further validated through pre-test and posttest results, which showed significant improvements in student performance. The experimental group, which used the video, demonstrated a greater mean gain compared to the control group, thereby confirming that the structured instructional approach significantly enhanced skill development. A highly significant difference in scores (p = 0.00033) reinforced the video's effectiveness in improving student learning outcomes.

Overall, these results highlighted the value of integrating technologydriven instructional tools into Physical Education programs to maximize student engagement, enhance learning retention, and improve overall performance. Moving forward, continuous refinements and the incorporation of interactive and collaborative elements can further optimize the video's effectiveness, ensuring a more immersive and student-centered learning experience.

Based on the findings and conclusions of this study, the following recommendations are proposed to support the continued development and implementation of instructional videos in Physical Education. Each recommendation includes the individuals or groups responsible for implementation:

1. Given the demonstrated effectiveness of the instructional video, Education Officials and Administrators may formally integrate similar tools into the Physical Education

Curriculum Across Grade Levels to enhance student engagement and learning outcomes.

2. Instructional Video Developers, Multimedia Designers, and ICT Units may refine video narration, structure, and interface design to Improve Clarity, Content Delivery, usability, accessibility and Technical Features of Videos for all learners.

3. Curriculum planners and teachers may include more interactive, teamwork-based activities in video lessons to foster collaboration and simulate real-game experiences.

4. Physical Education Teachers and Instructional Designers may continue to support independent learning by allowing students to review lessons at their own pace and reinforce skills outside the classroom setting.

5. Video Production Teams and School ICT Personnel may maintain High Standards of Technical and Instructional Quality visuals, clear audio, and smooth transitions to meet educator expectations and sustain student engagement.

6. School Administrators, Evaluation Committees, and PE Teachers Schools may implement regular feedback systems to assess instructional materials, enabling timely revisions and ensuring ongoing relevance and effectiveness.

7. Teachers, Students, Educational Media Units and coaches may consider and supports the creation of similar resources for other sports and physical activities to enrich the Physical Education curriculum.

8. Future Researchers and Academic Institutions are encouraged to explore the long-term effects of instructional videos on skill retention, student motivation, and performance across diverse learner groups and physical education settings. Researchers may also test new technologies like augmented reality (AR) or Virtual reality (VR) to improve sports learning.

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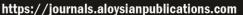
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