INDONESIAN JOURNAL OF SPORT MANAGEMENT
Department of Physical Education, Universitas Majalengka, Indonesia
ISSN 2776-706X.

The Effectiveness of YouTube-Based Basketball Learning

Ahmad Rahmadani[1A-D*], Okicandra[2B-D], Toktong Parulian[3C]

[123]Deparment of Physical Education, Universitas Islam Riau, Pekanbaru, Indonesia

ABSTRACT

This study assesses how well YouTube is a learning tool for developing fundamental basketball abilities. As more people turn to digital platforms, YouTube has become popular as a resource for sports skill development. In this study, 30 individuals were split into two groups using a quasi-experimental design: 15 participants in the experimental group (n = 15) watched YouTube videos, and 15 participants in the control group (n = 15) employed traditional training techniques. Assessments of fundamental abilities such as dribbling, passing, and shooting were conducted six weeks before and after the intervention. According to the data, the experimental group outperformed the control group in fundamental basketball abilities. The average basic skills score in the experimental group went from 61.4 to 86.8, whereas in the control group, it only went from 57.8 to 74.6. The t-test statistical analysis demonstrates the significance of this rise ($p < 0.01$). Furthermore, regression analysis results indicate that the frequency of practice (= 0.47, p 0.05) and time spent watching training videos (= 0.42, p 0.05) positively impact skill development. These results imply that YouTube can be useful for learning basketball, particularly for novices who need access to official instruction. Nevertheless, the short intervention period and the study's focus on inexperienced individuals prevented a thorough analysis of other factors, including participant motivation and the calibre of the video content. Future research is advised to examine the long-term efficacy of YouTube-based learning and the effects of other factors, including the tutorials' calibre and interaction with virtual teachers.

Keywords: YouTube; Basketball learning; Basic skills; Video tutorials

Correspondence:
*Ahmad Rahmadani, Deparment of Physical Education, Universitas Islam Riau, Pekanbaru, Indonesia. Email: ahmadrahmadani@edu.uir.ac.id

Article History:
Submitted: February, 2024
Accepted: April, 2024
Published: May, 2024

Authors' contribution:
A) Conception and design of the study;
B) Acquisition of data;
C) Analysis and interpretation of data;
D) Manuscript preparation;
E) Obtaining funding

Cite this article:
Rahmadani, A., Okicandra, & Parulian, T. (2024). The Effectiveness of YouTube-Based Basketball Learning. *Indonesian Journal of Sport Management*, 4(2), 313-318. https://doi.org/10.31949/ijsm.v4i2.9707

INTRODUCTION

The development of digital technology has changed the learning paradigm in various fields, including physical education and sports. These technological advancements enable training programs tailored to the individual needs of athletes, thus optimising their performance (Hao & Qian, 2024; Putra et al., 2024). For example, sensors and monitoring devices collect real-time data on an athlete's physiological condition, enabling coaches to refine their technique and enhance overall training effectiveness (Cojocaru et al., 2022; Zhu, 2021). In an educational context, VR has been shown to enhance motor skills by enabling athletes to visualise complex movements and scenarios, leading to improved skill understanding and retention (Li & Li, 2024; Liu & Tian, 2024). This technology also enables the elimination of physical and spatial barriers, thereby increasing access to high-quality training environments for learners, regardless of geographic limitations (Yunchao et al., 2023; Zhang & Tsai, 2021).

Furthermore, digital technology in sports also facilitates data-driven decision-making. Devices powered by artificial intelligence and computer vision enable coaches to analyse athlete performance in detail, facilitating the identification of specific areas for improvement (Woods et al., 2021). Despite these advances, the successful implementation of digital technology in physical education faces challenges. A lack of training and preparation for educators can hinder effective utilisation. Without appropriate guidance and pedagogical

strategies, the full potential benefits of digital tools may not be realised (Greve et al., 2022). Therefore, continuous professional development for physical education teachers is crucial to equip them with the skills needed to effectively utilise technology in their teaching practice (Jastrow et al., 2022). Video-based platforms, particularly YouTube, have become a popular medium for learning sports skills due to their accessibility, interactivity, and diverse content (Oh, 2023). In the context of learning sports skills, YouTube offers clear visualisations of techniques, enables students to review material as needed, and facilitates independent learning (Kurniawan et al., 2024). Such repeated viewing encourages skill mastery and retention, particularly beneficial in sports training contexts where physical activity is crucial (Chofivah & Madjid, 2024). However, while YouTube offers many advantages, a potential downside is the variability in content quality. The platform's open nature allows users to upload videos without rigorous vetting, which can lead to the spread of inaccurate or misleading information (Lee et al., 2022; Weng, 2024).

Basketball is a sport that requires mastery of basic skills, such as dribbling, passing, and shooting, as a foundation for effective game performance. Learning these basic skills is usually done through a face-to-face approach with a coach. However, limited time, cost, and access to professional coaches often pose obstacles for novice participants (Sofyan et al., 2022; Sofyan & Budiman, 2022; Susanto et al., 2023). With the increasing use of digital media, YouTube has become a potential alternative to overcome these obstacles. However, its effectiveness in improving basic basketball skills still needs to be empirically proven. Based on this background, this study aims to analyse the differences in basic basketball skills between participants who learn using YouTube and those who use traditional training methods. The results of this study are expected to contribute to the development of more effective and efficient digital media-based sports learning models, especially in the current era of digital transformation..

METHOD

This study used a quasi-experimental approach with a pretest-posttest control group design. The study was conducted for six weeks to evaluate the effectiveness of YouTube-based learning on improving basic basketball skills. The study subjects numbered 30 people selected using a purposive sampling technique. Inclusion criteria included: (1) no formal experience in basketball training, (2) in good health and no injuries that hinder physical activity, and (3) willing to participate in the entire series of studies. The subjects were then divided into two groups: the experimental group (n = 15), who used YouTube media for learning, and the control group (n = 15), who followed traditional training methods.

The experimental group was provided with learning materials through basketball tutorial videos uploaded to YouTube. The materials presented covered basic skills in dribbling, passing, and shooting. Participants were asked to watch the videos for at least 30 minutes per session, three times per week, and practice the skills as instructed. The control group received conventional training guided directly by a coach with the same duration and frequency. The research instrument consisted of a basic basketball skills test that covered dribbling, passing, and shooting. The test was conducted before (pretest) and after (posttest) the intervention. The validity and reliability of the instrument were assessed through expert testing and previous trials, yielding a Cronbach's Alpha reliability value of 0.87, which indicates high reliability. Pretest and posttest data were analysed using paired t-tests to determine the difference in average basic basketball skills scores before and after the intervention in each group.

Furthermore, an independent sample t-test was used to determine the difference in skill improvement between the experimental and control groups. Multiple linear regression

analysis was conducted to evaluate the effect of training frequency and video viewing duration on skill improvement. Data processing was carried out using SPSS software version 25 with a significance level of 5% ($p < 0.05$).

RESULTS

This study aimed to evaluate the effect of YouTube-based learning on fundamental basketball skills, including dribbling, passing, and shooting. Measurements were taken before (pretest) and after (posttest) the six-week intervention.

Table 1. Average Basic Basketball Skills Score

Group	Pretest (M ± SD)	Posttest (M ± SD)	Improvement
Exsperiment (n=15)	61,4 ± 4,2	86,8 ± 3,9	25,4
Control (n=15)	57,8 ± 5,1	74,6 ± 4,7	16,8

The results of the paired sample t-test showed that both the experimental and control groups experienced a significant increase in basic basketball skills after the intervention ($p < 0.01$). However, the increase in the experimental group (25.4%) was higher than that in the control group (16.8%). The results of the independent sample t-test on the basic skill improvement scores showed a significant difference between the experimental and control groups ($t = 4.31$; $p < 0.01$). This finding suggests that YouTube-based learning is more effective than traditional training methods in enhancing fundamental basketball skills. The results of the regression analysis showed that the frequency of practice and the duration of watching videos made significant contributions to the improvement of fundamental basketball skills ($R^2 = 0.62$). The regression coefficient showed that the frequency of practice ($\beta = 0.47$; $p < 0.05$) and the duration of watching videos ($\beta = 0.42$; $p < 0.05$) had a positive effect on skill outcomes.

The bar graph above illustrates a comparison of the average scores for basic basketball skills in two research groups, the experimental group and the control group, before (pretest) and after (posttest) the six-week intervention. The greater difference in score improvement in the experimental group illustrates that using YouTube as a learning tool is effective in helping participants master basic basketball skills. This finding also supports the statistical analysis data that showed a significant difference between the two groups ($p < 0.01$). Thus, this graph visually confirms the research findings that YouTube-based learning is more effective than traditional training methods in developing fundamental basketball skills in beginner participants.

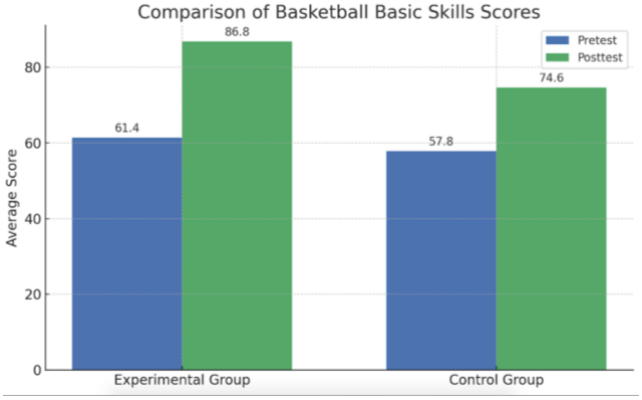

Figure 1. Q.Q Plot Components that Form Factors

The findings of this study demonstrate that YouTube-based learning is effective in improving fundamental basketball skills, including dribbling, passing, and shooting, compared to traditional training methods. Participants in the experimental group, who utilized YouTube videos as their primary learning medium, exhibited a significantly greater improvement in skills than those in the control group who relied solely on direct face-to-face training. These results support previous studies indicating that technology-based instructional media can enhance motor learning and skill acquisition in sports (Yunchao et al., 2023; Zhang & Tsai, 2021).

One of the primary factors contributing to the effectiveness of YouTube-based learning is its accessibility and flexibility. Learners can repeatedly watch and analyze movements in the video tutorials, enabling them to internalize technical skills at their own pace. This aligns with the principles of observational learning proposed which highlight the importance of visual modeling in acquiring motor skills. Additionally, the regression analysis findings indicate that both the frequency of practice and the amount of time spent watching training videos positively influence skill improvement. This suggests that consistent practice combined with digital media exposure accelerates the learning process.

Despite these promising results, some limitations must be considered. The study was conducted within a relatively short intervention period (six weeks) and focused only on beginner-level participants. Factors such as learners' intrinsic motivation, the quality of the instructional videos, and interaction with professional coaches were not deeply analyzed. Moreover, while YouTube provides flexibility, the absence of immediate feedback from an instructor could limit the refinement of complex techniques.

Future studies are recommended to explore long-term effects of YouTube-based training, include participants of various skill levels, and examine the influence of tutorial quality, interactive online coaching, and motivational aspects. Such investigations would help to develop comprehensive digital learning models that combine the strengths of both virtual and face-to-face coaching methods.

CONCLUSION

This study concludes that YouTube-based learning is an effective alternative for improving fundamental basketball skills, including dribbling, passing, and shooting, compared to traditional training methods. Participants who learned through YouTube video tutorials demonstrated a significantly greater improvement in performance than those trained with conventional face-to-face methods. Furthermore, the frequency of practice and the time spent watching training videos were found to positively influence skill acquisition, highlighting the importance of combining regular practice with digital learning media. This study has several limitations. First, the duration of the intervention was relatively short (six weeks), which may not reflect long-term skill retention or development. Second, the sample consisted of beginners only, limiting generalization to athletes with different skill levels or competitive experience. Third, this study did not evaluate the quality of the YouTube video content or assess learners' intrinsic motivation and engagement, which may influence learning outcomes.

The results of this study have important implications for sports education and training. For coaches and physical education instructors, integrating YouTube or similar digital platforms can enhance training efficiency, especially when resources and access to

professional coaches are limited. For learners, this approach provides flexible and cost-effective opportunities for skill development outside traditional training settings. Furthermore, educational institutions and sports organizations can adopt digital learning models as part of their instructional strategies to meet the demands of modern, technology-driven learning environments.

CONFLICT OF INTEREST

The authors declare no conflict to interest

REFERENCES

Chofivah, A., & Madjid, A. (2024). The Use of YouTube Videos to Increase Student Motivation in Islamic Date Subjects. *Journal La Edusci*, *5*(2), 82–88. https://doi.org/10.37899/journallaedusci.v5i2.1238

Cojocaru, A.-M., Cojocaru, M., Jianu, A., Bucea-Manea-Ţoniş, R., Păun, D. G., & Ivan, P. (2022). The Impact of Agile Management and Technology in Teaching and Practicing Physical Education and Sports. *Sustainability*, *14*(3), 1237. https://doi.org/10.3390/su14031237

Greve, S., Thumel, M., Jastrow, F., Krieger, C., Schwedler, A., & Süßenbach, J. (2022). The use of digital media in primary school PE – student perspectives on product-oriented ways of lesson staging. *Physical Education and Sport Pedagogy*, *27*(1), 43–58. https://doi.org/10.1080/17408989.2020.1849597

Hao, P., & Qian, K. (2024). The Integration of Personalized Training Program Design and Information Technology for Athletes. *Scalable Computing: Practice and Experience*, *25*(5), 4351–4359. https://doi.org/10.12694/scpe.v25i5.3083

Jastrow, F., Greve, S., Thumel, M., Diekhoff, H., & Süßenbach, J. (2022). Digital technology in physical education: a systematic review of research from 2009 to 2020. *German Journal of Exercise and Sport Research*, *52*(4), 504–528. https://doi.org/10.1007/s12662-022-00848-5

Kurniawan, A., Pattiasina, P. J., Rahman, A., Lestari, N. C., & Haddar, G. Al. (2024). Utilization of Youtube as a Problem Solving-Based Learning Media. *TECHNOVATE: Journal of Information Technology and Strategic Innovation Management*, *1*(2), 62–68. https://doi.org/10.52432/technovate.1.2.2024.62-68

Lee, K.-N., Tak, H.-J., Park, S.-Y., Park, S. T., & Park, S.-H. (2022). YouTube as a source of information and education on endometriosis. *Medicine*, *101*(38), e30639. https://doi.org/10.1097/MD.0000000000030639

Li, C., & Li, Y. (2024). Feasibility Analysis of VR Technology in Physical Education and Sports Training. *IEEE Access*, 1–1. https://doi.org/10.1109/ACCESS.2020.3020842

Liu, B., & Tian, D. (2024). Application of VR technology in sports training in colleges and universities. *Applied Mathematics and Nonlinear Sciences*, *9*(1). https://doi.org/10.2478/amns-2024-0330

Oh, Y. (2023). The Relationship between Exercise Re-Participation Intention Based on the Sports-Socialization Process: YouTube Sports Content Intervention. *Behavioral Sciences*, *13*(2), 187. https://doi.org/10.3390/bs13020187

Putra, C. A., Permadi, A. S., & Setiawan, M. A. (2024). Information technology innovation

in sports learning: understanding global trends and challenges. *Retos*, *58*, 844–854. https://doi.org/10.47197/retos.v58.106485

Sofyan, D., Abdullah, K. H., & Gazali, N. (2022). A Bibliometric Review of Basketball Game : Publication Trends Over the Past Five Decades. *ASM Science Journal*, *17*, 1–12.

Sofyan, D., & Budiman, I. A. (2022). Basketball jump shot technique design for high school athletes: Training method development. *Journal Sport Area*, *7*(1), 47–58. https://doi.org/10.25299/sportarea.2022.vol7(1).7400

Susanto, N., Dinata, W. W., Ihsan, N., Bahtra, R., Andria, Y., Pranoto, N. W., Anam, K., Sofyan, D., Lourenço, C. C. V., Burhaein, E., García-Jiménez, J. V., & Setyawan, H. (2023). Instrument for Assessing Basketball Skills in Junior High School Students in Indonesia. *Journal of Physical Education and Sport*, *23*(12), 3220–3227. https://doi.org/10.7752/jpes.2023.12368

Weng, J. (2024). An Assessment of YouTube Educational Video Quality Through Machine Learning. *Journal of Student Research*, *13*(1). https://doi.org/10.47611/jsrhs.v13i1.6107

Woods, C. T., Araújo, D., Davids, K., & Rudd, J. (2021). From a Technology That Replaces Human Perception–Action to One That Expands It: Some Critiques of Current Technology Use in Sport. *Sports Medicine - Open*, *7*(1), 76. https://doi.org/10.1186/s40798-021-00366-y

Yunchao, M., Mengyao, R., & Xingman, L. (2023). Application of virtual simulation technology in sports decision training: a systematic review. *Frontiers in Psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1164117

Zhang, Y., & Tsai, S.-B. (2021). Application of Adaptive Virtual Reality with AI-Enabled Techniques in Modern Sports Training. *Mobile Information Systems*, *2021*, 1–10. https://doi.org/10.1155/2021/6067678

Zhu, L. (2021). Computer Vision-Driven Evaluation System for Assisted Decision-Making in Sports Training. *Wireless Communications and Mobile Computing*, *2021*(1), 1865538. https://doi.org/10.1155/2021/1865538