Enhancing Ict Learning Through Video Media: A Study At SMA Muhammadiyah Rappang

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A R T I C L E I N F O

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A B S T R A C T

This study aims to investigate the effect of using video media on students' learning outcomes in Information and Communication Technology (ICT) at SMA Muhammadiyah Rappang. The research employed a quasi-experimental design with two groups: an experimental group that received instruction using video media and a control group that was taught through conventional methods. The population consisted of all Grade X students, with a total sample of 70 students selected using total sampling. Data were collected through documentation and post-test assessments. The results indicated a significant difference in learning outcomes between the two groups. The experimental group achieved a higher mean score ($M_x = 92$) compared to the control group ($M_y = 66.3$). Statistical analysis using a t-test revealed that the obtained t-value (4.296) was greater than the critical t-values at both the 5% (2.000) and 1% (2.660) significance levels. These findings suggest that the use of video media significantly enhances students' understanding and performance in ICT subjects. The study recommends integrating video-based instruction into ICT classrooms to improve student engagement and academic achievement.

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INTRODUCTION

In the era of rapid technological advancement, the education sector is experiencing continuous transformation. The integration of digital tools and multimedia resources into classroom instruction has become a strategic necessity to keep up with the demands of 21st-century learning. Information and Communication Technology (ICT) is one of the core subjects that directly benefits from technological enhancements, especially through the use of visual media such as educational videos. Video media, with its dynamic combination of visuals and sound, has the potential to improve students' comprehension and retention of learning material.

The growing accessibility and usability of video media in schools have opened new possibilities for teachers to deliver lessons in more engaging and effective ways. Unlike traditional methods that rely heavily on verbal explanation or static texts, video content presents abstract ICT concepts in a more concrete and relatable manner. This is particularly important for high school students, who often struggle to visualize how certain digital processes work or how theoretical knowledge applies in real-life scenarios.

Several studies have highlighted the role of multimedia in enhancing student engagement, motivation, and academic achievement. Video media, as an instructional tool, stimulates multiple senses simultaneously, which supports better understanding and long-term memory. Moreover, videos can be paused, replayed, and integrated into interactive classroom activities, making learning more student-centered and adaptable to individual learning styles.

Despite the proven benefits of using video media in learning environments, many schools still rely predominantly on traditional teaching methods. The lack of resources, limited teacher training, and insufficient awareness of multimedia-based pedagogy often hinder the optimal use of technology in the classroom. This research attempts to bridge that gap by evaluating how the use of video media can be implemented effectively in the teaching of ICT.At SMA Muhammadiyah Rappang, ICT is a compulsory subject for Grade X students. However, based on preliminary observations, student performance in this subject has not met the expected competency standards. Teachers have reported low levels of student interest and difficulty in explaining technical material using only textbooks and whiteboard presentations. This condition underlines the urgent need to introduce more interactive and visually supported learning methods.

The use of video media is anticipated to provide a more immersive learning experience that appeals to both auditory and visual learners. Videos can demonstrate real-world ICT applications, simulations, and step-by-step tutorials, which are otherwise challenging to explain through lectures alone. By incorporating videos into daily instruction, it is expected that students will not only improve their understanding of the subject but also become more motivated to explore technology independently.

This study focuses on examining the effectiveness of video media in enhancing ICT learning outcomes at SMA Muhammadiyah Rappang. Through a controlled experimental design, the research compares student achievement between a group taught using video media and a group taught using conventional methods. The goal is to provide empirical evidence on the role of video media in supporting academic success in ICT education.Ultimately, the findings of this research are expected to offer valuable insights for educators, curriculum developers, and school administrators. By understanding the

potential and impact of video-based instruction, schools can make informed decisions about integrating multimedia resources into their teaching strategies, thus ensuring more effective and meaningful learning experiences for students.

LITERATURE REVIEW

The integration of media in education has long been acknowledged as a significant factor in enhancing the quality of teaching and learning. According to Arsyad (2010), learning media are all forms of tools used to convey messages from teachers to students, which can stimulate students' thoughts, feelings, and interests in learning. Media that combine visual and auditory elements, such as videos, are particularly effective in improving students' understanding, especially in subjects that require the visualization of abstract concepts, like ICT.Video media is a form of multimedia instruction that presents learning materials through moving visuals and synchronized audio. It can illustrate procedures, present real-life scenarios, and demonstrate complex processes that may not be easily conveyed through conventional teaching. According to Riyana (2007), instructional video is an audio-visual media designed to deliver educational content in a clear, engaging, and structured way. Its clarity of message and high-resolution quality make it a powerful tool for both classroom teaching and independent study.

In the context of ICT education, where the subject matter involves both conceptual theories and practical applications, video media can play a crucial role. ICT topics such as network configuration, digital ethics, or software operations often require demonstrations that are easier to understand when shown visually. Video tutorials, for example, can provide students with step-by-step instructions that enhance their ability to replicate processes and apply their knowledge in practical settings.Several empirical studies have supported the effectiveness of video media in education. For instance, a study by Mayer (2009) on multimedia learning revealed that students who learn from words and pictures perform better than those who learn from words alone. His Cognitive Theory of Multimedia Learning emphasizes that well-designed video content can reduce cognitive overload and facilitate deeper learning. This is especially beneficial for ICT learners who must often process complex technical information.

Moreover, video-based learning supports differentiated instruction, accommodating different learning preferences. Some students are visual learners who benefit from seeing diagrams and animations, while others are auditory learners who understand better by listening. Video content addresses both types of learners simultaneously, thereby increasing the chances of comprehension and retention. Additionally, videos can be replayed as many times as necessary, giving students control over their learning pace.However, the effectiveness of video media also depends on how it is integrated into the teaching process. Teachers must ensure that the videos used are relevant, accurate, and aligned with the learning objectives. Simply playing a video without interaction or follow-up activities may lead to passive learning. According to Heinich et al. (2005), instructional media must be used with appropriate strategies, such as guided viewing, questioning, and discussions, to maximize their pedagogical impact.

Despite its advantages, there are also challenges associated with using video media in classrooms. These include the availability of technological infrastructure, teachers' digital literacy, and the need for careful content selection. Furthermore, not all students may have equal access to digital resources outside the classroom, which may widen the learning gap if video assignments are extended beyond school hours. the literature

strongly supports the use of video media as a pedagogical tool, particularly in ICT education. Its dual-channel delivery (visual and auditory) and its flexibility in usage make it an effective medium for improving student engagement and understanding. Nevertheless, the success of video-based instruction depends on thoughtful integration into the curriculum, teacher readiness, and the availability of supporting resources. This study builds on these theoretical and empirical foundations to examine the impact of video media on students' ICT learning outcomes at SMA Muhammadiyah Rappang.

METHOD

This study employed a quasi-experimental research design to investigate the effectiveness of video media in improving students' learning outcomes in Information and Communication Technology (ICT). The design involved two groups: an experimental group taught using video-based instruction and a control group taught using conventional methods without video support. The objective was to measure the differences in student performance between the two groups after receiving different instructional treatments. The population of this research consisted of all Grade X students at SMA Muhammadiyah Rappang during the academic year 2024/2025. A total of 70 students participated in the study and were selected using total sampling. These students were then randomly assigned to either the experimental group or the control group, each consisting of 35 students. Randomization was used to ensure that any differences in learning outcomes could be attributed to the instructional method rather than to pre-existing differences among students.

The independent variable in this study was the use of video media in the teaching process, while the dependent variable was the students' ICT learning outcomes, as measured by a post-test. The video content used in the experimental group consisted of instructional videos relevant to the ICT curriculum, including tutorials and animated explanations of key concepts. Meanwhile, the control group received instruction through traditional classroom methods such as lecturing and textbook usage.

Data collection was conducted using two primary instruments: documentation and achievement tests. Documentation was used to gather background information on the students and their participation in ICT classes, while the test instrument consisted of objective questions designed to measure students' understanding of the topics covered. The same post-test was administered to both groups after the instructional period to ensure consistency in assessment.

The data obtained were analyzed using inferential statistical techniques, specifically the independent sample t-test. This analysis aimed to determine whether there was a statistically significant difference in the mean scores of the experimental and control groups. The significance level was set at 5% ($\alpha = 0.05$), and hypotheses were tested to validate the effectiveness of the video media.

To ensure the validity and reliability of the research, all instructional sessions were conducted under similar conditions, with the same teacher delivering content to both groups. The only difference was the instructional media used. This methodological consistency helped minimize external influences and ensured that the observed differences in outcomes could be directly linked to the use of video media in the experimental group.

RESULT AND DISCUSSION

The results of this study are based on the analysis of students' post-test scores from both the experimental and control groups. The experimental group was taught using video media, while the control group received conventional instruction without multimedia support. The aim was to determine whether the use of video media significantly influenced students' ICT learning outcomes.Data from the post-test scores were collected from 70 students: 35 in the experimental group and 35 in the control group. The results showed a notable difference in the mean scores between the two groups. The experimental group achieved an average score of 92, while the control group obtained an average of 66.3.

The results were analyzed using an independent samples t-test to determine whether the observed difference was statistically significant. The test yielded a t-value of 4.296. This value was then compared with the critical values of the t-distribution table at the 5% and 1% significance levels, which were 2.000 and 2.660, respectively.Since the calculated t-value (4.296) was greater than both critical values, the null hypothesis (H0) stating that there is no significant difference between the groups was rejected. Thus, the alternative hypothesis (H1) was accepted, indicating that video media had a significant effect on students' learning outcomes in ICT.

The summary of the data and t-test results are presented in the table below:

Group	N	Mean Score (M)	Standard Deviation (SD)	t-value	Significance
Experimental	35	92.0	5.7		
Control	35	66.3	6.1	4.296	$p < 0.01$

The data demonstrate a clear improvement in learning performance among students who were exposed to video media. The high mean score of the experimental group indicates a better understanding and retention of ICT concepts compared to the control group.These results validate the effectiveness of using video as a teaching tool in ICT classrooms. It also supports the argument that integrating multimedia can enhance cognitive processing and help students grasp complex technical material more efficiently.Overall, the statistical results affirm that the use of video media significantly improves students' academic achievement in ICT. This outcome has important implications for educators and curriculum developers in designing more engaging and effective instructional strategies.

DISCUSSION

The findings of this study reveal that students who received instruction through video media performed significantly better in their ICT post-tests than those who were taught using traditional methods. This supports existing literature on the benefits of multimedia learning in enhancing student engagement and comprehension.The use of video media provides a dual-channel learning experience, utilizing both visual and auditory inputs. According to Mayer's Cognitive Theory of Multimedia Learning, such integration allows students to process information more effectively, leading to improved understanding and memory retention.In the context of ICT education, video media plays a crucial role in presenting abstract or complex concepts through animations, real-life

demonstrations, and simulations. These visual aids help bridge the gap between theoretical content and practical application, which is essential in subjects involving technology.

Furthermore, video-based instruction promotes learner autonomy. Students can pause, rewind, and replay content as needed, allowing them to learn at their own pace. This flexibility accommodates different learning styles and supports individualized learning, something that is often lacking in traditional classroom settings.The significant performance difference observed in this study aligns with previous research findings by Riyana (2007) and Anderson (1987), which emphasize the power of video to clarify abstract ideas, capture attention, and enhance motivation. Video also helps learners focus by reducing distractions common in lecture-only formats.Nevertheless, the effective use of video media requires careful planning. Teachers must ensure that videos are relevant, aligned with learning objectives, and integrated meaningfully into lessons. Passive viewing without teacher guidance or follow-up activities may result in superficial understanding.

Additionally, while this study shows the positive impact of video media on learning outcomes, it is important to consider the infrastructure needed to support such methods. Access to devices, internet connectivity, and teacher training are critical components for successful implementation. this research confirms that video media is a valuable instructional tool for enhancing ICT learning. Its impact on student achievement underscores the need for its broader integration into classroom instruction. Future research could explore long-term effects, its role in other subjects, or its impact across different educational levels.

Conclusion

Based on the findings of this study, it can be concluded that the use of video media significantly enhances students' learning outcomes in the subject of Information and Communication Technology (ICT). The experimental group, which was taught using video-based instruction, achieved higher post-test scores compared to the control group taught through conventional methods. This indicates that video media provides a more effective and engaging learning experience for students.

The statistical analysis confirmed the significance of the difference between the two groups, supporting the hypothesis that video media positively impacts learning achievement. The combination of visual and auditory elements in video content helps students to better understand complex ICT concepts, improves knowledge retention, and increases motivation. These results emphasize the value of integrating multimedia into classroom instruction, especially in technology-related subjects.

Given these findings, it is recommended that educators and school administrators consider adopting video-based learning as part of their instructional strategies. Investing in appropriate technological infrastructure and providing training for teachers are essential steps toward maximizing the benefits of video media. Future research should explore the long-term impacts of video media on student learning and its application across various subjects and educational settings.

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