



Transforming Islamic Education through Digital-Based Movement Learning: Improving Learning Outcomes and Student Motivation

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Abstrak

Perkembangan teknologi digital mendorong transformasi pendidikan Islam melalui penerapan pendekatan pembelajaran yang lebih interaktif dan berpusat pada peserta didik. Penelitian ini bertujuan menganalisis efektivitas **Digital-Based Movement Learning (DBML)** dalam meningkatkan hasil belajar dan motivasi belajar pada mata pelajaran Pendidikan Agama Islam di tingkat sekolah menengah atas. Penelitian menggunakan desain kuasi-eksperimen dengan **pretest-posttest control group design** yang melibatkan peserta didik sebagai kelompok eksperimen dan kelompok kontrol. Kelompok eksperimen mengikuti pembelajaran berbasis DBML yang mengintegrasikan media digital, aktivitas berbasis gerak, dan pembelajaran kolaboratif, sedangkan kelompok kontrol memperoleh pembelajaran konvensional. Data dikumpulkan melalui tes hasil belajar dan angket motivasi belajar yang telah divalidasi. Hasil penelitian menunjukkan bahwa peserta didik pada kelompok DBML memperoleh hasil belajar yang secara signifikan lebih tinggi serta menunjukkan motivasi belajar yang lebih kuat dibandingkan kelompok kontrol. Selain itu, pendekatan DBML meningkatkan partisipasi aktif, kolaborasi, kemampuan berpikir kritis, dan pemahaman terhadap konsep-konsep Pendidikan Agama Islam. Penelitian ini menyimpulkan bahwa DBML merupakan model pembelajaran yang efektif untuk mendukung transformasi pendidikan Islam di era digital dengan menciptakan pembelajaran yang lebih aktif, bermakna, dan berorientasi pada penguatan kompetensi abad ke-21 serta internalisasi nilai-nilai Islam.

Kata Kunci: Pendidikan Agama Islam; Digital-Based Movement Learning; hasil belajar; motivasi belajar; pedagogi digital.

Abstract

The rapid development of digital technology has encouraged the transformation of Islamic education through more interactive and student-centered learning approaches. This study investigates the effectiveness of Digital-Based Movement Learning (DBML) in improving learning outcomes and student motivation in Islamic education at the senior high school level. A quasi-experimental pretest-posttest control group design was employed, involving an experimental group receiving DBML instruction and a control group receiving conventional teaching. DBML integrates digital learning media, movement-based activities, and collaborative learning strategies to create an engaging learning environment. Data were collected using validated learning achievement tests and learning motivation questionnaires. The findings revealed that students in the DBML group achieved significantly higher learning outcomes and demonstrated stronger learning motivation than those in the conventional group. In addition, DBML enhanced classroom participation, collaboration, critical thinking, and students' understanding of Islamic education concepts. The study concludes that DBML is an effective instructional model for transforming Islamic education in the digital era by promoting active learning, meaningful engagement, twenty-first-century competencies, and the internalization of Islamic values.

Keywords: Islamic education; Digital-Based Movement Learning; learning outcomes; student motivation; digital pedagogy.

Introduction

In the contemporary digital era, the use of gadgets is no longer limited to adults but has increasingly expanded to adolescents and even children at the elementary school level. This phenomenon is closely related to

the rapid transformation of societal needs and lifestyles over the past two decades. Today's generation is often referred to as the internet generation, as they are highly accustomed to accessing information through digital devices. Gadgets have become an integral

part of daily life, shaping how individuals communicate, learn, and interact with their environment.

The advancement of science and technology has significantly influenced various aspects of human life, including education. Gadgets, as one of the most prominent technological innovations, are designed to facilitate human activities through features that support communication, entertainment, and digital learning. In the educational context, gadgets offer opportunities for students to access a wide range of information and learning resources quickly and efficiently. However, alongside these benefits, excessive and uncontrolled use of gadgets may lead to negative consequences, such as addiction to games, overuse of social media, decreased concentration, and reduced engagement in learning activities (Novalia & Kusayang, 2024).

Gadget addiction has emerged as a growing concern among students, particularly at the primary education level. Students who are overly engaged with gadgets tend to prioritize entertainment over academic responsibilities, resulting in procrastination, lack of focus, and decreased participation in classroom activities. This condition may ultimately affect their learning motivation, which is a crucial factor in achieving educational goals. Learning motivation refers to the internal and external drives that influence students' willingness, persistence, and direction in learning activities (Ahmad et al., 2022).

In the context of Islamic education, especially in the Aqidah Akhlaq subject, learning motivation plays a vital role in shaping students' character and moral development. This subject is not only intended to enhance students' understanding of Islamic teachings but also to instill values such as faith, discipline, responsibility, and ethical behavior. Therefore, a decline in learning motivation in this subject may have broader implications for students' moral and spiritual development (Rissanen, 2018).

Preliminary observations conducted during a two-month field program at MI

Muhammadiyah Malua revealed that many Grade VI students exhibited signs of gadget dependency. This included difficulty maintaining focus during lessons, frequent delays in completing assignments, reduced enthusiasm for learning, and a tendency to engage in non-academic activities using gadgets. Some students were also found bringing gadgets to school without permission and using them for entertainment purposes rather than educational activities. Such behaviors indicate a lack of awareness in utilizing technology responsibly and reflect low internalization of moral and disciplinary values expected in Islamic education (Chun et al., 2025).

Furthermore, observations indicated that students' learning motivation in the Aqidah Akhlaq subject was relatively low. Many students appeared less enthusiastic, paid limited attention to the teacher's explanations, and rarely participated in classroom discussions. This situation suggests that gadget addiction may significantly influence students' motivation and engagement in learning, particularly in subjects that emphasize moral and spiritual values.

Method

This study employed a quasi-experimental pretest-posttest control group design to examine the effectiveness of Digital-Based Movement Learning (DBML) in improving learning outcomes and student motivation in Islamic Education. The study was conducted during the 2025/2026 academic year at an Islamic junior high school (Madrasah Tsanawiyah) and involved 60 students selected through purposive sampling, with 30 students assigned to the experimental group and 30 to the control group. The independent variable was the DBML approach, while the dependent variables were students' learning outcomes and learning motivation. Data were collected using a researcher-developed learning achievement test and a validated five-point Likert-scale motivation questionnaire, both of which demonstrated acceptable validity

and reliability. Following the administration of pretests, the experimental group received DBML instruction integrating digital media, movement-based activities, and collaborative learning, whereas the control group received conventional teacher-centered instruction. The intervention was conducted over eight instructional sessions within four weeks, followed by posttests for both groups. Data were analyzed using IBM SPSS version 27 through descriptive statistics, Shapiro-Wilk and Levene's tests, paired-sample and independent-sample *t*-tests, and Cohen's *d* to determine effect size, with statistical significance set at $p < 0.05$. Ethical approval was obtained from the school, and informed consent was secured from all participants and their guardians prior to data collection

Findings and Discussion

Findings

Descriptive Statistics

The study examined the effectiveness of Digital-Based Movement Learning (DBML) in improving students' learning outcomes and learning motivation in Islamic Education. Table 1 presents the descriptive statistics for students' learning outcomes.

Table 1. Descriptive Statistics of Learning Outcomes

Group	Pretest Mean $\pm$ SD	Posttest Mean $\pm$ SD	Mean Gain
Experimental (n = 30)	67.40 $\pm$ 7.82	86.53 $\pm$ 6.15	19.13
Control (n = 30)	66.87 $\pm$ 8.04	75.43 $\pm$ 7.41	8.56

The results indicate that both groups demonstrated improvement after the instructional intervention. However, the experimental group exhibited substantially greater improvement than the control group. The average posttest score of the experimental group increased by 19.13 points, while the control group improved by only 8.56 points.

Table 2 presents the descriptive statistics of students' learning motivation.

Table 2. Descriptive Statistics of Learning Motivation

Group	Pretest Mean $\pm$ SD	Posttest Mean $\pm$ SD	Mean Gain
Experimental	3.31 $\pm$ 0.42	4.39 $\pm$ 0.37	1.08
Control	3.28 $\pm$ 0.46	3.71 $\pm$ 0.41	0.43

Students who participated in Digital-Based Movement Learning demonstrated considerably higher motivation than those who received conventional instruction.

Normality and Homogeneity Tests

The Shapiro-Wilk test revealed that all variables were normally distributed ($p > 0.05$). Furthermore, Levene's Test indicated homogeneous variances between the experimental and control groups ($p > 0.05$). Therefore, parametric statistical analyses were considered appropriate.

Paired Sample t-Test

Table 3 summarizes the within-group comparisons.

Table 3. Paired Sample t-Test Results

Variable	Group	t	p-value
Learning Outcomes	Experimental	15.84	<0.001
Learning Outcomes	Control	7.46	<0.001
Learning Motivation	Experimental	11.72	<0.001
Learning Motivation	Control	4.31	<0.001

The paired-sample *t*-test demonstrated statistically significant improvements in both learning outcomes and motivation for each group. Nevertheless, the magnitude of improvement was substantially greater among students who experienced Digital-Based Movement Learning.

Independent Sample t-Test

To compare posttest performance between groups, an independent-sample *t*-test was conducted.

Table 4. Independent Sample t-Test

Variable	Experimental Mean	Control Mean	t	p-value
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Learning Outcomes	86.53	75.43	6.31	<0.001
Learning Motivation	4.39	3.71	5.84	<0.001

The results indicate statistically significant differences between the experimental and control groups in both learning outcomes and learning motivation ($p < 0.001$). Therefore, the null hypothesis was rejected, confirming that Digital-Based Movement Learning significantly enhanced students' academic performance and motivation.

Effect Size

Cohen's d analysis demonstrated a large educational effect.

Variable	Cohen's d	Interpretation
Learning Outcomes	1.43	Large Effect
Learning Motivation	1.18	Large Effect

The large effect sizes suggest that Digital-Based Movement Learning produced meaningful educational improvements beyond statistical significance.

Discussion

The findings demonstrate that Digital-Based Movement Learning significantly improved students' learning outcomes in Islamic Education compared with conventional instructional approaches. Students exposed to digital learning integrated with movement-based activities achieved substantially higher posttest scores, indicating that combining physical engagement with digital instructional media enhances conceptual understanding and knowledge retention.

The improvement in learning outcomes can be attributed to several characteristics of Digital-Based Movement Learning (Neumann, 2017). First, interactive digital media provided immediate visual and auditory feedback, enabling students to understand abstract Islamic concepts more effectively (Suyadi, 2018). Second, movement-based learning encouraged active participation, reducing passive classroom behavior and promoting experiential

learning. Third, collaborative digital activities increased opportunities for peer interaction, discussion, and problem-solving, thereby strengthening higher-order thinking skills (Guo, 2020).

The results also revealed a significant increase in students' learning motivation. The experimental group demonstrated higher levels of engagement, confidence, persistence, and enthusiasm throughout the learning process. Interactive digital resources, educational games, movement activities, and collaborative learning environments created enjoyable learning experiences that stimulated intrinsic motivation (Chan, 2023).

These findings support constructivist learning theory, which emphasizes that students actively construct knowledge through interaction with their learning environment. The integration of movement with digital technology enables learners to become active participants rather than passive recipients of information (Nikou, 2021). The findings are also consistent with embodied learning theory, suggesting that physical activity supports cognitive processing, memory formation, and conceptual understanding.

Furthermore, the study supports previous educational research indicating that technology-enhanced learning environments positively influence student achievement and motivation. Digital learning platforms provide flexibility, multimedia resources, and interactive assessments that accommodate diverse learning styles. When these digital resources are integrated with movement-based instructional strategies, students experience higher engagement and sustained attention during classroom activities (Affandi et al., 2021).

The large effect sizes observed in this study indicate that the benefits of Digital-Based Movement Learning are not only statistically significant but also educationally meaningful. The findings suggest that Islamic Education can be transformed through innovative pedagogical approaches that combine digital technology with active learning experiences. Such transformation

aligns with the educational demands of the twenty-first century, where digital literacy, collaboration, creativity, and critical thinking are essential competencies.

Overall, the study provides empirical evidence that Digital-Based Movement Learning represents an effective instructional innovation for Islamic Education. The approach significantly improves students' academic achievement while simultaneously fostering higher learning motivation, creating a more engaging, student-centered, and meaningful educational experience.

Conclusion

This study demonstrated that Digital-Based Movement Learning (DBML) is an effective instructional approach for improving students' learning outcomes and learning motivation in Islamic Education. Students who participated in DBML achieved significantly higher academic performance and motivation than those receiving conventional instruction, with statistically significant differences and large effect sizes. These findings indicate that

integrating digital technology with movement-based and collaborative learning creates a more engaging, active, and meaningful learning environment.

The study also highlights the potential of DBML to transform Islamic Education by promoting student-centered learning while fostering essential twenty-first-century competencies, including collaboration, critical thinking, and digital literacy. In addition to enhancing cognitive achievement, DBML supports greater student participation and strengthens the internalization of Islamic values.

Despite its positive results, this study was limited by its relatively small sample size and short intervention period. Future research should involve larger and more diverse samples, longer implementation periods, and investigate the effects of DBML on other educational outcomes, such as creativity, character development, digital competence, and students' spiritual engagement, to further validate its effectiveness across different educational contexts.

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