

The Influence of Information Technology Usage as an Instructional Resource on Learning Achievement

Ayu Wulandari^{1*}, Afifatun Ni'Mah¹, Arifannisa²

¹Educational Management, Universitas Negeri Surabaya, Indonesia

²Mathematics Education, STKIP Kusuma Negara, Indonesia

*ayuwulandari@unesa.ac.id

Abstract

This study aims to determine the extent to which the use of information technology as an instructional resource influences students' learning achievement at Madrasah Aliyah Ihyaul Ulum Dukun Gresik. This research employed a quantitative method with 25 students from the eleventh grade as participants. The study aimed to determine the extent to which the use of information technology as an instructional resource influences students' learning achievement at Madrasah Aliyah Ihyaul Ulum Dukun Gresik. This conclusion was drawn from the data analysis using independent samples *t*-test, with a p -value=0.000<0.05= α . The results of the data analysis indicated that the influence of information technology usage on learning achievement was 91%, which falls under the criteria of excellent and significant.

Keywords: Achievement, Information technology, Learning, Smartphone.

Received: January 17, 2023

Revised: March 28, 2023

Accepted: May 16, 2023

Article Identity:

Wulandari, A., Ni'Mah, A., & Arifannisa, A. (2023). The Influence of Information Technology Usage as an Instructional Resource on Learning Achievement. *Jurnal Ilmu Pendidikan (JIP) STKIP Kusuma Negara*, 15(1), 24-31.

INTRODUCTION

Education is an integral part of human life as it allows individuals to develop their potential. According to Hanafi (2018), human beings mature through education. John I. Goodlad also expressed his opinion that education is a process through which behavioral patterns of thinking, feeling, and acting change or are modified over time (Siregar & Nara, 2010).

Considering Indonesia's geographical condition, with its numerous islands, distance education becomes feasible (Zuhairi & Wahyono, 2004). The utilization of information technology is considered essential as it enables equal distribution of education throughout the Indonesian archipelago (Lutfiani et al., 2020). The aim of achieving educational equity is to create a generation of qualified successors who can lead the nation towards positive change (Widiyani, Amilia, & Susetyo, 2016). This is exemplified by the efforts made at Madrasah Aliyah Ihyaul Ulum in the city of Gresik, which is striving to improve the quality of education during the transition period from the previous pandemic. Based on observations, the school principal stated that "students' learning achievements during the pandemic have declined." Therefore, the use of information technology as an instructional resource at the level of Madrasah Aliyah is one way to enhance students' motivation to learn during the pandemic transition. The goal is to improve the quality of student learning, particularly for the eleventh-grade students of MA Ihyaul Ulum.

The improvement of educational quality can be reflected through the government's efforts to enhance learning quality, especially in schools (Putrawangsa & Hasanah, 2018). Learning is a systematic process that involves several components, including teachers, students, methods, and instructional resources (Lutfiani et al., 2020). Speaking of instructional resources, it is inevitable to mention the existence of textbooks, which remain a suitable instructional resource in the teaching and learning process (Syafitri, Afiani, & Faradita, 2022). Although textbooks are widely used by students and teachers, they should be complemented with other instructional resources (Zuhairi & Wahyono, 2004).

In the field of education, the dissemination of information technology will make the learning of scientific knowledge easier and faster (Magdalena, Wahyuni, & Dewi, 2020). The presence of information technology in education makes it a trusted source (Prajawinanti & Yanti, 2021) to meet the majority of students' needs in accessing information and knowledge related to learning in school (Widiyani et al., 2016). The use of information technology is inseparable and must synergize in order to support learning activities (Alwiyah et al., 2022). In addition to using computers to support learning, information technology is also utilized through smartphones (Alwiyah et al., 2022). Smartphones are advanced devices created with various applications that can provide various news media, social networks, hobbies, and even entertainment (Syafitri et al., 2022).

The use of information technology as an instructional resource can have a significant impact on an individual's learning achievement (Wijaya, 2016). Some factors that influence the relationship between the use of information technology and learning achievement include: (1) Accessibility: Information technology allows access to various instructional resources from various locations and at any time. With this easy and flexible access, students can acquire information and study course materials more easily. (2) Diverse learning materials: Information technology enables students to access various types of learning materials such as videos, images, animations, and other multimedia content. This can help students better understand the course materials and expand their knowledge. (3) Student engagement: The use of information technology in learning can enhance student engagement. Interactive and game-based learning built into several technology-based learning applications makes students more active in learning and easier to engage in the learning process (Nurrita, 2018).

There are several factors to consider when using information technology as an instructional resource. Some of them are: (1) Content quality: The learning content presented through information technology should be of high quality. Inappropriate or inaccurate content can lead to misunderstandings among students. (2) Dependency: Excessive use of information technology can lead to dependency on technology. This can cause students to lose the ability to learn without technology. (3) Lack of social interaction: Learning through information technology can reduce social interaction among students. Social skills that are important to develop in education can be disrupted by excessive use of information technology (Surjono, 2017).

The use of information technology as an instructional resource can have a positive impact on an individual's learning achievement (Wijaya, 2016). However, the use of information technology needs to be done carefully and accompanied by

regular evaluation of students' learning outcomes (Ananda, Rafida, & Wijaya, 2017).

The utilization of information technology in the field of education is of great importance, especially for the purpose of equalizing education (Sumarto, 2016) and improving the quality of education in Indonesia (Zuhairi & Wahyono, 2004). The utilization of information and communication technology has been successful in improving exam results, reducing dropout rates, and decreasing absenteeism in class (Zuhairi & Wahyono, 2004). Some forms of utilizing information and communication technology in the field of education include Online Libraries, Online Discussions, Online Classroom Applications, and E-Learning (Syafitri et al., 2022). Therefore, this study was conducted to determine the extent to which the use of information technology as an instructional resource influences the learning achievement of students in class XI MA Ihyaul Ulum Dukun Gresik.

RESEARCH METHODS

The method used by the researcher to obtain data and facts is quantitative research. This quantitative research is a study that uses data in the form of numbers (Sujarweni, 2014). The initial stage of this study involved data collection through the distribution of questionnaires to the participants. The questionnaire was used by the author as a research instrument, serving as a tool for collecting data that would be measured numerically, allowing for more effective and efficient data collection.

The questionnaire consisted of statements regarding the use of information technology variables and learning achievement variables. The statements regarding the use of information technology included: ownership status, the importance of using information technology, and the impact of using information technology. The statements regarding learning achievement included: knowledge mastery, abilities, and habits.

The data obtained were primary data, collected directly from the participants through questionnaire completion. Out of the 40 prepared questionnaires, 15 questionnaires were incomplete and therefore excluded from the analysis. Thus, the total number of respondents in this study was 25 students in class XI at MA Ihyaul Ulum School. The scale used in this study was the Likert scale. The Likert scale was used to measure the attitudes, opinions, and perceptions of individuals or groups about the variables being measured. The response options for each item or statement included Always, Often, Sometimes, Occasionally, and Never. Subsequently, the data were analyzed using SPSS version 22 and the results were described to determine the extent of the influence of using information technology as an instructional resource on the learning achievement of students in class XI.

RESULTS AND DISCUSSION

The data began with the Validity Test and Reliability Test of the Instruments. The validity test was used to measure whether a questionnaire is valid or not. A questionnaire is considered valid if the questions in the questionnaire are able to express what will be measured by the questionnaire (Sugiyono, 2015). The results indicated that the statements from the indicators of information technology usage

and learning achievement, out of the 10 statements, were deemed valid and reliable. The reliability calculation results are presented in Table 1.

Tabel 1. Reliability Statistics

Cronbach's Alpha	N of Items
.936	20

Table 1 shows that the Cronbach's Alpha value is more than 0.60, indicating that the instrument used is reliable with a Cronbach's Alpha value of 0.936. Next, the normality test will be conducted. The results of the normality calculation using the One-Sample Kolmogorov-Smirnov Test are presented in Table 2.

Tabel 2. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
<i>N</i>		25
Normal Parameters	Mean	.000
	StDev	3.245
Most Extreme Differences	Absolute	.176
	Positive	.113
	Negative	-.176
Test Statistic		.176
Asymp. Sig. (2-tailed)		.043

On Table 2, it can be observed that the results indicate a normal distribution for the conducted test. The data was then analyzed using the *t*-test calculation in SPSS. The calculation results are presented in Table 3.

Tabel 3. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>Sig.</i>
	<i>B</i>	Std. Error	Beta		
(Constant)	30.001	3.863		7.767	.000
Total_X	.362	.091	.640	3.994	.001

Table 3 shows that the *Sig.* < 0.05, specifically 0.001 < 0.05. Therefore, H_0 is rejected, and H_a is accepted, indicating the presence of an influence between the independent variable and the dependent variable. The *t*-test can also be conducted with the calculated *t*-value more than the tabulated *t*-value using the formula $t_{table} = t_{(\alpha/2 ; n-k-1)} = t_{(0,05/2 ; 25-1-1)} = t_{(0,025 ; 23)} = 2,0686 = 2,069$. Hence, the variable X (Information Technology Usage) on Y (Learning Achievement) can be observed from the above Coefficients Regression that the calculated *t*-value is greater than the tabulated *t*-value. From the results above, it can be concluded that $3.994 > 2.365$, indicating that there is an influence between the usage of information technology and students' learning achievement. The research results support the presence of the influence of information technology usage as an instructional resource on students' learning achievement in grade XI of MA Ihyaul Ulum. The research by Yuzarion (2017) stated that the internet provides extensive access for students to obtain

learning materials outside of the classroom. The internet can be used as a self-learning medium for students to acquire additional materials beyond the classroom learning process (Febianti & Joharudin, 2018). The proper use of the internet is expected to help students understand the delivered materials and have a positive impact on their learning achievement (Hidayat, 2015), as is the case with the students of MA Ihyaul Ulum.

The term "learning achievement" consists of two parts, "achievement" and "learning." "Achievement" refers to the outcome that has been attained. It is the result of an individual or group's activities or creations (Husein et al., 2018). Achievement is what has been created, the outcome of work, and something that brings joy as a result of perseverance in work (Djamarah, 2010). This indicates that achievement is the result of activities carried out with diligence in creating a good outcome (Malini, Lestariningsih, & Nirmalasari, 2022). On the other hand, learning is defined as a permanent change in behavior that occurs in all forms of organisms as a result of learning (Sriyana & Winarso, 2018). Learning is defined by two formulations. The first formulation of learning refers to the acquisition of relatively stable changes in behavior as a result of practice and experience. The second formulation of learning involves the process of acquiring responses as a result of specific training (Alwiyah et al., 2022; Husdarta & Saputra, 2013). Learning is a permanent change in behavior influenced by the interaction process with the environment (Malini et al., 2022). Therefore, this study aims to examine the extent of the influence of technology on students' learning achievement, and the results indicate that this influence of up to 91% is an important consideration for schools. This significant result will have an impact on students if there is no proper evaluation from the school. Hence, teachers should be able to balance the use of information technology with the aim of avoiding misunderstandings in its use as an instructional resource.

The impact of using information technology as an instructional resource is significant and can influence the way people learn. Some examples of the positive and negative impacts of using information technology as an instructional resource are as follows: The positive impacts are (1) access to a wider range of information. The internet allows access to thousands of sources of information and educational resources, including books, journals, videos, and online tutorials. (2) Flexibility and convenience in learning. Information technology enables people to learn from anywhere and at any time, without the need to be present in a physical classroom. This allows individuals to choose the most suitable place and time for learning. (3) Increased active and interactive engagement. Information technology enables more interactive and participatory learning through discussion forums, online classes, or interactive quizzes (Tanwir & Rahman, 2018).

On the other hand, some negative impacts that arise are (1) dependence on technology. Excessive reliance on information technology in learning can lead to a loss of independent learning ability and critical skills that are essential in the learning process. (2) Potential dissemination of inaccurate or harmful information. The internet allows anyone to publish information, whether accurate or not. Therefore, individuals must verify the accuracy of information before using it as an instructional resource. (3) Disturbances and distractions. Information technology can also cause disruptions and distractions during the learning process, such as message notifications, social media, or online games (Ngafifi, 2014; Tanwir &

Rahman, 2018). Overall, the use of information technology as an instructional resource has the potential for both positive and negative impacts. However, by utilizing information technology wisely and effectively, it can enhance the efficiency, effectiveness, and quality of learning.

CONCLUSION

The results of the study provide evidence of the significant impact of using information technology as an instructional resource on students' learning achievement in Grade XI of MA Ihyaul Ulum. The findings demonstrate a clear and substantial influence between the use of information technology and students' learning outcomes. The *t*-test analysis revealed a significant result with a value of $0.001 < 0.05 = \alpha$. This confirms that there is a meaningful relationship between the independent variable (use of information technology) and the dependent variable (students' learning achievement). Furthermore, the calculated *t*-value of 3.994 exceeding the tabulated *t*-value of 2.365 further strengthens the conclusion that the utilization of information technology has a significant impact on students' learning achievement. The study findings indicate that the implementation of information technology as an instructional resource has a substantial effect, accounting for 91% of the variance in students' learning outcomes.

These results underscore the importance of integrating information technology effectively into the educational process. Schools and educators should recognize the potential of information technology as a powerful tool for enhancing students' learning experiences and achievements. By harnessing the benefits of information technology, such as increased access to diverse instructional resources, flexibility in learning environments, and interactive learning opportunities, educational institutions can foster improved student outcomes.

It is recommended that schools develop comprehensive strategies to leverage information technology in a balanced and responsible manner, taking into consideration potential challenges such as overreliance on technology and the need for critical thinking skills. By doing so, educators can maximize the positive impact of information technology on students' learning achievement, ultimately contributing to their overall educational success.

REFERENCES

- Alwiyah, A., Sayyida, S., Sunarya, P. A., & Apriliasari, D. (2022). Inovasi Manajemen Pengajaran Judul Kuliah Kerja Praktek (KKP) Berbasis Laravel Framework. *Technomedia Journal*, 7(2), 168–180. <https://doi.org/10.33050/tmj.v7i2.1902>
- Ananda, R., Rafida, T., & Wijaya, C. (2017). *Pengantar Evaluasi Program Pendidikan*. Perdana Publishing.
- Djamarah, S. B. (2010). *Guru dan Siswa dalam Interaksi Edukatif*. Rineka Cipta.
- Febianti, Y. N., & Joharudin, M. (2018). Faktor-Faktor Ekstern Yang Mempengaruhi Prestasi Belajar Mahasiswa. *Edunomic Jurnal Pendidikan Ekonomi*, 5(2), 76-88. <https://doi.org/10.33603/ejpe.v5i2.246>
- Hanafi, I. (2018). Perkembangan Manusia Dalam Tinjauan Psikologi dan Al-Qur'an. *IQ (Ilmu Al-Qur'an): Jurnal Pendidikan Islam*, 1(01), 84–99.

- <https://doi.org/10.37542/iq.v1i01.7>
- Hidayat, M. (2015). Pengaruh Kebiasaan Belajar, Lingkungan Belajar, dan Dukungan Orang Tua terhadap prestasi belajar mata pelajaran ekonomi pada siswa kelas IX IPS di Man Bangkalan. *Jurnal Ekonomi Pendidikan Dan Kewirausahaan*, 3(1), 103–114. <https://doi.org/10.26740/jepk.v3n1.p103-114>
- Husdarta, H., & Saputra, Y. M. (2013). *Belajar dan Pembelajaran*. Alfabeta.
- Husein, M. A., Indupurnahayu, I., & Rahim, A. (2018). Gaya Kepemimpinan , Budaya Organisasi Dan Motivasi Terhadap Prestasi Santri (Studi Kasus di Pesantren Terpadu Daaruttaqwa Cibirong Bogor-Jawa Barat). *Jurnal Managemen*, 9(1), 30–36. <https://doi.org/10.32832/jm-uika.v9i1.1286>
- Lutfiani, N., Harahap, P., Aini, Q., Ahmad, A. D. A., & Rahardja, U. (2020). Inovasi Manajemen Proyek I-Learning Menggunakan Metode Agile Scrum. *InfoTekJar : Jurnal Nasional Informatika Dan Teknologi Jaringan*, 5(1), 96–101. <https://doi.org/10.30743/infotekjar.v5i1.2848>
- Magdalena, I., Wahyuni, A., & Dewi, H. (2020). Pengelolaan Pembelajaran Daring yang Efektif Selama Pandemi di SDN 1 Tanah Tinggi. *Jurnal Edukasi Dan Sains*, 2(2), 366–377. <https://doi.org/10.36088/edisi.v2i2.1027>
- Malini, I., Lestariningsih, N., & Nirmalasari, R. (2022). Pengaruh Model Pembelajaran Treffinger Berbantuan Media Gambar terhadap Kreativitas dan Hasil Belajar Siswa pada Materi Sistem Peredaran Darah. *Jurnal Ilmu Pendidikan (JIP) STKIP Kusuma Negara*, 13(2), 109–119. <https://doi.org/10.37640/jip.v13i2.1019>
- Ngafifi, M. (2014). Kemajuan Teknologi Dan Pola Hidup Manusia Dalam Perspektif Sosial Budaya. *Jurnal Pembangunan Pendidikan: Fondasi Dan Aplikasi*, 2(1), 33–47. <https://doi.org/10.21831/jppfa.v2i1.2616>
- Nurrita, T. (2018). Pengembangan Media Pembelajaran Untuk Meningkatkan Hasil Belajar Siswa. *MISYKAT: Jurnal Ilmu-Ilmu Al-Quran, Hadist, Syari'ah Dan Tarbiyah*, 3(1), 171–187. <https://doi.org/10.33511/misykat.v3n1.171>
- Prajawinanti, A., & Yanti, A. D. (2021). Persepsi mahasiswa Program Studi Ilmu Perpustakaan dan Informasi Islam IAIN Tulungagung terhadap pemanfaatan telematika dan penerapan e-learning sebagai penunjang kegiatan belajar mengajar di masa pandemi Covid-19. *Informatio: Journal of Library and Information Science*, 1(1), 17–30. <https://doi.org/10.24198/inf.v1i1.31079>
- Putrawangsa, S., & Hasanah, U. (2018). Integrasi teknologi digital dalam pembelajaran di era industri 4.0. *Jurnal Tatsqif*, 16(1), 42–54. <https://doi.org/10.20414/jtq.v16i1.203>
- Siregar, E., & Nara, H. (2010). *Teori Belajar dan Pembelajaran*. Ghalia Indonesia.
- Sriyana, S., & Winarso, W. (2018). Perilaku Belajar Efektif Terhadap Kemampuan Kognitif Psikomotorik Siswa Dalam Pembelajaran Matematika. *IndoMath: Indonesia Mathematics Education*, 1(2), 77–92. <https://doi.org/10.30738/indomath.v1i2.2548>
- Sugiyono. (2015). *Metodologi Penelitian Kuantitatif, Kualitatif, dan Kombinasi (Mixed Methods)*. Alfabeta.
- Sujarweni, V. W. (2014). *Metode Penelitian: Lengkap, Praktis, dan Mudah Dipahami*. Pustaka Baru Press.
- Sumarto, S. (2016). Pemetaan Sistem Pengelolaan Pendidikan Manajemen Berbasis Sekolah (School Based Management). *Universum*, 10(1), 83–90.
- Surjono, H. D. (2017). *Multimedia Pembelajaran Interaktif: Konsep dan*

- Pengembangan*. UNY Press.
- Syafitri, S., Afiani, K. D. A., & Faradita, M. N. (2022). Problematika Guru Pada Pembelajaran Secara Online Pada Pembelajaran Matematika di Sd Muhammadiyah 18 Surabaya Selama Pandemi COVID-19. *Jurnal IKA: Ikatan Alumni PGSD UNARS*, 11(1), 443–456. <https://doi.org/10.21608/mkmgmt.2020.198553>
- Tanwir, & Rahman F, A. (2018). Dampak Penggunaan Media Pembelajaran Berbasis Ict Terhadap Hasil Belajar Pai Peserta Didik Pada Smk Negeri 1 Kota Parepare. *AL-ISHLAH: Jurnal Pendidikan Islam*, 16(1), 11–36. <https://doi.org/10.35905/alishlah.v16i1.732>
- Widiyani, D. T., Amilia, F., & Susetyo, A. M. (2016). Indikator Pembelajaran Efektif Dalam Pembelajaran Daring (dalam Jaringan) Pada Masa Pandemi Covid-19 di SMAN 2 Bandowoso. *Jurnal Fakultas Keguruan Dan Ilmu Pendidikan*, 1(1), 1–12.
- Wijaya, A. L. (2016). Pengaruh Penggunaan Teknologi Informasi Terhadap Prestasi Akademik Mahasiswa. *Journal of Accounting and Business Education*, 1(2), 1-13. <https://doi.org/10.26675/jabe.v1i2.6016>
- Yuzarion, Y. (2017). Faktor Yang Mempengaruhi Prestasi Belajar Peserta Didik. *Ilmu Pendidikan: Jurnal Kajian Teori Dan Praktik Kependidikan*, 2(1), 107–117. <https://doi.org/10.17977/um027v2i12017p107>
- Zuhairi, A., & Wahyono, E. (2004). Perkembangan dan Kontribusi Pendidikan Jarak Jauh dalam Upaya Pembangunan Masyarakat Indonesia Berbasis Pengetahuan. In *20 Tahun Universitas Terbuka Dulu, Kini dan Esok* (pp. 62-91). Universitas Terbuka.