

The Effectiveness of Amalish in Transforming English Language Learning in Primary Schools

Ratih Laily Nurjanah¹, Ulya Himawati², Ersila Devy Rinjani³

¹English Literature Department, Faculty of Economics, Law and Humanities, Universitas Ngudi Waluyo, Indonesia

²Pendidikan Profesi Guru, Fakultas Agama Islam, Universitas Wahid Hasyim, Indonesia

³Pendidikan Guru Madrasah Ibtidaiyah, Fakultas Agama Islam, Universitas Wahid Hasyim, Indonesia

¹ratihlaily@unw.ac.id, ²ulyahimawati@unwahas.ac.id, ³ersiladevyrinjani@unwahas.ac.id

Abstract

The integration of digital technology in primary education requires innovative platforms that support not only instructional delivery but also broader educational transformation. This study aims to evaluate the effectiveness of Amalish (Animated English) in transforming English language learning in primary schools. Unlike previous studies that primarily focus on learning outcomes or media effectiveness, this study examines Amalish as an integrated digital platform that simultaneously supports learning management, teacher digital competence, instructional media production, and technology utilization. A descriptive quantitative design was employed involving 15 teachers from SDN 03 Klepu Semarang, Indonesia. Data were collected through questionnaires, observations, and documentation and analyzed using descriptive statistics by calculating mean scores and standard deviations across the measured dimensions. The findings indicate that all dimensions achieved a "Very High" category, including learning management ($M = 4.33$), teacher digital competence ($M = 4.83$), instructional media production ($M = 4.50$), and technology utilization ($M = 5.00$). The results suggest that Amalish effectively supports teachers in integrating digital technology into instructional practices while simultaneously improving learning management and instructional monitoring processes. This study contributes to the literature on digital language learning by demonstrating that educational technology can function not only as an instructional tool but also as a catalyst for pedagogical, technological, and managerial transformation in primary education. The findings provide practical implications for schools seeking to implement sustainable digital transformation through integrated learning platforms.

Keywords: Amalish; digital transformation; English language learning; primary education; educational technology.

Abstrak

Penelitian ini bertujuan untuk mengevaluasi efektivitas Amalish (Animated English) dalam mentransformasi pembelajaran Bahasa Inggris di sekolah dasar. Berbeda dengan penelitian sebelumnya yang umumnya berfokus pada hasil belajar atau efektivitas media pembelajaran, penelitian ini mengkaji Amalish sebagai platform digital terintegrasi yang secara simultan mendukung manajemen pembelajaran, kompetensi digital guru, produksi media pembelajaran, dan pemanfaatan teknologi. Penelitian ini menggunakan desain kuantitatif deskriptif dengan melibatkan 15 guru SDN 03 Klepu Semarang. Data dikumpulkan melalui kuesioner, observasi, dan dokumentasi, kemudian dianalisis menggunakan statistik deskriptif melalui perhitungan nilai rata-rata dan standar deviasi pada setiap dimensi yang diukur. Hasil penelitian menunjukkan bahwa seluruh dimensi berada pada kategori "Sangat Tinggi", meliputi manajemen pembelajaran ($M = 4,33$), kompetensi digital guru ($M = 4,83$), produksi media pembelajaran ($M = 4,50$), dan pemanfaatan teknologi ($M = 5,00$). Temuan ini menunjukkan bahwa Amalish efektif dalam membantu guru mengintegrasikan teknologi digital ke dalam praktik pembelajaran sekaligus meningkatkan pengelolaan pembelajaran dan proses pemantauan kemajuan belajar siswa. Penelitian ini memberikan kontribusi pada kajian pembelajaran bahasa berbasis digital dengan menunjukkan bahwa teknologi pendidikan tidak hanya berfungsi sebagai alat bantu pembelajaran, tetapi juga sebagai katalisator transformasi pedagogis, teknologi, dan manajerial di pendidikan dasar.

Kata Kunci: Amalish; transformasi digital; pembelajaran Bahasa Inggris; pendidikan

dasar; teknologi pendidikan.

Received: 2026-04-22

Approved: 2026-06-03

Revised : 2026-05-10

Published: 2026-06-25

Introduction

The integration of digital technology in education has become a critical requirement in the 21st century, particularly in supporting student engagement, language acquisition, and the development of digital literacy (Alakrash & Razak, 2021; Zhang & Yang, 2025). In primary education, English language learning plays a strategic role in preparing students for global communication (Khomysyak, 2024; Wy & Kurniawan, 2024); however, its implementation often remains limited by traditional, teacher-centered practices. Many classrooms still rely heavily on textbooks and one-way instruction, resulting in low student engagement and limited opportunities for interactive language use (Hiver et al., 2021; Sadiqzade, 2025). This situation creates an urgent need for innovative, technology-supported learning environments that are aligned with students' characteristics and contemporary educational demands.

Previous studies have demonstrated that digital technologies improve students' motivation, vocabulary acquisition, and learning engagement in English language education (Haque et al., 2024; Wei, 2022). Other studies have focused on teacher digital competence and the effectiveness of multimedia-based instructional tools (Abdulrahaman et al., 2020; Alyusfitri et al., 2024; Nguyen & Habók, 2023). However, most existing studies examine these variables separately and tend to evaluate digital learning tools only from the perspective of learning outcomes or media effectiveness.

Limited attention has been given to how a digital platform can simultaneously influence instructional management, teacher digital competence, instructional media development, and technology utilization within a single educational ecosystem. Furthermore, previous studies rarely explore the role of data-driven learning systems that support monitoring, evaluation, and decision-making processes in primary school English education (Aburizaizah, 2021; Bai, 2024; Guo et al., 2025). Consequently, the systemic impact of digital learning platforms on educational transformation remains insufficiently understood.

Addressing this gap is important because primary schools increasingly require integrated digital solutions that not only support classroom instruction but also strengthen learning management and teacher professional development. Therefore, this study investigates the effectiveness of Amalish (Animated English) as a comprehensive platform for transforming English language learning in primary schools.

Methods

This study employed a descriptive quantitative research design (Balnaves & Caputi, 2001; Rana et al., 2021) to evaluate the effectiveness of the Amalish (Animated English) platform in transforming English language learning in primary schools. A descriptive quantitative approach was selected because it enables researchers to systematically describe and interpret empirical data obtained from the implementation of educational innovations (Balnaves & Caputi, 2001; Christensen & Johnson, 2007; Strunk & Mwavita, 2024). The

study was conducted at SDN 03 Klepu Semarang, Central Java, Indonesia, during the implementation of the Amalish program.

Participant Characteristics

The study involved 15 teachers from SDN 03 Klepu Semarang who actively participated in the implementation of the Amalish platform. Participants were selected using purposive sampling (Memon et al., 2024; Patton & Parton, 2015) because they were directly involved in English language learning activities and the use of the Amalish platform during the implementation period.

The participants consisted of teachers with diverse professional backgrounds and teaching experiences. Most participants had limited prior experience in integrating digital learning technologies into classroom instruction. Preliminary observations indicated that only a small number of teachers regularly utilized digital learning applications before the implementation of Amalish, while the majority relied primarily on conventional teaching methods. These characteristics provide important contextual information for understanding the effectiveness of the platform implementation.

Table 1. Participant Characteristics

Characteristics	Frequency
Gender	
Male Teachers	4
Female Teachers	11
Total Participants	15
Teaching Experience	
Teaching Experience 3–10 Years	6
Teaching Experience 11–20 Years	5
Teaching Experience Above 20 Years	4
Total Participants	15
Participants’ Digital Learning Background	
Regular Users of Digital Learning Applications	4
Non-Regular Users of Digital Learning Applications	11
Total Participants	15

As shown in Table 1, most participants had limited experience in utilizing digital technologies for instructional purposes. Therefore, the participants represented an appropriate group for evaluating the effectiveness of a digital learning platform designed to support educational transformation in primary school settings.

Research Procedure

The study was conducted through four stages. The first stage involved a preliminary needs assessment to identify existing challenges in English language learning. Observations and informal interviews revealed limited use of digital learning resources, insufficient teacher digital competence, and low student engagement in English learning activities. The second stage consisted of teacher training and platform orientation. Teachers were introduced to the features of the Amalish platform, including animated learning content, interactive exercises, digital assessment tools, and learning management functions. The third stage involved classroom implementation. Teachers integrated Amalish into English learning activities, allowing students to engage with digital learning materials and

interactive tasks. During this stage, teachers also utilized the platform to monitor student participation and learning progress. The final stage focused on evaluation. Data were collected after the implementation period to assess the effectiveness of the Amalish platform across the measured dimensions.

Research Instruments

Data were collected using questionnaires, observations, and documentation (Creswell & Creswell David, 2018; Denzin, 2012; Sugiyono, 2013). The questionnaire was developed to measure four dimensions of platform effectiveness: learning management, teacher digital competence, instructional media production, and technology utilization. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (Cohen et al., 2007; Sugiyono, 2013). To provide greater methodological transparency, the dimensions and indicators measured in the questionnaire are presented in Table 2.

Table 2. Research Instrument Indicators

Dimension	Indicators
Learning Management	Planning, organizing, monitoring, evaluation, reporting, and documentation of learning activities
Teacher Digital Competence	Ability to operate digital platforms, integrate technology into instruction, and solve technical problems
Instructional Media Production	Ability to develop, adapt, and utilize digital learning materials and multimedia resources
Technology Utilization	Frequency, effectiveness, accessibility, and integration of technology in classroom learning

Observation was conducted during classroom implementation to examine teachers' engagement and the integration of Amalish into learning activities (Creswell & Creswell David, 2018; Sugiyono, 2013). Documentation included learning reports, implementation records, digital learning products, and classroom activity documentation.

Instrument Validation and Reliability

The questionnaire was developed based on four theoretical constructs: learning management, teacher digital competence, instructional media production, and technology utilization (Jadid et al., 2025). Prior to implementation, the instrument was reviewed by three experts in educational technology and English language education to evaluate content relevance, clarity, and construct representation (Creswell, 2012; Thorndike & Thorndike-Christ, 2010).

The validation process consisted of three stages: (1) expert review of item relevance, (2) revision of questionnaire items based on expert feedback, and (3) final verification of construct representation. Based on the expert review, several questionnaire items were revised to improve wording, clarity, and alignment with the research objectives. The reliability of the instrument was subsequently tested using Cronbach's Alpha. The analysis yielded an overall reliability coefficient of 0.87, indicating a high level of internal consistency and reliability for educational research purposes. According to George and Mallery, a Cronbach's Alpha coefficient above 0.80 indicates good reliability (George & Mallery, 2019). To enhance research credibility, methodological triangulation was employed by comparing questionnaire findings with observation and documentation data.

Data Analysis

The use of descriptive statistical analysis was considered appropriate because the primary objective of this study was to evaluate and describe the level of effectiveness of the Amalish platform rather than to test causal relationships or compare treatment groups. Since the study employed a single-group implementation design with a relatively small sample size, descriptive statistics provided an effective means of summarizing participant perceptions and identifying patterns of effectiveness across the measured dimensions.

The collected data were analyzed using descriptive statistics through the calculation of mean scores for each indicator and dimension. The mean score was calculated using the following formula (Kartini et al., 2024; Sudjana, 1975):

$$X = \frac{\sum X}{n} \quad (1)$$

where $\bar{X}$ represents the mean score, $\sum X$ represents the total score obtained, and N represents the number of respondents. To facilitate interpretation, mean scores were categorized into effectiveness levels as presented in Table 3 (Sugiyono, 2013).

Table 3. Effectiveness Categories

Mean Score	Category
1.00–1.80	Very Low
1.81–2.60	Low
2.61–3.40	Moderate
3.41–4.20	High
4.21–5.00	Very High

The results were subsequently presented through tables and descriptive interpretation to provide a comprehensive understanding of the effectiveness of the Amalish platform in transforming English language learning at the primary school level.

Results and Discussion

The implementation of the Amalish (Animated English) platform was evaluated to determine its effectiveness in supporting the transformation of English language learning in primary schools. Data obtained from questionnaires, observations, and documentation were analyzed to examine four key dimensions: learning management, teacher digital competence, instructional media production, and technology utilization. The presentation of findings begins with an overview of the overall effectiveness of the platform, followed by a detailed discussion of each dimension. The discussion not only reports statistical results but also interprets their educational significance by drawing upon relevant theories and recent empirical studies in digital learning and educational technology. Through this approach, the study provides a comprehensive understanding of how Amalish contributes to pedagogical, technological, and managerial transformation in primary school English education.

Overall Effectiveness of Amalish

The effectiveness of the Amalish platform was assessed across four dimensions: learning management, teacher digital competence, instructional media production, and technology utilization. Table 5 presents the descriptive statistics of each dimension.

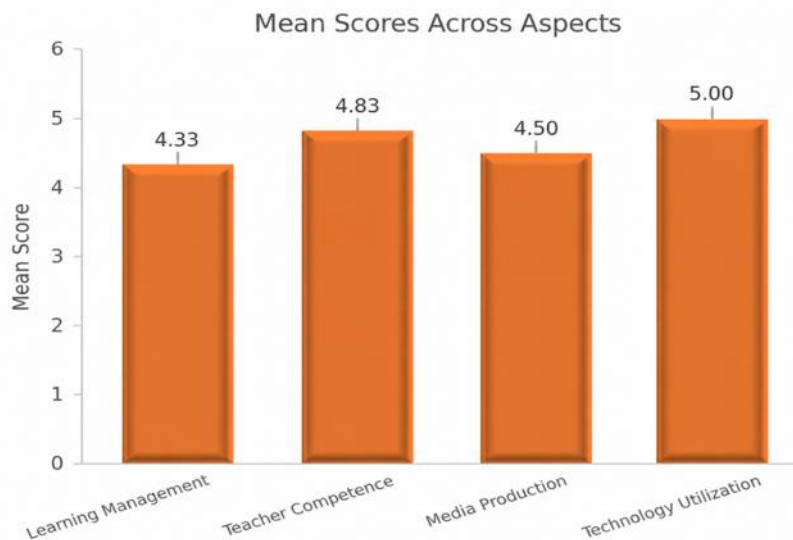
Table 5. Descriptive Statistics of Amalish Effectiveness

Dimension	Mean	SD	Category
Learning Management	4.33	0.58	Very High
Teacher Digital Competence	4.83	0.37	Very High
Instructional Media Production	4.50	0.52	Very High
Technology Utilization	5.00	0.00	Very High

The results indicate that all dimensions achieved mean scores within the “Very High” category. The relatively low standard deviation values suggest that teachers shared similar perceptions regarding the effectiveness of the platform, indicating consistency in the implementation outcomes.

As shown in Figure 1, technology utilization achieved the highest score ($M = 5.00$), followed by teacher digital competence ($M = 4.83$), instructional media production ($M = 4.50$), and learning management ($M = 4.33$). Although all dimensions were categorized as very high, the differences among scores reveal important aspects of educational transformation.

The highest score in technology utilization may be attributed to the user-friendly design of Amalish, which enabled teachers to access animated content, digital assessments, and learning reports without requiring advanced technological expertise. The platform minimized technical barriers and facilitated immediate classroom application. This finding is consistent with the Technology Acceptance Model (TAM), which emphasizes that



perceived usefulness and perceived ease of use significantly influence technology adoption (Davis, 1985; Nopis & Hashim, 2024). Teachers perceived Amalish as both useful and easy to operate, which contributed to its successful implementation.

Figure 1. Mean Scores Across Measured Dimensions

Conversely, learning management obtained the lowest score among the measured dimensions, although it remained within the “Very High” category. This result suggests that managerial transformation generally requires more time than technology adoption. While teachers can rapidly learn how to use digital tools, improving planning, monitoring, evaluation, and documentation practices often requires institutional support, organizational restructuring, and sustained implementation.

These findings indicate that educational transformation is not solely a technological process but also a pedagogical and managerial one. Therefore, successful digital innovation should be viewed as a comprehensive change strategy involving technology, teaching practices, and school management.

Learning Management

To obtain a more detailed understanding of learning management, six indicators were analyzed. The results indicate that indicators M3 and M6 achieved the highest scores. These indicators relate to evaluation and documentation practices, suggesting that Amalish strengthened teachers' ability to monitor student progress and maintain instructional records systematically.

The platform enabled teachers to access assessment results and learning reports in real time, thereby supporting evidence-based instructional decision-making. This finding supports Bond et al. (2024), who argued that digital learning environments contribute not only to teaching effectiveness but also to instructional accountability and educational management.

Table 6. Learning Management Indicators

Indicator	Mean	Category
M1	4.00	High
M2	4.00	High
M3	5.00	Very High
M4	4.00	High
M5	4.00	High
M6	5.00	Very High

The relatively lower scores in planning and organizational aspects may reflect the complexity of institutional change. Educational management literature suggests that organizational transformation requires longer periods of adaptation because it involves changes in established routines and administrative culture.

Teacher Digital Competence

Teacher digital competence achieved a mean score of 4.83, indicating substantial improvement in teachers' ability to integrate technology into instructional practices.

This result can be interpreted through the Digital Competence Framework for Educators (DigCompEdu), which emphasizes competencies related to digital resources, assessment, learner engagement, and professional development (Redecker, 2017). Through active engagement with Amalish, teachers developed greater confidence in utilizing technology to support learning activities.

The findings also align with the Technological Pedagogical Content Knowledge (TPACK) framework proposed by Mishra and Koehler (2006). According to TPACK, effective technology integration occurs when teachers successfully combine technological knowledge, pedagogical knowledge, and content knowledge. Amalish facilitated this integration by providing teachers with opportunities to apply digital tools directly within English language instruction.

Similarly, Konstantinidou & Scherer (2022) found that teacher digital competence is a significant predictor of successful technology integration in educational settings. The high score obtained in this study suggests that teachers perceived the platform as a valuable tool for both professional growth and instructional improvement.

The findings suggest that the improvement of teacher digital competence was not solely influenced by the availability of technology but also by the opportunity to apply digital tools within authentic teaching contexts. Unlike conventional training programs that often focus on technical skills, the implementation of Amalish allowed teachers to simultaneously develop technological, pedagogical, and instructional competencies. This indicates that meaningful technology integration occurs when teachers experience direct connections between digital tools and classroom needs. Therefore, the effectiveness of Amalish may be attributed to its ability to bridge technology use with pedagogical practice rather than merely introducing new technological resources.

Instructional Media Production

The instructional media production dimension achieved a mean score of 4.50, indicating that teachers effectively utilized and adapted digital learning materials available within the platform.

One possible explanation for this finding is the integration of animated multimedia content that reduced teachers' workload in preparing instructional materials while simultaneously enhancing lesson quality. The availability of visual, auditory, and interactive elements enabled teachers to present English learning materials in more engaging and meaningful ways.

This finding strongly supports Multimedia Learning Theory proposed by Mayer (2021), which argues that learners process information more effectively when verbal and visual information are presented simultaneously. Through the integration of animation, narration, images, and interactive exercises, Amalish created a richer learning environment that supported comprehension and engagement.

Recent studies have similarly reported that multimedia-supported learning environments enhance learner motivation and language acquisition (Almusharraf et al., 2023; Hung, 2011). Therefore, the findings reinforce the importance of multimedia integration in primary school English language learning.

The findings further indicate that multimedia integration can support instructional efficiency by reducing teachers' dependence on conventional teaching materials. Through the availability of animated and interactive resources, teachers were able to focus more on facilitating learning rather than spending extensive time preparing instructional content. This result highlights the dual function of multimedia platforms in supporting both student engagement and teacher productivity. Consequently, the contribution of Amalish extends beyond media enhancement to improving the overall quality of instructional delivery.

Technology Utilization

Technology utilization achieved the highest score among all dimensions ($M = 5.00$), demonstrating exceptionally positive teacher perceptions regarding the practicality and usefulness of the platform.

Several factors may explain this outcome. First, Amalish was specifically designed for primary school contexts, making it highly relevant to teachers' instructional needs. Second, the platform integrates instructional content, assessment tools, and reporting features within a single system. Third, training and mentoring activities conducted during implementation reduced teachers' technological anxiety and increased confidence.

The findings support recent studies emphasizing that technology adoption is more successful when educational technologies are perceived as useful, practical, and easy to use (Moorhouse et al., 2023). The results also align with Trust and Whalen (2021), who argued that educational technologies are most effective when they function as integrated systems supporting instruction, assessment, and professional development.

The exceptionally high score obtained in this dimension suggests that technology adoption becomes more sustainable when educational technologies are perceived as directly relevant to teachers' daily instructional responsibilities. This finding supports the argument that successful digital transformation depends not only on technological infrastructure but also on user acceptance and contextual relevance. In the case of Amalish, the integration of learning content, assessment features, and reporting tools within a single platform appears to have reduced implementation complexity and encouraged consistent technology use among teachers.

Comparison with Previous and International Studies

The findings are consistent with international studies highlighting the positive impact of digital learning technologies on language education. Degirmencioglu & Gilanlioglu (2025) reported that interactive digital learning environments significantly improve student engagement and teacher confidence in technology-enhanced language learning. Similarly, Moorhouse (2023) found that digital platforms support more personalized and flexible language learning experiences among young learners.

The present study extends these findings by demonstrating that the benefits of digital learning platforms are not limited to instructional outcomes. Amalish also contributed to improvements in learning management, instructional monitoring, and documentation practices. This indicates a broader institutional impact than has been reported in many previous studies.

Furthermore, the findings support Bond et al. (2023), who reported that digital learning environments contribute significantly to teacher professional development and educational innovation. By examining pedagogical, technological, and managerial dimensions simultaneously, this study offers a more comprehensive perspective on digital transformation in primary school English education.

A notable contribution of this study lies in its holistic perspective on educational transformation. While many previous studies have examined technology integration primarily from the perspectives of student achievement, teacher perceptions, or technology acceptance, the present study demonstrates that digital platforms can simultaneously influence instructional management, teacher professional development, media production, and technology utilization. This broader perspective provides additional evidence that digital transformation should be conceptualized as a systemic process involving multiple interconnected dimensions within the educational ecosystem.

Implications for English Language Learning Transformation

The findings have important theoretical and practical implications. Theoretically, the study supports the integration of Multimedia Learning Theory (Mayer, 2021), the Technology Acceptance Model (Davis, 1985), the TPACK framework (Mishra & Koehler, 2006), and DigCompEdu (Redecker, 2017) in explaining successful digital transformation in education. The results demonstrate that educational transformation is most effective when technological accessibility, pedagogical innovation, and teacher competence development occur simultaneously.

From a practical perspective, the findings suggest that schools should adopt comprehensive digital transformation strategies that combine technology implementation, teacher professional development, and instructional management improvement. Digital platforms such as Amalish should be viewed as catalysts for systemic educational transformation rather than merely instructional tools. Furthermore, policymakers and school leaders should consider providing continuous training, mentoring, and institutional support to ensure the sustainability of technology-enhanced learning initiatives.

Limitations of the Study

Several limitations should be acknowledged. First, the study involved only 15 teachers from a single primary school, which may limit the generalizability of the findings. Second, the data relied primarily on teacher self-reported perceptions, which may be influenced by response bias. Third, the study focused on teacher-related outcomes and did not directly measure student learning achievement or English language proficiency.

Future studies are encouraged to involve larger participant samples, multiple schools, and experimental research designs. Further research may also investigate the impact of Amalish on student achievement, language proficiency development, and long-term educational transformation.

Conclusion

This study examined the effectiveness of the Amalish (Animated English) platform in supporting the transformation of English language learning in primary schools. The findings indicate that Amalish was highly effective across all measured dimensions, including learning management, teacher digital competence, instructional media production, and technology utilization. The consistently high scores suggest that the platform successfully supported teachers in integrating digital technology into instructional practices while simultaneously improving the management and monitoring of learning activities.

Beyond its function as a digital learning tool, Amalish demonstrated potential as a comprehensive educational platform that facilitates pedagogical innovation, professional development, and instructional management. The findings highlight that effective digital transformation in education requires the integration of technological, pedagogical, and managerial dimensions. In this regard, the study supports the perspectives of the Technology Acceptance Model (TAM), the Technological Pedagogical Content Knowledge (TPACK) framework, the Digital Competence Framework for Educators (DigCompEdu), and Multimedia Learning Theory, all of which emphasize the importance of aligning technology, pedagogy, and user readiness in achieving successful educational innovation.

The study also contributes to the growing body of literature on digital language learning by demonstrating that educational technology can support not only classroom instruction but also broader institutional processes such as monitoring, evaluation, and documentation. Therefore, digital platforms should be viewed as catalysts for systemic educational transformation rather than merely instructional tools.

From a practical perspective, the findings suggest that schools seeking to implement digital transformation initiatives should invest not only in technological infrastructure but also in continuous teacher professional development and effective learning management systems. The successful implementation of Amalish demonstrates that sustainable digital innovation depends on both technological accessibility and teacher readiness.

Several limitations should be acknowledged. First, the study involved a relatively small sample consisting of 15 teachers from a single primary school, which may limit the generalizability of the findings. Second, the study relied primarily on self-reported teacher perceptions, which may be influenced by response bias. Third, the study focused on teacher-related outcomes and did not directly examine student learning achievement or English language proficiency development.

Future research is recommended to involve larger and more diverse participant groups across different educational settings. Researchers may also employ experimental or mixed-methods designs to investigate the long-term impact of Amalish on student engagement, language proficiency, digital literacy development, and overall learning outcomes. Such investigations would provide a more comprehensive understanding of the role of digital learning platforms in supporting sustainable educational transformation.

References

- Abdulrahman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., Imam-Fulani, Y. O., Fahm, A. O., & Azeez, A. L. (2020). Multimedia tools in the teaching and learning processes: A systematic review. *Heliyon*, 6(11). <https://doi.org/10.1016/j.heliyon.2020.e05312>
- Aburizaizah, S. (2021). Data-Informed Educational Decision Making to Improve Teaching and Learning Outcomes of EFL. *Journal of Education and Learning*. <https://doi.org/10.5539/jel.v10n5p17>
- Alakrash, H. M., & Razak, N. A. (2021). *Technology-Based Language Learning : Investigation of Digital Technology and Digital Literacy*.
- Almusharraf, N., Aljasser, M., Dalbani, H., & Alsheikh, D. (2023). Gender differences in utilizing a game-based approach within the EFL online classrooms. *Heliyon*, 9(2). <https://doi.org/10.1016/j.heliyon.2023.e13136>
- Alyusfitri, R., Gistituati, N., & Fauzan, A. (2024). The Effectiveness and Relationship of Student Responses toward Learning Outcomes Using Interactive Multimedia-Based E-Modules in Elementary Schools. *International Electronic Journal of Elementary Education*. <https://doi.org/10.26822/iejee.2024.354>
- Bai, H. (2024). Design and Application of Decision Support System for Educational Management Based on Big Data. *Journal of Electrical Systems*. <https://doi.org/10.52783/jes.3084>
- Balnaves, M., & Caputi, P. (2001). *Introduction to Quantitative Research Methods: An Investigative Approach*. SAGE Publications.

- <https://books.google.co.id/books?id=nQxL0Ooq61oC>
- Bergdahl, N., Bond, M., Sjöberg, J., Dougherty, M., & Oxley, E. (2024). Unpacking student engagement in higher education learning analytics: a systematic review. *International Journal of Educational Technology in Higher Education*, 21. <https://doi.org/10.1186/s41239-024-00493-y>
- Bond, M., & Bergdahl, N. (2023). *Student Engagement in Open, Distance, and Digital Education* (pp. 1309–1324).
- Christensen, L., & Johnson, R. (2007). *Educational Research: Quantitative, Qualitative, and Mixed Approaches*. <https://consensus.app/papers/educational-research-quantitative-qualitative-and-mixed-christensen-johnson/e0c3eb6fdbad518788d3b18aa97dc046/>
- Cohen, L., Manion, L., Lecturer, P., Morrison, K., & Lecturer, S. (2007). *Research Methods in Education* (Sixth). Routledge.
- Creswell, J. W. (2012). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research* (fourth Edi). Pearson.
- Creswell, J. W., & Creswell David, J. (2018). Fifth Edition: Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. In *Sage* (fifth). SAGE Publication. <https://doi.org/10.4324/9780429469237-3>
- Davis, F. D. (1985). *A Technology Acceptance Model for Empirically Testing New End-user Information Systems: Theory and Results*. Massachusetts Institute of Technology, Sloan School of Management. <https://books.google.co.id/books?id=hbx8NwAACAAJ>
- Degirmencioglu, Z., & Gilanlioglu, I. (2025). Pre-service English language teachers' perceptions and motivation towards technology use in online education. *Language Teaching Research*, 0(0), 13621688251319864. <https://doi.org/10.1177/13621688251319865>
- Denzin, N. K. (2012). Triangulation 2.0. In *Journal of Mixed Methods Research* (Vol. 6, Issue 2, pp. 80–88). Sage Publications. <https://doi.org/10.1177/1558689812437186>
- George, D., & Mallery, P. (2019). *IBM SPSS Statistics 26 Step by Step A Simple Guide and Reference, 16th Edition*. <https://api.semanticscholar.org/CorpusID:214400155>
- Guo, Z., Kou, Y., Xu, Y., Zhang, H., & Cui, M. (2025). Data-Driven Practical Approaches to Integrating Teaching, Learning, and Assessment in English. *Journal of Educational Theory and Practice*. <https://doi.org/10.62177/jetp.v2i4.773>
- Haque, A., Ariansyah, M. R., Wiladyah, N. C., & Sari, R. N. (2024). Teaching Vocabulary in a Digital Era: A Study on Tools and Techniques for Engaging English Learners. *IREELL: Indonesian Review of English Education, Linguistics, and Literature*. <https://doi.org/10.30762/ireell.v2i2.4433>
- Hiver, P., Al-Hoorie, A., Vitta, J., & Wu, J. (2021). Engagement in language learning: A systematic review of 20 years of research methods and definitions. *Language Teaching Research*, 28, 201–230. <https://doi.org/10.1177/13621688211001289>
- Hung, H. (2011). Design-based research: Designing a multimedia environment to support language learning. *Innovations in Education and Teaching International*, 48, 159–169. <https://doi.org/10.1080/14703297.2011.564011>
- Jadid, S. A., Idrus, A., Syarifuddin, M., Cahyani, L., Raharja, R. P., Jadid, S. A., & Idrus, A. (2025). A Mobile Technology-Based Empowerment Model for Arabic Language Teachers in Developing Animated Learning Videos at Rural Islamic Boarding School. *Jurnal Penelitian Pendidikan IPA*, 11(12), 561–569. <https://doi.org/10.29303/jppipa.v11i12.12113>
- Kartini, A. Y., Nurdiansyah, S. D., & Cahyani, S. N. (2024). *METODE STATISTIKA* (Pertama). Madza Media.
- Khomysyak, O. (2024). English Language Education In The Context Of Globalisation:

- Challenges And Prospects. *Problems of Modern Teacher Training*.
[https://doi.org/10.31499/2307-4914.1\(29\).2024.305101](https://doi.org/10.31499/2307-4914.1(29).2024.305101)
- Konstantinidou, E., & Scherer, R. (2022). Teaching with technology: A large-scale, international, and multilevel study of the roles of teacher and school characteristics. *Computers & Education*, 179, 104424.
<https://doi.org/https://doi.org/10.1016/j.compedu.2021.104424>
- Mayer, R. E. (2021). *Multimedia Learning*. Cambridge University Press.
<https://books.google.co.id/books?id=jMfjDwAAQBAJ>
- Memon, M., Thurasamy, R., Ting, H., & Cheah, J. (2024). Purposive Sampling: A Review And Guidelines For Quantitative Research. *Journal of Applied Structural Equation Modeling*. [https://doi.org/10.47263/jasem.9\(1\)01](https://doi.org/10.47263/jasem.9(1)01)
- Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, 108(6), 1017–1054.
<https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Moorhouse, B., Wong, K., & Li, L. (2023). Teaching with Technology in the Post-Pandemic Digital Age: Technological Normalisation and AI-Induced Disruptions. *RELC Journal*, 54, 311–320. <https://doi.org/10.1177/00336882231176929>
- Nguyen, L., & Habók, A. (2023). Tools for assessing teacher digital literacy: a review. *Journal of Computers in Education*, 1–42. <https://doi.org/10.1007/s40692-022-00257-5>
- Nopis, A., & Hashim, H. (2024). *English Teachers ' Acceptance towards the Use of Technology for Language Teaching: A Systematic Review (2021-2023)*. 13(4), 2891–2909.
<https://doi.org/10.6007/IJARPED/v13-i4/24082>
- Patton, M. Q., & Parton, M. Q. (2015). Qualitative Research & Evaluation Methods. *Analytical Biochemistry*, 11(1), 1–5. <http://link.springer.com/10.1007/978-3-319-59379-1%0Ahttp://dx.doi.org/10.1016/B978-0-12-420070-8.00002-7%0Ahttp://dx.doi.org/10.1016/j.ab.2015.03.024%0Ahttps://doi.org/10.1080/07352689.2018.1441103%0Ahttp://www.chile.bmw-motorrad.cl/sync/showroom/lam/es/>
- Rana, J., Luna Gutierrez, P., & Oldroyd, J. (2021). *Quantitative Methods* (pp. 1–6).
https://doi.org/10.1007/978-3-319-31816-5_460-1
- Redecker, C. (2017). *European Framework for the Digital Competence of Educators* (Y. Punie (ed.)).
- Sadiqzade, Z. (2025). The Active Approach: Enhancing Language Skills through Classroom Engagement. *Global Spectrum of Research and Humanities*.
<https://doi.org/10.69760/gsrh.01012025003>
- Strunk, K., & Mwavita, M. (2024). *Design and Analysis in Quantitative Educational Research*.
<https://doi.org/10.4324/9781003442011>
- Sudjana. (1975). *Metoda statistika: untuk bidang biologi, farmasi, geologi ...* Tarsito.
<https://books.google.co.id/books?id=hqtVNQAACAAJ>
- Sugiyono. (2013). Metode Penelitian Kuantitatif, Kualitatif, dan R&D. In *Alfabeta Bandung* (19th ed.). Alfabeta Bandung. <https://silnkotakinabalu.sch.id/community-learning-center-clc/>
- Thorndike, R. M., & Thorndike-Christ, T. M. (2010). *Measurement and Evaluation in Psychology and Education*, 8th Edition.
<https://api.semanticscholar.org/CorpusID:151883317>
- Trust, T., & Whalen, J. (2021). Emergency remote teaching with technology during the COVID-19 pandemic: using the whole teacher lens to examine educator's experiences and insights. *Educational Media International*, 58(2), 145–160.

<https://doi.org/10.1080/09523987.2021.1930479>

- Wei, Y. (2022). Toward Technology-Based Education and English as a Foreign Language Motivation: A Review of Literature. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.870540>
- Wy, I., & Kurniawan, A. (2024). English Language and Its Importance as Global Communication. *Samā Jiva Jnānam (International Journal of Social Studies)*. <https://doi.org/10.25078/ijoss.v2i1.3920>
- Zhang, Z., & Yang, R. (2025). Personalised Language Learning Through Technology: Examining How Digital Literacy Shapes Proficiency and Communication Strategies. *Journal of Computer Assisted Learning*, 41(4), e70069. <https://doi.org/https://doi.org/10.1111/jcal.70069>