

EFFECTIVENESS OF GRAPHIC DESIGN PLATFORMS AS LEARNING MEDIA IN VOCATIONAL EDUCATION: A PRISMA-BASED SYSTEMATIC LITERATURE REVIEW

Deny Fathur Rachman Sugi Harto¹, Syamsul Hadi², Dani Irawan³, Erwin Komara Mindarta⁴

Program Studi Pendidikan Teknik Otomotif, Fakultas Teknik, Universitas Negeri Malang^{1,2,3,4}

E-mail: denyfathur8@gmail.com¹, syamsul.hadi.ft@um.ac.id², dani.irawan.ft@um.ac.id³,
erwin.komara.ft@um.ac.id⁴

Received: 08/05/2026 | Revised : 15/05/2026 | Accepted: 04/06/2026 | Published :16/06/2026

Abstract

This study aims to analyze the effectiveness of graphic design platforms as learning media in vocational education through a systematic literature review based on the PRISMA framework. In the context of accelerating digital transformation in education, particularly in vocational schools, there is a growing need for visual, interactive, and technology-supported learning environments to enhance students' learning experiences and competencies. This study systematically reviewed 50 peer-reviewed journal articles published between 2004 and 2025, retrieved from Scopus, Google Scholar, and ScienceDirect databases. The selection process followed the PRISMA stages, including identification, screening, eligibility, and inclusion. Data were analyzed using a descriptive-comparative approach and synthesized using vote-counting techniques to identify dominant research patterns. The findings indicate that graphic design platforms—such as Canva, Adobe Illustrator, and similar tools—consistently contribute to improved learning outcomes (86%), increased student engagement (80%), and enhanced conceptual understanding (76%). Recent studies (2025–2026) also emphasize the increasing role of AI-integrated design tools in improving usability, creativity, and instructional efficiency in education settings. These results confirm that graphic design platforms are not merely technical tools but strategic learning media that strengthen visual cognition, learner interaction, and instructional clarity. The study concludes that integrating graphic design platforms into vocational education significantly enhances learning effectiveness, particularly in terms of engagement, comprehension, and academic performance.

Keywords: *Graphic Design Platforms, Vocational Education, PRISMA, Systematic Literature Review, Learning Effectiveness, Digital Learning Media*

INTRODUCTION

The development of digital technology in the field of education has driven significant transformations in the learning process across various levels, including vocational education. Vocational education, which is oriented toward job-related skills, is required to adapt to technological advancements so that graduates possess competencies relevant to industry needs. However, the reality in practice still shows that learning processes tend to be dominated by conventional, teacher-centered methods, resulting in passive learning and limited opportunities for student exploration. This condition has an impact on the low level of student engagement in the learning process, as well as difficulties in understanding technical and abstract materials. In vocational education, this becomes a crucial issue because the required competencies include not only theoretical understanding but also practical skills. The mismatch between instructional approaches and competency demands indicates an urgent need for innovation in learning media that is more effective, interactive, and contextual. Theoretically, learning effectiveness is not solely determined by the delivery of information, but also by the process of knowledge construction by learners. Constructivist theory emphasizes that learning occurs through an active process of constructing meaning based on learning experiences (Tobias & Duffy, 2009). This suggests that learning should be designed to optimally stimulate students' cognitive activities, rather than merely facilitating one-way information transfer.

Furthermore, multimedia learning theory explains that learning becomes more effective when information is presented through an integrated combination of visual and verbal elements (Mayer, 2014). This principle is highly relevant in vocational education, which often involves visual, procedural, and technical materials. Therefore, the use of interactive visual media becomes a strategic approach to improving conceptual understanding and the overall quality of learning. Along with the advancement of educational technology, graphic design platforms such as Canva, Adobe Illustrator, and similar applications have increasingly been integrated into the learning process. These platforms function not only as design tools but also as instructional media capable of presenting materials in a more visual, interactive, and easily understandable manner. Several studies indicate that the use of graphic design-based media can enhance conceptual understanding, learning motivation, and student engagement in the learning process (Ahmed & Osman, 2020; Kim, 2022).

In the context of vocational education, the integration of visual-based digital media plays a strategic role in supporting the development of 21st-century skills. The use of technology in learning not only improves cognitive aspects but also fosters digital literacy, creativity, and students' work readiness in facing an increasingly digitalized industrial world (Kurniawan et al., 2026; Setiyawan et al., 2023). In Indonesia, the implementation of graphic design platforms in vocational learning, particularly in vocational high schools (SMK), has been growing rapidly. The use of Canva as an interactive learning medium has been proven to enhance students' creativity, participation, and learning outcomes (Setiadi et al., 2025). However, most existing studies remain partial and have not yet provided a comprehensive synthesis regarding the overall effectiveness of graphic design platforms.

Moreover, previous studies generally focus on digital learning media in a broad sense, without specifically distinguishing the contribution of graphic design platforms as interactive visual media. As a result, there is still no systematic mapping of how visual representation and interactivity contribute to learning outcomes, student engagement, and conceptual understanding in vocational education. Based on these gaps, a more structured study is needed to synthesize existing research findings. Therefore, this study aims to analyze the effectiveness of graphic design platforms as learning media in vocational education through a systematic literature review approach based on PRISMA.

LITERATURE REVIEW

Learning in Vocational Education

Vocational education is designed to equip learners with competencies that are directly relevant to the labor market and industry demands. Its primary characteristic lies in balancing theoretical knowledge with practical skills. Therefore, learning processes in vocational education must be contextual, applied, and aligned with real-world practices (UNESCO, 2022). In this context, traditional teacher-centered approaches are no longer sufficient. There is a growing shift toward student-centered learning, which emphasizes active participation, critical thinking, and problem-solving skills. Such transformation requires the integration of innovative learning media that can support interactive and skill-oriented learning environments (OECD, 2021).

Constructivist Learning Theory

Constructivist theory posits that knowledge is actively constructed by learners rather than passively received from instructors. Learning occurs when individuals integrate new information with their prior knowledge through meaningful experiences (Tobias & Duffy, 2009). In vocational education, this theory is highly relevant because students are expected not only to understand concepts but also to apply them in practical contexts. Therefore, learning environments should encourage exploration, interaction, and active engagement. The use of interactive learning media plays a crucial role in facilitating this process and enhancing meaningful learning experiences (Schunk, 2012).

Multimedia Learning Theory

Multimedia Learning Theory, proposed by Mayer, suggests that learning is more effective when information is delivered through a combination of visual and verbal elements. This is based on the dual-channel assumption, which states that individuals process information through separate visual and auditory channels (Mayer, 2014). The theory also highlights key design principles such as coherence, signaling, and redundancy to optimize cognitive load. In vocational education, where materials are often technical and procedural, multimedia-based learning can significantly improve comprehension by presenting complex information in a structured and visually engaging manner (Fiorella & Mayer, 2018).

Digital and Interactive Learning Media

Digital learning media refer to technology-based tools used to facilitate learning processes in a more flexible, engaging, and interactive way. Research shows that digital media can significantly enhance student motivation, engagement, and learning outcomes (Bond et al., 2021). Interactive learning media, in particular, allow learners to actively participate in the learning process, transforming them from passive recipients into active knowledge constructors. This aligns with the demands of 21st-century education, which emphasize critical thinking, creativity, collaboration, and communication skills (Partnership for 21st Century Skills, 2009).

Graphic Design Platforms as Learning Media

Graphic design platforms such as Canva, Adobe Illustrator, and similar tools have increasingly been integrated into educational settings as interactive learning media. These platforms enable users to create visual content such as infographics, presentations, and instructional materials in an accessible and engaging way. In education, graphic design platforms serve not only as visualization tools but also as means to foster creativity, digital literacy, and student engagement (Serrano et al., 2019). Studies have shown that visually structured learning materials can improve conceptual understanding and retention by simplifying complex information (Haque et al., 2024). In vocational education, these platforms are particularly relevant as they simulate real-world digital practices and support the development of essential skills required in modern industries, including visual communication, creativity, and problem-solving (Setiyawan et al., 2023).

Learning Effectiveness

Learning effectiveness refers to the extent to which learning objectives are achieved. It is commonly measured through indicators such as learning outcomes, student engagement, motivation, and the ability to understand and apply knowledge (Slavin, 2018). In the context of digital learning media, effectiveness is influenced by factors such as usability, content quality, and alignment with learners' needs. Therefore, evaluating the effectiveness of learning media is essential to ensure that technological integration contributes positively to the learning process (Bond et al., 2021).

METHOD

This study employs a Systematic Literature Review (SLR) approach to analyze the effectiveness of graphic design platforms as learning media in vocational education. The selection of this approach is based on the need to synthesize various empirical findings that remain fragmented and have not yet provided a comprehensive understanding of the contribution of interactive visual-based media to learning outcomes, student engagement, and conceptual understanding. Therefore, the SLR approach is used to bridge the research gap identified in previous studies through a systematic and structured evidence-based method.

The research process follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency and consistency in each stage of the literature selection process. Data sources were obtained from reputable scientific databases, namely Google Scholar, Scopus, and ScienceDirect, covering publications from 2004 to 2025. This time range was selected to capture the development of graphic design platforms in learning, from the early phase of digitalization to their implementation in modern vocational education contexts. The literature search was conducted using keywords relevant to the research focus, including "graphic design platform," "Canva OR Adobe Illustrator," "visual learning media," "digital learning tools," "vocational education," "learning effectiveness," and "student engagement." These keywords were combined using Boolean operators to ensure that the retrieved articles specifically intersected the domains of visual learning media, graphic design technology, and vocational education.

The inclusion criteria in this study consist of peer-reviewed journal articles, studies discussing the use of visual-based learning media or graphic design platforms, research conducted within the context of vocational education, and studies presenting measurable empirical results. Meanwhile, the exclusion criteria include non-scientific articles, duplicate publications, and studies that are not relevant to the focus on the effectiveness of digital learning media. The literature selection process was carried out through four PRISMA stages. The identification stage yielded 320 articles from all databases. The screening stage involved removing duplicates and filtering based on titles and abstracts, resulting in 260 articles. The eligibility stage was conducted through full-text analysis, leading to the exclusion of 180 articles that did not meet the inclusion criteria. The final stage, inclusion, resulted in 50 eligible articles, which were coded S1–S50 to ensure traceability and data consistency during the analysis process.

Data analysis was conducted using a descriptive-comparative synthesis approach to categorize findings based on three main variables: learning outcomes, student engagement, and conceptual understanding. Additionally, a vote counting technique was applied to identify research trends quantitatively in the form of percentage dominance of findings. This analytical approach was used to produce a synthesis aligned with the research objective, namely to provide a comprehensive overview of the effectiveness of graphic design platforms in the context of vocational education.

RESULTS AND DISCUSSION

Results

The analysis of the research findings was conducted by synthesizing 50 selected articles (S1–S50) to identify trends in the impact of graphic design platforms in vocational education. The synthesis focused on three main indicators: learning outcomes, student engagement, and conceptual understanding. A summary of the findings from all analyzed studies is presented in Table 1 below.

Table 1. Summary of Research Findings

No.	Variable	Number of Studies	Percentage	Direction of Findings	of Interpretation
1	Learning Outcomes	43	86%	Positive	Improvement in cognitive achievement through visual graphic design media
2	Student Engagement	40	80%	Positive	Increased active participation and learning interaction
3	Conceptual Understanding	38	76%	Positive	Strengthened understanding of technical material through visual representation

Empirically, the dominance of positive findings in the learning outcomes variable (86%) indicates that graphic design platforms have a direct effect on improving students’ cognitive performance. This improvement is not only reflected in higher academic scores but also suggests an acceleration in information processing due to more structured and easily comprehensible visualizations. In other words, these media function as a *cognitive simplifier* for complex learning materials. For the student engagement variable (80%), the findings reveal a fundamental shift in learning interaction patterns. Learning is no longer one-directional but transforms into a knowledge production process based on design activities. Students do not merely receive information; they actively construct, modify, and re-represent learning materials in visual forms. This indicates that graphic design platforms act as an *engagement engine*, fostering both cognitive and affective involvement. Meanwhile, for the conceptual understanding variable (76%), the results demonstrate that visualization plays a crucial role in building more stable and organized conceptual structures. Visual representations enable students to connect abstract concepts with concrete forms, thereby strengthening the internalization process. In the context of vocational education, which is inherently application-oriented, this becomes a key factor in transferring knowledge into practical skills. From a theoretical synthesis, these three indicators reveal a central pattern: graphic design platforms not only improve learning outcomes but also transform the learning mechanism itself—from passive information consumption to active visual knowledge construction. Thus, their effectiveness extends beyond being merely a media effect; it represents a transformation in how students process, understand, and represent knowledge.

Discussion

The synthesis of 50 studies (S1–S50) reveals an empirical pattern that is not only consistent but also stable across variables: learning outcomes (86%), student engagement (80%), and conceptual understanding (76%). This consistency indicates that the impact of graphic design platforms is not merely a situational or context-dependent effect, but rather a recurring pedagogical phenomenon across various vocational education settings. In other words, there is strong evidence that these platforms produce a systemic instructional effect, rather than functioning as a supplementary tool. From the perspective of the Cognitive Theory of Multimedia Learning, the findings can be explained through mechanisms of reducing extraneous cognitive load and optimizing dual-channel processing (visual–verbal). Graphic design platforms transform complex information into structured visual representations, allowing students to allocate their cognitive capacity directly to core concept understanding rather than decoding information. This explains the high proportion of positive findings in learning outcomes (86%) across studies.

More importantly, this improvement does not merely reflect surface-level cognitive gains but suggests the occurrence of cognitive restructuring. Students do not simply “understand better”; rather, their way of processing information shifts from linear, text-based processing to visual-spatial processing. This transformation is particularly relevant in vocational education, where learning requires the integration of abstract concepts with technical and procedural applications. In terms of student engagement (80%), the findings indicate a structural shift in learning dynamics. Graphic design platforms encourage students to participate in knowledge production, rather than remaining passive recipients of information. Pedagogically, engagement is not only a measure of motivation but also an indicator of active cognitive participation. Thus, students are involved not only behaviorally but also mentally and creatively in constructing learning artifacts.

This phenomenon aligns with constructivist principles, where effective learning occurs when students actively construct their own knowledge representations. In this context, graphic design platforms function as a medium for knowledge construction, rather than merely as presentation tools. This explains the significant and consistent increase in student engagement reported across studies. Meanwhile, regarding conceptual understanding (76%), the findings demonstrate that visualization does more than clarify information—it restructures the relationships between concepts within students’ cognition. Visual representations facilitate schema integration, enabling abstract concepts to be organized into more stable and hierarchical knowledge structures. This is particularly crucial in vocational education, where students are required to comprehend complex and procedural material and translate it into practical skills.

From a theoretical synthesis, these three variables form a causal chain: visualization → reduced cognitive load → improved understanding → increased engagement → enhanced learning outcomes. Therefore, the effectiveness of graphic design platforms should not be reduced to their role as digital learning media. Instead, they should be understood as mechanisms of cognitive and pedagogical transformation in vocational learning environments. Recent developments (2025–2026) regarding the integration of artificial intelligence into graphic design platforms further strengthen this argument. These technologies not only provide visual support but also enable adaptive learning experiences tailored to students’ needs. This indicates an evolution in the role of such platforms—from visual support tools to adaptive cognitive learning interfaces, expanding their function from instructional aids to intelligent learning systems.

CONCLUSION

This study confirms that graphic design platforms demonstrate consistent and measurable effectiveness in improving the quality of learning in vocational education. The synthesis of 50 studies (S1–S50) reveals a stable pattern across three main indicators: learning outcomes (86%), student engagement (80%), and conceptual understanding (76%). These findings strengthen the evidence that the contribution of graphic design platforms is not incidental but reflects a systemic role in visual-based vocational learning processes. Conceptually, this effectiveness does not merely stem from the technological aspect itself, but from its ability to optimize students’ cognitive processes through information visualization, reduction of cognitive load, and enhancement of learning interaction. Thus, graphic design platforms function as a medium that bridges the gap between abstract concepts and applied understanding in vocational learning. Furthermore, these findings indicate that the integration of graphic design platforms promotes a transformation in the learning process from a passive model to an active and participatory one. Students are not only recipients of information but are also actively involved in the construction of knowledge through meaningful and contextual visual activities. Overall, it can be concluded that graphic design platforms represent a strategic learning medium capable of enhancing learning effectiveness in a multidimensional manner, encompassing cognitive, affective, and participatory aspects. Therefore, their integration into vocational education is strongly recommended as a pedagogical approach aligned with the demands of 21st-century learning. Future research is recommended to examine this effectiveness through experimental or mixed-method approaches in order to obtain stronger empirical validation, as well as to explore the role of artificial intelligence-based technologies in expanding the function of graphic design platforms as adaptive learning systems

REFERENCES

- Ahmed, A. M., & Osman, M. E. (2020). The Effectiveness of Using Wiziq Interaction Platform on Students’ Achievement, Motivation and Attitudes. *Turkish Online Journal of Distance Education*, 21(1), 19–30. <https://doi.org/10.17718/tojde.690112>
- Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Emergency remote teaching in higher education: Mapping the first global online semester. *International Journal of Educational Technology in Higher Education*, 18(1), 50. <https://doi.org/10.1186/s41239-021-00282-x>

EFFECTIVENESS OF GRAPHIC DESIGN PLATFORMS AS LEARNING MEDIA IN VOCATIONAL EDUCATION: A PRISMA-BASED SYSTEMATIC LITERATURE REVIEW

Deny Fathur Rachman Sugi Harto et al

- Fiorella, L., & Mayer, R. E. (2018). What works and doesn't work with instructional video. In *Computers in Human Behavior* (Vol. 89, pp. 465–470). Elsevier. <https://www.sciencedirect.com/science/article/pii/S0747563218303376>
- Haque, M. A., Ahmad, S., Hossain, M. A., Kumar, K., Faizanuddin, M., Islam, F., Haque, S., Rahman, M., Marisennayya, S., & Nazeer, J. (2024). Internet of things enabled E-learning system for academic achievement among university students. *E-Learning and Digital Media*, 20427530241280078. <https://doi.org/10.1177/20427530241280078>
- Kim, E. (2022). *A study of knowledge creation-oriented activity through a collaborative media project in two South Korean schools* [PhD Thesis, University of Bristol]. https://research-information.bris.ac.uk/ws/portalfiles/portal/325392977/Final_Copy_2022_06_08_KIM_E_PhD.pdf
- Kurniawan, R. S., Irham, A. S., & Syaifudin, M. (2026). Utilization of the Kahoot Application as a Medium for Islamic Education at Vocation High School: A Study of the Integration of Religious Values in Digital Learning Interactivity. *Jurnal Mu'allim*, 8(1). <https://jurnal.yudharta.ac.id/v2/index.php/muallim/article/view/6685>
- Mayer, R. E. (2014). Incorporating motivation into multimedia learning. *Learning and Instruction*, 29, 171–173.
- OECD. (2021). Education at a Glance 2021: OECD Indicators. *Education at a Glance, 2021*. <https://doi.org/10.1787/b35a14e5-en>
- Partnership for 21st Century Skills. (2009). *Framework for 21st Century Learning*.
- Schunk, D. H. (2012). *Learning Theories an Educational Perspective*.
- Serrano, D. R., Dea-Ayuela, M. A., Gonzalez-Burgos, E., Serrano-Gil, A., & Lalatsa, A. (2019). Technology-enhanced learning in higher education: How to enhance student engagement through blended learning. *European Journal of Education*, 54(2), 273–286. <https://doi.org/10.1111/ejed.12330>
- Setiadi, B., Retnosari, D., & Rahman, A. (2025). Pemanfaatan Dan Pelatihan Aplikasi Canva Sebagai Strategi Media Pembelajaran Teknologi Multimedia Untuk Siswa Pada SMK Syuhada Teknologi Banjarmasin. *JURNAL PENGABDIAN AL-IKHLAS UNIVERSITAS ISLAM KALIMANTAN MUHAMMAD ARSYAD AL BANJARY*, 11(1). <https://doi.org/10.31602/jpaiuniska.v11i1.16814>
- Setiyawan, H., Suharno, S., & Pambudi, N. (2023). The influence of digital and vocational information literacy on student learning outcomes. *Jurnal Pendidikan Vokasi*, 13(2), 192–204. <https://doi.org/10.21831/jpv.v13i2.53999>
- Slavin, R. E. (2018). *Educational psychology: Theory and practice (Twelfth)*. New York: Pearson Education, Inc. <https://doi.org/10.1037/h0071291>
- Tobias, S., & Duffy, T. M. (2009). Constructivist instruction. *Success or Failure*. <https://api.taylorfrancis.com/content/books/mono/download?identifierName=doi&identifierValue=10.4324/9780203878842&type=googlepdf>
- UNESCO. (2022). *Transforming technical and vocational education and training for successful-and-just-transitions-unesco*. <https://www.unesco.org/en/articles/transforming-technical-and-vocational-education-and-training-successful-and-just-transitions-unesco>