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Implementing Screencasts in Educational Settings: Trends, Benefits, and Challenges

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Abstract

Screencast is a learning medium that records part or all activities on a computer screen accompanied by audio narration providing explanations or instructions aligned with the on-screen actions. This medium is considered effective in supporting the learning process, particularly for delivering procedural content, demonstrations, and reinforcing learners' understanding. This article aims to examine the implementation of screencast in learning through a Systematic Literature Review (SLR) approach. The review synthesizes findings from previous studies to provide a comprehensive overview of implementation practices, benefits, and challenges of using screencast across various learning contexts. The literature sources were derived from scholarly articles and academic documentation published in reputable and credible journals. The results of this review are expected to contribute both theoretically and practically to the development of technology-enhanced learning strategies and to serve as a reference for educators in optimizing the use of screencast to improve the quality of learning.

Keywords: *Screencast; Technology-Enhanced Learning; Instructional Media; Digital Learning*

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INTRODUCTION

The world of education has experienced rapid development alongside technological advancement. Various technological innovations are readily available for use in the learning process and play a supportive role in teaching and learning activities (Kurniawan et al., 2025). Along with technological advancements, we have witnessed a significant shift from conventional learning approaches toward more adaptive and data-driven methods (Wardani & Patindra, 2025). One technological innovation that has had a positive impact in educational contexts is the use of video. The use of video in learning not only reflects technological progress, but also transforms the way information is delivered and understood.

Video has long served as a complementary instructional tool that enhances the learning process. Hansch et al. (2015) identify eighteen distinct formats of educational video, each designed to align with specific pedagogical goals. These formats encompass, among others, interview-based videos, screencasts, lecture recordings in classroom settings, animated content, live streaming sessions, and demonstration videos conducted in real environments. Additional formats include conversational videos, recordings using green screen technology, webcam-based presentations, slide-based explanations with textual augmentation, and various tablet-based recordings such as those popularized by Udacity and Khan Academy. Other approaches involve voice-over narration, picture-in-picture displays, whiteboard or paper-based explanations, seminar recordings, and talking-head presentations. Within this broad range of formats, the screencast format stands out as particularly noteworthy, as it was originally developed for purposes outside the field of education before being adapted for instructional use.

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The term "screencast" was introduced by columnist Jon Udell in 2004, who selected it from a list of terms suggested by the web community, specifically proposed by Joseph McDonald and Deeje-Cooley. Jon

Udell initially questioned how to demonstrate, present, or explain software activities to others. The solution that emerged in his mind was to create a visual recording of all activities displayed on a computer screen in the form of a video and add narration to provide explanations of what was being shown on the screen (Soepriyanto, 2019). Jon Udell first used the term in an article published by InfoWorld, in which he explained the benefits of using screencasts to show users how computer applications work. Screencasts offer a way to explain how software or web-based services operate without the need to write lengthy documentation.

By definition, a screencast is a recording of part or all activities on a computer screen that includes audio explanations or instructions referring to the on-screen activities (Ali & Ali, 2020). Meanwhile, screencasting is defined as a tool, technique, or medium used to record activities displayed on a computer screen for the purpose of being replayed and viewed as needed. Screencast is the term introduced and explained by Udell in a blog entry, whereas screencasting refers to the tool, techniques, and medium (Putra et al., 2019).

As the use of screencasts has expanded across various fields, screencasts are now widely applied in education. In learning, screencasts have substantial potential that can be maximized to support instruction from the lowest to the highest educational levels. Evatasari et al. (2020) stated in their study screencast-based instructional materials have been designed and utilized to deliver a wide range of subject matter. Screencasts are designed to provide students with opportunities to control their own learning by highlighting vital points and allowing them to study at their own pace anytime and anywhere according to their needs. The implementation of screencast media contributes positively to the enhancement of the learning process, especially in terms of learners' academic achievement.

However, despite the increasing adoption of screencasts in educational practices, existing studies tend to be fragmented across different subjects, educational levels, and learning designs. Many publications focus on specific implementations or report outcomes in isolated contexts, making it difficult to obtain a consolidated understanding of how screencasts are systematically implemented in learning environments. In addition, the literature often emphasizes effectiveness in terms of learning outcomes, while providing limited synthesis regarding the broader dynamics of implementation, such as instructional design patterns, teacher roles, learner engagement strategies, technological requirements, and implementation constraints.

This indicates a clear research gap, as the existing literature has not yet provided a sufficiently comprehensive and systematically structured synthesis that maps how screencasts are implemented across educational settings, consolidates recurring pedagogical benefits, and critically interrogates the challenges that may constrain adoption and long-term sustainability. To address this gap, the present study offers novelty through a Systematic Literature Review (SLR) that synthesizes empirical and conceptual evidence to generate an integrated understanding of implementation patterns, instructional contributions, and contextual barriers. By presenting a holistic and evidence-based synthesis, this review is expected to advance the theoretical discourse on technology-enhanced learning while offering practical implications for educators and other stakeholders seeking to optimize screencast integration in teaching and learning processes.

The purpose of this article is to present information on how screencasts can be implemented in learning. The content of this literature review article includes an explanation of how screencasts are implemented in learning and discusses the potential and challenges of such implementation. This is intended to provide references that can assist teachers in implementing screencasts in learning.

METHODS

This research adopted a Systematic Literature Review (SLR) approach guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 framework. The procedure was carried out through three main phases, namely identification, screening, and inclusion (Ananta et al., 2026). These stages are described as follows.

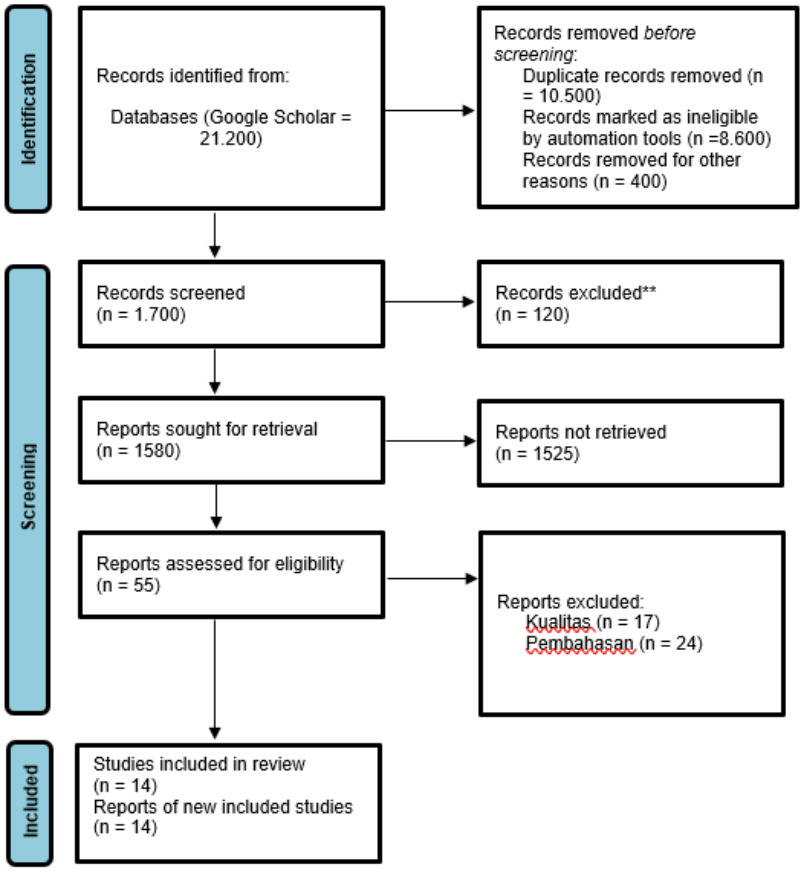

Figure 1. PRISMA Flowchart

In the identification stage, a total of 21,200 articles were retrieved using the keyword “screencast”. The keywords were then further refined into “screencast pembelajaran”, “screencast education”, “screencasting pembelajaran”, and “screencasting education”, which resulted in 10,700 articles. The publication period was subsequently limited to 2019–2023, yielding 2,100 articles. At this stage, approximately 400 articles were identified as duplicates, including those with identical titles or titles presented in different languages.

In the screening stage, 1,700 articles were obtained and further checked for the availability of full-text PDF files, leaving 1,580 articles. From these articles, 55 studies with the highest citation counts were selected. Each of the 55 articles was then reviewed individually to assess its quality and determine whether its content was relevant to the objectives of this review. After completing the screening process, 14 articles met the inclusion criteria and were included for analysis in this systematic literature review.

RESULTS AND DISCUSSION

The results of the analysis of scholarly articles indicate that 14 journal articles related to research on screencasts in learning were identified. The analysis of these journal articles is presented in the following table.

Tabel 1. Summary of Included Studies on Screencast Implementation in Learning

No	Author	Title	Year	Level	Result
1	Susanti E, Rizal R, Sulistyaningsih D	Usability of Screencast in 1st Basic Physics Lectures During the Covid-19 Pandemic: Student’s Perception Analysis	2020	Higher education	The findings indicate a positive response to the use of screencasts in the Basic Physics I course, with a high overall average of students’ perceptions, and a beneficial impact on changes in students’ knowledge and skills.
2	Muslichah V,	Pengembangan Screencast	2022	Training	The results show that screencasts can

	Atiqoh A, Walujo D	Software CAD Untuk Pembuatan Pola Busana		Institution	improve learners' competencies at Arva School of Fashion in designing and creating peplum skirt patterns using a CAD pattern system.
3	Soepriyanto Y, Banurohman M, Sulthoni S	The Effectiveness of Screencast for Understanding Computer Command Interfaces	2021	Higher education	This study reveals that students who learned independently through screencasts achieved more positive learning outcomes than those who participated in in-class demonstrations.
4	Soepriyanto Y, Ulfa S, Toenlioe AJ	Screencast for Learning DOS Command	2020	Higher education	The results indicate that screencasts received positive feedback from users, although there were several concerns regarding video and audio quality.
5	Orocio BL, Linaugo JD	Screencast And Its Effect on Improving Learners' Academic Achievement and Motivation in Physics	2023	Senior High School	The findings show that screencasts enhance students' academic achievement and increase their motivation levels. In addition, screencasts also improve students' understanding of the learning materials.
6	Ustinova I, Rozhkova O, Nikolaeva N	Using Screencasts in Computer Science Classes at a Technical University	2020	Higher education	The results demonstrate that screencasting leads to higher test scores and produces several positive effects on learning MathCad systems.
7	Andini AF, Sulton S, Soepriyanto Y	Pengembangan Screencast untuk Belajar Software Animasi 3D	2019	Higher education	The findings indicate that screencasts are valid and feasible to be used as learning support media in higher education courses, particularly to assist the delivery of instructional content.
8	Putra BT, Sulton S, Soepriyanto Y	Pengembangan Screencast sebagai Electronic Performance Support System dalam Pemanfaatan Sipejar UM	2019	Higher education	This study shows that screencasts are valid and feasible to support lecturers in utilizing learning management systems (LMS) effectively, thereby optimizing the implementation of digital learning platforms.
9	Anam K, Degeng IN, Sitompul NC	Pengembangan Screencast Presentasi Akuntansi Untuk Siswa SMA	2022	Senior High School	The findings show that teachers facilitate students' learning by using screencasts in accounting; therefore, screencast-assisted learning serves as an effective solution for learning.
10	Cheah CS, Leong LM	Investigating the Redundancy Effect in the Learning of C++ Computer Programming Using	2019	Higher education	The results indicate that effective screencasts prioritize the redundancy effect, aiming to prevent split attention when learners must simultaneously engage with on-screen visuals and text, which may increase working memory load.
11	Evatasari FF, Abidin Z, Soepriyanto Y	Efektifitas Penggunaan Media Screencast Dos Command Terhadap Peningkatan Pemahaman Siswa	2020	Senior High School	The findings show that the use of DOS command screencast media effectively improves learning outcomes on the topic of Basic DOS Commands.
12	Bao A	Enhancing Learning Effectiveness by Implementing Screencasts into Civil Engineering Classroom with Deaf Students	2019	Higher education	The results indicate that implementing screencasts can improve student learning, particularly for students with hearing impairments, and make their academic performance comparable to that of their hearing peers.
13	Kharishma V	Design a screencast video for software learning in higher education (case study: Tutorial video for	2020	Higher education	The findings show that screencasts are considered a suitable medium to support students' learning in the Digital Illustration course, with a high

		digital illustration course)			percentage of agreement regarding their effectiveness across various aspects.
14	Ali SM, Ali AZ	Students' Attitude Towards Focused Educational Video Sharing Sites for Learning	2020	Higher education	The results demonstrate that psychological, social, and technological factors have significant relationships with students' perceived usefulness of screencast tutorial learning, whereas institutional factors were not found to be significant.

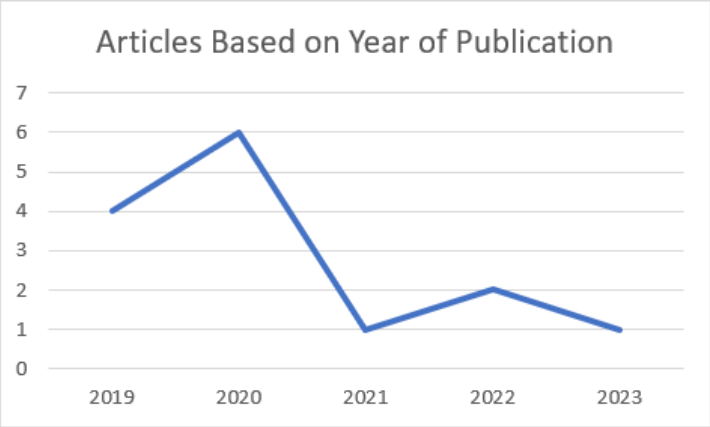

Figure 2. Articles Based on Year of Publication

Based on the graph above, four studies were conducted in 2019, followed by six studies in 2020. From 2021 to 2023, the number of studies declined, with one study in 2021, two studies in 2022, and one study in 2023. The increase in screencast implementation in 2020 was influenced by the pandemic.

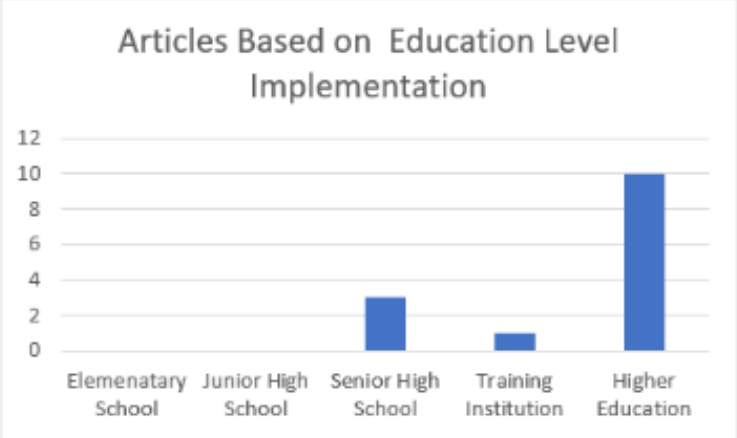

Figure 3. Articles Based on Education Level Implementation

Meanwhile, when reviewed based on the level of implementation, three studies were conducted at the senior high school level, one study was conducted in a course and training institution, and ten studies were conducted in higher education. The high implementation of screencasts in higher education is influenced by the availability of various facilities and supporting tools for producing screencasts. In addition, higher education learning materials more frequently address computer-based topics compared to other educational levels.

The use of screencasts in learning has been proven to improve learning outcomes, as evidenced in several studies. For instance, the findings of Susanti et al. (2021) indicate that screencasts have a positive impact on improving students' knowledge and skills in basic physics learning. The average level of students' perceptions reached a high category. Screencasts can be used as an effective instructional medium to enhance students' competencies and knowledge.

These findings are further supported by other studies, as explained by Yahya et al. (2018), who stated that screencast tutorial videos help students learn tools and features of new software. In addition, teachers can use

screencasts as instructional aids, allowing them to allocate more time to provide guidance and assistance to students. In learning activities, screencast videos are often used to deliver information, demonstrations, or tutorials. Screencasting can also communicate content that may not be easily explained by teachers to their students.

Other research findings indicate that screencasts improve learners' academic achievement and increase their motivation levels. The use of screencasts has a positive effect on learners' knowledge and skills. This study found that learning through screencasts is engaging for learners. Screencasts provide opportunities for learners to study at their own pace and offer a better learning experience (Orocio & Linaugo, 2023). In addition, screencasts with synchronized text can enhance learning for students with hearing impairments. With the support of screencasts, the academic performance of students with hearing impairments can be comparable to that of their hearing peers in the same class (Bao, 2019).

In addition to formal learning settings, screencasts have also been implemented in non-formal learning, particularly in training institutions. This was reported by Muslichah et al. (2022), who stated that screencast implementation was useful in improving trainees' competencies in designing and creating peplum skirt patterns using a CAD pattern system at Arva School of Fashion. To effectively utilize screencasts as learning support tools, it is important to ensure adequate readiness of infrastructure and facilities, such as computers/laptops with specifications capable of supporting the CAD Richpeace program, a ready-to-use Richpeace application, a mouse, and a stable internet connection for online learning, as these factors influence the effectiveness of real-time learning.

In its implementation for learning, screencast-based media can be offered in two modes, namely the screencast-and-narration mode and the screencast-text-and-narration mode. The recommended mode is screencast, text, and narration, as it provides on-screen text at the bottom of the screen that supports the learning of new words and syntax and prevents ambiguity of information (Soepriyanto et al., 2021). In addition to being positioned as instructional media, screencasts can also be implemented as a tool to produce a product in the form of a video containing demonstrations of students' learning achievements (Soepriyanto et al., 2020). This is beneficial in providing students with space to be actively engaged in learning and enabling feedback and interaction between students and teachers.

The potential application of screencasts in learning is highly promising, as evidenced by several studies. Screencasts in learning offer various potentials that can support the learning process. First, learning materials through video increases students' interest in learning, as students experience the material through different perceptions and experiences; most importantly, they are able to consider the learned concepts comprehensively and at their own pace. Second, computer visualization enables a deeper understanding of the essence of the material. Third, screencasting can be used as a tool to enhance independent learning activities and ensure student engagement in learning. Fourth, screencasting fosters students' information culture. Teachers can create dynamic, vivid, and visual videos that demonstrate tasks that are typically not addressed in class due to computational complexity, limited instructional time, or because such classroom tasks are not included in the course program. Fifth, screencasting provides opportunities for students who are ill or absent from class to follow the learning process (Ustinova et al., 2020).

In addition, Anam et al. (2022) reported several advantages of using screencasts for learning, where students can conduct the learning process independently because the materials can be replayed repeatedly according to their needs. Clear and engaging content presentation helps reduce students' boredom, as learning becomes structured in accordance with instructional procedures, not abstract, and not unnecessarily lengthy; it can also be complemented with practice questions and explanations. Teachers ease students' learning by using screencasts; consequently, screencast-assisted learning becomes an option and solution in learning. Students can access and use screencasts wherever and whenever they are, and the content can be replayed repeatedly until they fully understand the material.

Andini et al. (2019) also highlighted several advantages of screencasts as learning media, including: (1) screencasts make teaching and learning activities more enjoyable, (2) screencasts provide opportunities for students to learn independently, (3) screencasts offer flexibility in terms of time and place, (4) screencasts provide diverse learning experiences through their multimedia features, (5) screencasts have relatively low production costs and are easy to use, (6) screencasts allow users to control playback (slow down, speed up, stop, pause, and replay), (7) screencasts facilitate a deeper understanding of software compared to conventional media such as books and similar resources, and (8) screencasts provide opportunities for students to understand learning materials involving complex and procedural concepts that are abstract in nature.

Although the use of screencasts in learning offers many benefits, it is important to consider potential challenges that may arise. Several challenges have been identified in the literature. First, teachers should consider psychological factors (enjoyment and self-efficacy), social factors (subjective norms and image), technological

factors (system quality and content features), and institutional factors (facility provision and technical support) before implementing screencasts, so that students are more motivated to learn using screencasts (Ali & Ali, 2020). Second, attention should be given to the redundancy principle. Redundancy occurs when similar information is presented simultaneously in two or more different modes. This may occur in screencast-text-and-narration mode, where the same information delivered through narration is also presented as on-screen text. This can interfere with learning because the additional information becomes irrelevant and excessive, thereby increasing working memory load. Moreover, split attention occurs when learners' attention is divided between engaging with visual material and reading on-screen text. This may even occur when the on-screen text is related to the video or image presented in the material (Cheah & Leong, 2019).

In addition to its advantages, Andini et al. (2019) also identified several weaknesses of screencasts as learning media. These include: (1) screencasts are less effective in facilitating diverse cognitive competencies and students' learning styles, (2) reduced focus because screencasts require students to process multiple forms of information (graphics, audio, text, and movement) simultaneously, (3) screencast production and editing can be complex and time-inefficient, thus requiring experts to create them, (4) screencasts require devices to play the videos, such as laptops, PCs, or smartphones, and (5) content delivery through screencasts tends to be one-way, which may result in students becoming less interactive and not directly engaged in the learning process.

Screencasts are considered an effective medium for developing tutorial-based videos, particularly for educational software in higher education contexts. Several design considerations can be applied when creating such videos. First, learning materials should be segmented into smaller subtopics so that the resulting videos are shorter and more accessible for students to download. Second, important elements on the screen can be emphasized through visual signals, including the use of graphics, color variation, icons, or zooming techniques. Third, there should be a balance between the level of content complexity and the duration of the video, as more complex material typically requires longer viewing time. For instance, in digital illustration tutorials, simpler visuals are often recommended to ensure that the drawing process can be completed within a limited timeframe. Finally, incorporating subtitles alongside audio narration is advisable to support learners with hearing difficulties and to enhance clarity when pronunciation in the audio is less distinct (Kharishma, 2020).

Other findings also suggest that screencast technology tends to be more effective in delivering applied and practical components of learning materials compared to broader theoretical concepts. It should also be noted that the combined effect of learning theoretical concepts and learning practical skills results in much greater learning differences (Ananta et al., 2024; Sullivan et al., 2018). Screencasts can be designed and produced with or without audio combinations. When created with an appropriate combination, the role of screencasts as dynamic visual representations can serve as a powerful instructional tool or medium to enhance learning outcomes (Ananta et al., 2025).

CONCLUSION

Screencast refers to a recording of part or all activities displayed on a computer screen accompanied by audio explanations or instructions aligned with the on-screen actions. Meanwhile, screencasting is defined as a tool, technique, or medium used to capture on-screen activities for the purpose of replaying and viewing them according to learners' needs. Screencasts can be considered an effective instructional medium for enhancing learners' knowledge and competencies, as they can be accessed anytime and anywhere. In addition, screencast materials can be replayed repeatedly until learners achieve sufficient understanding.

The various potentials and advantages of screencasts, both as instructional media and as student-produced learning products, can be maximized when they are appropriately implemented in educational settings. Nevertheless, several potential challenges must also be considered and minimized to ensure that screencasts can be used effectively in learning. Therefore, it is important to follow existing recommendations and guidelines in designing screencasts to achieve the intended learning outcomes. In addition, educators should carefully consider relevant design and implementation strategies to prevent or reduce undesirable issues that may arise in the use of screencasts in teaching and learning processes.

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