

A Systematic Review of Generative AI in Education: Implications for Non-Designer Educators in Microlearning Videos Production

Gladys Tagie¹, *Ahmad Zamzuri Mohamad Ali², Suraya Md Nasir³

^{1,2,3}Faculty of Art, Sustainability & Creative Industry, Universiti Pendidikan Sultan Idris,
35900, Tanjong Malim, Perak, Malaysia

¹Faculty of Art and Design, Universiti Teknologi MARA Perak Branch, Seri Iskandar Campus,
32610, Seri Iskandar, Perak, Malaysia

gladystagie@uitm.edu.my¹, *zamzuri@fskik.upsi.edu.my², suraya.mn@fskik.upsi.edu.my³

*Corresponding author

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ABSTRACT

Generative Artificial Intelligence (GenAI) is swiftly revolutionising educational approaches, offering innovative prospects for educators to generate and tailor digital learning resources. Yet, the present literature is scattered in its exploration of how GenAI can facilitate non-designer educators in the production of microlearning videos, especially in relation to pedagogical, design, and technical aspects. Hence the objective of this systematic literature review is to synthesise current research on GenAI in education and evaluate its significance for supporting non-designer educators in the development of microlearning videos. Complying with the PRISMA framework, an extensive search of Web of Science and Scopus discovered 31 foundational papers published throughout the years 2023 to 2025. The selected studies were analysed through an integrative synthesis, with recurring findings organised into three themes: (1) GenAI as a pedagogical catalyst for microlearning video production; (2) Opportunities and challenges for non-designer educators in creating microlearning videos, and (3) The need for a conceptual framework to support non-designer educators in GenAI-supported microlearning video production. The findings indicate that GenAI can enhance educators' efficiency and creative capacity by supporting content creation, personalisation, and the development of engaging learning resources. However, challenges remain in relation to design expertise, technical competency, ethical considerations, and institutional support. Overall, the review identifies a need for systematic guidance to support non-designer educators in applying GenAI effectively within microlearning video production.



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1 INTRODUCTION

Research on GenAI tools in education reveals their growing adoption across higher education settings. Recent findings show that GenAI tools are widely adopted by educators, with ChatGPT being the most popular (95.2%), followed by Humata.ai (31%), ChatPDF.com (28.6%), Studio.AI (26.2%), and others (Ruiz-Rojas et al., 2024; Cordero et al., 2024). These results underscore the growing reliance on GenAI in educational practice. ChatGPT has emerged as the dominant GenAI tool in educational research, with exponential growth reported in 2023 (Bahroun et al., 2023). In comparable manner, visual content creation platforms such as DALL-E and Midjourney are progressively utilised in creative and visual fields (Pelaez-Sanchez et al., 2024; Chiu, 2023). Nonetheless, the majority of current studies have predominantly concentrated on higher education, with limited exploration into K-12 applications (Chiu, 2023). The incorporation of GenAI demonstrates potential for enhancing collaboration, critical

analysis, and personalised learning, yet concerns regarding ethics and academic integrity remain significant hurdles (Michel-Villarrreal et al., 2023; Walczak & Cellary, 2023).

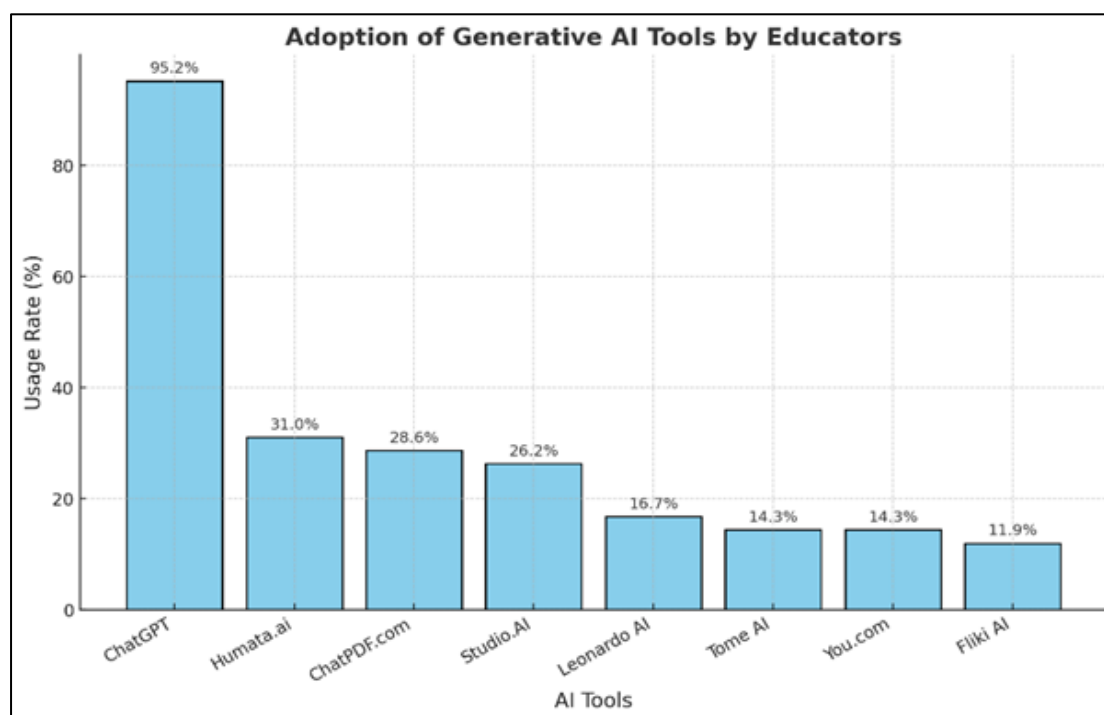


Figure 1 Adoption of GenAI Tools among Educators
(Adapted from: Ruiz-Rojas et al. 2023)

The integration of GenAI is transforming how educators design, deliver, and engage with digital learning resources. Video-based education is gaining prominence as a flexible and impactful method for dissemination of knowledge among its developing applications (Giurgiu, 2017). According to Magri et al. (2022), the microlearning video approach is characterised by the delivery of brief, specific instructional segments that can be disseminated broadly and accessed without limitations of time or place. This systematic literature review (SLR) examines the role of GenAI as a pedagogical catalyst for microlearning video production, the opportunities and challenges it creates for non-designer educators, and the pressing need for a conceptual framework to guide practice.

For non-designer educators, GenAI technologies provide significant advantages in enhancing teaching methods. In this review, non-designer educators refer to educators who possess subject or teaching expertise but lack professional design qualifications and have limited or no formal training in instructional design (Royalty, 2018; Uduma & Morrison, 2007). As to Kanbach et al. (2024), GenAI enables the creation of varied types of content spanning from text and images to audio, code, and video, which can be utilised across diverse fields including academia, business, and society at large. Studies indicate that GenAI enhances academic task and feedback processes, yet its effective integration requires pedagogical support to foster critical thinking and strengthen digital literacy competencies (Saude et al., 2024). GenAI functions as machine learning models that assist educators in generating new content—ranging from text to images and audio—this technology offers transformative potential for education by automating routine processes and fostering personalised learning (AIAli, Wardat, Al-Saud, & Alhayek, 2024). While GenAI enables opportunities for personalised learning and innovative assessment methods, its implementation must be accompanied by transparent policies to ensure fairness, accountability, and equity (Francis et al., 2025; Walczak & Cellary, 2023). In the absence of these protections, issues related to academic integrity and the digital divide remain as considerable concerns (Farrelly & Baker, 2023).

Notwithstanding the potential of microlearning videos, non-designer educators often encounter challenges in implementing advanced design methodologies due to limited training in instructional or multimedia design. Additionally, Rodiyana et al. (2023) emphasise that developing effective educational videos is a complex process that involves technical, pedagogical, and collaborative challenges, thereby necessitating appropriate guidance and support. While microlearning videos are acknowledged for their ability to boost learner engagement and reduce cognitive overload (Balasundaram, Mathew, & Nair, 2024; Kossen & Ooi, 2021; Alias & Abdul Razak, 2023), their development remains a considerable challenge for educators without adequate technical expertise (Sumalinog, 2022). Bridging this gap requires a structured framework that incorporates GenAI tools, empowering educators to create impactful microlearning videos with enhanced consistency and with greater efficiency.

Beyond its practical affordances, the emerging literature calls for educator-centred conceptual frameworks that position GenAI as a mediator between technological affordances and pedagogical practice (Creely & Blannin, 2025; Kong & Yang, 2024). Such frameworks are particularly important for non-designer educators, as they offer structured guidance for integrating GenAI into teaching while maintaining instructional coherence. Informed by Cognitive Load Theory (CLT) and the Cognitive Theory of Multimedia Learning (CTML), GenAI demonstrates potential to reduce extraneous cognitive load by simplifying video design processes and enhancing multimedia integration (Mayer, 2021; Sweller et al., 2019). In the absence of such a framework, however, educators risk fragmented or inconsistent application, which could diminish learning outcomes rather than improve them. Thus, GenAI should be understood not only as a technological tool but also as a pedagogical catalyst capable of reshaping video-based instruction.

Based on these considerations, the objective of this systematic literature review is to synthesise current research on GenAI in education and identify its implications for supporting non-designer educators in microlearning video production. Accordingly, the review addresses the following research questions:

- RQ1: How does existing research on GenAI in education inform its role as pedagogical catalyst for microlearning video production?
- RQ2: What opportunities and challenges are associated with the use of GenAI by non-designer educators in microlearning video production?
- RQ3: What do non-designer educators need to effectively produce GenAI-supported microlearning videos?

2 LITERATURE REVIEW

The advent of GenAI has transformed academic discourse in the fields of education, accompanied by a rapidly increasing corpus of research that underscore its ability to revolutionise instructional practices, educational processes, and curriculum development. Current literature explores GenAI in more extensive educational settings. Its findings provide valuable viewpoints on the pedagogical, technical, and design considerations pertinent to microlearning video production. In the realm of non-designer educators, the literature can be encapsulated into three key themes: the role of GenAI as a pedagogical catalyst for microlearning video creation, the opportunities and challenges for non-designer educators in creating microlearning videos, and the necessity for a conceptual framework to empower non-designer educators in GenAI-supported microlearning video production.

A growing body of research highlights the potential of GenAI and related digital methodologies in enhancing video-based learning practices. Nonthamand (2024) discovered that structured workflows and scaffolding techniques enhanced pre-service teachers' competence in producing self-instructional videos, highlighting the importance of structured support in video production. In comparison, Gutierrez-Gonzalez et al. (2024) examined students involvement in flipped classrooms and discovered that shorter instructional videos generated higher participation than longer lectures, although embedded quizzes did

not enhance engagement.

Research additionally emphasises both the opportunities and challenges associated with GenAI adoption among educators. Liang and Lu (2025) found that institutional support, mediated by AI use and teacher self-efficacy, explained 90% of the variance in pre-service teachers' instructional design creativity. Karatas et al. (2025) further showed that teachers used AI to extend and revise curriculum rather than omit content, aligning instructional design more closely with learner needs. Practical benefits also include workload reduction, with Elsaïary (2025) reporting how AI-enabled grading automation, personalised rubrics, and adaptive learning systems have freed educators for higher-order pedagogical tasks. Similarly, van den Berg (2024) reported educators' use of GenAI to simplify content and generate assessments, while also identifying technical boundaries and ethical uncertainties associated with its adoption. Despite these opportunities, challenges remain particularly relevant for non-designer educators. Rodiyana et al. (2023) argue that non-designer educators frequently struggle to apply advanced design principles effectively, while Creely and Blannin (2025) emphasise the potential of GenAI reduce technical barriers in content creation, particularly in resource-limited environments. Al-Abdullatif (2024) further identified AI literacy and perceived ease of use as influential factors in teachers' acceptance of GenAI, highlighting the importance of professional development in supporting educators' integration of GenAI into teaching practice. Theodorio (2024) also stressed the importance of sustained institutional and peer support for successful technology integration. Overall, these studies suggest that although GenAI may alleviate the workload on educators and support content creation, its effective integration relies on enough institutional support, educator confidence, and attention to inclusive and responsible implementation.

An increasing volume of academic discourse underscores the need for frameworks and principles to enhance the integration of GenAI focused on educators. Simsek et al. (2025) and Hazzan-Bishara et al. (2025) extended the Technology Acceptance Model (TAM) to highlight motivation, agility, and institutional backing as important factors in adoption. Ethical and policy-orientated approaches have also been proposed: Cacho (2024) offered a balanced institutional model to mitigate plagiarism risks, while An et al. (2025) identified academic integrity, ethical considerations, and the integration of GenAI into education and assessment as key elements addressed in institutional guidelines. Complementing these perspectives, Cukurova (2025) proposed a concept of hybrid human–AI intelligence, arguing that AI should support, instead of displacing, the agency of teachers. Empirical evidence emphasise the critical role of literacy and training, with Brunner et al. (2025) demonstrating that structured AI workshops improve teacher competence. Kong and Yang (2024), meanwhile, proposed a human-centred framework embedding GenAI in self-regulated learning, while Creely and Blannin (2025) pointed out the necessity of creative frameworks that bridge human agency and machine capabilities in knowledge production. Value-sensitive approaches further draw attention to equity and care: Abramenska-Lachheb et al. (2025) demonstrated the integration of values by designers into instructional design practices, whereas Stefaniak and Moore (2024) highlight the importance of inclusivity in online education. These perspectives align with wider appeals to contextualise GenAI within established theories of learning and instructional design (Mulyani et al., 2025). Taken together, the literature highlights the importance of structured approaches that consider pedagogical goals, ethical issues, teacher agency, professional development, and inclusive educational practice when integrating GenAI.

In general, the literature demonstrates the potential of GenAI to support educational practice while also highlighting the pedagogical, technical, ethical, and institutional considerations associated with its implementation. Despite the excellent insights offered by existing studies regarding GenAI integration in broader educational contexts, there is a lack of synthesis explicitly addressing how these findings might assist non-designer educators in producing microlearning videos. This gap is crucial since successful implementation requires both access to GenAI technologies and suitable educational and design support. Therefore, a systematic synthesis of the existing evidence is needed to clarify the role of GenAI in supporting non-designer educators in microlearning video production, with particular attention to its pedagogical potential, opportunities and challenges, and the need for structured conceptual guidance.

3 METHOD

3.1 Identification

The identification stage of the systematic literature review (SLR) process is crucial step that establishes the groundwork for thorough analysis and integration of existing studies. This stage emphasises the collection of relevant literature that complies with the established research parameters and is essential for constructing a robust evidence foundation. This analysis focus on examining the themes related to GenAI, microlearning videos, and educators. To methodically locate relevant material, two respected academic databases—Scopus and Web of Science (WoS)—were utilised to ensure a comprehensive and varied assortment of scholarly papers.

Applying specific keywords related to the study emphasis, the enquiries were conducted in both Scopus and WoS databases. The selected keywords ("Generative AI" OR "Artificial Intelligence") AND ("Microlearning Video" OR "Educational") AND "Video Production" AND ("Teachers" OR "Educator") AND ("Support" OR "Assistance"), AND (“Generative AI”, “microlearning video,” support and “educator OR teacher”)—were deliberately selected to cover the various aspects of educational strategies implementing video for microlearning. This methodology seeks to encompass a wide range of studies that explore the incorporation of videos into microlearning strategies to support educators.

The initial search in the Scopus database yielded 40 records. Scopus is recognised for its extensive indexing capabilities across various disciplines, allowing researchers to access a wealth of peer-reviewed literature. Its advanced search features enable users to refine searches using specific keywords, ensuring that the results are relevant to the research questions.

In conjunction with this, a search in the Web of Science generated a larger pool, identifying 8522 records. The Web of Science is another leading database in academic research, known for its comprehensive citation data and scholarly coverage. It facilitates access to a wide array of high-quality articles, making it an instrumental resource for systematic reviews. The findings from both databases complement one another, providing a more robust overview of the current research landscape concerning GenAI support for educators in creating microlearning video within educational settings.

In total, 8562 records were identified across both databases. This considerable number reflects an active research interest in the intersection of GenAI, microlearning video, and education. However, the next crucial step in the SLR process entails a systematic screening of these records to eliminate duplicates and irrelevant studies, ensuring that the remaining articles align with the research objectives. This comprehensive identification of literature will form the basis for further analysis, allowing for the synthesis of findings that can inform best practices and highlight potential gaps in the existing body of knowledge. As the review progresses, the focus will shift towards examining the quality and relevance of the identified studies, ultimately contributing to a deeper understanding of how microlearning videos can enhance educational outcomes for educators.

Table 1 The search string

Scopus	ALL ("Generative AI" OR "Artificial Intelligence") AND ("Microlearning Video" OR "Educational") AND "Video Production" AND ("Teachers" OR "Educator") AND ("Support" OR "Assistance") Date of Access: August 2025
Wos	"Generative AI" OR "Artificial Intelligence" AND "Microlearning Video" OR "educational" AND Video Production" AND "Teachers" OR "Educators" AND "Support" OR "Assistance" Date of Access: August 2025

(Source: Tagie et al. 2025)

3.2 Screening

During the screening step, potentially relevant research items are evaluated to ensure they align with the predefined research question(s). This phase often involves selecting research items based on the implementation and approach of GenAI and microlearning videos in educational settings. Duplicate papers are removed at this stage. Initially, 8150 publications were excluded, leaving 412 papers for further examination based on specific inclusion and exclusion criteria in Table 2. The first criterion was literature, as it serves as the primary source of practical recommendations. However, reviews, meta-syntheses, and meta-analyses are not included in this study, since this topic has already been extensively covered in the most recent research, particularly in the Web of Science. The review was limited to English-language publications from 2023 to 2025. Overall, only 1 publication was rejected due to duplication.

Table 2 The selection criterion is searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2023–2025	< 2023
Literature type	Journal (article), books, proceeding and conference	Review, no full access, meta-syntheses, meta-analysis

(Source: Tagie et al., 2025)

4 ELIGIBILITY

In the third step, known as the eligibility phase, 411 articles were prepared for review. During this stage, the titles and key content of all articles were carefully examined to ensure they met the inclusion criteria and aligned with the current research objectives. Consequently, 380 data/paper/articles were excluded as they did not qualify due to being out-of-field, the title not being significant, the abstract not being related to the objective of the study, the focus group are not suitable and no full text access being found on empirical evidence. As a result, a total of 31 articles remain for the upcoming review.

4.1 Data Abstraction and Analysis

An integrative analysis was used as one of the assessment strategies in this study to examine and synthesise a variety of research designs (quantitative, qualitative and mixed methods). The goal of the competent study was to identify relevant topics and subtopics. The stage of data collection was the first step in the development of the theme.

Figure 2 shows how the authors meticulously analysed a compilation of 31 publications for assertions or materials relevant to the topics of the current study. The authors then evaluated the current significant studies related to GenAI, educators and microlearning video. The methodology used in all studies, as well as the research results, are being investigated. Next, the author develops themes based on the evidence in this study's context.

The identified themes were subsequently refined to ensure consistency. The selection of analysis was reviewed by senior lecturers from the identified university, who are experts in multimedia, to determine the validity of the issues identified. This expert review phase ensured the clarity, relevance and suitability of each subtheme by establishing domain validity. Adjustments have been made at the author's discretion, incorporating feedback and comments from experts. The question is: what challenges non-designer educators face when integrating microlearning videos into their teaching, and how can these challenges be addressed?

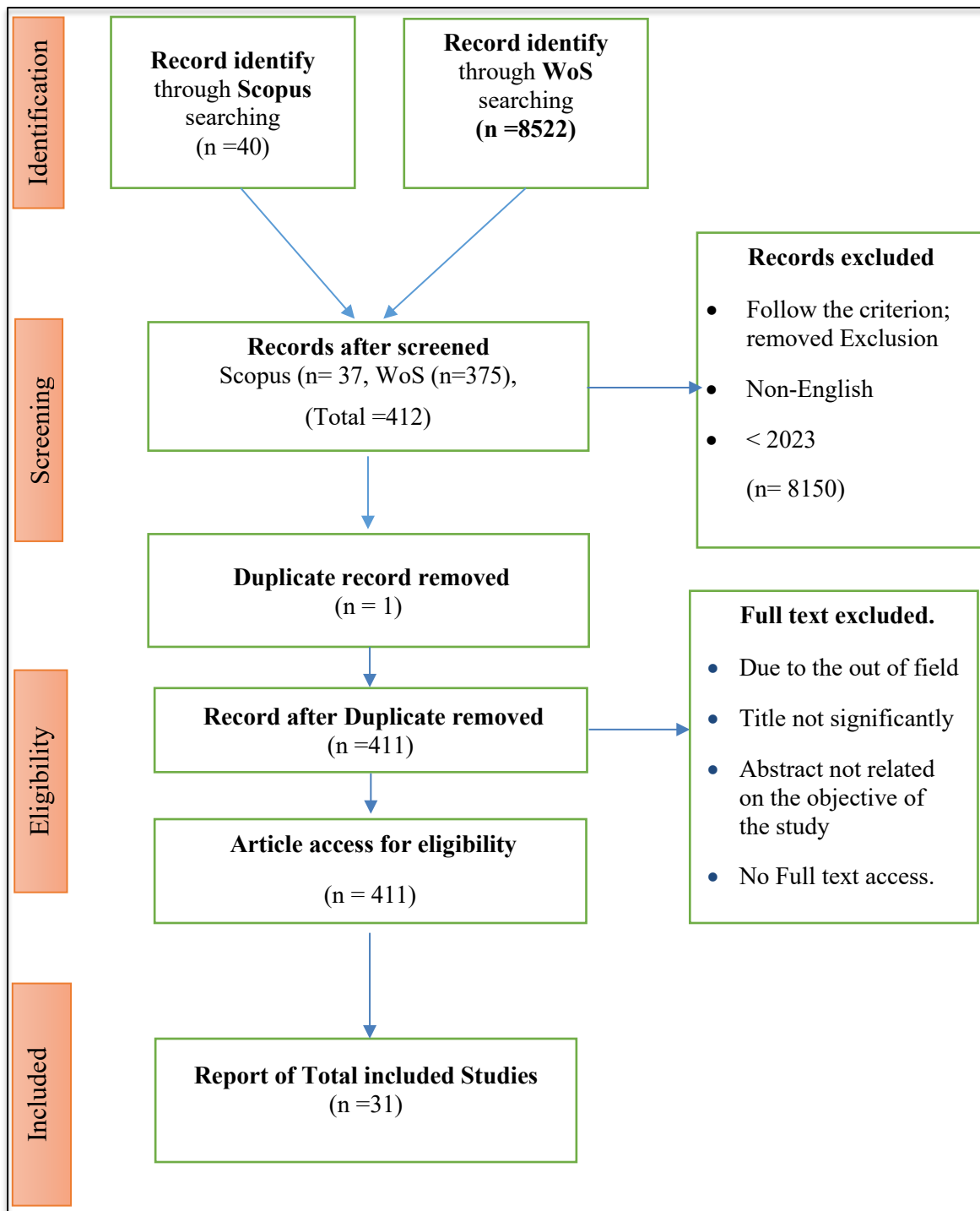


Figure 2 PRISMA flow diagram of the proposed searching study
(Source: Tagie et al., 2025)

5 RESULT AND DISCUSSION

Figure 3 presents an overview of the 31 studies included in this systematic review.

NO	AUTHORS	TITLE	YEAR	DOI	SCOPUS	WoS
1	Haroud, Samia and Saqri, Nadia.	Generative AI in Higher Education: Teachers' and Students' Perspectives on Support, Replacement, and Digital Literacy.	2025	10.3390/educscil5040396		/
2	Nartey, Emmanuel K..	Guiding principles of generative AI for employability and learning in UK universities.	2024	10.1080/2331186X.2024.2357898		/
3	van den Berg, Geesje.	Generative AI and Educators: Partnering in Using Open Digital Content for Transforming Education.	2024	10.55982/openpraxis.16.2.640		/
4	Kong, Siu-Cheung and Yang, Yin	A Human-Centered Learning and Teaching Framework Using Generative Artificial Intelligence for Self-Regulated Learning Development Through Domain Knowledge Learning in K-12 Settings.	2024	10.1109/TLT.2024.3392830		/
5	Creely, Edwin and Blannin, Jo.	Creative partnerships with generative AI. Possibilities for education and beyond.	2025	10.1016/j.tsc.2024.101727		/
6	Stefaniak, Jill E. and Moore, Stephanie	The Use of Generative AI to Support Inclusivity and Design Deliberation for Online Instruction.	2025	10.24059/olj.v28i3.4458		/
7	Hwang, Younjung and Wu, Yi	Graphic Design Education in the Era of Text-to-Image Generation: Transitioning to Contents Creator.	2025	10.1111/jade.12558		/
8	Hazzan-Bishara, Arcen and Ko, Ofrit a	The factors affecting teachers' adoption of AI technologies: A unified model of external and internal determinants.	2025	10.1007/s10639-025-13393-z		/
9	Mulyani, Heni Istiaq, Mohamad Az	Transforming education: exploring the influence of generative AI on teaching performance.	2025	10.1080/2331186X.2024.2448066		/
10	Nonthamand, Narin	Designing the video-based learning environments using workflow and scaffolding to enhance self-instructional video production ability of pre-service teacher.	2024	10.30935/cedtech/14102		/
11	Kurtz, Gila and Amzalag, Meital and Sh	Strategies for Integrating Generative AI into Higher Education: Navigating Challenges and Leveraging Opportunities.	2024	10.3390/educscil4050503		/
12	Vartiainen, Henriikka and Liukkonen, P	Emerging human-technology relationships in a co-design process with generative AI.	2025	10.1016/j.tsc.2024.101742		/
13	Lee, Yu-Ling and Lui, Nina Pak.	Re-embracing orality in digital education: the pedagogical affordances of podcasting in the era of generative AI.	2024	10.3389/feduc.2024.1447015		/
14	Simsek, Ahmet Salih and Cengiz, Guelu	Extending the TAM framework: Exploring learning motivation and agility in educational adoption of generative AI.	2025	10.1007/s10639-025-13591-9		/
15	Karatas, Fatih and Ericok, Baris and Ta	Reshaping curriculum adaptation in the age of artificial intelligence: Mapping teachers' AI-driven curriculum adaptation patterns.	2025	10.1002/berj.4068		/
16	Theodorio, Adedayo Olayinka.	Examining the support required by educators for successful technology integration in teacher professional development program.	2024	10.1080/2331186X.2023.2298607		/
17	Cacho, Reynald M.	Integrating Generative AI in University Teaching and Learning: A Model for Balanced Guidelines.	2024	10.24059/olj.v28i3.4508		/
18	Noroozi, Omid and Soleimani, Saba and Farrokhnia, Mohammadreza and Banihashem, Seyyed Kazem.	Generative AI in Education: Pedagogical, Theoretical, and Methodological Perspectives.	2024	10.46328/jte.845		/
19	Chan, Cecilia Ka Yuk.	Holistic competencies and AI in education: A synergistic pathway.	2024	10.14742/ajet.10191		/
20	Ochoa, Xavier and Huang, Xiaomeng a	Exploring the Potential of Generative AI to Support Non-experts in Learning Analytics Practice.	2025	10.18608/jla.2025.8615		/
21	Cukurova, Mutlu.	The interplay of learning, analytics and artificial intelligence in education: A vision for hybrid intelligence.	2025	10.1111/bjet.13514		/
22	Bruenner, Benedikt and Schoen, Sandra	From Gretel to Strudelcity: Empowering Teachers Regarding Generative AI for Enhanced AI Literacy with CollectiveGPT.	2025	10.3390/educscil5020206		/
23	Abramenka-Lachheb, Victoria and Lac	Value-sensitive design in the praxis of instructional design: A view of designers in situ.	2025	10.1111/bjet.13574		/
24	Gutierrez-Gonzalez, Raquel and Zamarr	Video-based lecture engagement in a flipped classroom environment.	2024	10.1186/s12909-024-06228-x		/
25	Suresh Babu C.V.; William M.P.; Kow	Generative AI Tools and Education: Enabling Collaborative Intelligence Through ChatGPT, Canva, InVideo AI, and InShot	2025	10.4018/979-8-3693-8332-2.ch0	/	
26	Jayaweera I.G.U.D.	Revolutionizing Education: Generative AI as a Catalyst for Personalized Learning and Innovative Teaching Practices	2025	10.1109/ICARC64760.2025.1096	/	
27	Rolla Elsaïary	Elsaïary R. Transforming best practices and empowering educators	2025	10.4018/979-8-3693-7332-3.ch0	/	
28	Delello, J. A., Watters, J. B., & Garcia	Artificial Intelligence in Education: Transforming Learning and Teaching.	2024	10.4018/979-8-3693-3003-6.ch0	/	
29	Sagin F.G.; Özkaya A.B.; Tengiz F.; G	Current evaluation and recommendations for the use of artificial intelligence tools in education	2023	10.1515/tjb-2023-0254	/	
30	Hassan Khosravi, Paul Denny, Steven	Learnersourcing in the age of AI: Student, educator and machine partnerships for content creation.	2023	https://doi.org/10.1016/i.caeai.202	/	
31	Yanlong Liang, & Jjian Lu.	How School Support Influences the Content Creation of Pre-Service Teachers' Instructional Design.	2025	https://doi.org/10.3390/bs1505056	/	

Figure 3 Synthesis of 31 papers on Generative AI in education included in this study
(Source: Tagie et al., 2025)

Figure 3 provides an overview of the 31 studies included in this systematic review and their contribution to the synthesis of results and discussion presented in Section 4. Collectively, these studies informed the development of three themes: GenAI as a pedagogical catalyst for microlearning video production, opportunities and challenges for non-designer educators in creating microlearning videos, and the need for a conceptual framework to support non-designer educators in GenAI-supported

microlearning video production. The discussion in Section 4 focuses on the studies that are most relevant to supporting and explaining each theme.

5.1 Theme 01: GenAI as pedagogical catalyst for microlearning video production.

The integration of GenAI into education has demonstrated significant potential in catalysing the production of microlearning videos. Numerous research emphasise the way AI-driven tools reduce technical barriers for educators and enable the creation of high-quality instructional content in diverse formats. Firstly, the study by Nonthamand (2024) found that structured scaffolding and workflow-based video environments substantially improved pre-service teachers' ability to produce self-instructional videos. Similarly, Gutierrez-Gonzalez, Zamarron, and Royuela (2024) demonstrated that shorter, more concise instructional videos were more effective at sustaining engagement in flipped classroom contexts, though interactive elements such as embedded quizzes did not substantially increase participation. Together, these findings suggest that GenAI tools can enhance video-based pedagogy by both improving production skills and tailoring content formats to learner engagement patterns.

GenAI not only structures videos but also facilitates automated, learner-centred content creation. Extending this innovation into broader educational environments, Suresh Babu, William, and Kowsika (2025) examine the use of GenAI platforms, including ChatGPT, Canva, InVideo AI, and InShot, revealing opportunities for non-designer educators to create interactive learning materials, stimulate creativity, and enhance student engagement through accessible video production tools. Importantly, their finding underscored significant challenges, especially ethical considerations regarding privacy and the essential requirement for thorough educator training to ensure responsible and efficient implementation.

The gathered evidence positions GenAI as a powerful pedagogical catalyst for microlearning video production. By automating aspects of design and enhancing accessibility, AI reduces the expertise barrier for educators while promoting more dynamic, personalised, and engaging video-based learning. However, the literature also emphasises that without ethical safeguards and sustained teacher preparation, the pedagogical benefits of GenAI in microlearning risk being undermined by issues of bias, privacy, and superficial engagement.

In line with the recommendations of Sagin et al. (2023), GenAI can be positioned as a pedagogical catalyst for microlearning video production, advancing innovation in instructional practices while safeguarding the centrality of human creativity. This perspective highlights the transformative potential of GenAI when adopted ethically and critically, ensuring that it complements rather than replaces educators' roles. Building upon this foundation, literature further underscores the opportunities and challenges encountered by non-designer educators in integrating GenAI tools, particularly with respect to accessibility, professional training, and ethical considerations.

5.2 Theme 02: Opportunities and challenges for non-designer educators in creating microlearning videos.

Generative AI (GenAI) is increasingly positioned as a catalyst for enabling non-designer educators to participate in microlearning video creation. The literature points to both significant opportunities and pressing challenges, particularly in balancing accessibility with ethical and pedagogical demands.

Opportunities arise primarily from the way GenAI supports non-designer educators. Liang and Lu (2025) demonstrated that institutional support, combined with AI use and teacher self-efficacy, influences pre-service teachers' capacity for instructional content creation. Similarly, Karatas et al. (2025) found that teachers used AI to adapt curricula by extending and revising content to meet learner needs. Practical benefits also include workload reduction and personalisation. Elsaiaary (2025) highlighted the potential of automated grading, personalised rubrics, and adaptive learning systems,

while van den Berg (2024) showed how educators used GenAI to simplify content and design assessments. As a whole, these findings indicate that GenAI can support educators in content creation, curriculum adaptation, and workload management.

Challenges, however, remain significant. Haroud and Saqri (2025) identified a divergence between the enthusiasm of students and the scepticism of teachers, who regularly articulate their worries. Theodorio (2024) highlighted the need for continuous institutional and peer support to sustain adoption, an area critical for educators with limited design and technical backgrounds. Ethical and pedagogical issues are also prominent. Elsaïary (2025) and van den Berg (2024) drew attention to data privacy, accuracy, and over-reliance on automation, while Stefaniak and Moore (2024) highlighted the potential for GenAI to perpetuate bias, emphasising the need to consider ethical issues and inclusivity in instructional design. Suresh Babu, William, and Kowsika (2025) further stressed that without comprehensive teacher training, GenAI adoption in video production risks amplifying privacy issues and pedagogical weaknesses.

One of the most significant promises of GenAI in education lies in its ability to empower non-designer teachers to create, adapt, and deliver instructional content. Through multiple studies, evidence shows that AI functions as both an enabler of creativity and efficiency and as a source of ethical and pedagogical challenges.

From a practical perspective, AI significantly reduces the workload of non-designer educators. Elsaïary (2025) highlighted the potential for automation of grading, personalised rubrics, and adaptive learning systems, while van den Berg (2024) showed that educators were already partnering with AI tools to simplify complex texts and design assessments. Yet, both studies underscore the importance of institutional guidelines and ethical safeguards to ensure responsible use.

Overall, the literature suggests that while generative AI empowers educators by lowering design barriers and reducing administrative workload, the opportunities it offers are counterbalanced by structural and ethical challenges. For non-designer educators to leverage AI effectively, they require not only technical training but also institutional support and clear ethical frameworks to navigate the risks of bias, equity, and over-reliance. In summary, GenAI offers powerful opportunities for non-designer educators to create engaging microlearning videos, democratising access to design tools and fostering personalisation. Yet its effective integration depends on institutional backing, sustained training, and robust ethical safeguards to ensure responsible and impactful adoption.

5.3 Theme 03: The need for a conceptual framework to support non-designer educators in GenAI-supported microlearning video production.

The synthesis uncovered multiple complimentary strategies for organising GenAI integration in education, encompassing technology adoption models as well as institutional, ethical, competency-based, and pedagogical frameworks. Thus, these methodologies illustrate that the incorporation of GenAI entails other factors beyond mere technology implementation.

Numerous investigations have aimed to enhance or modify current frameworks for AI implementation. Simsek et al. (2025) augmented the Technology Acceptance Model (TAM), revealing that intrinsic motivation, metacognitive self-regulation, and agility were more significant predictors of AI adoption than social influence. Hazzan-Bishara, Kol, and Levy (2025) similarly highlighted the significance of institutional support and teacher self-efficacy in the adoption process, thereby enhancing the Technology Acceptance Model (TAM) into a contextually relevant framework for AI in education. These developments indicate a developing agreement that AI frameworks should move beyond technological usability to address psychological, motivational, and institutional aspects of teaching practices.

Other scholars proposed for more comprehensive frameworks to guide AI incorporation. Cacho (2024) formulated a comprehensive framework of institutional and personal directives to tackle issues

of plagiarism and diminishing performance, whilst Nartey (2024) emphasised the significance of integrity and employability in steering GenAI implementation in UK higher education. Collectively, these perspectives underscore the necessity of acknowledging both institutional objectives and ethical behaviours in the facilitation of GenAI integration. Similarly, Kurtz et al. (2024) proposed a four-level adoption model highlighting the need of faculty training, digital literacy, and equity, whilst Cukurova (2025) argued for hybrid intelligence frameworks that combine human and machine cognition instead of substituting one for the other. These models demonstrate an increasing focus on harmonising AI application with human-centric principles and organisational frameworks.

Studies also indicate that educator training and digital literacy among educators are essential pillars of GenAI frameworks, as they determine how effectively new technologies can be adopted in practice. In the absence of sufficient training, numerous educators find it challenging to confidently utilise GenAI products or incorporate them into their instruction. Brunner, Schoon and Ebner (2025) stated that workshops enhance educators' AI literacy, while Kong and Yang (2024) propose a framework for embedding AI in self-regulated learning. Chan (2024) further broadened the discussion by positioning AI literacy within a holistic competency framework, urging a balance between technical fluency and human-centred values. Noroozi et al. (2024), through a review of 18 studies, highlighted the need for long-term, ethical, and inclusive frameworks to ensure AI is not only effective but equitable.

Beyond adoption models, conceptual frameworks also extend into pedagogical design. Stefaniak and Moore (2024) advocated for value-sensitive instructional design that prioritises care, equity, and inclusivity, while Abramenska-Lachheb et al. (2025) empirically demonstrated how such values are embedded in design practice. Lee and Lui (2024) and Hwang and Wu (2025) offered discipline-specific perspectives, showing how frameworks around orality and visual literacy, respectively, could guide the integration of AI in teacher education and design education.

Viewed collectively, the identified frameworks and conceptual approaches address interconnected dimensions of GenAI integration, including teacher motivation and self-efficacy, institutional support, AI literacy, ethical considerations, human-centred values, and pedagogical design. Rather than operating independently, these dimensions indicate that effective GenAI integration requires consideration of both educator capabilities and the broader pedagogical and institutional context. For non-designer educators, this synthesis points to the need for a structured conceptual framework that can support pedagogical and design decision-making when utilising GenAI in microlearning video production.

6 IMPLICATIONS FOR PRACTICE AND RESEARCH

This systematic review demonstrates that GenAI is no longer an emerging innovation but a transformative force in education, with significant implications for both practice and research.

For practice, the finding highlights the need to position GenAI as a pedagogical partner that augments rather than replaces educators. Educators should be empowered to integrate GenAI in ways that enrich creativity, enable personalisation, and reduce workload while preserving the authenticity of human-led pedagogy. A critical priority is the development of frameworks that empower educators – particularly non-designers – to create microlearning video content efficiently and effectively. Such frameworks would allow educators to harness GenAI's potential without requiring specialist design expertise, thereby broadening participation and ensuring that microlearning formats are both scalable and engaging. At the institutional level, schools and universities must establish ethical governance policies that safeguard academic integrity, data privacy, and equitable access. Moreover, it also promotes AI literacy for both educators and learners.

For research, the reviewed studies reveal that most work remains conceptual or exploratory. There is an urgent need for empirical validation of AI-driven frameworks in real classrooms, examining their impact on student learning, engagement, and long-term knowledge retention. For this reason, the role

of GenAI aligns closely with the Cognitive Theory of Multimedia Learning (CTML), as it enables the creation of multimodal instructional materials that combine text, visuals, and narration. When designed effectively, such integration enhances learning by combining text and visuals in ways that reinforce each other and foster deeper understanding. Particular attention should be given to scalability, inclusivity, and cross-cultural contexts, ensuring that solutions are adaptable across diverse educational systems. Future research should also investigate how GenAI can support high-order thinking, creativity, and critical reflection, especially interdisciplinary collaborations linking education, computer science, social science, ethics, and policy. It will be essential to advance nuanced, evidence-based strategies for human-AI partnership in education.

Ultimately, the integration of GenAI into education offers profound opportunities, but realising its potential requires practical frameworks that empower all educators – not just design experts – to engage students through innovative microlearning video content. This dual focus on accessibility and pedagogical integrity will be vital for ensuring equitable and future-ready education.

CONCLUSION

This systematic literature review has analysed the rapidly evolving landscape of GenAI in education, referencing 31 peer-reviewed studies across various fields, approaches and settings. The aggregated evidence indicates that GenAI is transforming educational methodologies in three significant manners: serving as a stimulus for innovative content generation. This encompasses microlearning videos and diverse learning resources, functioning as a collaborator in innovative and co-design initiatives with students and educators, while also serving as a driver for rethinking conceptual and ethical frameworks underpinning educator-centred education. Across studies, GenAI revealed to function not merely as a passive tool but as a proactive entity that shapes design decisions, distributes cognitive tasks, and transforms human-technology relationships.

Findings highlight significant opportunities: enhancing efficiency in instructional design, enabling personalisation, democratising creative production, and supporting non-designer educators in resource creation. Literature concurrently reveals critical challenges, including risk of over-reliance, reduce critical thinking, issues pertaining to intellectual property, algorithmic bias, and the degradations of educational integrity. A consistent theme is the necessity of balance – integrating GenAI in manners that enhance, rather than replace, human creativity, judgement, and ethical responsibility. Teacher agency and AI literacy emerge as central to successful adoption, especially within pre-service education and professional development.

Overall, the reviewed studies converge on the importance of conceptual frameworks that articulate how educators, learners, and machines collaborate productively. Such a framework must be flexible enough to accommodate evolving technologies, yet robust in safeguarding equity, critical engagement, and cultural diversity in education. Future research should move beyond descriptive studies to empirically test these frameworks in authentic classroom settings, while also addressing scalability, governance, and long-term impact on human learning and creativity. Moreover, there is an urgent need for a framework that empowers educators – especially for non-designer educators – to efficiently create microlearning video content that meaningfully engages students.

In conclusion, GenAI represents both profound opportunity and disruptive challenge for education. Harnessing its potential requires critical, ethical and pedagogically grounded strategies that place human-AI partnership at the centre and serve as a transformative force for inclusive, equitable, and future-ready education.

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AUTHOR CONTRIBUTIONS

All authors played equal contributions towards the production of this paper.

CONFLICTS OF INTEREST

The author declares no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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