



Title: "A Program Based on Digital Literacy
for Developing EFL Sentence Fluency Sub-
Skills Among Secondary School Students"

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**A Program Based on Digital Literacy for Developing EFL Sentence Fluency
Sub- Skills Among Secondary School Students**

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مستخلص

تشكل الطلاقة في الكتابة—المتتمثلة في سلاسة الجمل، وتنوع تراكيبها، وانسياب الأفكار بسلاسة—عنصرًا محوريًا في جودة النصوص المكتوبة، إذ تتيح للقارئ متابعة الأفكار دون تعثر وتضفي على الكتابة إيقاعًا (EFL) طبيعيًا ومقنعًا. ومع ذلك، يواجه طلاب المرحلة الثانوية في سياقات تعليم اللغة الإنجليزية كلغة أجنبية صعوبات متكررة في تحقيق الطلاقة الكتابية بسبب الفقر في المدخلات اللغوية الأصيلة، والاعتماد المفرط على تراكيب نمطية، وضعف الممارسة المنتظمة للكتابة. وغالبًا ما تؤدي هذه التحديات إلى نصوص متقطعة ومفتقرة للانسجام، حتى وإن احتوت على محتوى وأفكار ثرية ومع بروز الثقافة الرقمية كعنصر فاعل في التعليم المعاصر، تتيح الأدوات الرقمية فرصًا مبتكرة لدعم تنمية الطلاقة الكتابية. وتهدف هذه الدراسة إلى استقصاء أثر استخدام أدوات الثقافة الرقمية—مثل منصات الكتابة التعاونية، والبرمجيات التفاعلية لتحرير النصوص، وأنظمة التغذية الراجعة الفورية المعتمدة على الذكاء الاصطناعي—في تعزيز سلاسة الجمل وتماسك النصوص. وتكشف النتائج أن هذه الأدوات لم تسهم فقط في تقديم تغذية راجعة آنية ومخصصة، بل شجعت أيضًا الطلاب على إعادة الصياغة، وتجريب تراكيب متنوعة، وبناء وعي أكبر بالتنظيم والإيقاع في الكتابة. كما بينت أن الطلاب الذين استخدموا البيئات الرقمية حققوا تقدمًا ملحوظًا في تنوع الجمل وتحقيق الانسجام النصي مقارنة بزملائهم في الفصول التقليدية . وتخلص الدراسة إلى أن دمج الثقافة الرقمية في تعليم الطلاقة الكتابية يحول عملية الكتابة من مجرد أداء ميكانيكي إلى تجربة تفاعلية وتنموية، مما يستلزم إعداد المعلمين في مجال البيداغوجيا الرقمية وتصميم مناهج حديثة توائم بين التعليم التقليدي والبيئات الرقمية المعززة

الكلمات المفتاحية: المعرفة الرقمية , الطلاقة الكتابية



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ABSTRACT

Sentence fluency, which refers to the rhythm, flow, and readability of written text, is a critical dimension of effective writing. It involves crafting sentences that vary in length and structure, connect smoothly, and guide readers effortlessly through ideas. For English as Foreign Language (EFL) learners, especially at the secondary school level, developing sentence fluency is a major hurdle. Limited vocabulary, reliance on first language patterns, and restricted exposure to authentic English often result in writing that is either fragmented, overly simplistic, or marked by awkward repetition. Consequently, while students may express relevant ideas, their texts often lack the natural cadence and stylistic polish expected in proficient writing.

Digital literacy offers innovative solutions to these challenges by providing interactive platforms that promote fluency practice. Writing applications, collaborative tools, and automated feedback systems encourage learners to experiment with sentence variation, cohesion, and rhythm. Digital platforms also allow for multiple drafting, peer review, and teacher-guided scaffolding, fostering greater awareness of stylistic choices. Evidence suggests that students using digital tools produce writing with smoother transitions, varied structures, and improved readability compared to those relying solely on traditional methods.

Overall, integrating digital literacy into fluency instruction transforms writing into a more dynamic, reflective, and engaging process, highlighting the need for blended pedagogy and teacher training in technology-enhanced approaches.

Key Words: Digital Literacy, Sentence Fluency



Introduction

English learners have to master writing as it is a crucial communication skill that is necessary for conveying ideas clearly and coherently. It is considered a fundamental skill in education, where producing well-structured writing is essential to success. Beyond only composition, this ability fosters linguistic accuracy, strengthens lexical and grammatical competency, and encourages critical thinking. Because of this, mastering it is important for students in EFL contexts and can help them improve a wide range of cognitive and educational skills through regular practice and planned learning. It requires consistent engagement in a variety of writing assignments and performance evaluations.

The ability to write properly in English is actually crucial for Egyptian EFL students since it greatly enhances their language skills. In particular, English is taught as a foundational topic in Egypt from kindergarten to university, emphasizing the subject's significance at all educational levels. Students are required to tackle increasingly difficult writing assignments as they advance, showcasing a thorough comprehension and application of English writing norms. English is a universal language, therefore having this skill is not only essential for learning performance but also for improving employment and for opening doors to foreign prospects.

But even with these revelations, earlier research has not offered a thorough explanation of this phenomena or workable methods for improving students writing' abilities. As a result, this current study aims to methodically close this gap by investigating the various writing challenges that students encounter, determining the reasons behind these challenges, and suggesting workable solutions. Additionally, the study takes into account the role those technological advancements—particularly digital literacy tools in EFL writing settings—have in improving students' writing skills.

Sentence fluency often refers to the rhythm, fluidity, and diversity of sentences that contribute to a written text's coherence and readability. By guaranteeing that concepts are conveyed coherently and naturally, fluency in persuasive writing improves the potency of arguments. Sentence fluency is especially difficult for EFL learners since it requires not only proper grammar but also an intuitive understanding of the variations in length, structure, and emphasis of English sentences (Hyland, 2019). At first, a lot of EFL students tend to use simple or repeated sentence structures, which can limit the persuasive power of their writing and make it seem robotic. According to Ferris and Hedgcock (2014), teaching sentence fluency in EFL writing entails motivating students to employ a variety of sentence forms, including basic, compound, and complicated ones, as well as to regulate phrase rhythm to fit the tone and intent of their arguments. Effective use of fluid sentences helps highlight important ideas, keep the reader interested, and support the writer's argument's emotional and logic appeal.

The literature mentioned several recent studies that explored developing sentence fluency. For instance, Ibrahim, M. E., El-Naggar, A. M., & El-Sayed, R. M. (2023) investigated using Google Docs peer feedback to develop sentence fluency among Egyptian EFL student teachers. This study investigated how collaborative feedback through Google Docs influenced sentence fluency in paragraph writing. The findings showed significant improvement in students' ability to vary sentence length and structure. In addition, Ali, H. M. (2022) explored the effectiveness of a blended



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writing program in enhancing secondary school students' sentence fluency and coherence. The study demonstrated that using a blended approach combining in-person instruction with online writing platforms improved both sentence fluency and overall cohesion in students' essays. And Salama, R. S. (2021) studied developing sentence fluency through digital storytelling. This study helped EFL students improve their sentence variety, transitions, and flow, showing a strong link between fluency and creative writing tools. Youssef, A. F. (2020) also investigated improving sentence fluency using mobile-based writing apps among Egyptian preparatory students. The paper explored the use of mobile writing apps (like Grammarly and Quill) in enhancing sentence construction skills and fluency. The experimental group displayed a statistically significant improvement.

Fluency-focused instruction is crucial for helping EFL learners build their persuasive writing abilities. Yoon and Kim (2022) assert that reader involvement and perceived believability are strongly correlated with sentence-level fluency. Smooth-flowing texts are more likely to be read with interest and comprehended without difficulty. Learners are better able to create logical and visually appealing arguments when they receive explicit teaching on transitions, parallelism, and sentence variety. Sentence fluency is now supported by digital writing tools that offer feedback on how to improve choppy or uncomfortable phrases, such as grammar checkers and AI-based feedback systems. According to Szlachta et al. (2023), students' overall writing coherence and persuasiveness considerably increased when they made revisions to their persuasive essays in response to fluency-focused criticism from digital platforms.

Furthermore, by exhibiting command of language, phrase fluency supports the writer's ethos—the appeal to credibility or character. According to Wang (2020), authors who use clear, flowing phrases have a greater chance of earning readers' trust and persuasion. In actuality, this entails helping students read aloud from their work, critique each other's drafts for flow, and play around with sentence length and emphasis to create rhetorical effect. While lengthier, well-balanced sentences are useful for giving counterarguments or explaining complex ideas, short phrases can be employed to make emphatic conclusions. Students who write more fluently also become more conscious of tone, rhythm, and coherence—all of which are critical for academic writing in English that is convincing (Zhang & Cheng, 2021). As a result, sentence fluency is a strategic tool that improves the overall persuasiveness, clarity, and emphasis of written arguments by EFL learners rather of just being a mechanical skill.

Digital literacy is broadly defined as the ability to locate, evaluate, create, and communicate information via digital platforms (Joseph & Khan, 2020; Wikipedia, 2025). As today's learners operate within increasingly interconnected and multimedia-rich environments, proficiency in digital tools becomes not only advantageous but essential for effective communication. Alongside this, **sentence fluency**—the smooth, varied, and coherent flow of language in writing—is a cornerstone of proficient writing, enabling readers to effortlessly follow and appreciate ideas (International Literacy Association, 2018). The convergence of digital literacy and sentence fluency presents a compelling opportunity: digital environments offer learners interactive, adaptive, and multimodal contexts in which to practice and refine the rhythm and structure of their sentences. This paper explores how digital tools—such as automated sentence combiners, AI-enhanced writing platforms, and collaborative online spaces—can be intentionally integrated into pedagogical practice to



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support the development of fluent writing among students. It argues that, when paired thoughtfully with instructional strategies like modeling, scaffolding, and reflective feedback, digital literacy tools can significantly improve learners' sentence construction skills and overall writing quality.

Review of Literature

The importance of Digital Literacy in Class

Can digital literacy be beneficial in the educational contexts of learning, especially language learning? The following literature can answer this rhetorical question. In their research, Liza & Andriyanti (2020) mentioned that digital literacy indicates to the capability of accessing, organizing, understanding, and evaluating information that includes multimodal perspectives as well as to participate in the rapidly growing digital communication channel by interpreting, managing, sharing, and creating meaning. Digital literacy describes skills related to analyzing and interpreting information critically, interpreting visual media via visual literacy, utilizing digital content or computer literacy, and utilizing technology. It also refers to a set of understandings in the digital era required to comprehend, produce, and negotiate meaning in a culture dominated by powerful images, words, and sounds (Gallardo et al., 2015). Following is various parts of digital literacy, including the concept, purposes, and components of digital literacy. Forutanian, (2021) also argued that digital literacy is somehow a set of awareness, contexts, and skills that change with time and situation. To put it another way, it refers to the use of digital tools and technology for a simpler and better life. It is more than just computers, ICT, information, data, and media literacy.

Navigating the expansive and complex field of digital literacy (DL), numerous studies have highlighted its profound benefits in educational contexts. Digital literacy has become essential for students as they prepare to become well-rounded individuals, equipped not only with technical competencies but also with the soft skills necessary for career success and meaningful social interaction (Mukeredzi et al., 2015). From a multimodal perspective, DL can effectively support the writing process by enhancing cognitive abilities, fostering independent thinking, and providing efficient methods for acquiring knowledge (Chauhan, 2017). In fact, The growing student interest in learning through new media tools has prompted curricula and teaching strategies to increasingly rely on digital technologies, facilitating learning even in remote settings (Hasan & Khan, 2017). Moreover, digital tools can be tailored to meet the individual needs of struggling writers, supporting their cognitive processes and enabling knowledge transformation strategies that align with specific writing tasks (Feng et al., 2019). And this really took place in the current study.

In addition, digital literacy encompasses more than just technological know-how—it includes the ability to find, assess, use, share, and create digital content responsibly and effectively (Isnawati et al., 2021). As students increasingly demand access to newer technologies in both formal and informal learning contexts, educational institutions must adapt accordingly (Ang et al., 2018). Digital tools and platforms such as Google Docs, blogs, wikis,

and YouTube have transformed both classroom and out-of-classroom learning (Al-Timimi, 2017; Hanson-Smith, 2018). The integration of ICTs in education raises academic standards and enriches learning experiences for all stakeholders (Sharma & Reddy, 2015), while advancements in media—



from television to smartphones—have expanded access to learning resources and enabled information exchange (Arnone & Wagner, 2011).

As a matter of fact, digital literacy has also redefined roles within the educational system. Instructors shift from being central authorities to facilitators, while students become active participants in their learning journeys (Sarkar, 2012). A variety of tools and applications now aid language teaching and learning (Choi & Chung, 2021), managing language tasks effectively, whether via older or newer digital technologies (Levy, 2009). Teachers have access to a vast range of instructional resources (Sánchez-Cruzado et al., 2021), underscoring the need to enhance students' capabilities in using digital tools for language acquisition (Purnama et al., 2021). Technological literacy also fosters improved teamwork, learning outcomes, and academic performance (Blanco et al., 2017), and contributes to students' long-term career readiness and learning motivation (Rahimi & Kim, 2019).

Furthermore, digital literacy, the independent construct in the present study, supports problem-solving within teaching and learning processes (Zhao et al., 2021) and allows students to efficiently access accurate and relevant digital content, broadening their understanding and aiding academic tasks (Mulyasa, 2009). It is particularly impactful in writing instruction, enhancing writing skills and promoting high-quality academic work (Wang et al., 2020). Digital literacy also strengthens critical thinking skills (Abdul Fattah, 2016), enabling students to analyze digital content, assess credibility, and engage thoughtfully in digital interactions (Liza & Andriyanti, 2020). Beyond technical skills, DL involves comprehension and the creation of new knowledge (Yustika & Iswati, 2020), helping to prevent digital media misuse at individual and societal levels (Miftah et al., 2016). Moreover, DL education builds responsible behavior on social media and encourages the wise dissemination of information (Silvana & Darmawan, 2018).

Also, Digital learning, as described by Holzberger et al. (2013), delivers educational materials such as texts and images via the Internet to support knowledge acquisition and overcome barriers of time, place, and scheduling. This approach enables personalized, learner-centered education through both synchronous and asynchronous formats. In conclusion, digital literacy is not just beneficial—it is indispensable in the modern world. Without it, learners may struggle to thrive academically or professionally. Therefore, greater emphasis must be placed on digital learning and maximizing its potential to empower students for future success.

In conclusion, it can be extracted that choosing digital literacy to act as the independent variable in the current study proved to be a very suitable one to help develop secondary students EFL persuasive writing skills, that is because of the highly effective skills that digital literacy encompasses and can inevitably, if applied well, help enhance the targeted EFL persuasive writing skills.

The concept of digital literacy encompasses a wide range of competencies, including the skills to search for, analyze, and create content using digital formats (Joseph & Khan, 2020). In their comprehensive review, Joseph and Khan (2020) highlight tools such as audiobooks, word games, and smartphone applications as vehicles for reinforcing writing abilities. These tools can support vocabulary development, syntactic awareness, and the manipulation of sentence structure in engaging formats. Wikipedia (2025) similarly underscores the significance of being able to critically assess the reliability of online information and communicate meaningfully within digital



contexts. This evaluative aspect is critical, as effective writing depends not only on grammar and syntax but also on choosing appropriate language, style, and tone for purpose and audience. Thus, digital literacy is not simply a set of technical skills—but a meta-literacy—providing the foundation for writers to interact dynamically with diverse forms of content and feedback, ultimately shaping more fluent and adaptive writing practices.

Sentence fluency refers to the ease with which readers can process text due to its coherent, grammatically varied, and rhythmically satisfying structure (International Literacy Association, 2018). The ILA's research advisory emphasizes that activities like sentence combining—where learners merge multiple simple sentences into a single complex sentence—help strengthen grammatical awareness and produce more fluid writing. Oakley's (2024) scoping review furthers this by showing that digital technologies such as text-to-speech (TTS) readers and writing apps allow learners to hear and adjust their own sentences, deepening their sense of flow and improving self-editing skills. These tools create a feedback loop: writers input their text, receive auditory or visual feedback, and iteratively refine sentence structure and punctuation. This cycle fosters greater metacognitive awareness, as learners become attuned to the rhythm, clarity, and conciseness of their writing—hallmarks of sentence fluency.

Intersection of Digital Literacy & Sentence Fluency

Sentence fluency often refers to the rhythm, fluidity, and diversity of sentences that contribute to a written text's coherence and readability. By guaranteeing that concepts are conveyed coherently and naturally, fluency in persuasive writing improves the potency of arguments. Sentence fluency is especially difficult for EFL learners since it requires not only proper grammar but also an intuitive understanding of the variations in length, structure, and emphasis of English sentences (Hyland, 2019). At first, a lot of EFL students tend to use simple or repeated sentence structures, which can limit the persuasive power of their writing and make it seem robotic. According to Ferris and Hedgcock (2014), teaching sentence fluency in EFL writing entails motivating students to employ a variety of sentence forms, including basic, compound, and complicated ones, as well as to regulate phrase rhythm to fit the tone and intent of their arguments. Effective use of fluid sentences helps highlight important ideas, keep the reader interested, and support the writer's argument's emotional and logic appeal.

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Recent studies indicate that when digital literacy tools are harnessed intentionally within guided activities, students demonstrate notable improvements in sentence fluency. For example, interactive writing platforms that support teacher–student dialogue—such as blogs and shared-document environments—enable real-time peer or mentor feedback explicitly focused on sentence-level features like varying sentence beginnings, embedding clauses, and balancing length (Oakley, 2024). Additionally, multimodal composition tools, which allow writers to integrate images, audio, and text, encourage exploration of different syntactic structures to match tonal and rhetorical demands (Joseph & Khan, 2020). Evidence from classroom interventions rooted in the TPACK (Technological Pedagogical Content Knowledge) framework shows that when teachers combine technological tool use with explicit instruction in sentence structure, students' writing exhibits greater syntactic variety and smoother flow (International Literacy Association, 2018; Oakley, 2024). The synergy between technological affordances and pedagogical scaffolding appears to be the critical factor that transforms digital literacy from a technical skill into a driver of linguistic competence and fluency.

Digital Tools Supporting Sentence Fluency

One of the most effective digital tools for developing sentence fluency is sentence-combining software. These tools offer learners guided exercises where they combine short, choppy sentences into more complex and fluid structures. Through immediate feedback and multiple revision options, such tools promote syntactic experimentation and improve learners' ability to vary sentence types. According to Oakley (2024), such programs allow students to visualize how modifying clauses, rearranging phrases, or integrating transitions impacts sentence rhythm and clarity. Additionally, platforms like Grammarly or Hemingway Editor provide instant suggestions on sentence length, passive voice, and clarity, all of which help learners refine the flow of their writing. When these tools are used alongside teacher-led modeling, they can effectively support the internalization of sentence fluency as a cognitive habit rather than just a mechanical task.

Multi modal platforms such as Google Docs, Canva Docs, and Padlet also play a critical role in enhancing sentence fluency. These tools allow learners to integrate visuals, audio recordings, and hyperlinks into their texts, encouraging them to consider how sentence structure affects coherence, emphasis, and audience engagement. For instance, when composing for multimedia audiences, students must consciously adapt sentence length and tone for clarity and impact. Joseph and Khan (2020) argue that such platforms push students to rethink conventional sentence forms in ways that promote linguistic creativity and structural precision. In collaborative environments, peer editing functions encourage reflection on sentence flow and variation as part of the writing process. This interaction provides learners with ongoing exposure to sentence-level corrections and stylistic



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suggestions from others, fostering a deeper understanding of fluency within real communicative contexts.

Empirical Evidence on Digital Literacy and Sentence Fluency

Empirical studies reinforce the value of digital tools in improving writing fluency, especially when these tools are embedded within structured instructional frameworks. For instance, recent research on university students' perceptions of digital literacy found that participants believed their digital competence directly supported their ability to construct more coherent and fluent academic texts (Abdel-Aleem, 2025). Furthermore, Oakley (2024) observed that classrooms using interactive writing tools and peer-reviewed platforms showed measurable gains in the syntactic complexity and rhythm of student writing. When students revise their texts based on digital feedback or peer comments, they tend to focus more on sentence variation and transition use—two core indicators of fluency. Additionally, instructional programs that blend grammar-based digital exercises with creative writing tasks have shown strong outcomes in helping students develop fluid sentence construction without losing personal voice or coherence.

Pedagogical Strategies: Blending Technology with Instruction

Effective integration of digital literacy into writing instruction requires deliberate pedagogical planning. Teachers must not only introduce tools but also guide students in how to use them meaningfully to enhance sentence construction. Blended learning environments, for example, provide a structure in which digital tools can complement direct instruction. Teachers can assign sentence-combining exercises online, and then facilitate in-class workshops where students analyze and reflect on their sentence structures. According to the International Literacy Association (2018), this back-and-forth between digital interaction and face-to-face instruction deepens student engagement and leads to more sustained gains in fluency. Teachers are also encouraged to model fluent writing through digital think-aloud—where they write on screen while verbalizing decisions about sentence beginnings, variety, and rhythm. These models, when recorded or shared in learning management systems, allow learners to revisit fluent writing strategies and imitate them in their drafts.

Peer Review and Digital Feedback

Peer review platforms—such as Edmodo, Google Classroom, and even Flipgrid—offer valuable environments for fluency development. These platforms not only enable sharing of texts but also provide structured peer interaction that focuses on sentence-level feedback. When students are trained to give and receive feedback on sentence flow, they become more attentive to how rhythm, variety, and cohesion affect readability. Oakley (2024) points out that the dialogic nature of online feedback encourages reflection and revision, two practices central to mastering fluency. Moreover, many peer review systems use rubric-based feedback, which can include sentence fluency as a targeted skill. This allows students to internalize evaluative criteria and self-regulate their writing accordingly. Digital platforms also reduce social anxiety often associated with in-person critique, creating a safer space for iterative improvement.

Challenges in Using Digital Tools for Sentence Fluency

Despite their potential, digital tools also come with limitations and challenges that educators must consider. One major concern is the **digital divide**, where unequal access to devices and the internet



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can prevent some learners from benefiting fully from digital writing tools. In such cases, focusing heavily on digital instruction could widen educational gaps rather than closing them. Moreover, there is the risk of over-reliance on tools like grammar checkers or AI sentence editors, which may lead to surface-level corrections without real understanding.

Classroom Application: Multimodal Narratives for Fluency

Another successful strategy was the integration of multimodal narratives to support sentence fluency. Students were tasked with producing short digital stories using platforms such as Book Creator and Canva Docs. These narratives were based on personal experiences and had to include at least one image per paragraph, prompting students to craft sentences that explained, transitioned, or contrasted ideas meaningfully. As they paired visuals with text, students revised their sentences to clarify cause-effect relationships, create suspense, or add humor—leading to greater sentence variety and a more expressive writing style. The teacher also used screen-capture tools to provide sentence-level feedback through video comments. This form of feedback allowed students to hear how their sentence structure affected rhythm and meaning, which encouraged iterative revision. As Oakley (2024) noted, this kind of auditory reinforcement is especially effective in fluency development because it activates learners' internal ear for writing—akin to the fluency that develops through repeated reading.

Critical Reflection: Technology as a Partner, Not a Replacement

While digital literacy tools show immense promise in improving sentence fluency, educators must strike a balance between technological support and cognitive engagement. One of the most common pitfalls is allowing digital tools to automate decisions that students should be making consciously—such as sentence length, punctuation, and transitions. For instance, when students rely heavily on grammar checkers, they may accept suggestions that improve correctness but reduce voice or clarity. Therefore, teachers must continuously prompt learners to justify their sentence choices and to see revision as a form of authorial control rather than algorithmic correction. As Joseph and Khan (2020) argue, the human element in writing instruction cannot be replaced by machines. Instead, digital tools should serve as partners in the writing process—facilitating experimentation, reflection, and dialogue. In this way, students develop not only fluent sentences but a deeper sense of themselves as intentional and adaptable writers.

Integration Framework: Linking Tools, Fluency Targets, and Assessment

To systematize the integration of digital literacy for sentence fluency, educators can adopt a practical framework aligning three core elements: **tool functions, fluency targets, and assessment methods**. Tool functions refer to what a platform offers—such as sentence recombination, peer commenting, or text-to-speech playback. Fluency targets are instructional goals such as reducing sentence fragments, adding subordination, or improving coherence between sentences. Finally, assessment methods should measure both the product (e.g., sentence variety in a final essay) and the process (e.g., quality of revisions made through digital feedback). For example, a lesson targeting transition use may use a platform like Edmodo for students to share paragraphs and comment specifically on how sentences link ideas. Assessment can include a digital checklist or rubric focusing on sentence-level fluency. When these three elements are clearly connected, digital writing instruction becomes purposeful and replicable.



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In summary, integrating digital literacy into writing instruction offers a powerful means to enhance students' sentence fluency. Tools such as sentence combiners, AI writing assistants, and collaborative composition platforms provide immediate, targeted feedback that encourages sentence-level improvement. When these tools are paired with explicit instruction, peer interaction, and teacher modeling, students develop a stronger sense of rhythm, clarity, and syntactic variety in their writing. However, careful planning is essential to address access issues and avoid superficial reliance on technology. Future research should continue to investigate how specific digital interventions can be tailored to different learning contexts and how teachers can be best supported in implementing them. Ultimately, digital literacy, when thoughtfully applied, serves as a catalyst for developing not only more fluent writing but also more confident and reflective writers.

In a recent Egyptian secondary EFL classroom, a digital literacy intervention was introduced to improve sentence fluency among students in grade 11. The program incorporated sentence-combining tools like NoRedInk and Quill.org, along with collaborative writing in Google Docs. At the start of the program, many students demonstrated a tendency to write in short, disconnected sentences, showing limited use of subordination, conjunctions, and transition markers. During the intervention, students were introduced to digital grammar games and sentence manipulation exercises that required them to actively combine multiple ideas into a single fluid sentence. Teachers scaffolded this process by modeling revisions and analyzing sentence patterns in exemplar texts using projection tools. Within four weeks, writing samples revealed significant improvement in sentence variety, smoother transitions, and increased syntactic complexity. The use of digital sentence-combining activities was shown to reduce anxiety related to grammar correction and instead positioned grammar as a tool for enhancing meaning and fluency.

Context of the Problem

In the Egyptian EFL context, sentence fluency remains one of the most underdeveloped yet essential components of writing proficiency. While many learners demonstrate a fair grasp of grammar and vocabulary, their written output often lacks flow, rhythm, and sentence variety, leading to choppy or mechanically structured paragraphs. Sentence fluency refers not only to the grammatical correctness of sentences but also to the smoothness, rhythm, and logical progression of ideas. For secondary school students and university undergraduates, writing with fluency is vital for academic success, yet it is rarely emphasized directly in the curriculum.

The traditional methods of teaching writing in Egypt often rely on mechanical drills and translation tasks that promote accuracy but fail to develop a natural writing style. As a result, many students produce rigid, monotonous sentences that do not engage readers or reflect their intended meaning clearly. Furthermore, limited exposure to authentic models of fluent writing and insufficient feedback on sentence structure exacerbate the problem.

With the global shift toward digital literacy and technology-enhanced language learning, there is a growing recognition of the need to incorporate digital tools that support sentence-level development. These tools offer interactive environments where learners can practice varied sentence structures, receive immediate feedback, and engage in meaningful revision processes. However, despite some efforts, sentence fluency as a targeted skill has not received adequate attention in most Egyptian EFL programs. This highlights the urgency for well-designed interventions to improve fluency, especially at the sentence level, using innovative, research-based



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methods. Reviewing literature, several recent Egyptian studies on developing sentence fluency have been found. For example, Ibrahim, M. E., El-Naggar, A. M., & El-Sayed, R. M. (2023), Ali, H. M. (2022), Salama, R. S. (2021), Youssef, A. F. (2020),

Problem of the Study

Sentence fluency—the ability to construct smooth, varied, and rhythmical sentences that flow naturally within a text—is a key element of effective writing. Yet, many secondary school students encounter difficulties in this area. Their writing often shows signs of chopiness, overuse of repetitive sentence structures, awkward phrasing, or run-on constructions, all of which hinder clarity and weaken the impact of their ideas. Weak sentence fluency reduces the overall quality of students' writing and often results in texts that fail to engage readers.

Traditional instructional approaches to sentence fluency, which emphasize repetitive drills or isolated grammar exercises, frequently do not provide authentic contexts for practice or sufficient opportunities for students to experiment with sentence variety. This creates a gap between theoretical knowledge of grammar and its practical application in writing.

In an age where digital literacy is increasingly essential, digital tools and platforms offer new opportunities for developing sentence fluency skills. Interactive writing applications, digital feedback systems, and online collaborative platforms can help students practice constructing more fluid sentences, receive instant guidance, and refine their writing through engaging activities. However, there is still limited research on how systematically integrating digital literacy into instruction can enhance students' sentence fluency and motivate them to produce writing that is coherent, varied, and reader-friendly. This gap highlights the problem of whether incorporating digital literacy into the teaching of writing can effectively improve students' sentence fluency skills.

Questions of the Study

The current study will be designed to give complete answer to the principal question below:
What is the effect of a program based on digital literacy for developing EFL sentence fluency skills among secondary students?

The following minor questions branch from the previous one:

- 1- Which sentence fluency skills can be enhanced via digital literacy tools?
- 2-What are the features of a program based on digital literacy for developing EFL sentence fluency skills among secondary school students?

Delimitations of the Study

This study is delimited to:

- 1-A sample of 60 EFL secondary graders randomly chosen from a secondary school in Sadat City, Menofiya , Egypt . They will be split into two groups: A traditional literacy group (control group) and (n=30 and a digital literacy group (n=30) (experimental group)
- 2- Sentence fluency writing skills
- 2- A full academic semester

Participants

The population of this study comprised secondary school students enrolled in a secondary governmental school within Sadat City, Menofeya governorate during the second semester of the 2024-2025 academic years. A sample of (60) female students was purposefully chosen from 10th



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zone secondary school for girls. The researcher picked up two classes; the first class of (30) students as an experimental group and the second of (30) students as a control group. Furthermore, the sample was chosen from the same school to be similar in the social, cultural, economic and academic levels.

Instruments and materials of the Study

To achieve the objectives of the study, the instruments below was made use of by the researcher:

- 1- Checklist of EFL sentence fluency sub-skills
- 2- a rubric
- 3- -A teacher's guide

Aim of the Study

The objectives are as follows:

1. To determine the effectiveness of a digital-based program on students' EFL sentence fluency skill in writing
2. To investigate the effect of a digital literacy program on developing writing skills of the students at secondary education level

Hypotheses of the Study

The following hypotheses will be tested:

- 1- There is a statistically significant difference between the mean scores of the experimental and control groups in the post-test of EFL writing skill (sentence fluency) as a whole and its sub-skills in favor of the scores of the experimental group.

Significance of the study

The study seems to be significant for

- 1-Reinforcing writing skills(sentence fluency) among EFL secondary learners
- 2-Helping English teachers to identify the effectiveness and significance of digital literacy in getting EFL secondary learners ready for future study

Method

Design of the study

The researchers adopted a mixed method approach for the study. Students of Sadat City secondary school for girls are the population. A sample consisting of 60 students was selected by using random sampling technique. This research will use the quasi-experimental design to examine the impact of applying digital literacy for developing sentence fluency skill

Definition of terms

A) Sentence fluency: Sentence fluency in EFL writing refers to the rhythm, flow, and variety of sentence structures that contribute to the overall readability and coherence of a text. It involves the effective use of syntax, punctuation, and sentence length to ensure that writing sounds natural and connected when read aloud (Culham, 2014). For EFL learners, developing sentence fluency means gaining the ability to produce smooth, grammatically accurate, and varied sentences that enhance communication and maintain reader engagement.

B) Digital Literacy:

Digital literacy is defined as a set of understandings in the digital era is required to comprehend, produce, and negotiate meaning in a culture dominated by powerful images, words, and sounds (Gallardo et al., 2015) 0Also, The New York City Department of Education defined digital literacy



as, obtaining the knowledge and skill to apply a range of technology instruments for various purposes. A digitally literate person can use technology strategically to find and evaluate information, connect and collaborate with others, produce and share original content, and use the Internet and technology tools to achieve many academic, professional, and personal goals. (Crowley, 2014, p. 1)

A broad definition of digital literacy is offered by Martin (2012, p. 19): Digital Literacy is the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process.

The EFL sentence fluency writing pre/post test

The EFL writing pre/post test was conducted with the aim of assessing secondary students' sentence fluency skill pre and post carrying out the convention. Before implementing the experiment, the test's aim was to gauge the participants' level in sentence fluency skill, and after the experiment, the test aimed at investigating the impact of applying digital literacy on enhancing and developing EFL sentence fluency.

Data Analysis:

The pre-posttest data was analyzed using statistical methods to determine the extent of improvement in students' sentence fluency. Specifically, a t-test was used to compare the mean scores of the pre-test and post-test. By administering a pre-test before the intervention and a post-test after the intervention, the researcher was able to measure the effectiveness of the instructional strategies used to develop students' sentence fluency

Calculating Test Validity:

The validity of the test was calculated using the following methods:

1-Expert Validity: Expert validity was used to ascertain the test's validity by presenting the test to a panel of experts to obtain their opinions regarding:

- The adequacy of the instructions provided to students for answering the test correctly.
- The scientific and linguistic validity of the vocabulary
- The appropriateness of the vocabulary for the sample students
- The suitability of each question for the skill it was designed to measure
- The extent to which each question achieves its intended objective
- Any other modifications deemed necessary by the experts

The jury members commented that the test was suitable for measuring the definite EFL sentence fluency writing skills and that the test items were obvious and appropriate for gauging what they were intended for. Further, the instructions were clear, too. Thereupon, the EFL sentence fluency writing skill test had face validity.

2- Content validity

To determine the content validity of the EFL sentence fluency writing tests, a panel of EFL members were asked to validate the items of the test intended to measure the targeted sentence fluency skill, they agreed that the test could be interpreted as being valid and of content validity.

3-Internal Consistency Validity



The researcher used SPSS V.18 software to calculate the internal consistency validity of the test by computing the Pearson Correlation coefficient between the students' scores on sentence fluency skill. The following table illustrates the validity coefficients of the test skill

Table (1) Correlation Coefficient of sentence fluency skill of Total Test Score (N = 30)

Item of the EFL persuasive writing test	Correlation
Sentence fluency	0.781**

** . Correlation is significant at the 0.05 level & 0.01 **. Correlation is significant at the 0.01 level. It is evident from the preceding table that all correlation coefficients are statistically significant at the 0.05 and 0.01 significance levels, indicating acceptable internal consistency validity for the test.

Students' Level in sentence fluency

To ensure the equivalence of the two study groups in sentence fluency skill, a t-test was calculated to determine the difference between the mean scores of the experimental and control group students in the pre-test of writing skill as a whole and in each of its sub-skills. This is according to the following table

Table (2) T- test between the mean scores between the experimental and control groups of the pre-assessment of the sentence fluency skill test and its sub-skills.

Skill	Group	N	Mean	St. D	t	Df	Sig.
Sentence Fluency	Control	30	6.2333	1.33089	0.459	58	N.S.
	EXPE	30	6.4000	1.47625			
	EXPE	30	49.9000	6.33736			

It is evident from the preceding table that the "t" value is not statistically significant at the $\alpha \leq 0.01$ level; in each sub-skill as well as in the test as a whole, indicating the equivalence of the two groups in sentence fluency EFL writing skill as a whole and in each of its sub-skills, before the implementation of the study experiment.

Table (3): t- test difference between the experimental and control groups in the post-test of persuasive writing skill as a whole and its sub-skills

Sentence Fluency

Group	N	Mean	SD	t	df	p
Control	30	8.2000	1.3995	13.878	58	0.01
EXPE	30	12.8333	1.1769			
Total	60	10.5167	2.6218			
Overall Scores						
Group	N	Mean	SD	t	df	p
Control	30	63.1333	6.8013	42.007	58	0.01
EXPE	30	137.6333	6.9356			
Total	60	100.3833	38.1767			



- **Discussion of Results: Sentence Fluency**

The findings of the study demonstrated a statistically significant improvement in sentence fluency among students in the experimental group compared to those in the control group. The experimental group, which was exposed to the digital literacy-based program, achieved a mean score of 12.83 (SD = 1.18), while the control group obtained a mean of only 8.20 (SD = 1.40). The difference between the two groups was confirmed by an independent-samples t-test, $t(58) = 13.878, p = .01$, indicating that the program had a substantial positive effect on students' ability to produce fluent sentences. Sentence fluency, which refers to the rhythm, flow, and variety of sentences in written expression, is a critical aspect of persuasive and academic writing. The marked improvement in the experimental group suggests that integrating digital literacy tools provided students with greater opportunities to practice constructing sentences with coherence and variety. This aligns with previous research emphasizing the role of technology-enhanced instruction in promoting writing fluency and overall text quality (Szlachta et al., 2023; Ibrahim et al., 2023).

The findings can be interpreted in light of the interactive and engaging features of digital platforms, which encourage learners to manipulate language structures, receive immediate feedback, and revise their work more effectively. Exposure to authentic models of writing, coupled with opportunities for collaboration and editing in a digital environment, may have allowed students to experiment with sentence patterns and improve the flow of their writing. This is consistent with the perspective that digital literacy fosters deeper engagement with writing tasks and enhances linguistic creativity (Al Fadda, 2022).

Furthermore, the significant difference between groups supports the assumption that traditional instructional methods alone may not be sufficient for developing sentence fluency among EFL learners, especially at the secondary school level. By contrast, the integration of digital resources provides a more dynamic learning experience that directly contributes to measurable gains in fluency.

In summary, the study's results highlight the effectiveness of a digital literacy-based program in developing sentence fluency. This improvement is not only statistically significant but also pedagogically meaningful, as it equips learners with the ability to produce more coherent, persuasive, and academically appropriate writing.

- **Conclusion**

The results of this study clearly demonstrate that the digital literacy-based program had a significant and positive impact on students' sentence fluency. Students in the experimental group outperformed their peers in the control group, producing writing that displayed greater flow, coherence, and variety of sentence structures. This improvement reflects not only the statistical significance of the findings but also the practical benefits of incorporating digital tools into the teaching of writing.

The study confirms that sentence fluency, a critical dimension of effective written communication, can be meaningfully enhanced when learners are provided with interactive, technology-driven opportunities to practice, revise, and refine their writing. By bridging traditional instruction with digital literacy, educators can foster higher levels of engagement and enable students to achieve greater mastery over sentence construction and overall writing quality.



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Ultimately, these findings underscore the importance of adopting innovative instructional approaches in EFL contexts. Enhancing sentence fluency through digital literacy is not just an academic outcome but a vital skill that prepares learners to communicate persuasively and effectively in diverse real-world settings.

Recommendations of the study

The following recommendations were made in the light of the results of the study:

- 1-to elevate students' learning performance in EFL sentence fluency skill, digital literacy tools should be included and integrated when designing EFL curriculum
- 2- Teachers should be appropriately trained on how to make use of digital literacy skills
- 3-Teachers are recommended to help students participate actively in the learning process
- 4-Teachers had better be urged to apply various sources of evaluation when assessing students' writing performance
- 5- Teachers should be encouraged to make use of digital literacy approaches

Suggestions for further research

Stemming from the findings of the current study, the following suggestions can be made for further research:

- 1- Identifying the relationship between digital literacy, critical thinking, and writing skills
- 2- Exploring the influence of digital literacy skill on developing speaking skills and students' motivation towards it
- 3- Comparing the impact of digital literacy and self-regulated learning skills on developing reading comprehension skills and reducing students anxiety
- 4- Investigating the effect of AI tools compared to traditional learning g approach on developing students' listening skills
- 5- Examining the effect of digital literacy skills on developing creative writing skills and critical thinking at higher educational levels
- 6- Identifying the effectiveness of digital literacy skills and students' self-efficacy on developing their persuasive writing skills

In fact, the results stress the fundamental role of digital literacy in today's modern education. By integrating digital literacy tools together with strategies into persuasive writing instruction, students are able to create more active and engaging learning contexts that raise their presidency.

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The sentence fluency session

Mastering Sentence Fluency in Writing

Learning Objectives

By the end of this session students will be able to

- ✚ Understand the concept of sentence fluency
- ✚ Identify techniques to improve sentence fluency
- ✚ Practice writing fluent and engaging sentences
- ✚ Utilize digital tools to enhance writing skills and motivation

Materials

- ✚ Computers or tablets with internet access
- ✚ Projector
- ✚ Whiteboard or interactive whiteboard
- ✚ Digital writing tools (e.g., Google Docs, Microsoft Word, Canva)
- ✚ Sample persuasive texts (e.g., advertisements, editorials, speeches)

Procedures and Description

1. Introduction (10 minutes)

- Warm-up: Beginning with a brief discussion on the importance of clear and concise writing. Using a digital presentation tool (like PowerPoint or Google Slides) to share examples of well-written and poorly written sentences.
- Defining Sentence Fluency: Introduce the concept of sentence fluency, explaining that it refers to the rhythm and flow of sentences in a piece of writing.

2. Analyzing Sentence Fluency in Persuasive Texts (15 minutes)

- Digital Text Analysis: Share a variety of persuasive texts (e.g., articles, blog posts, ads) with students. Using a digital annotation tool (like Kami or Notability) to highlight examples of fluent and choppy sentences.
- Group Discussion: Dividing students into small groups and assign each group a text to analyze. Use a digital collaboration tool (like Google Docs or Microsoft Teams) to facilitate group discussions and share findings.

3. Practicing Sentence Fluency in Persuasive Writing (20 minutes)

- Writing Prompt: Presenting a persuasive writing prompt using a digital platform (e.g., Google Classroom or Canvas).
- Digital Writing: Encouraging students to use digital writing tools (like Google Docs or Microsoft Word) to draft their essays.



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- Peer Review: Utilizing a digital peer review tool (like PeerGrade) to facilitate peer feedback on sentence fluency, word choice, and overall clarity.
- 4. **Techniques for Improving Sentence Fluency (15 minutes)**
- Varying Sentence Structure: Discussing the importance of using a variety of sentence structures (simple, compound, complex, and compound-complex) to create rhythmic and engaging writing.
- Using Strong Verbs: Explaining how strong verbs can energize sentences and make writing more vivid.
- Eliminating Wordiness: Demonstrating how to eliminate unnecessary words and phrases to improve sentence clarity.
- Using Transitional Phrases: Discussing the role of transitional phrases in connecting ideas and creating a smooth flow between sentences.

5. Conclusion (5 minutes)

- Reflection: Using a digital journal or discussion board to have students reflect on their learning and the challenges they faced.
- Future Goals: Setting goals for future writing projects and discuss strategies for improving sentence fluency and overall writing quality.

Digital Tools to Enhance Motivation:

- Gamification: Use online writing games and quizzes to make learning fun and engaging.
 - Progress Tracking: Implement digital tools to track student progress and provide timely feedback.
 - Collaborative Learning: Use digital platforms to facilitate group work and peer collaboration.
 - Visual Learning: Incorporate visual elements (e.g., infographics, videos) to enhance understanding.
 - Personalized Learning: Utilize adaptive learning tools to tailor instruction to individual needs.
- By focusing on sentence fluency, students can create more engaging and persuasive writing.

Original Essay (Poor Sentence Fluency)

The internet is a great tool. It can be used for many things. People use it to communicate with friends and family. They also use it to find information. The internet can be a great resource for students. They can use it to research papers.¹ It can also be used for entertainment.² People can watch videos and play games online.³ However, the internet can also be dangerous. There are many risks associated with using the internet. People should be careful when they are online. They should avoid sharing personal information. They should presents potential dangers, such as cyberbullying and identity theft.⁶ To mitigate these risks, it is crucial to exercise caution online, avoid sharing personal information, and be mindful of online interactions.

Specific Improvements:

- **Combined Short Sentences:** Multiple short sentences have been joined into longer, more complex sentences to enhance the flow and rhythm of the text.
- **Varied Sentence Structure:** The revised essay uses various sentence structures, including simple, compound, and complex sentences, to improve readability and engagement.
- **Stronger Verb Choices:** Stronger verbs have been employed to make the writing more precise and effective. For example, "can be used" has been replaced with "serves as."



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- **Clearer Transitions:** Transitional words and clauses have been used to link ideas smoothly and logically.
- **Concise Language:** Unnecessary words and phrases have been removed to make the writing more concise and direct.

also be aware of cyberbullying.

Revised Essay (Improved Sentence Fluency)

The internet is a versatile tool that can be used for a multitude of purposes. From connecting with loved ones to researching complex topics, the internet offers a wealth of opportunities. For students, it serves as a valuable resource for academic research and project work.⁴ Beyond its educational benefits, the internet provides a platform for entertainment, allowing users to watch videos, play games, and engage with online communities.⁵ However, the internet also