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Navigating English learning in the digital era: Millennial students' strategies at a private university in Yogyakarta

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ABSTRACT

This study investigates the learning strategies of millennial students and the role of digital technologies in English language learning at a private university in Yogyakarta. Using a qualitative descriptive design, five participants were selected using purposive sampling, interviewed, and data were analyzed thematically. The findings reveal six dominant strategies: bite-sized learning, autonomous learning, collaborative learning, game-based learning, mobile learning, and multimodal learning. Digital tools—such as ChatGPT, Google Scholar, YouTube, Duolingo, and Zoom—were found to support flexible, engaging, and self-paced learning environments. These practices align with constructivist and adaptive learning theories, highlighting learner autonomy, feedback, and diverse media use. While digital platforms promote active and personalized learning, the study also notes challenges related to information literacy, self-regulation, and access equity. This research offers insights into how technology enhances ELT practices and provides practical implications for educators aiming to develop inclusive and future-ready English learning environments.

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1. Introduction

In recent years, the integration of digital tools and resources has significantly transformed the approaches used in teaching and learning the English language. English Language Teaching (ELT) today is no longer confined to traditional classroom environments but is expanding across various digital platforms that promote flexible (Zainuddin & Yunus, 2022), personalized (Nguyen et al., 2024), and interactive learning experiences (Yassin & Abugohar, 2024). The rise of digital technologies has fundamentally changed the educational landscape, requiring innovative learning strategies that align with the cognitive and behavioral preferences of contemporary learners.

As Amin emphasizes (Amin, 2023), the primary goal of education transcends the mere transmission of knowledge; it encompasses the nurturing of individual development (Clarke et al.,

2023), critical reflection (Vazquez-Marin et al., 2023), and overall well-being. In this regard, the millennial generation—individuals born between 1980 and 2000 —represents a group whose learning preferences are profoundly shaped by technological progress and cultural transformations. Their identity as "digital natives" has influenced not just their methods of accessing information but also their approaches to learning, including the acquisition of English as a foreign language.

While the academic literature has recognized the importance of adapting English Language Teaching (ELT) methodologies to meet the needs of millennial learners, research into their actual learning strategies in digital settings is still limited, particularly in developing countries like Indonesia. Existing studies have highlighted various strategies preferred by millennials, such as collaborative learning (Sotto, 2021), informal educational contexts (Quintana & Osuna-Acedo, 2020), and the use of practical knowledge (Hendarwati et al., 2021). However, a significant amount of this research has been carried out primarily within Western or developed educational environments.

To provide a more contextually relevant perspective, several Indonesian studies have begun to examine millennial learning behaviors. For instance, Rizaldi et al. (2020) explored how digital media shapes English learning engagement, while Khaerina et al. (2023) investigated student preferences for application-driven activities in urban higher education settings. These studies, however, tend to focus on either broad learner characteristics or specific platforms, without an in-depth exploration of the learning strategies themselves.

Furthermore, while many studies have outlined the key traits of millennial learners and the shift towards active learning approaches, there is a significant lack of research on how these teaching strategies are enhanced by digital technologies—especially in the context of English language education. As noted by Larekeng et al. (2019), the educational framework of the 21st century requires that students develop skills in media (González-pérez & Ramírez-montoya, 2022), information (Kalalo et al., 2023), and technology (Sahin & Çelik, 2024) to thrive and adapt in a continually evolving global environment. In this light, learning strategies should not only be viewed as tools for academic achievement but are crucial for promoting learner independence and improving digital fluency in the field of English Language Teaching (ELT).

This research responds to the need for more context-specific and strategy-focused studies by exploring how millennial students in Indonesia engage with English learning in digital environments. It seeks to clarify the previously identified gap by exploring the teaching methods utilized by millennial students in the English Language Education Department at a private university located in Yogyakarta, while simultaneously assessing the impact of digital technologies in enhancing these approaches. Given that millennials demonstrate distinct learning styles influenced by their experiences in digital settings (Rizaldi et al., 2020), it is crucial to outline the specific strategies they use to effectively gain proficiency in the English language.

The study is guided by the following research questions: (1) What are the learning strategies used by millennial students in a digital English learning environment? and (2) What role do digital technologies play in supporting these strategies? By examining these questions, this study aims to provide a nuanced understanding of how Indonesian millennial students navigate digital spaces to develop their English proficiency. The findings from this study are anticipated to guide educators, educational institutions, and curriculum developers regarding the changing requirements of millennial learners. Grasping their methods can assist teachers in formulating instructional techniques that are both technologically pertinent and psychologically impactful. In the end, this research seeks to enhance the creation of more tailored, effective, and captivating English learning settings in the digital era.

2. Literature Review

2.1. Learning Strategies in English Language Learning

Learning strategies have been characterized as intentional actions or thoughts employed by learners to improve their understanding (Magdalena et al., 2022). Awinindia classified these into metacognitive, cognitive, and socio-affective strategies, which continue to be essential in language acquisition (Awinindia, 2023). The rising prevalence of digital tools—such as language applications, learning management systems, and social media—has transformed the implementation of these

strategies, fostering opportunities for self-directed learning (Shine & Heath, 2020), collaboration (Weller, 2022), and multimodal engagement (Ancheta, 2022). In Indonesia, for instance, Lestari and Wahyudin (2020) found that university students utilize cognitive strategies more frequently when using mobile-based English learning apps, emphasizing repetition and translation.

2.2. Digital Learning Environments

The incorporation of technology into English language education has attracted growing interest, particularly in relation to how students develop learning strategies in response to digital advancements. Researchers like Gilakjani highlight that technology-enhanced learning environments foster engagement (Choudhury, 2024), adaptability (Aljehani, 2024), and a focus on the learner (Bond et al., 2020). A variety of studies have investigated how students adjust to these environments, particularly among the millennial generation, recognized for their technological proficiency (Sutherland et al., 2023) and preference for independence and customization (Harmadi & Jatmiko, 2020).

Although the overall advantages of digital education have been extensively documented, researchers hold differing opinions regarding the impact of digital environments on learning strategies. For instance, studies indicated that millennial learners are inclined towards collaborative discovery learning (Andrade & Westover, 2020), adaptable pacing (Fructuoso et al., 2022), and environments rich in feedback (Bartlett, 2023). This is consistent with the findings of Khaerina who discovered that millennials prefer interactive and application-focused methods rather than inflexible, exam-centered teaching (Khaerina et al., 2023).

2.3. Millennial Learning Traits and Expectations

Complementary studies have examined the mindset of millennials, emphasizing that individuals from this generation prioritize autonomy (Kubota et al., 2022), immediate feedback (Pysarevskyi et al., 2022), and tailored experiences (Husna & Purwaningtyas, 2023). These expectations carry significant consequences for English Language Teaching (ELT), as conventional grammar-translation or lecture-centric approaches are frequently viewed as unengaging (Piantaggini, 2020). Nonetheless, research often overlooks the connection between these generational preferences and particular learning strategies—especially within local Indonesian settings—nor does it sufficiently investigate how such strategies are either facilitated or obstructed by digital tools. In a recent Indonesian study, Riyadini & Triastuti (2023) demonstrated that students from private universities in Java integrate social media and online forums as spaces for collaborative meaning-making in English, which enhances their confidence and learning autonomy.

2.4. Research Approaches to Understanding Strategies

Previous investigations into learning strategies have largely relied on quantitative approaches, including surveys and tools like the SILL or Strategy Inventory for Language Learning (Lestari & Wahyudin, 2020), to uncover overarching trends among students. Although these methods are effective for general analysis, they frequently neglect the contextual and technological aspects of strategy application. Conversely, qualitative research, while less prevalent, provides deeper insights into learners' experiences (Donato & Lovitos, 2023)—such as the ways millennials manage digital distractions. Nonetheless, a significant gap persists in qualitative studies that examine how digital settings influence learning strategies within English language education. Moreover, few studies examine these strategies in alignment with Indonesia's current Merdeka Belajar policy, which promotes autonomy and personalization in university learning contexts.

Gaining insight into the learning strategies of millennial students in digital environments is essential for creating effective English Language Teaching (ELT) methods that cater to their requirements. As highlighted by Shadiev and Wang (Shadiev & Wang, 2022), education in the 21st century must incorporate both language proficiency and digital literacy skills. In the absence of context-specific knowledge—particularly in environments such as private universities in Indonesia—educators may inadvertently implement inappropriate strategies. Furthermore, understanding how technology facilitates these strategies can enhance instructional design (Riyadini & Triastuti, 2023), foster learner independence (Gaddis, 2020), and contribute to sustained academic and professional achievements (Ahmad et al., 2022).

3. Method

This research utilized a qualitative descriptive framework to investigate the learning techniques employed by millennial students in acquiring the English language and to assess how digital technologies enhance these techniques. As highlighted by Creswell and Creswell (2018), qualitative research is suitable when the aim is to comprehend individuals' lived experiences and the significance they attach to social phenomena (G. Alcantara et al., 2023). This approach was selected for its ability to capture students' profound insights within their authentic educational environments.

The research took place within the English Language Education Department of a private Islamic university located in Yogyakarta from February to June 2024. Five students, deliberately chosen to represent various majors and align with the millennial age group (born between 1980 and 2000), took part in the research. Pseudonyms were employed to safeguard the identities of the participants (Syed et al., 2021).

Data were gathered through semi-structured interviews, which provided the flexibility to delve into pertinent emerging themes while simultaneously addressing the fundamental research questions (Churruca et al., 2023). The interviews were conducted in Bahasa Indonesia to ensure both clarity and authenticity, and follow-up sessions were arranged as necessary. The analysis of data adhered to Creswell's (2018) qualitative analysis guidelines, which encompassed transcription, coding, and thematic interpretation. The coding process consisted of open, axial, and selective coding to produce significant categories related to learning strategies and the utilization of technology. To establish reliability, this research incorporated credibility (through member checking), transferability (by means of detailed description), dependability (via discussions with a research advisor), and confirmability (by keeping an audit trail), as recommended by Korstjens and Moser (2018).

4. Findings and Discussion

This section outlines the results of the research centered around two key questions: (1) Which learning strategies do millennial students employ? and (2) How do digital technologies contribute to the effectiveness of these strategies? Utilizing thematic framework, the data is categorized with supporting quotations from participants and analyzed in conjunction with pertinent literature.

4.1. Learning Strategies Used by Millennial Students

Six prominent strategies surfaced: bite-sized learning, autonomous learning, collaborative learning, game-based learning, mobile learning, multisensory teaching.

1) Bite-sized learning

Millennial learners prefer bite-sized learning or micro learning, which involves dissecting intricate materials into smaller, manageable parts to improve understanding and memory retention. Lynn remarked, "The most prevalent approach I adopt is typically studying through chapter-by-chapter learning, using Google or the internet. It's akin to the United States trade war, which has various sub-chapters within it. So, I focused on each chapter." In a similar vein, Teressa and Sally emphasized how concise explanations greatly aid in comprehension. Rey mentioned that in his macroeconomics class, the organized division of topics contributed to improved preparation and a clearer grasp of course objectives.

These observations correspond with Manning et al., (Manning et al., 2021) who characterize bite-sized learning as a digital method that provides concise educational content, thereby improving information retention. Dolowitz et al further reinforce this notion, highlighting that bite-sized learning caters to learners' immediate requirements by delivering just-in-time information (Dolowitz et al., 2023). The inclination towards this learning style among millennial students demonstrates their adaptation to the digital era, where information is plentiful and attention spans are typically shorter. By dividing intricate materials, students can concentrate on particular subjects, resulting in enhanced comprehension and retention. This method corresponds with cognitive load theory, which posits that segmenting information into smaller portions can alleviate cognitive overload and improve learning efficacy (Paas & van Merriënboer, 2020). Nevertheless, although bite-sized learning provides flexibility, it also carries the risk of fragmenting knowledge if not incorporated within a cohesive

educational framework (Manning et al., 2021). Educators should contemplate integrating bite-sized learning with comprehensive summaries to promote a holistic understanding.

2) Autonomous learning

Participants exhibited a marked preference for autonomous learning or self-directed learning, highlighting the importance of independence and effective time management. Lynn remarked, "Up to this point, the most effective approach is to study on my own, as it proves to be more efficient and saves time." Teressa integrated 'muraja'ah'—a technique of reviewing and revisiting lecture materials—to enhance her comprehension. Rey designated particular times, such as early morning and late evening, for concentrated study periods. Teressa also employed sticky notes to reinforce her vocabulary, demonstrating her proactive approach to learning.

These approaches align with the findings of Fatmawai, Jannah dan Sasmita, who discovered that autonomous learning markedly improves students' creative thinking capabilities (Fatmawati et al., 2022). Kanazawa also observed that self-directed learners often attain superior academic results, especially in language skills (Kanazawa, 2020). The focus on autonomous learning highlights the significance of learner independence in modern education. Millennial students' proactive strategies, such as establishing study plans and utilizing tailored review methods, reflect a transition towards embracing responsibility for their educational journeys. This perspective resonates with constructivist theories, which endorse the idea that learners should actively build knowledge through their experiences (Hakiky et al., 2023). Furthermore, the link between autonomous learning and boosted creative thinking abilities implies that promoting autonomy not only enhances academic performance but also nurtures vital skills for the 21st century (Yanuarto & Hapsari, 2022). Nevertheless, the effectiveness of autonomous learning relies heavily on students' intrinsic motivation and self-discipline. Educational institutions should implement support systems, such as advice on effective self-study techniques and access to relevant resources, to encourage this educational approach.

3) Collaborative Learning

Collaborative learning has emerged as an effective approach, enhancing critical thinking and collective problem-solving abilities. Lynn articulated that group debates serve as a platform to amalgamate varied perspectives, remarking, "A debate could exemplify this. It's a way to harmonize our thoughts... it can also encourage studying like a student. Collaborative learning is exceptionally effective." Teressa shared her experience of assigning distinct roles in group projects to facilitate seamless collaboration.

Collaborative learning strategies embody the social constructivist viewpoint, where knowledge is developed collectively through interaction. These methodologies are backed by a study done by Lagat and Concepcion which found that collaborative learning settings improve social interactions and empathy—both essential for cultivating inclusive and dynamic learning environments (Lagat & Concepcion, 2022). Sun and Zhu additionally emphasize that peer teaching and group projects enhance comprehension and foster vital problem-solving abilities (Sun & Zhu, 2023). Participation in group activities exposes students to a variety of perspectives, thus enriching their critical thinking and communication skills.

The allocation of distinct roles within teams—such as leader, note-taker, or presenter—not only fosters accountability but also promotes fair participation, a notion indirectly backed by Arshed at al, who observe that organized collaboration enhances student performance (Arshed et al., 2023). Moreover, one study focused on empathy highlights how collaborative environments can enhance students' emotional intelligence and social consciousness (Perez-Aranda et al., 2024). Nevertheless, issues such as group conflicts or disproportionate workload distribution may emerge, potentially obstructing the learning experience. Consequently, educators need to establish clear guidelines, facilitate conflict resolution tactics, and oversee group dynamics to ensure effective collaboration. By thoughtfully nurturing collaborative learning, educational institutions can develop environments that not only improve academic results but also equip students with the interpersonal skills essential for real-world situations.

4) Game-based learning

Incorporating game elements into educational activities has significantly boosted motivation and involvement among learners. Sally conveyed her fondness for educational games, commenting, "I am someone who enjoys learning through games, such as quizzes. They are truly informative. This way,

learning doesn't become tedious." Lynn emphasized how instructors use quizzes to alleviate anxiety and improve understanding. Teressa noted the use of platforms like Kahoot in her classes, while Sally mentioned language games on TikTok that support vocabulary learning.

Game-based learning, or gamification, utilizes the engaging elements inherent in games to augment educational experiences, a methodology increasingly endorsed by contemporary scholarly research. Such conclusions are consistent with one study which revealed that gamification techniques considerably enhance student motivation by rendering the educational process more pleasurable and oriented towards specific objectives (Kovalenko & Skvortsova, 2022). In a similar vein, Nurningtyas and Majid emphasize that particular characteristics of games—such as challenges, rewards, and mechanisms for tracking progress—promote active engagement and sustained commitment to learning endeavors (Nurningtias & Majid, 2022).

Integrating elements such as quizzes, badges, leaderboards, and interactive platforms enables educators to cultivate dynamic and captivating learning environments that can alleviate learning anxiety and promote a feeling of accomplishment. This methodology aligns with behaviorist theories, which highlight the significance of reinforcement and immediate feedback in encouraging learning behaviors. The allure of rewards and recognition, as noted by Loliyana et al (Loliyana et al., 2022), assists students in maintaining engagement with the material.

Nevertheless, although game-based learning presents distinct advantages, it is essential to guarantee that these activities are pedagogically sound and aligned with the desired learning outcomes. If not thoughtfully crafted, gamified learning experiences may prioritize enjoyment over educational value. Consequently, educators must find a careful equilibrium between engaging design and academic rigor. Future studies could explore the lasting impacts of gamification on knowledge retention, critical thinking, and overall academic performance, ensuring that its use yields both immediate and long-term educational benefits.

5) Mobile Learning

Participants employed mobile devices to enhance their learning experience, valuing the convenience and accessibility they provide. Patricia favored laptops due to their larger screens and ability to minimize distractions, stating, "I prefer to learn using a laptop because it enables me to focus better and limits interruptions." Rey found laptops advantageous for managing multiple tasks simultaneously while working on assignments. In contrast, Sally preferred smartphones for their portability and user-friendliness, particularly when retrieving learning materials while on the move.

These preferences align with the findings of Le Roux and Van Saden, who characterize mobile learning as a branch of e-learning that facilitates learning in a variety of settings (Roux & Staden, 2024). Another study also emphasizes that mobile learning tools improve academic results and boost student engagement in higher education (Polyudova et al., 2022). The embrace of mobile learning strategies by millennial students highlights the growing necessity for flexible and accessible educational opportunities. The choice between devices, such as laptops for concentrated study sessions and smartphones for learning on the go, demonstrates a tailored approach to education. This is in harmony with another study which found that mobile learning fosters self-directed and context-sensitive learning (Jeong, 2022). Additionally, Polyudova, Butylchenko, and Yushchik discovered that students utilizing mobile learning platforms experienced greater levels of engagement and enhanced academic success compared to those who did not (Polyudova et al., 2022). These observations indicate that incorporating mobile learning into educational methodologies can address a variety of learner needs and preferences. Nonetheless, challenges like ensuring equal access to devices and managing potential distractions linked to mobile technology need to be addressed. Future research might investigate methods to enhance mobile learning environments and evaluate their long-term effects on student outcomes.

6) Multisensory Learning

Utilizing a range of formats—such as audio, video, and graphics—significantly enriched the learning experiences for participants. Lynn highlighted the power of integrating various media, asserting, "Using multiple methods to facilitate learning is more effective than depending solely on one." She incorporated YouTube and Pinterest in addition to conventional texts. Sally employed audio resources to enhance her English listening abilities, while Teressa discovered that diverse media sources expanded her viewpoints. These methods align Gori et al whco claim that multisensory or

multimodal learning environments enable students to interact with content through different sensory channels, thereby improving understanding (Gori et al., 2022). Walkington et al. (2023) further emphasize that multimodal strategies enhance students' comprehension and skills (Walkington et al., 2023).

The inclination towards multisensory learning among students underscores the necessity of addressing a variety of learning styles and sensory preferences. By incorporating different media formats, students can enhance their comprehension and improve information retention more effectively. This strategy is in harmony with the Universal Design for Learning (UDL) framework, which promotes multiple means of representation to cater to individual learning variances. Gori et al (Gori et al., 2022) assert that multisensory learning environments can significantly boost student engagement and understanding. In a similar vein, Walkington et al (Walkington et al., 2023) discovered that the integration of diverse media formats into teaching can enhance students' analytical and critical thinking abilities. Nonetheless, educators must be cautious that employing multiple modalities does not overwhelm students or result in cognitive overload. Meticulous planning and alignment with educational objectives are crucial to fully harness the advantages of multisensory learning. Future research could explore the ideal combination of media formats tailored to various subject areas and learner profiles.

3.2. The Role of Digital Technologies

This study reveals six key learning strategies commonly adopted by millennial students: widening informational reach, supporting participatory learning environments, promoting group collaboration, facilitating learner-centered and adaptable learning, enhancing flexibility and accessibility, fostering global connectivity and cross-cultural awareness. These approaches demonstrate how students adapt to the challenges of modern education, motivated by their desire for flexibility, engagement, and customized learning experiences. In the subsequent sections, we will outline each approach, backed by participant perspectives and pertinent literature, to showcase the impact of digital technologies on the educational practices of millennial learners.

1) Widening informational reach

Throughout the interviews, participants consistently highlighted that digital technologies provide access to a wide array of valuable knowledge sources, ranging from academic materials to practical everyday information. Patricia recounted how ChatGPT assisted her in grasping unfamiliar academic terminology during her late-night study sessions, stating, “It was already midnight, and I couldn’t reach out to the lecturer. I entered my question into ChatGPT, and it clarified everything for me” (P2.32). Likewise, Teressa pointed out that Google Scholar enabled her to find more reliable and fulfilling academic references compared to standard search results.

The use of digital technologies to obtain information signifies a notable transformation in learning behavior, especially among millennial students, leaning towards self-guided exploration and instant knowledge acquisition. These observations align with the views of Sharma dan Sharma, who contend that digital tools have fundamentally altered the way learners access information, surpassing traditional library limitations and facilitating more independent learning methods (Sharma & Sharma, 2021). The participants' consistent dependence on platforms like ChatGPT, Google Scholar, and YouTube demonstrates how digital resources have become integral to both academic research and everyday education.

This trend is in harmony with constructivist learning theory, which asserts that learners actively build knowledge through their interactions with the environment and by engaging with a variety of informational sources. Tools such as ChatGPT and Google Scholar, as emphasized by Rahman and Watanobe, not only provide swift access to information but also promote student autonomy in their learning, thereby nurturing critical thinking and problem-solving abilities along the way (Rahman & Watanobe, 2023). Additionally, the multimedia characteristics of platforms like YouTube accommodate diverse learning preferences, rendering content more approachable and captivating.

Nevertheless, the extensive availability of digital information poses certain difficulties, especially in determining the credibility, relevance, and accuracy of online material. While digital tools offer unmatched access to knowledge, they also necessitate that students develop robust information literacy skills. This underscores the importance of educators incorporating structured digital literacy

instruction into the curriculum, empowering students to critically assess sources and make well-informed academic decisions. Additional research is suggested to investigate how continuous access to digital tools influences students' academic achievement and the enhancement of higher-order thinking skills over time.

2) Supporting participatory learning environments

Digital platforms like Zoom, MyKlass, and Microsoft Teams were identified by participants as crucial for fostering interaction, particularly during periods of remote learning. Lynn shared her experience of how Zoom enabled her to maintain a connection with a friend in Australia: "Even though we're far apart, we can still see each other and learn together through Zoom" (P1.31). Patricia remarked that engaging with classmates' forum posts created an interactive environment that transcended mere passive content consumption.

This resonates with the findings of Kalofolia and Siountri who underscored the role of digital tools in promoting creativity and interactivity via visual simulations and media-centric tasks (Kalofolia & Siountri, 2023). These platforms not only improve communication between students and teachers but also encourage peer-to-peer interaction, a vital aspect of constructivist learning settings. The implementation of digital platforms to enhance interaction highlights the significance of social presence in online educational environments. Applications like Zoom and Microsoft Teams facilitate real-time communication, nurturing a sense of community among learners. This aligns with the Community of Inquiry framework, which stresses the importance of social, cognitive, and teaching presence in successful online education. Kalofolia and Siountri (Kalofolia & Siountri, 2023) observe that interactive digital tools can boost student engagement and creativity. Nonetheless, issues such as digital fatigue and differing levels of digital literacy among students need to be tackled.

3) Promoting group collaboration

All participants acknowledged the ease of utilizing digital tools for collaborative learning. Google Docs, Canva, WhatsApp groups, and Zoom meetings enabled them to efficiently handle group tasks. Lynn expressed that utilizing Canva's collaboration feature "spared me from tiring in-person meetings" and permitted asynchronous contributions from group members. The incorporation of digital tools to facilitate collaborative efforts signifies a notable shift in how students engage in group learning. This is especially clear in the experiences of participants who appreciated the effectiveness of digital collaboration—particularly those balancing demanding academic and personal commitments. These observations align with Chen, Chuang and Lacaste, who contend that collaborative technologies improve the quality of learning when woven into well-structured pedagogical frameworks (Chen et al., 2021). Platforms like Google Docs and Canva promote both real-time and asynchronous collaboration, allowing students to participate flexibly and fairly, irrespective of time or location limitations.

This approach is in harmony with the principles of computer-supported collaborative learning (CSCL), which highlights the significance of technology in facilitating joint knowledge creation and enhancing learner engagement. The ease and availability of digital collaboration tools not only boost efficiency but also encourage responsibility and communication among team members. The educational effectiveness of these resources is optimized when their application is intentionally aligned with learning goals and teaching strategies (Chen et al., 2021).

Nevertheless, the successful implementation of such technologies requires a certain degree of digital literacy, which encompasses the skills to navigate collaborative platforms, oversee shared tasks, and communicate efficiently in virtual environments. Consequently, educators play an essential role in supporting students' utilization of digital tools by offering insights into effective practices for online collaboration. Future studies could investigate how digital collaboration tools affect group dynamics, student involvement, and overall educational outcomes across diverse disciplines and learning contexts.

4) Facilitating learner-centered and adaptable learning

Participants emphasized how technology enabled them to customize their learning journey. Platforms such as Duolingo and Elsa Speak were utilized not only to enhance language abilities but also to monitor progress and obtain personalized feedback. Sally stated, "We learn more online… particularly when it comes to pronunciation. It truly necessitates technology". Patricia mentioned that

Elsa Speak allowed her to "repeat difficult words until I mastered them," reinforcing her independence in skill development.

The adoption of tailored digital learning tools signifies a significant shift towards education that prioritizes the learner, granting students the ability to manage their own pace, content, and areas of focus. This observation aligns with the work of Yuliana, who highlight the growing importance of digital personalization in contemporary educational settings, especially in fostering learner autonomy (Yuliana, 2023)—an integral objective within current English Language Teaching (ELT) methodologies. Platforms like Duolingo and Elsa Speak illustrate this movement by providing instant feedback and adjusting to unique learning styles, thereby enhancing motivation, engagement, and advancement at a personalized rhythm.

This approach embodies the fundamental principles of adaptive learning, wherein technology tailors educational materials and instruction to accommodate the unique needs of individual learners. As emphasized by Yuliana (Yuliana, 2023), customized digital resources not only enhance learner independence but also render the learning experience more efficient and impactful. Nevertheless, despite their benefits, these resources require considerable self-discipline and intrinsic motivation. In the absence of the framework typically offered by a conventional classroom environment, some students may struggle to maintain regularity or establish clear objectives, which could ultimately influence their long-term educational achievements.

To tackle this issue, educators ought to contemplate incorporating tailored digital tools within formal curricula to achieve a harmony between adaptability and organized support. This hybrid methodology can leverage the motivational benefits of personalized learning while offering the necessary guidance to maintain progress. Future studies could investigate the enduring effects of personalized digital learning tools on language acquisition, learner independence, and knowledge retention across various ELT contexts.

5) Enhancing Flexibility and Accessibility

Technology was also commended for enhancing the accessibility and flexibility of learning. Participants shared how online platforms enabled them to study at their preferred pace and revisit challenging materials whenever necessary. Lynn remarked, "I appreciate that I can rewatch YouTube videos several times if I don't grasp the content the first time" (P1.28). Rey highlighted the convenience of engaging in Zoom discussions from any location, emphasizing how this flexibility aided in effective time management, particularly for students who are employed.

The adaptability and ease of access provided by digital technologies are crucial for meeting the varied learning requirements and lifestyles, as highlighted by Anghelo Josué who claim that inclusive design of digital platforms enhances flexibility and availability, especially for different learning environments (Josué et al., 2023). The experiences of the students in this research illustrate how such adaptability can lead not only to a more profound comprehension of the content but also to enhanced learner confidence and independence.

Access to educational resources at any time and from any location allows students to interact with materials at their own speed, fostering ongoing and independent learning. This is particularly beneficial for individuals juggling academic responsibilities alongside work or family duties. Baena focus on inclusive design underscores the necessity of developing digital spaces that are attuned to these circumstances, thereby ensuring fair chances for all learners (Baena 2022). Nevertheless, increased flexibility necessitates a rise in self-regulation. Students need to be intrinsically motivated and possess strong time management abilities to truly take advantage of such learning atmospheres. To facilitate this, educators ought to establish organized support frameworks—like well-defined learning pathways, regular check-ins, and prompt feedback—to assist students in sustaining consistency and enthusiasm. Future investigations could delve into methods for enhancing student self-regulation and analyze how inclusive digital design can further improve educational outcomes in adaptable learning environments.

6) Fostering Global Connectivity and Cross-Cultural Awareness

Digital platforms have also significantly improved learners' understanding of global and cultural dynamics. Participants mentioned their involvement in international webinars, virtual language exchanges, and discussions that crossed cultural boundaries. Patricia recounted her experience with

IVA, a platform designed for global student gatherings, while Teressa highlighted the importance of webinars featuring "people from abroad" (P5.48). Rey pointed out that platforms such as YouTube and TikTok enabled him to delve into international cultures, citing Korean trends as an example. These insights resonate with Swart's viewpoint regarding the function of ICT in facilitating global dialogue, underscoring how digital technologies transcend academic purposes to cultivate global citizenship—an essential aim in 21st-century education (Swarts, 2020). The findings confirm that interaction with global digital platforms offers valuable exposure to a variety of cultures and viewpoints, which is vital for nurturing intercultural competence among learners.

Participation in international webinars, online forums, and virtual exchanges enables students to expand their comprehension of global issues while refining their cross-cultural communication abilities. This is in harmony with the overarching objectives of global education, which aims to equip students to navigate and contribute thoughtfully to an increasingly interconnected world (Swarts, 2020). The development of global citizenship through ICT not only signifies a pedagogical transformation but also underscores a heightened focus on empathy, adaptability, and critical global engagement. Nonetheless, the effectiveness of such initiatives relies on the depth and organization of the experiences offered. Superficial involvement may yield limited educational benefits; thus, educators should design activities that foster critical reflection and meaningful dialogue among cultures. Incorporating reflective tasks, structured discussions, and feedback mechanisms can significantly enhance the impact of global digital engagement. Future research might explore how ongoing and structured intercultural interactions via digital platforms affect students' global awareness and intercultural sensitivity over time.

5. Conclusion

In conclusion, the results of this research underscore the variety of learning approaches utilized by millennial students and the crucial impact of digital technologies in facilitating these methods. Through thematic analysis, six primary strategies emerged—microlearning, independent learning, collaborative learning, gamification, mobile learning, and multimodal learning—each illustrating the learners' adaptive strategies in response to modern educational challenges. At the same time, digital technologies were shown to considerably improve learning by broadening access to information, fostering interactive and collaborative settings, encouraging personalized and adaptable learning, and enhancing global connections and cross-cultural awareness. These findings not only directly address the two research inquiries but also strengthen the existing literature on learner autonomy and digital pedagogy.

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Declarations

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