Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.16, No.4, 2025

Generation-Z and Technology-enhanced Learning: Preference and Non-preference in Learning German as a Foreign Language

Fridel N. Muchiri
Faculty of Arts, University of Nairobi, PO box 30197-00100, Nairobi, Kenya

Catherine N. Agoya-Wotsuna
Faculty of Arts, University of Nairobi, PO box 30197-00100, Nairobi, Kenya

Alice W. Wachira
Faculty of Arts, University of Nairobi, PO box 30197-00100, Nairobi, Kenya

Abstract

This study on digital learning among Generation Z Kenyan learners yields useful insights into the behaviour of learners when using technology in the learning process. It examines the application of technology in the learning of German as a foreign language in national secondary schools in Kenya. Using the theory of connectivism, the study finds that Kenyan learners depend on digital devices, especially mobile phones, to access educational content, emphasizing the significance of portability and accessibility of digital learning platforms. The study maps out the technological devices, electronic learning tools, and platforms accessible to Kenyan learners both at home and at school. The data was gathered through questionnaires filled out by both teachers and learners of German as a foreign language. The findings provide insights on how teachers could adapt their content delivery to the learning preferences of Generation Z learners, who are setting precedence for the upcoming Generation Alpha and Beta.

Key words: Digital Natives/Generation Z, technology-based learning, ICT infrastructure, learning modes, learning tools**,** artificial intelligence (AI)

DOI: 10.7176/JEP/16-4-03
Publication date: April 30th 2025

1. Introduction

Modern-day teaching and learning are highly influenced by technology, and in 2025, with the learner at the centre of this process being from generation Z, delivery of instruction is more effective with the inclusion of digital media. This paper takes an interest in the digitality of the digital natives, also known as Generation Z, and analyses their choices when it comes to the use of ICT in learning. The research is a case study of German as a foreign language in national secondary schools in Kenya. It looks at various terms that are associated with digital learning, including online learning. These terms are defined and differentiated from each other. The study then delves into information, communication, and technology (ICT) as a facilitative learning tool and finally presents the position of ICT infrastructure in national secondary schools in Kenya, as well as the digital/online learning tools used to teach German by teachers in Kenya. The findings of the study outline what the preferences of the digital native generation in the learning environment are and infer how teachers can include these preferences within the formal school setup.

2. Background information

The research reviewed studies of online learning which informed the study in diverse ways. Literature on the definition of various ICT concepts, the different digital learning platforms, and digital learning modes suggested by other authors were reviewed. Finally, the paper discussed the literature on Kenya and its provision of technology-enabled learning for Kenyan learners. This review aided in developing questionnaires to collect data about the learning modes and preferences among the digital natives.

2.1 Technology-Based Learning: A Definition of Concepts

The first definition is that of online learning. Over time, online learning is an umbrella term to define technology-enhanced learning. Carliner's definition of online learning is a broadly inclusive one that establishes the term's boundaries. According to Carliner, it refers to a type of learning that happens primarily over the internet. This includes forums, blogs, and wikis, among others (Carliner, 2004). There are Face-to-face meetings

but these are minimal in online learning. The term includes categories, such as e-learning, blended learning, and distance learning. According to Long, the term e-learning simply refers to learning that happens through knowledge received through an electronic source, and that the process may include varied forms and processes (Long, 2004). That means that learning could take place through a network like a school local access network (LAN) or even a wireless access network (WAN). The classes would therefore meet online asynchronously (at separate times) or synchronously (at the same time). On the other hand, blended learning as described by Thorne is a fuse of multimedia technology, including virtual classrooms, voicemail, CD-ROM, video streaming, email, conference calls, online text animation, and video streaming (Thorne, 2003). These then integrate traditional forms of classroom teaching and one-to-one training. The third term, distance learning, primarily focuses on geographical characteristics. Moore et al. define distance learning as an effort to provide access to learning for those who are geographically distant. It is a form of learning that includes both print and electronic media. It often involves a tutor who is at a different geographical location from his or her learners (Moore et al., 2011).

Researchers have defined online learning in at least four ways since it was first coined. The concept of online learning is a form of instruction that takes place using electronic devices and/or the Internet. Other references to online learning used interchangeably are computer-assisted learning, web-based learning, and internet-based learning. According to Picciano, different instructors may apply online learning in different formats. Instructors may integrate electronic devices into the traditional classroom, and others may use blended learning. While one may employ synchronous learning, another may use the synchronous mode of learning (Picciano, 2006).

In the 21st century, online learning has been taking place across the globe, mostly using Web 2.0 technology. Introduced in 2004, this technology focused on connecting people with others while making their experience as interactive as possible. Caliskan et al. argue that usage of Web 2.0 technology in education is unavoidable due to its simplicity of use; therefore, teachers who are leaders should embrace this technology in their classes (Caliskan et al., 2019). Such technology includes applications like YouTube, Google Meet, Zoom, WhatsApp, Facebook, and others.

The present study identifies and analyses how German teachers in Kenyan secondary schools incorporate these tools in their classrooms. The main objective of this paper is to find out how technology-enhanced learning is employed in Kenyan secondary schools and the perceptions of learners regarding this. The case study is that of German as a foreign language in national secondary schools in Kenya.

2.2 ICT as a facilitative online learning tool

The concept of information, communication, and technology (ICT) in education is broad, and different terms are used either specifically or interchangeably. In this study, the terms digital learning, online learning, and e-learning will come up in explaining concepts and are therefore worth defining and categorising. Singh and Thurman analysed 151 articles that define concepts used in online learning and summarised the definitions as follows (Singh & Thurman, 2019).

Digital learning

Digital learning is a broad term encompassing various aspects of ICT, including online courses, research, and educational settings, where various devices and gadgets use digital technology.

Online learning

Online learning involves online coursework through forums, emails, chats, and shared documents, with direct interaction between participants and teachers in traditional classrooms or remotely if communication is online.

E- learning

E-learning, or virtual learning, is an online educational program where instructors coordinate and supervise all aspects of course work and distribution through various online platforms. Singh and Thurman critique the misuse of the term "online learning" and its overuse, focusing on delivery mechanisms and instructor burden while neglecting learning, cognition, awareness, and retention, despite incorporating interactivity (Singh & Thurman, 2019). The present study will use the term digital learning or technology-enhanced learning to refer to and discuss the inclusion of ICT in learning.

2.2.1 Online Learning tools and platforms

This research examines the use of online learning tools in ICT-based classrooms, focusing on language teachers in Kenya. Online learning platforms include communication tools, learning management systems (LMS), digital learning games, and online learning resources. Communication tools include email platforms like Zoom, Google Meet, and Google Classroom. LMS are affordable software programs that design, control, and provide learning

content for online classes. Digital learning games allow students to practice vocabulary and learn in a game-like manner. Online learning resources can take synchronous and asynchronous forms. Synchronous online learning involves learners and instructors being online simultaneously through video conferencing and chat tools. Asynchronous online learning tools include EdPuzzle, Bulb digital portfolios, Schoology, YouTube, and Google Classroom. These tools provide flexibility, accessibility, and tracking of submissions and scores.

2.2.2 Studies on the utility of online learning tools

Two recent studies conducted in Lesotho and Spain focused on the impact of COVID-19 on online learning. The studies highlighted the contrast between traditional classroom settings and electronic learning, as well as the functionality and reliability of online teaching and learning tools. Lesotho's Thuto LMS was difficult to access and unreliable, making it difficult for students to meet deadlines (Ayanwale et al., 2022). In Spain, a study on mature students' attitudes towards virtual learning environments, particularly accounting education, found that students showed high affinity for these environments. The study concluded that teacher role and students' attitudes are crucial for designing effective M-learning environments.

3. Technology-Enhanced Learning in Kenya

Dron et al. highlight the opportunity for online learning, supported by modern technologies. Their 2014 study estimated that by 2016, there would be 3.16 billion people with connected devices, compared to 2.26 billion humans, indicating a growing global population (Anderson & Dron, 2014). As of January 2022, 23.35 million Kenyans had internet access, accounting for 42% of the population (Kemp, 2022). However, the survey only analysed gender usage and social media usage, not high school students' internet usage. Another study in 2012 showed that 42% and 30.5% of high school students use the internet daily (Mungai, 2012). However, Uwezo's 2020 survey of 10,281 learners revealed that 20-30% of public secondary school students had access to digital learning during COVID-19 closures, with public schools being least equipped for remote teaching and learning. The researchers' findings regarding the most prevalent learning methods included radio (19.2%), TV (42.2%), and e-materials from Kenya Institute of Curriculum development (KICD) (9.9%). School materials via E-mail 3.3% via WhatsApp 27.0%, Via SMS 3%, other sources 25.9%. These statistics demonstrate that most learners in Kenya do not have access to half of the digital or electronic learning resources that are available today. However, the Daily Nation of June 22nd, 2022, reported that the government plans to enhance internet connectivity in schools by 2025, with over two hundred schools connected in the last three months of 2022. This will revamp e-learning and prepare students for 21st century education through ICT. The study aims to determine the type of ICT infrastructure in secondary schools and assess online learning functions (Waweru, 2022).

3.1 Learning Platforms in Kenya

Kenya's Ministry of Education collaborates with the KICD to offer online learning resources, including the Kenya Education Cloud, for learners from nursery school to secondary school. The platform offers radio lessons, lesson plans, exams, books, and assignments, while also providing teachers with education on curriculum changes (KICD, 2023). This paper will discuss other online learning platforms in Kenya in the next sub-chapters.

3.1.1 Kenya Education Network

Kenya Education Network (KENET) is a non-profit organisation that provides affordable internet connectivity and services to research and education institutions in Kenya. As of January 2023, KENET connected over 141 member institutions across forty-six counties. Affiliate members include schools, hospitals, and nursing schools. KENET's membership charter, launched in 2019, outlines roles, responsibilities, and benefits for its members, including cost-effective internet, ICT technical aid, ICT infrastructure funding, a community of universities, research partnerships, capacity-building assistance, and profit from value-added services (Kenet, 2024).

3.1.2 School Connectivity Initiative

KENET created the Schools Connectivity Initiative (SCI) in 2014, in Kenya to provide internet access and facilitate ICT use in schools. It partnered with Wananchi Group Limited (WGL) and the Nairobi County Government to connect 240 Nairobi County Schools to the internet using Wananchi home fibre infrastructure. The SCI aims to enhance education quality by changing teaching, learning, and management through ICT as envisioned in the national ICT masterplan of 2014 as part of the vision 2030 goals (Waema, 2014). The challenge is providing affordable internet access to all schools, making it difficult for any single operator to offer it. The SCI model includes internet connectivity, educational content, and teacher capacity building.

KENET offers a variety of online learning platforms. They include YouTube for education, KICD, Khan Academy, Bookboon, CK-12 Foundation, Connexions, Curriki, Open Library, OER Africa, OER Common, Massive open online course, OpenLearn, and WikiEducator.

3.1.3 Digital and online learning tools for German as a foreign language in Kenya

In KICD's Kenya Education Cloud (KEC), there is no material whatsoever uploaded for the German learner. This means that learners and teachers of the German language must source digital content from other platforms. There are other suggested tools of online learning discussed in this subchapter. These tools are not only for learning German, but the examples given are from literature on German language classes as well as data collected by the researcher herself. Digital tools include television, radios, and computers. Other tools that require the use of the internet are tools like social media and their reels, which include WhatsApp, Facebook, TikTok, email, forums, blogs, podcasts, chats, AI, and virtual classrooms. Reels are simply short vlogs that pass information or message in the shortest time possible and are on Instagram and Facebook. In Kenya, there are 11.7 million users of social media, with Facebook being the most popular (Growthpad, 2022). The internet, particularly social media, is a significant source of information and knowledge. This research examines social media tools used in German classrooms globally, including wikis, forums, blogs, podcasts, blended learning tools, and interactive whiteboards and smartboards.

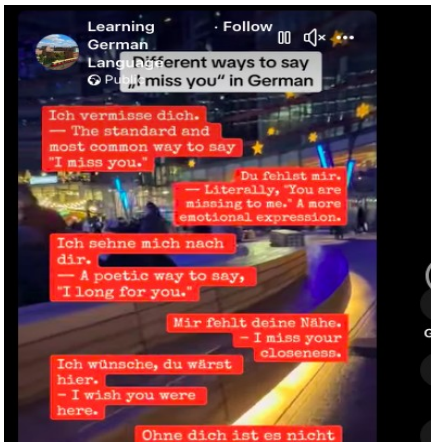

Figure 1Reel: https://www.facebook.com/reel/455049484306737

4. The Digital Natives: Generation Z

This section delves into the description of learners from Generation Z (Gen Z). It will describe their background and shed light on their types of learning preferences. Other terms used to describe Gen-Z include digital Natives and Net generation.

4.1 Definition and Background

Generation Z encompasses adolescents and young people born towards the end of the 20th century and the beginning of the 21st century, up to 2012. They are digital natives, born into a world dominated by smartphones and social media, and have never known a world without instant connection and communication. This makes them prefer online interaction to a physical one (Seemiller & Meghan, 2016; Schwieger & Ladwig, 2018). Discussed below are their behaviours in relation to technology.

I. *Technological Influence*. The widespread use of smartphones and technological advancements have a considerable influence on Generation Z. They are the first generation to grow up in a world defined by smartphones and digital technology. They make extensive use of technology in all areas of life and engage in non-verbal symbolic communication, such as emojis.
II. *Diversity*. Generation Z displays various aspects of culture, including music, fashion, food, and entertainment. Their family structures and ethnic backgrounds are more diverse compared to previous generations.

III. *Media Usage*. The Net generation uses media daily for various purposes, including social connections, entertainment, information seeking, and content creation. They use social media platforms extensively for socialising, staying updated, and expressing autonomy. They are actively involved in creating and sharing media content, such as videos, photos, memes, and music clips. Reels and live videos are currently the most usual form of vlogging that Generation Z engages in.

IV. *Characteristics and Behaviour.* In the article by Schwieger & Ladwig (2018) published in the USA, it discusses characteristics of digital natives from the Ernest and Young (EY) surveys conducted in Brazil, China, Germany, India, Japan, Mexico, the UK, and the US. The study listed their characteristics as follows:

i. *Fairness*. Gen Z highly values respect, equal compensation, and open and clear communication. They are assertive, communicate their opinions directly and confidently, and are not afraid of calling out inadequacies and indiscretions.

ii. *Distinctive*. Further survey on the postmillennial generation indicated that they prefer personalised experiences and were more likely to conduct online shopping as it gave them this experience; it is quick, easy, and convenient.

iii. *Self-directed*. An EY 2015 study by Merriman identified Generation Z as self-aware, autonomous learners, self-sufficient, and entrepreneurial. Additional traits encompassed persistence, realism, innovation, and a commitment to effecting change such as environmental improvement Merriman 2015, cited in (Schwieger & Ladwig, 2018).

iv. *Tenacious*. Digital natives exhibit pragmatism and acknowledge that life will not consistently be facile and that they are highly likely to encounter substantial failure prior to attaining success; they regard failure as a chance to attempt once more Deep Focus, 2015, cited (Schwieger & Ladwig, 2018)

v. *Tech-savvy and connected*. According to a study by Zilka, generation Z is highly influenced by technology, with 90% of respondents agreeing that smartphones help in communication and organising daily life. However, 41% believe smartphones interfere with establishing relationships, and 50% find them burdensome. The study by Zilka found positive correlations between self-image, vitality, belonging, happiness, entrepreneurship, smartphone usage, internet surfing, and socialisation (Cohen, 2023).

These characteristics influence the learning behaviour that the Net generation exhibits in a classroom. Guided by this knowledge, a teacher should be able to plan and steer the teaching activity according to the needs of his or her class.

5. Underpinning theory

This study analyses the connectivism theory, developed by George Siemens and Stephen Downes in 2005, which posits that learning occurs through connections between people, information, and technology. Connectivism is a digital age learning theory that challenges the boundaries of behaviourism, cognitivism, and constructivism. Connectivism is a social learning approach that emphasizes the importance of knowledge distribution across a network of connections, for example, through online interactive exercises where learners share and improve their knowledge by using these platforms during the learning process. It is characterised by rapid changes in society, like the recent technological advances of artificial intelligence, which provides a platform to chat with a robot and get real-time answers to queries. More advanced AI even talks back and can simulate voices, so that one has a variety of voices to listen to. The core skill of connectivism is the ability to see connections between information sources and maintain those connections to facilitate continual learning (Duke et al., 2013). Key principles of connectivism include network formation, clustered learning, information circulation and filtering, learning within groups and networks through technology, and constant learning and modification (Alam, 2023).

6. Methodology and research design

Observation and questionnaires were the main methods of gathering data for this study. The researcher visited the chosen schools on a schedule to collect data. This took place between February and May 2023. The researcher attentively observed the teaching approaches employed by the teachers during the lesson and monitored learners during their participation in their usual lesson. This facilitated the researcher in documenting their involvement and responses to the different instructional techniques implemented by their instructors throughout the lesson. The learners were represented by students of German in form four class in each school

who completed questionnaires that gathered information about their access to digital and internet devices both at school and at home, as well as the timing and location of their online or digital teaching classes and the specific teaching modes employed during their lessons, among other factors. Teachers filled out an online questionnaire gathering the same data as described above. Codes categorise each questionnaire in accordance with the researcher's provided school abbreviation such as SB and AG. This ensured the anonymity of respondents. The researcher assisted the participants in understanding the survey questions in case they had any difficulties. As seen in a preliminary survey the researcher conducted during a pilot study, the goal of this action was to prevent any ambiguity or misinterpretation regarding the nature of teaching. The surveys used a multiple-choice methodology to quantify the responses. The quantitative data is summarised and represented graphically in the discussion section.

The schools that participated in this research were all national secondary schools, motivated by the fact that learners in Kenyan national schools come from all over the country and therefore provide a good representation of the sample population. The learners who were respondents in this study were between 15 and 20 years old. This means the respondents belonged to the Generation-Z category of people born between 2003 and 2008. A total of 209 students and fourteen teachers participated in the study. One teacher did not submit their online responses to the survey. The table below shows the schools involved, as well as their abbreviations as used in this study.

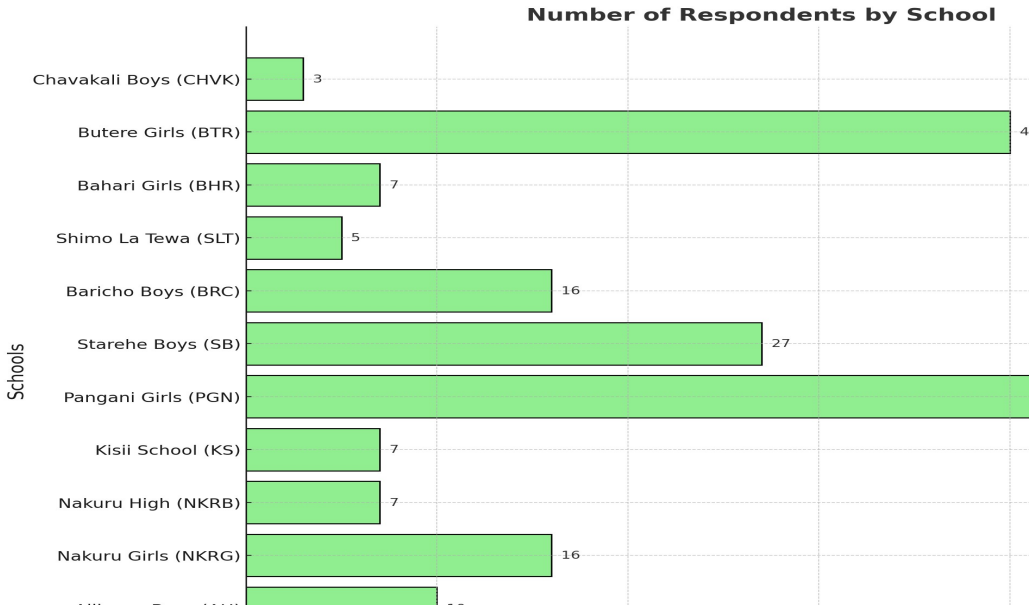

Figure 2 School representation

7. Results and Findings

This section will present the data and discuss the implications of the findings. The discussion uses the objective of the study, which sought to find out the digital media employed in Kenyan schools and what preferences the learners have.

7.1 Digital learning platforms and devices

The results, as seen in Fig. 2 reveal that Kenyan learners have good access to digital platforms and use them to learn German as a foreign language. Mobile phones are the main means of accessing educational content. This is due to the ease of use and availability of mobile phones. Mobile phone learning, however, encompasses the self-directed learning that takes place at home during the holidays since respondents do not have access to personal phones in school. Most phones are smart phones and can easily connect to and access the internet, making the internet a crucial tool in technology-enhanced learning. Teachers share links to revision sites and materials with learners through WhatsApp. Close in second place are personal computers and laptops. Computers are accessible in the schools' computer labs. Both learners and teachers use media gadgets like radio, DVD players, and TV for instructional purposes as complementary tools in traditional classroom (TC) learning processes. Thirty-four

respondents (34) use interactive tools, such as interactive exercises, to improve engagement and learning outcomes. Respondents indicated not using emerging technologies like AI-based tools like Chat GPT, Wikis, but these technologies will become more common in digital learning settings. Overall, there are a variety of digital devices and platforms in use for instructional purposes which is a good indicator of inclusion of ICT in education in Kenya.

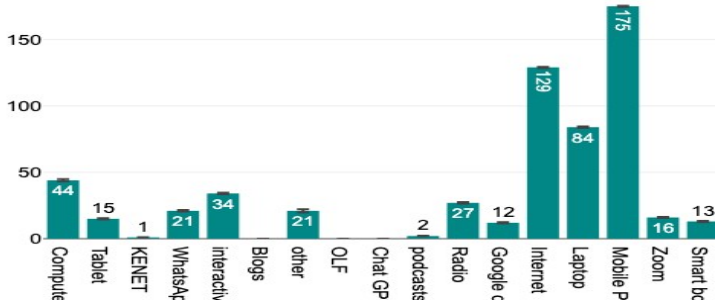

Figure 3 Digital devices used by Kenyan learners

7.2. Frequency of use

The data collected depicts a range of digital media usage for learning German as a foreign language among participants, varying from regular and consistent usage (every lesson, once a week) to infrequent or sporadic usage (once every two weeks, once a month, never).

Positively noted is that the highest number of respondents have frequent access to digital media (weekly or during every lesson). With this access, they are more likely to experience more benefits of digital learning and stay motivated to learn. These benefits include access to diverse materials, interactive learning experiences, and chances for collaboration and communication. The inclusion of technology frequently in their learning environment is synonymous with the home feeling as described above in their characteristics.

Individuals with infrequent access to digital media (once every two weeks, once a month) may use it for certain learning activities or tasks. However, this selective reliance on digital resources may reduce their motivation to learn as the environment may not stimulate them enough.

A smaller yet sizeable proportion of respondents are part of the group that does not use digital media for learning. According to some respondents, this is primarily due to the difficulty (by the teacher) of carrying digital media like the radio to class or the inaccessibility of digital media in the school. This is the most disadvantaged category of learners and is likely to result in demotivation during the learning process.

Every lesson	once a week	once in two weeks	once/month	Never
22 (11%)	84 (41%)	26 (13%)	50 (25%)	22 (11%)

Figure 4 Frequency of Technology use in class

7.3 Modes of learning

Data gathered from teachers of German as a foreign language indicate that most teachers use a traditional classroom with technology integration. It is the most applicable method, based on the curriculum and timetabling in the Kenyan school systems. This finding also corroborates the students' response in preference for it as a learning mode. This mode of learning has been the most applied method due to the availability of resources, which explains the learner's preference for it. Pragmatically, learners in Kenya currently face the choice between the traditional classroom and a mix of that with digital media. The majority, however, in qualitative data from their explanations would prefer a blended and synchronous mode of learning whose practicality may prove difficult in the Kenyan formal school calendar. Reasons for this choice is simply curiosity about a virtual classroom without a teacher physically present.

Synchronous	asynchronous	blended	TC+Digital material	TC	Online learning tools
1 (7.7%)	3(23.1(%)	0.00%	11(84.6%)	1 (7.7%)	0.00%

Figure 5 Modes of learning used

7.4 Desired learning modes

Synchronous (94 respondents) and blended (88 respondents) modes of learning stand out as the most preferred learning means. This is in line with the Gen Z characteristics described above, as they would rather avoid face-to-face communication and would easily reach for gadgets to mediate this communication. A good number of respondents show an inclination towards the combination of physical and online classrooms. A practical group is in favour of an integration of traditional classrooms with digital media, which is more feasible in the Kenyan school system (33 respondents). This finding indicates the essence of a technology-enhanced classroom. Only one respondent was inclined towards the traditional classroom. Notably, managing a classroom of teenagers would be challenging without a teacher physically present. However, applications like Zoom have properties that allow the host to supervise all activities in a classroom at the same time, including during group work sessions in the breakout room. This would imitate the frontal teaching method in a traditional classroom. Learners would always have cameras on so that the teacher (meeting host) can manage the classroom more efficiently. The best setup for the synchronous mode of learning would be the school's computer lab, and the lab technician would then provide adult supervision and technical assistance during the virtual learning. Blended learning would be possible by dividing the lessons within the week or month into physical and online classes. Synchronous learning, as an element of online learning, will promote seamless use of the digital games like Edpuzzle (see subchapter 2.2.), among others, during the separate phases of the lesson, for example, the introduction or conclusion. Furthermore, a teacher would need to know about the existence of different and versatile technology-based teaching materials to use them in the classroom. This study found that teachers of German as a foreign language are not aware of the existing online learning platforms, like the government-provided platform KENET, but are conscious of other platforms that would enable them to conduct teaching electronically. It is also notable that teachers are willing to try technology-enhanced teaching if provided with time and resources. This study found that teachers and learners of German as a foreign language have good access to technological devices and the internet. This means that with the right initiative, technology-enhanced learning is very possible in Kenyan schools. Schools that are currently lacking internet connection may consult the school connectivity initiative and gain access to the internet. School welfare from parents and the community can also contribute to this initiative to promote digital learning in schools. However, there is a notable gap in teacher training regarding the use of technology in education. Many educators lack the skills and confidence to effectively integrate technology into their teaching practices (CIPIT, 2024; Odipo, 2024). Continuous professional development is crucial to equip teachers with the necessary competencies to utilize blended learning effectively.

7.5 Undesired learning modes

This section of data had a distinct characteristic observed, where respondents appeared to contradict themselves, on the non-preference for synchronous learning as opposed to the data above, where they had a strong inclination to blended and synchronous learning modes. The statement gathering this data read, *"I would not be motivated to learn German if my teacher used the following learning modes."*

Blended learning (14 respondents) and *synchronous learning (25 respondents)* scored poorly in this category which contradicts the high score in the discussion above. Insight from qualitative data in the respondent's reasons explained this low score as difficulty in concentration due to tempting distraction from other social media like Facebook and TikTok during the OnLive class sessions. However, modern technology is capable of blocking access to unwanted sites within the school's LAN, hence neutralizing this danger. The small number of participants in favour of this may also indicate difficulties accessing facilities or preferring a more adaptable and realistic learning method. The formal school system in Kenya leaves little allowance for this kind of learning. For learners to experience this mode of learning, curriculum developers need to incorporate it when revising the curriculum and then school timetabling should incorporate blended learning as explained in 7.4 above.

Asynchronous Learning (51 respondents). Twenty-four percent (24%) of respondents do not prefer this learning, as they feel safe when a teacher is present to introduce and explain content. Asynchronous learning, however, for high school students in Kenya, would not take place in the complete absence of a teacher. It would only be possible if it complements other modes of learning and promotes the learners' self-directed learning abilities. This method is possible in the Kenyan school system through homework, assignments, and projects. Learners could get assignments to research in the computer lab and then present and discuss it in the physical class.

However, learners with poor self-direction and motivation may fail to complete assignments or even attempt them.

Traditional classroom with digital material (14 participants).6% of learners are negatively inclined to the integration of technology into the learning process facilitated by combining traditional classroom instruction with digital materials. Learners across Kenya use this mode of learning and are yearning for other modes. Most teachers practice this method by including radio lessons during the listening comprehension. In the observation made by the researcher in the physical classrooms, teachers also use projectors to project the notes bearing grammar explanations to the board. Teachers use digital devices in the traditional classroom, but not in the best way. In cases where there was a projector used to project films and to play music, learners' enthusiasm was higher than in the case mentioned previously. In one of the schools, the teacher used a smart projector to show a film prior to a reading comprehension text. This simplified the text for the learners, creating an incredibly positive learning environment.

Traditional classroom (130 respondents). Most learners are strongly averse to traditional classrooms. Sixty-two percent (62%) of the respondents supported this finding and this therefore emphasizes the importance of proper planning of the lesson to include fun activities in cases where digital material and/or devices are unavailable. Intentional and appropriate inclusion of digital material should, however, be constant to keep learners motivated.

7.6 Respondents opinions in summary

Given the available data, the following are the inferences according to the learning preferences of Gen Z learners. The Net generation has a preferential inclination towards interactive and diverse learning methodologies. Gen Z learners, known for their digital proficiency and interactive information, prefer diverse learning methods. They value video clips, films, and varied teaching strategies to reduce monotony and enhance learning. These methods cater to their limited attention spans and desire for multimedia content. They believe that using uncomplicated video clips and films with basic German assistance can help acquire language skills, alleviate boredom, and provide exposure to various teaching methodologies and resources. They also prioritise adaptable digital material that is easy to use in educational contexts, especially when studying remotely or during holidays. Their preference for convenience and flexibility is what drives them towards blended, asynchronous, and other technology-enhanced learning styles. These individuals prefer educational experiences tailored to their specific schedules and interests. These groups of learners would benefit more if content delivery were through familiar and entertaining means like reels. Furthermore, the combination of the traditional classroom approach integrated with digital material has been the most used mode of learning among Kenyan learners in the 21st century, according to findings of this research. The emphasis should, however, be on this approach by educating teachers on digital media and its versatile components for education. Curriculum and syllabus developers should also clearly incorporate this element in their designs so that school timetables can include the same. As discussed in the subchapter four in the background above, the digital natives are culturally diverse and have a curiosity towards the same. This research found that learners of German in Kenya are also curious about the German culture and wish to learn this alongside the language. The best approach to catering for this need among learners is using educational platforms suggested in the literature review, such as podcasts, vlogs on YouTube, Instagram, TikTok, and other social media sites. The teacher should, however, vet the video contents before class to verify their credibility and age-appropriateness for learners. Other institutions like the Goethe Institute Kenya play a fundamental role in disseminating information about the German language and culture. Materials on their websites are easily accessible and educational.

See for example https://www.goethe.de/prj/dlp/de/unterrichtsmaterial.

Every teacher would delight in an attentive and active class. So how can Digital Native learners remain interested in a classroom environment? Simply take them home by incorporating technology in class. The radio and other analogue digital devices, however, may be outdated for most learners in the current classroom. Podcasts and vlogs presented in their own generational style are better options. Digital native learners desire learning experiences that are not only educational but also captivating and pleasurable. The respondents' emphasis on the attributes of technologically enhanced learning modes underscores Gen Z's inclination for engaging and interactive educational content. Use of gamification, multimedia components, and real-world connections play a significant role in boosting learning motivation among the Net generation. These approaches stimulate their natural motivation and improve their overall involvement with the learning areas and content.

8. Summary and recommendations

The findings of this research align with connectivism, a learning theory that emphasizes the importance of connections, networks, and digital technologies in the digital era. The learners in Kenyan secondary schools have a strong inclination towards technology and its use in the learning environment. It shows that learners actively use or wish to use digital devices and platforms to access information, forming networks of connections across various platforms. This allows learners to navigate the vast amount of information available. Learners did not highlight Artificial Intelligence in this study. It may be due to the learners not knowing that when they use Google Translate or Gemini, they are using AI. Chat GPT, among others, is a well-known AI tool, and learners across the globe use its free version extensively. The use of AI among Kenyan learners is not extensive in formal schooling because they do not access devices with internet in school, and if they do access devices, they do this within a controlled environment. Teachers should encourage the effective use of AI by learners as a modern technological trend in 2025 while also avoiding abuse of the tool. This includes teachers encouraging learners to critically evaluate the information provided by AI tools and teaching them how to formulate effective queries and prompts that lead to meaningful interactions with technology (Stefanic, 2025). In addition, educators need to develop clear prompts and guidelines for students on how to use AI tools effectively as well as how to ask questions, seek feedback, and utilize resources provided by AI systems (Park & Doo, 2024).

Connectivism also emphasizes the importance of social learning in communities and networks, where learners actively engage in online communities, cooperate on digital platforms, and interact with peers and instructors. This is specifically the case where learners use social media and other online interactive platforms for learning. The study underscores the need for continuous learning and adaptation in the digital era, as learners must navigate rapidly changing digital environments and embrace modern technology. Future research may consider practical pilot studies on the application and feasibility of the different modes of learning as suggested in the sub-chapters of this research. The success of technology-enhanced learning can be evaluated through the degree of content retention and knowledge spectrum as opposed to good scores in the exams.

9 Conclusion

The above study highlights the importance of digital learning platforms and creative teaching methods in improving education for Kenyan students who were born during the digital era. The findings shed light on where inclusion of ICT in learning German as a foreign language is thriving but also where there is need for enhancement. The results indicate that mobile phones have become the main device for accessing educational content. Also notable is that the combination of synchronous and asynchronous learning methods are the preferred modes of learning. This underscores the importance of setting aside the traditional classroom and complementing it using technology and providing prospects for active participation and communication while increasing learning efficiency. The comments of the respondents emphasize the significance of adaptation, involvement, and exposure in facilitating the acquisition of German as a foreign language and understanding of diverse cultures. In summary, the results show the changing nature of education in Kenya, where technology clearly plays a crucial role in influencing teaching and learning methods. With proper planning for the future, educators need to consider policies that favour technology-infused learning, especially bearing in mind that Generation Alpha is already sitting in the classrooms and requires even more stimulating content delivery.

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