Using TikTok, memes, and YouTube in the geography classroom

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Abstract

This study aimed to interrogate the place of TikTok, memes, and YouTube in the geography classroom. The literature reviewed constructed today's learner as one born within a digital age. This qualitative study was guided by the theory of multimedia learning and the continuum of meaning. The study fell under the interpretivist paradigm. Data was generated using artefact-based interviews. The study established that YouTube, TikTok, and memes enhance geography teaching in the 21st-century classroom. It was also noted that YouTube, memes, and TikTok appeal to multiple senses and promote effective learning. The study also identified benefits and pitfalls in integrating TikTok, memes, and YouTube in teaching geography. Drawing from the findings, this paper recommends that learners' prior knowledge inform ICT integration in the geography classroom of the tools used to teach.

Keywords: TikTok; YouTube; memes; geography teaching

Introduction

It is common knowledge that teaching is transforming to stay relevant in the 21st century. Among the recent changes in teaching, there is emerging consensus on the utility of Information Communication Technology (ICT) in the classroom. Bilbao-Osorio and Dutta, cited in Tarisayi and Manhibi (2017), state that "advances in the field of Information and Communication Technologies (ICTs) had drastically changed teaching and learning because they can perform a variety of tasks that could not be easily performed before they emerged" (p. 34). Manhibi (2019) views ICT integration in schools as a "silver bullet" due to a multiplicity of benefits accrued by the learners. Mokgadi (2015) argues, "the effective and sustainable use of ICTs has become of utmost importance to meet the educational demands of the 21st century for both teaching and learning" (p. ii). Essentially, the current discourse has positioned ICTs at the epicentre of the 21st-century classroom.

Implementing Geographic Information Systems in the geography curriculum is one notable change. Due to recent developments in the world of technology, changes in the geography curriculum have become a prerequisite for learners to stay relevant. This confirms the relevance of John Dewey's long-expressed view that "If we teach today's students as we taught yesterday's, we rob them of tomorrow" (Dewey, 1916). Thus, to avoid robbing the learners of their future, the geography classroom needs the creative use of ICT tools. Teaching geography in the 21st-century requires creativity. Integrating ICTs in the geography classroom enhances creativity. The 21st-century learner in the geography classroom needs to be motivated by interesting teaching methods. Yong et al. (2016) argue, "today's students are not the same as those in the past; they have been born into a digital age where technology forms an integral part of their lives" (p. 46). Fundamentally, today's geography teachers require an appreciation of the centrality of ICT in the classroom. Chisango and Marongwe (2021) concur that "digital literacies, such as ICT literacy, information literacy, and media literacy have been emphasised as the pillars of the 21st-century skills" (p. 149). Thus, there is an emerging consensus on the need to innovate and enhance classroom practice through ICT integration.

A report by the USA Office of Educational Technology states that:

> *Recent years have seen a steady embedding of digital and networked technologies in the classroom, with the widespread use of interactive whiteboards, virtual learning environments, educational computer games, and increasing reliance on internet application including email and e-learning for both classroom and independent study (cited in Livingstone, 2012, p. 2)..*

However, it should be noted that the USA Office of Educational Technology report focused on the state of ICT integration in the USA. The situation is different in Africa, where schools are still lagging in ICT infrastructure. There is an apparent gap between the developed and developing countries in using ICT tools in the classroom.

There are a plethora of studies interrogating different aspects of geography teaching in the school curriculum in the South African classroom. Scholarship on the teaching of geography in South Africa has unpacked various aspects of geography, such as teaching and assessing GIS (Manik, 2022; Zondi & Tarisayi, 2020; Tarisayi, 2018); continuity and progression in geography education (Beets & le Grange, 2005; 2008); and learner performance in geography (Ahiaku & Mncube, 2018), among others. Despite acknowledging numerous gains in the geography classroom in recent years, these various studies note that more still needs to be done. Challenges, such as workforce and resource constraints, need to be addressed to promote effective learning in the geography classroom in South Africa. Zondi and Tarisayi (2020) observe that some challenges in implementing GIS are related to workforce constraints in schools in South Africa.

Despite this growing literature on ICT integration in schools, there is an apparent dearth of scholarship on integrating ICT tools in the geography classroom. Information Communication Technologies can be used in the classroom, such as search engines, Microsoft Office, Google classroom, and various social media applications. Milosavljevic (2019) explains, "The society of the 21st century is a society of visual communication that mainly takes place on the Internet" (p. 9). Essentially, today's classroom should harness visual communication on the

internet. Current classrooms should appreciate the need to be learner-centred.

Additionally, current classrooms should be cognizant of the needs of the 21st-century learner. Prensky (2001, p. 1) referred to 21st-century children as 'digital natives'. Digital natives "are the children who have grown up in a world surrounded by and using computers, video games, digital music players, video cams, cell phones, and all the other modern technological toys and tools" (Prensky, 2001, p. 3). These learners have been exposed to social media like WhatsApp, Instagram, Twitter, Facebook, YouTube, and TikTok. For Prensky (2001), there are 'native speakers' of the digital language of computers, video games, and the internet. Jukes et al. (2010) in Kivunja (2014, p. 95) refer to "digital natives" as a "digital generation". Recognition of today's learners as digital natives or digital generation calls for alignment of teaching approaches in the geography classrooms to accommodate the needs of this new generation of learners. The next section presents the theoretical framework guiding this study.

Theoretical framework

This paper uses a theoretical framework that combines the theory of multimedia learning (Mayer, 2009) and Rogers' (1983) continuum of meaning. The integration of ICT tools in the teaching and learning of geography fosters learning with words, visual images, and sound, as exemplified in the theory of multimedia learning. The theory of multimedia learning was originally propounded by Richard Mayer in 1997. However, it draws from the work of several theorists. Most notably, the theory of multimedia learning draws from Baddeley's model of working memory, Paivio's dual coding theory, and Sweller's Theory of Cognitive Load. Mayer's theory of multimedia learning makes three assumptions about how humans process information: the dual-channel assumption, the limited-capacity assumption, and the active-processing assumption. Mayer's theory advocates a learner-centred focus in the design of multimedia lessons (Sorden, 2005).

Thus, the theory prioritises the learner and avoids the temptation among multimedia instructional designers to let technology drive instructional design (Moreno, 2006).

According to Mayer (2009), the dual-channel proceeds on the assumption that "humans possess separate channels for processing visual and auditory information" (p. 63). The first is the visual–pictorial channel, which processes images seen through the eyes (including words displayed on a screen). The other channel is the auditory-verbal channel, which processes spoken words. Additionally, the limited-capacity assumption suggests that humans have a hard limit on how much information they can process at any given moment. At the epicentre of the theory of multimedia learning is the notion that learning is an active process of filtering, selecting, organising, and integrating information based on existing knowledge. Using different ICT tools in the geography classroom promotes learners' access to different sources of information.

Additionally, the ICT tools studied in this paper facilitate meaningful learning by enabling learners to connect words and pictures. Fundamentally, the theory of multimedia learning argues that learners attempt to construct a meaningful nexus between words and pictures and, thus, learn more than in the absence of pictures. Hence, the theory of multimedia learning provides a vital lens for unpacking the use of images in the classroom in general and in the geography classroom in particular. Sorden (2013) argues:

> *While the cognitive theory of multimedia learning has generally met with acceptance, there remain questions by various learning and education theorists in certain quarters about its validity, as well as the validity of other cognitive theories upon which it is based (p. 17).*

Central to the criticism of Mayer's theory is the argument by Ballantyne (2008) that most studies that have applied Mayer's theory have been narrow. Additionally, Ballantyne (2008) questions the applicability of principles derived from Mayers' theory in broader and more settings. Furthermore, Rasch and Schnotz (2009) "were not able to show that students learned better from text and pictures than from text alone, calling the multimedia principle itself into question" (Sorden, 2013, p. 18). Mayer (2010, 2014) acknowledges the criticism of the cognitive theory of multimedia learning and argues that the criticism contributes to the

ongoing evolution of the theory.

The theory of multimedia learning is complemented by Rogers' (1983) work on experiential learning. Rogers (1983) argues that "learning may be conceived of as falling along a continuum of meaning" (p. 18). Essentially, Rogers (1983) divides learning into two categories; nonsense syllable learning and meaningful experiential learning. Nonsense syllable learning typically entails "rote memorisation of facts and information" (Rogers, 1983, p. 18). This type of learning does not encourage the learner to see the larger picture. According to Rogers (1983), meaningful, experiential learning is more engaging and emphasises experiential learning. Rogers (1983) uses an egregious example of a toddler learning the true meaning of 'hot' by touching a radiator. Rogers (1983) argues, "in order to truly learn, an individual must engage in whole-person learning" (p. 19).

Additionally, Rogers (1983) argues that all human beings have a natural propensity to learn. Teachers, in turn, have a role in facilitating such learning. Rogers lists several aspects of the teacher's facilitation role. However, for this paper, the author selected two pertinent facilitation roles played by the teacher. These are setting a positive climate for learning, as well as making learning resources available. However, Roger's work has been critiqued for not adequately considering "the attitude and resources of the environment in which we teach often…" (Hess, 2012, p. 47). Essentially, the classroom should not be analysed in isolation but within the context of the school environment. Additionally, from Rogers' work, ICT tools such as YouTube, GIFs, TikTok, and memes are viewed as engaging learners in whole-person learning. Essentially, these two theories, utilised as a theoretical lens in this study, are complementary. The next section discusses the research methodology utilised in this study.

Research methodology

In a study with Bachelor of Education (B.Ed.) students at a South African university, the researcher explored ways of integrating ICT tools in the geography Classroom. The study was qualitative and fell under the interpretivist paradigm. The B.Ed. degree is a four-year undergraduate programme aimed at training beginner educators. The B.Ed. degree curriculum includes compulsory

school visits and practical learning in schools. The B.Ed. students who participated in the study were in their final year of study.

Moser and Korstjens (2017) state that "qualitative research aims to provide in-depth insights and understanding of real-world problems…" (p. 271). Thus, this paper sought in-depth insights on ICT tools integration in the geography classroom. Lincoln and Guba (2005) explain that interpretivist qualitative research seeks to understand individuals' experiences and "consists of a set of interpretive material practices that make the world visible" (p. 3). Additionally, Cohen, Manion, and Morrison (2011) note that "within the interpretivist paradigm, the role of the researcher (scientist) is to understand, explain, and demystify social reality through the eyes of different participants" (p. 19).

Monforte and Ubeda-Colomer (2021) identify four generic forms of interviews: individual interviews, dyadic interviews, group interviews, and focus group discussions. Data for this paper was generated using ten artefact-based dyadic interviews. Dyadic interviews are a hybrid of focus groups and individual interviews (Haduong & Brennan, 2020) because

they involve two participants. Szulc and King (2022) describe dyadic interviews as two participants being interviewed together. Szulc and King (2022) state, "the dyadic interview is a procedure where two participants are interviewed together, and simultaneously interact in response to open-ended questions" (p. 3). The participants were asked open-ended questions that allowed for in-depth conversations. Dyadic artefact-based interviews involve the addition of an artefact to the conversation. Haduong and Brennan (2020) justify the inclusion of an artefact in dyadic interviews because "it can be difficult to interview participants about complex phenomena without grounding conversations in concrete examples". In this study, the participants were requested to bring artefacts of a geography lesson using or integrating ICT tools. Artefacts brought to the interviews included lesson plans, memes, YouTube videos and TikTok videos.

Logistical challenges were addressed by conveniently sampling participants within the B.Ed. Program in pairs. Moser and Korstjens (2018) describe convenience sampling as a "selection of participants who are easily available" (p. 10). The researcher

conveniently sampled ten dyads for the study. The selection of B.Ed. students at the same university provided a 'homogenous' group aimed to address power dynamics, as recommended by Carey and Asbury (2012). The artefact-based dyadic interviews were all conducted on campus. The artefacts were utilised to open the interviews. The data from the artefact-based dyadic interviews were analysed using thematic analysis. For Braun and Clarke (2006), "a theme captures something important about data concerning the research question and represents some level of patterned response or meaning within the data set" (p. 10). Thus, the themes that emerged in this study were the different ICT tools and considerations when integrating these ICT tools. The researcher made ethical considerations that ensured voluntary participation, informed consent, anonymity, and confidentiality.

Memes in the geography classroom

When Richard Dawkins introduced the term 'meme', it referred to "different types of information (ideas, habits, figures) that spread, multiply and change in the environment of human culture" (Dawkins, 2006). Gil (2021, n.p.) states, "A meme is a virally transmitted image embellished with text, usually sharing pointed commentary on cultural symbols, social ideas, or current events". Sesum (2011) adds, "Memes may be in the form of text, news, but they are usually video, photo or animation content" (Milosavljevic, 2019, p. 11). The study participants indicated that memes were one of the ICT tools that could enhance geography teaching in the 21st century. Participant A stated, "I
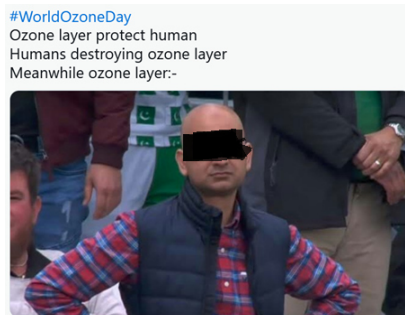

Figure 1: Ozone layer depletion meme (Artefact supplied by Participant A)

have seen some interesting memes on geographical issues. Instead of explaining the depletion of the ozone layers, climate change, etc., you can use a meme. That will be very interesting to the learners". From the above statement, it can be noted that memes offer an interesting way of teaching geography to the digital generation. Figure 1 below shows a meme provided by Participant A on the depletion of the ozone layer.

The face of the man in the meme has been partly obscured for ethical reasons. The meme emphasises the growing concern about the impact of human activities on the ozone layer. The meme can be used to complement a geography teacher's explanation of ozone layer depletion. If the ozone layer is caused by human activities, as depicted in the meme, humans should be more concerned.

Population, pollution, water management, and climate change were some of the topics covered by memes produced by the participants. The participants also noted that memes offered a window for the teacher and learners to be creative. Essentially, the participants integrated the memes into teaching several topics in the geography classroom. It was established that memes were versatile.

Unlike other creative ways of teaching geography in a 21st-century classroom, memes can be used in both well-resourced schools and schools in underserved communities. In well-resourced schools, the memes can be displayed using PowerPoint and projectors or shared on social media before or during class. However, in poor and under-resourced schools, the memes can be printed and shared in groups or individually, depending on the availability of resources. According to the study findings, creativity in teaching geography was not only possible in well-resourced schools. Participant H stated, "creativity should also be taken to the schools in the townships without adequate resources. Memes can easily be utilised in the townships". The adaptability of memes in different school settings was concurred by Participant B, "Memes can easily be adapted to different school environments and as well as topics. The same image can capture different themes as long as the caption is changed to suit the content".

It also emerged from the study that teaching geography creatively with memes requires good planning. Participant E explained, "To use memes effectively, the teacher needs

to plan their lesson adequately. Finding or creating relevant memes requires geographic content knowledge". Fundamentally, the participant argued that using memes in the classroom should be preceded by adequate planning. Planning for using memes in the classroom should be combined with a good grasp of geographic content. Beets and le Grange (2008) note, "Good teaching is often associated with a teacher having sound subject knowledge and the ability to do thorough planning and preparation" (p. 74). Thus, it can be argued that creativity in a 21st-century geography classroom is premised on planning, preparation, and sound geography knowledge.

Furthermore, memes can be utilised in a learner-centred approach to teaching geography. Participant H stated, "As an individual or group task, the learners can design memes. You will be surprised by the creativity. All they need to do is create memes relevant to geographical issues". The teacher can empower learners to create memes from supplied images. Empowering learners to create their memes within the geography classroom is consistent with Roger's theory on learning. Rogers (1983) states that learning is facilitated when

the student participates in the learning process. Thus, the learners will actively participate in the teaching of the concepts. In creating memes for use in geography class, learners apply the adage "Tell me, and I forget, teach me, and I may remember, involve me, and I learn" (Benjamin Franklin cited in Lopez-Rosenfeld, 2017, p. 71). Learners will learn more effectively when they are involved in creating memes. Hence, depending on the availability of resources, the teacher can creatively involve the learners by creating memes relevant to the geography content. Kayali and Altuntas (2021) revealed that using memes in a language classroom created an enjoyable learning and teaching environment. Purnama (2017) used memes to enhance student participation in the classroom. Essentially, the findings from this study extended the conversation on using memes in the geography classroom. The 21st-century student is not only familiar with digital devices but also with memes, hence, the need to integrate memes into the teaching and learning of geography. Dongqiang et al. (2020) note the growth in the use of memes during the COVID-19 pandemic and subsequent lockdown(s). While we have noted the

increased use of memes over the last few years, there is relatively scant evidence of the use of memes in classrooms in general and in the geography classroom in particular.

YouTube in the geography classroom

YouTube was identified as a way of teaching geography creatively. The participants revealed that YouTube could be utilised to enhance geography teaching. Participant J explained:

> YouTube is a gold mine. It has a lot of interesting videos covering geographical issues. Let's say you are teaching topics like flooding, earthquakes, and volcanoes. In the past, models would have been adequate, but with YouTube, you bring the class to life. Videos from YouTube can be used to initiate class discussions on the effects of flooding, earthquakes, and volcanoes.

It can be noted from the above response that YouTube provides access to a collection of videos that can be utilised in the teaching of geography. Wattenhofer et al. (2012) state,

"YouTube is the largest user-driven video content provider in the world; it has become a major platform for disseminating multimedia information" (p. 1). The participants also indicated that current news articles on disasters such as floods, cyclones, tsunamis, and volcanoes could be accessed from YouTube. The lesson plans supplied by the participants gave examples of videos from YouTube that can be used to teach geography creatively. From the videos, it was noted that voice narrations by the journalist captured the geographic issues in detail. Additionally, the videos offered recent examples of geographic issues. Hence, from the participants' views and the artefacts supplied, it can be argued that using YouTube is a way of creatively teaching geography.

Participant A noted, "learning online increased during the Covid-19 pandemic. More resources are now available on YouTube. Instead of creating new material, a geography teacher can search YouTube for relevant videos". From the above response, it can be noted that the geography teacher needs to capitalise on the strides made in response to the Covid-19 pandemic. Lessons and lectures shared on YouTube can

motivate learners in the 21st-century geography classroom. Participant J explained, "YouTube has several channels that provide relevant geography videos that can be used creatively in the classroom". A geography teacher can access these channels to enhance their teaching of geography. One YouTube channel identified by the participants was National Geographic (https://www.youtube.com/c/NatGeo). The content from the YouTube artefacts shared by the participants revealed adequate coverage of the five themes in geography. YouTube was presented by the participants as a bank for videos that can be used to creatively teach the themes of location, place, human-environment interaction, movement, and region. These findings on the use of YouTube in the classroom concur with June et al. (2014) (p. 56) view "that YouTube videos were fun and interesting, increased student's participation and engagement and enhanced their critical thinking skills" (p. 56). Essentially, the integration of YouTube in teaching and learning promotes access to information from different sources within the classroom, as espoused by the theory of multimedia learning.

The participants also highlighted that YouTube could be utilised to access TED Talk videos. Hanna and Wigmore (n.d.) explain that "A TED talk is a video created from a presentation at the main TED (technology, entertainment, design) conference or one of its many satellite events around the world". TED talks generally cover a wide range of topics. Some topics are relevant to teaching geography in the South African classroom. Participant A explained, "YouTube can be utilised to access relevant TED talks. TED talks over the years have covered some topics of interest to geographers". Fundamentally, YouTube becomes a window to access TED talks that can be used creatively in the classroom. Another participant narrated how she creatively integrated a TED talk by a renowned scholar on the topic of climate change in her lesson. Essentially, the learners can listen to international speakers through TED talks. TED talks on climate change, development, pollution, and others, can motivate learners in the geography classroom. Therefore, it can be argued that TED talks, accessed through YouTube, help geography learners access speakers outside their communities. More importantly, YouTube widens the horizons of

learners. Learners are not confined to teachers within their classrooms but are exposed to international speakers and experts. Hence, it can be argued that teachers can utilise YouTube creatively in the teaching of geography using TED talks. Koto (2020) concurs that incorporating YouTube in teaching and learning promotes the "acquisition of factual, conceptual, and procedural knowledge" (p. 106). As alluded to by the participants in this study, YouTube can be a bank for material to enhance the teaching and learning of geography.

It also emerged from the study that using YouTube in the classroom comes with several challenges. Participant K elaborated, "The language in some YouTube videos might not be suitable for the age and level of the learners. Maybe you should consider muting the audio and explaining the video as a teacher". It was interesting that the participant identified a problem and offered a solution. Thus, language-related challenges associated with using YouTube in teaching geography can be navigated by restricting the audio and teacher narrating the video. Furthermore, participant E revealed that "YouTube has the danger of exposing learners to inappropriate advertisements. Different

advertisements often follow videos. The teacher needs to keep an eye on the learners". YouTube may expose learners to inappropriate advertisements, according to the participant. Therefore, constantly monitoring the learners when using YouTube to teach geography is necessary. Participant B indicated that "internet-based teaching strategies may not be accessible to teachers in under-resourced schools. When considering using YouTube, there is a need for internet access and computers/ laptops or smartphones". Thus, the study established that teaching geography creatively using YouTube is hindered by a lack of internet access and the lack of electronic devices in some schools. These views on the challenges associated with using YouTube in the classroom, as identified by this study, suggest that creativity in the classroom should be supported by the availability of resources. Kohler and Dietrich (2021) observe that sometimes "lay people function as self-declared experts in educational videos, which means that not all videos might meet high didactic standards or are even based on school curricula" (p. 3). Not all YouTube videos are produced by experts, so the teacher must exercise

discretion when integrating the material into the geography classroom.

Tik-Tok in the geography classroom

The participants in this study also highlighted that the geography classroom could be enhanced using TikTok. Ordonez, Fiallos, and Figueroa (2021) reveal that "TikTok is a video-sharing social networking service that is rapidly growing in popularity" (p. 1). Participant J explained, "depending on the location of the school, some learners have Tik-Tok accounts. All we need to do as teachers in the 21st century is harness this access to Tik-Tok and make it count in the classroom". There was an appreciation by some participants that the 21st-century learner was exposed to social media. Participant E concurred, "If the learners are always on Tik-Tok, why don't we use Tik-Tok in the classroom? I remember when I was in school, teachers would use music in the classroom. I enjoyed the lessons". Teachers must ensure learner' access to social media in their geography teaching.

Additionally, Participant B stated, "using Tik-Tok will motivate the learners. It will dispel negative attitudes towards the subject". Learners already exposed to TikTok are likely to be motivated by the teacher's use of social media. Thus, using TikTok in the geography classroom conforms to Mayer's (2009) observation that "People learn better from graphics and narration than some graphics, narration, and printed text" (p. 118). Learners can easily relate to the TikTok videos, especially those already on TikTok, as observed by the participants in this study. Findings from this study concurred with Jacobs, Pan and H"s (2022) conclusion from a controlled experiment that "TikTok had a beneficial impact on the learner's performance" (n.p.).

Several topics within the geography curriculum were covered from the artefacts shared by the participants. It was interesting to note that the TikTok videos were combined with music and text captions, making them a creative way of teaching geography. An article titled, 'Taking #ClimateAction with the global TikTok community at COP26, TikTok (2021) states:

> The TikTok community includes a generation that is increasingly interested in

environmental preservation. And as a truly global platform, TikTok is committed to giving a voice to this generation most impacted by climate change and producing inspiring, accessible, and engaging content.

Therefore, a geography teacher can tap into this global platform for content that can enhance geography teaching. However, it also emerged from the participants that the teacher must not assume that all learners are on TikTok. Thus, as much as the 21st-century learner has access to digital devices, it does not necessarily mean all learners, especially within the South African context, have access to TikTok. Participant F explained, "Learners in some schools in South Africa, for example, do not have access to smartphones. It will be disastrous for the teacher to make assumptions that all learners know about TikTok". Hence, this study established those creative ways of teaching geography, such as using TikTok, depended on the learners having smartphones and prior knowledge of TikTok. Studies by Nkula and Krauss (2014) and Padayachee (2016) also established the lack of ICT devices as a barrier to the integration of ICT in schools.

Essentially, it can be argued that the creative use of ICT tools is hinged on the learner" prior knowledge of the tools, as shown in the case of TikTok.

Additionally, Participant J noted, "TikTok use in the classroom needs adequate supervision of the learners. Some learners may be distracted and focus on the entertainment part only". The above statement reveals that using TikTok requires constant monitoring of the learners. Learners must stay focused and not get distracted by the music accompanying the TikTok videos. Despite some of the challenges raised above, the study established that TikTok could be utilised to motivate learners in geography classrooms to a greater extent.

From the above findings on the integration of TikTok, memes, and YouTube in the teaching of geography, it is evident that there was an appreciation of the contribution of ICT tools in education. The participants were enthusiastic about the creative teaching of geography using ICT tools. Additionally, there was consensus among the participants that the 21st-century learners identified with TikTok, memes, and YouTube; therefore, classroom activities needed to harness these ICT tools. These findings are consistent

with Prensky (2001) and Yong et al. (2016) that ICT tools are the future of teaching and learning for today's learners. More importantly, the student-teachers viewed YouTube, TikTok, and memes as appealing to different senses and providing different sources of information for the learners. The next section unpacks some considerations in integrating YouTube, TikTok, and memes in teaching geography.

Considerations when integrating ICT tools in geography

Several considerations when creatively teaching geography using ICT tools emerged from this study. Participant C explained that "creativity should not exclude some learners from the class. A teaching method may be innovative, but it must ensure inclusion". Essentially, creativity should facilitate learning for all learners in the classroom. The teacher's creative teaching of geography should accommodate different abilities in the classroom. The teacher's creativity should consider the language used in the YouTube or TikTok video, for example. It can be argued that 21st-century geography teaching should be premised on inclusion. According to

the Department of Education (2007), inclusive education in the South African context is defined as "a learning environment that promotes the full personal, academic and professional development of all learners irrespective of race, class, gender, disability, religion, culture, sexual preference, learning styles and language". Fundamentally, teaching geography creatively should conform to policies on inclusive education. More importantly, integrating ICT tools in the classroom should not lead to the exclusion of some learners. ICT tools should enhance inclusion and not perpetuate exclusion, especially in an education system riddled with historical segregation.

It also emerged from the study that a teacher should consider the location and environment of the school. Participant M revealed that "The school environment has a big influence on creativity in the geography classroom. Creativity needs to be supported by the availability of resources". Some of the ICT-related strategies for teaching geography creatively discussed in this paper are hinged on the availability of resources. For instance, one participant in this study revealed that at some schools, learners have TikTok accounts and

internet access at home. At these schools, it is easier to integrate most ICT tools discussed in this paper. Hence, it can be argued that one vital consideration is the availability of resources. In the South African context, the availability of resources is linked to the school's location and the inequalities that are part of the legacy of apartheid. The participants in this study were aware of the legacy of apartheid, and a link with the apartheid legacy was established.

At the epicentre of enhancing the teaching of geography is the geography content. The participants were unanimous that creativity should ensure adequate and effective teaching of geography content. All the tools identified in this study should be premised on an adequate coverage of the geography content. Participant E stated, "Teachers should ensure adequate teaching of the curriculum in each lesson. The YouTube or TikTok videos should not distract learners from learning the content". The participant provides a caveat for using some strategies identified in this study. The strategies should ensure adequate and effective teaching of the geography content. Creativity, in other words, should not lead to watered-down teaching of geography content. As creativity should strive to motivate

learners, it should not relegate the importance and accuracy of geography content. Essentially, geography content should not be sacrificed in pursuit of creatively integrating YouTube, TikTok, and memes in the classroom.

Concluding remarks

The study was premised on the need to motivate the 21st-century learner in the geography classroom. Reviewed literature revealed that the 21st learner was born into the digital era. Thus, there was a need for creative teaching approaches utilising ICT tools like TikTok, memes, and YouTube. The 21st-century learner was viewed as already accessing and using ICT tools, and therefore, it was imperative that the geography classroom harness these ICT tools. The theories of multimedia learning and the continuum of meaning acknowledge the importance of prior knowledge. Thus, this study was hinged on the realisation that today's learners are already living in the digital age and should also learn with the digital age. The study established that YouTube, TikTok, and memes can enhance geography teaching in the 21st-century classroom. It was also noted that YouTube, memes, and TikTok

appeal to multiple senses and promote effective learning. A multiplicity of benefits of these ICT tools were highlighted, as well as pitfalls that come with integrating ICT. Ensuring inclusivity and considering the emerging school environment is important in integrating ICT tools in the geography classroom. From the foregoing discussion, it is recommended that ICT tools be integrated into the teaching of geography. Integration of the ICT tools should be informed by the learners' prior knowledge of the tools, as espoused by the theory of multimedia learning.

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