# Can 'digital natives' be 'strangers' to digital technologies?
# An analytical reflection

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## Abstract

*Although a plethora of extant literature categorises them as natives in the digital world, it has been counter-argued that a considerable group of young people cannot be designated as 'digital natives'. This argument stems from the evidence for non-enthusiasm, non-exposure as well as non-adeptness to digital/new media technologies among certain groups of young people. Through a scoping review of relevant literature and a thematic content analysis, this article explores digital inequalities suffered by 'digital natives' which render them 'strangers' in the digital technological world, although they have been born at a time of an abundance of digital communication technologies. It was found that the concept of 'digital natives' could be dichotomous – being native based on a period in which one was born and being native through expression of competency in the use of digital technologies. It was also found, among other things, that 'digital natives' could be 'strangers' in the digital world as a result of disinterest, illiteracy, economic constraints, poor network connectivity, lack of electric power and inadequate practical accessibility. The article concludes that the real 'digital natives' are the ones who use and express competency in the use of digital technologies, no matter which limited physical contacts exist as a result of a global outbreak of disease. There is a need for greater efforts in bridging the digital disparity gap among all generational cohorts as work, business, teaching and learning shift online. One such is to include languages of digitally marginalised groups – digital strangers – (as a result of illiteracy) during programming of digital technologies. This can afford them the opportunity to use the voice optimisation features of digital devices in their local languages or be able to translate text on devices into their local languages in order to effectively deploy them.*

**Key words:** 'digital natives'; digital strangers; icts; digital technologies; literature review; new media technologies; scoping review; knowledge synthesis; literature review; systematic review

## Introduction: 'Digital natives' defined

The term 'digital natives' was introduced in communications technology discussions and made popular by Prensky (2001a) when he described such people as having been born into a period of proliferation of digital communications technologies and who have thus mastered the use of such technologies. Prensky (2001a) indicates that young people give credence to their 'digital nativeness' through news headlines of young hackers breaking national security codes, teenage entrepreneurs getting rich through E-Bay and successes such as Google, Facebook and YouTube, which were originated by young people (digital natives). Carr (2010) describes digital natives as being born and raised during the digital age, whereas the older generation is classified as digital immigrants who were born at a time of no digital communications technologies and

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have, as it were, immigrated into a time of the prevalence of digital communications/new media technologies. Prensky (2001a, b) observes that it is the demanding nature of the computer that makes many parents 'digital immigrants' in the information age which is populated by their digital native children.

Digital natives are considered members of the 'net generation' (Oblinger & Oblinger 2005; Tapscott 2009), as their lives are woven around the use of the internet. They are part of the leading generation to grow up digital (Tapscott 2009; Wesner & Miller 2008). Tapscott (2009) argues that the net generation is increasingly involved in multitasking with digital communications technologies and daily activities, employing digital communication technologies to interact, work and socialise, as well as transforming democracy with the use of the same technologies. Digital natives are typically young and expert users of digital technologies. Their heavy use of digital/new media technologies is also a common distinctive feature shared by the majority, if not all. Bolton *et al.* say such a skilled user 'actively contributes, shares, searches for and consumes content – plus works and plays – on social media platforms' (Bolton *et al.* 2013: 245-246). Not only are they heavy participants in and consumers of social media content, they also rely heavily on social media to be entertained and to shed loneliness, find self-esteem and belongingness through the engagement and consumption of videos, music and games accessible on social media.

Digital technologies are "products or services that are either embodied in information and communication technologies or enabled by them" (Lyytinen, Yoo, & Boland 2016: 49). Personal digital devices are typically light, compact, faster and versatile and can store huge amounts of information locally or remotely and be moved around almost immediately (Goodman 2020). The digital/new media technologies that this article refers to are electronic devices, platforms and resources that aid in the generation, storage or processing of data. Examples of digital technologies include personal computers, online games, social media, smart phones, mobile phones and tablet computers. The digital revolution started in the 1980s when the millennials were born. The millennial generation is said to be those who were born from the early 1980s to the mid-1990s, with the early 2000s ending the birth years. However, 1981 to 1996 is widely accepted as the defining range for the millennial generation (Rauch 2018). Millennials precede the Generation Z (Gen Z) who are said to have been born between 1997 and 2012. So, where millennials end, Generation Z begins. Thus, the meaningful cut-off between millennials and Gen Z, also known as the iGeneration, Google generation (Helsper and Enyon 2010) and Generation Y (Perillo nd.) is 1996 (Dimock 2019).

By Prensky's definition, digital natives are people who were born during or after the digital era (Ch'ng 2019). Digital natives accordingly comprise the millennial generation (although it is often said not all of them are) and all post-millennial generations. Such persons have grown up with digital technologies; learn to use them informally and get to the university already familiar with computers. Digital natives either learn or teach themselves how to use digital technologies mostly through social networks such as family and friends – rather than needing to be taught (Prensky 2001a, b), which is not likely to be the case with earlier generations. Unlike their 'dinosaur' parents (Livingstone 2008), who have been inhibited by the demands of the computer interface and other digital communication technologies, Ito *et al.* (2008) argue that young people (digital natives) tend to be earlier adopters of digital or new media technologies than their dinosaur or 'digital immigrant' counterparts. Digital natives, even as teenagers, often have authoring, programming or coding capabilities. Their experiences and interactions with digital technologies get more complex as they use and appropriate these technologies.

In this article, new media and digital technologies are used interchangeably because they are used to refer to the same technologies. This is because most new media technologies started off as a conversion of old media while others started off purely digital. The digital nature of new media technologies allows for easy circulation, accessibility and consumption of content

(University of Minnesota nd.). It is the digitisation of communications technologies that made new media technologies possible. The term 'new' is used to indicate the evolving nature of digital technologies as the technologies are constantly being upgraded. The working definition of the term 'digital natives' in this article is people who have been born into digital technologies and new media technologies. These people are likely to have better knowledge, control and a positive attitude towards digital or new media technologies. They are also likely to exhibit proficiency in the use of same. They range from children through to teens and adults who are possibly in their 40s. There is no specific region of the world in which they are located. The purpose of this paper was to explore the trends in literature concerning digital inequalities suffered by 'digital natives' and to look into causes of the inequalities.

As a generation considered to have been born into the digital era, growing up (or having grown) exposed to the continuous flow of digital information and being a generation of whose lives the Internet are natural components (Dingli & Seychell 2015), it becomes important to study if the digital native generational cohorts are able to access the technologies that make them be categorised as digital natives, and if not, why? In a time when the world is engulfed by the outbreak of the deadly COVID-19 virus, a lot of daily activities, including business, work and education (teaching and learning), have been moved online. Digital natives are therefore expected to be at ease with this new norm, having been born into these technologies. However, exposure to digital technology does not guarantee the ability to use it as 'not all young people are tech-savvy or have an interest to learn more' (ECDL Foundation 2014: 2). With this claim, and the unique circumstances the world is faced with, it necessitates the exploration of digital natives' ability to access digital technologies among others, which (will) allow(s) them to take advantage of these technologies.

In this article, I dwell on the various themes that emanate from previous literature in the area of digital inequalities suffered by 'digital natives' that render them 'strangers to the digital world and what factors account for the inequalities. Greenhoot and Dowsett (2012) assert that secondary data analysis allows for thorough exploration of or investigations into developmental questions. The research questions that guided the study were: what are the nuances or dynamics of the 'digital native' concept?; what are the digital inequalities experienced by 'digital natives' that render them 'strangers to the digital world'? and: what accounts for the digital inequalities digital natives experience?

## Methods

Resorting to secondary data analysis has a powerful prospect to allow for longitudinal designs that thoroughly investigate developmental questions with well-established techniques to prevent possible shortcomings (Greenhoot & Dowsett 2012:16). Secondary data is also useful in addressing relevant research questions, such as how 'native' digital natives are in their use of digital technologies, as postulated by Prensky and other scholars. It is also useful in view of the enormous amounts of data, regarding digital technology use by digital natives, that are being generated, documented, disseminated and archived by researchers (Andrews, Higgins, Andrews & Lalor 2012; Rudestam & Newton 2014 and Smith *et al.* 2011).

A scoping literature review was conducted, and dominant themes determined through a qualitative content analysis. A scoping review is a form of research synthesis that has the objective to 'map the literature on a particular topic or research area and provide an opportunity to identify key concepts or gaps in the field; and types and sources of evidence to inform practice, policymaking, and research' (Daudt, van Mossel & Scott 2013: 8). Conducting this type of literature review was considered an appropriate approach to establish facts about the digital inequalities that exist among 'digital natives'.

The data used were mainly online journal articles, retrieved using the Google Scholar search engine. In terms of eligibility criteria, the researcher adopted two broad screening

approaches – one was to establish the relevance of the study to the research objectives; the other was to use only articles published in the English language. In a few instances when the same data were reported in more than one publication or source, only the article reporting the most complete data set was used. There were no restrictions on the date of publication of the articles (although the researcher consciously made it a point to analyse more contemporary studies); nether were there any restrictions on the settings in which the studies were conducted. It was, however, realised that because the study looked at digital inequalities, a lot of the literature retrieved was from research conducted in settings/places where there was evidence of digital inequalities. This must have resulted from the search queries used. Some of the keywords used to search for relevant articles were: 'digital natives'; digital technologies, digital inequalities, digital divide, and new media technologies. Overall, about 35 relevant research items were re-trieved for analysis. An initial reading of abstracts of articles was done to ensure their relevance to the study before critical reading and analysis of content, which enabled the generation of themes. Other resources such as books written on the subject matter formed part of the data used for thematic analysis.

I start off with an overview of the dominant themes emerging from conversations or discussions about 'digital natives' and the 'digital natives' concept. Following that is a discussion of various inequalities faced by 'digital natives'.

## Discussions

The discussions cover the nuances of the 'digital natives' concept; the digital inequalities experienced by 'digital natives' that render them 'strangers to the digital world and; what accounts for the digital inequalities that 'digital natives' experience.

## Are there real 'digital natives'?

Although young people have been portrayed as being expert users of digital/new media technologies, some scholars are hesitant in making such a generalisation, asserting that within this group there exist different tendencies and aptitudes in digital/new media technology usage. Weber and Dixon (2007: 4), for instance, assert that not every child is 'born into new technologies' to a similar degree. They cite North America, which is supposed to have a lot of its population enjoying access to and being knowledgeable in the use of digital technologies, as still having homes deprived of computers and the Internet, with few teens having access to a video gaming console or cell phone at the time of their study. A study by Facer and Furlong (2001) found that there was a relationship between computer access at home and income levels and other factors like non-existent family culture and experience of placing economic, educational and cultural value on the computer and everyday family usage.

Worthy of note, they found that even though some children did not have access to computers, they exhibited competency with other portable new media entertainment technologies. This means that although a group of people may be exposed to the same technologies, each person takes on different technologies due to factors such as family culture and affordability. In a period when access to and use of digital technologies have nearly become a digital right to survive in the digital economy, this study is important for knowing the digital inequalities that exist among a group of users considered to be born into digital technologies which have been reported over the years. This will enable the mapping out of interventions to bridge that gap.

Facer and Furlong (2001) agreed that it is erroneous to see every youth as a 'cyber kid'. This, they deduced, could have counterproductive consequences for young people and their education. This is because, without appreciating the fact that there are digitally-marginalised young people, schools, for instance, may not find it obligatory to provide the necessary resources

like time and space for students to gain confidence and expertise with computers and other new media technologies on the assumption that they have a 'natural ability' with the technologies.

They also declared that the term 'digital native' could be offensive in certain contexts. For instance in South Africa the word 'native' brings to mind the regrettable colonial and apartheid era which suggested backwardness, and the 'immigrants' suggestive of civilisation. This casts a rather derisive insinuation about the digitally marginalised groups in Africa. In another view, Brown and Czerniewicz (2010) contended that the range of skills across generations should send signals that there cannot be one core group of people who exhibit aptitude for new media technologies, and another group who exhibit the opposite. For this reason, they identified a sub-group in the so-called digital native group called the 'Digital strangers'. This group, they said, is made up of more women with difficult and very poor access to digital technologies and ICTs generally and who typically use public facilities to access the digital world. These digital strangers also rate their ICT skills as poor and average, come from low socioeconomic backgrounds and are mostly non-English speakers.

The table below provides a summary of the dominant themes that emerged during data analysis. There is a discussion of the themes subsequently.

**Table 1** Dominant themes derived from data analysis

| Digital technologies used among 'digital natives' | Nuances/dynamics of the 'digital natives' | Digital Inequalities Identified |
|---|---|---|
| Mobile/smart phones<br><br>Internet<br><br>Social Media<br><br>PCs<br><br>Laptops<br><br>Tablets<br><br>Gaming consoles | Born during/after the digital revolution;<br><br>Pervasive usage of digital technologies;<br><br>Adeptness in using digital technologies;<br><br>Dependency on digital technologies for a lot of tasks. | Social factors including no or minimal home culture;<br><br>Socio-economic circumstances;<br><br>No or minimal institutional access;<br><br>Illiteracy;<br><br>Restrictions/disenfranchisement;<br><br>Conscientious objection<br><br>Lack of enthusiasm;<br><br>Connectivity lapses;<br><br>Lack of or inadequate practical accessibility;<br><br>Electric power supply |

## Digital inequalities among 'digital natives'

With the technical demands of digital technologies, it is not surprising that illiteracy has been accounted for as affecting the smooth uptake of new media technologies in African countries. The use of new media technologies requires that users have some level of formal education, in

order to read manuals or follow directions which are mainly written (and even worse: in a non-native language). For this reason, those without formal education, even though they may be categorised as 'digital natives' because of the period in which they were born, may not have the abilities which 'true' 'digital natives' (must) exhibit. Therefore, being born into something as a criterion for determining who one is, and which cannot be altered, is considered tricky (Brown & Czerniewicz 2010).

Illiteracy rates have been found to be prevalent among those from low socioeconomic backgrounds. So, such people are saddled with the double agony of not being able to afford digital technologies and not having the skills set to use the technologies easily. Significantly, Madden *et al.* (2013) found that, even in developed countries such as the United States, in terms of overall Internet usage, teens aged 12-17 who were living in lower-income and lower-education households, to a certain degree, were unlikely to use the Internet in any capacity, be it wired or mobile. Where some form of accessibility existed among lower socioeconomic groups, they were more likely than those from higher income and highly educated households to use their cell phones as a principal point of access. Uche and Obiora (2016) also identified factors limiting the use of social media in Nigeria to include: inadequate electricity supply, poverty and inconsistent network signal, *w*hich provides evidence for inequalities in the use of new media technologies.

Mention should be made that, although there may be traces of the 'digital stranger' due to some of the factors mentioned above, digital marginalisation or inequalities are also being eroded through mobile technology in many parts of the world, especially in Ghana and other African countries (James 2016; Aker & Mbiti 2010; Madden *et al.* 2013; Kreutzer 2009; Chigona *et al*. 2009; Bosch 2008; Deliotte 2013; Hilbert 2010). Nonetheless, the underscoring fact is that there are groups of users of digital/new media technologies who dominate in the use of the technologies while others do not. Again, certain limitations make some groups of digital/new media technology users less exposed to the technologies, even if they have an interest in using them. These account for the disputation about the term 'digital natives' which is used to describe particular generation(s). It is, therefore, important to acknowledge sub-groups in each core category of users who demonstrate dissimilar inclinations and/or characteristics. These existing inequalities also demand a redefinition of the term or that the term be redirected and context-driven.

Boyd (2007) also advances along the lines of the digital inequality argument – two categories of non-participants of social networking sites – disenfranchised teens and conscientious objectors. He describes disenfranchised teens as consisting of 'those without Internet access, those whose parents succeed in banning them from participation, and online teens who primarily access the Internet through school and other public venues where social networking sites are banned' (Boyd 2007: 3). Conscientious objectors were described as being obedient teens who have agreed with their parents' safety or moral anxieties and teens who have been marginalised and have the impression that social network sites are for the 'cool kids' which they do not consider themselves to be and teens who feel that they are 'too cool' for these sites.

Again, although research indicates that young people ('digital natives') have been exposed to new media technologies all their lives, Livingstone (2011) believes that both children and adults (digital immigrants/dinosaurs) may tussle with becoming proficient at using new media technologies. She argues that not all children or young people have the same enthusiasm for such technologies:

> *For some, the Internet is an increasingly rich, diverse, engaging and stimulating resource of growing importance in their lives. For others, it remains a narrow and relatively unengaging if occasionally useful resource (Livingstone 2011: 2).*

Similarly, Brown and Czerniewicz (2010: 1) share this position and call attention to the point that categorizing a group of people as 'digital immigrants' and another as 'digital natives' only brings about 'polarisation'. 'Polarisation' makes the concept less flexible and more determinist in

that it implies that if a person falls into one category, they 'cannot exhibit characteristics of the other category'. It is in acknowledgement of this that I call attention to various categories of digital inequalities suffered by 'digital natives' which can render them 'strangers' in the digital world even in a time when access to and skills in using such technologies have become very indispensable.

These arguments are worth giving thought to and provide the opportunity to investigate the nuances in the use of digital technologies among 'digital natives', rather than suggesting and sticking to broad categories.

## Factors accounting for digital inequalities amongst 'digital natives'

Several factors, some of which have been mentioned earlier, account for digital inequality or a digital divide. Grounded in literature, critical observation/assessment and reflection, factors identified as accounting for digital inequalities among 'digital natives' are discussed below:

**Illiteracy**: Illiteracy has been blamed in several studies for impeding the uptake of certain technologies. This is because, most of the time, technology use requires applying academic intellect to effectively operate them, even though some communications technologies are easier to operate than others, for instance, television and radio. These can be relatively easier to use as one simply needs to know how to switch them on and off as well as change channels, a process which does not require much academic intellect. If the programme being aired pricks the interest of the audience, they leave their dial on the particular channel or station.

Yet, certain new media technologies like the computer and the Internet require the user to apply more intellectual effort in order to operate them effectively and to obtain their full benefit. One needs to have a reasonable appreciation of how they works, what they can do and reasonable details about how to operate them to be able to effectively use them for one's benefit. Early manufactured computers required even more from the user. The operating system, Microsoft Dos was such that one had to memorise certain text-based commands, since there was no graphical user interface. In contemporary times, in order to go to the Internet, one must have some level of formal education. This is because one would have to type in the Internet browser and search engines, a task which requires some level of formal education. Besides, the convergence technology of ICTs and new media technologies are mostly self-instructional, with their program and applications directing users how to use them. This makes it necessary to have formal education in order to read and understand, effectively navigate and use the technologies.

Voice search optimisation could erode this cause of digital inequality or marginalisation but where one's language is not programmed in the device it will be of no effect. This entrenches digital inequality perpetuated by illiteracy.

**Economic constraint**: A relationship has been established between illiteracy and economic constraint. This is because literature reveals that illiteracy is endemic among those from low socioeconomic backgrounds and in places where poverty is prevalent. Essentially, non-affordability of formal education partly accounts for illiteracy. The ability to afford digital/new media technologies would most likely mean that one would be able to purchase the technologies and use them frequently. Frequency of use of the technologies makes users gain proficiency in the use of the technologies as well. If potential users are not able to acquire new media technologies because of economic constraints, exposure to and usage of the technologies will equally be low. There will also be a situation where there will be digital strangers among the 'digital native' category resulting from the fact that some may not have experienced new media technologies at all, making them 'strangers' to the digital world. Thus, even though such technologies could be of potential benefit to users and users have the propensity to have a flair for the technologies, non-exposure and infrequency of use will render them less adept, consequently rendering them strangers to the technologies.

**Connectivity lapses**: Interruptions in network connectivity do not allow for productive time with digital technologies. Digital technology users who may be enthusiastic about the use of the technologies and who can potentially be skilled at using them may not get the maximum opportunity to exploit the technologies to be considered 'native' users. Inconsistent network signals, lack of network accessibility and absence of electrical power give examples of inequalities in the use of new media technologies. This is because users are not able to access Internet-enabled technologies for days, weeks or months, making them have less time with the technologies, consequently leading to less familiarity with them.

**Lack of/unstable electric power**: Also related to connectivity lapses is the lack of electric power. Connectivity can also be affected when there is no, or disruptions in, electricity supply. This is because most new media technologies are powered by electricity. Residents in rural/peri urban areas and villages that are not connected to an electricity grid become disadvantaged because all digital technologies require electrical power to work, be it directly or indirectly.

**Non-existent or inadequate practical accessibility**: Sometimes, the technology, network and systems are available but potential users have limited avenues to use technologies outside the officially allocated times. In this case, the technologies are publicly available and accessible to users but not available and accessible to them privately. On top of that, users do not get technologies to use, outside official places for accessing the technologies, such as schools or Internet cafes. This results in users spending limited time to practise with technologies or not accessing them at all.

**Restrictions from the use of digital technologies/Disenfranchised enthusiasts**: Restrictions in the use of digital technologies do not allow thorough exploration, operation and appreciation of the technologies. Users become disenfranchised as a result. For this reason, the level to which 'digital natives' could use the technologies is curtailed even though they may have the zeal and potential to exhibit great expertise in the use of the technologies.

**Non-enthusiasm**: The non-enthusiasts do not have any affinity whatsoever towards new media technologies. This group of 'digital strangers' has been referred to as 'conscientious objectors' in some literature. As a result, not only do they hardly use the technologies, they also do not have proficiency when they do.

**Social factors**: There those who may be counted as digital strangers because their social and cultural settings do not offer them the opportunity to actively use and familiarise themselves with digital technologies. The result of this is that they are not confident enough about their ability to use digital technologies, making them not attempt to use the technologies at all, although they may be available. The general attitude of this group is that they are hesitant and not confident about trying new things.

## Deductions from thematic content analysis

'Digital natives', defined by the period in which they were born, could be strangers to new media technologies because of factors discussed above. However, 'digital natives' defined by the extent of digital technology usage can be considered the real natives. I argue that 'digital natives' should be defined by the extent of usage and adeptness at using digital technologies, not by the period they were born in. Whether young or old, one needs the same flair to be able to use the computer (Buckingham 2006) and by extension digital/new media technologies. The fact that young people and their older counterparts are appropriating digital/new media technologies differently cannot be denied, with the younger generation having a greater propensity to highly appropriate new media technologies and showing expertise in their use. However, if the older generation (who are not part of the age criterion of 'digital natives') are able to appropriate the technologies, as well as exhibit similar competencies, they must also be considered 'digital natives', since they also exhibit the flair the younger ones demonstrate. In this case, being a

'digital native' will reflect in the extent and the flair with which one uses digital/new media technologies, akin to naturalisation by which a foreigner can become a citizen of another country.

Further, it must be underscored that mobile technology is bridging the digital inequality gap. This is because where access to new media technologies, such as PCs or Laptops, is lacking due to non-affordability, mobile technologies are making up for it. More so, with the constant upgrading of new media technologies, the smartphone class of mobile phones have the same features and abilities as the computer. This is because of their stronger hardware capabilities coupled with their extensive operating systems, which support web browsing and multimedia, beside the voice and text functionality. Smartphones serve as able substitutes for the computers and can be used no matter the time or place. They are also relatively affordable compared to laptop or tablet computers.

Nevertheless, it is also important to note that as we move work, learning and business online, it will cause the deepening of digital strangers' marginalisation and the widening of the digital divide. Illiteracy, which has been identified as partly accounting for the prevailing divide, will likely prevent a lot of people from adequately deploying digital technologies to remain competitive in business and benefit from online learning. It will be difficult for people with little knowhow of the utility of digital technologies and the means to afford them to effectively move their businesses online. Besides, where economic constraints and network connectivity hamper people from access to digital technologies, such people can easily be deprived of online education which is gradually becoming a part of the educational infrastructure.

This study has shown that although there are digital strangers in a time of abundance of digital technologies, minimal studies have been done on them in contemporary times, calling for considerable attention to studying digital marginalisation to reflect current trends. Several recent studies done in relation to digital technology usage have typically looked at the dynamics of digital media usage, including usage patterns, gratifications sought and the effects of the technologies on users (e.g. Košir *et al*. 2016; Adjin-Tettey 2019; Alharahsheh & Obeidat 2019; Santhi & Rajesh 2020; Fidan 2019; Liu *et al.* 2020).

It must be noted that, although there is a seemingly increasing uptake of digital technologies, digital inequalities still exist, even in contexts perceived to have robust digital technological infrastructure (Weidmann 2016). In a time when humans have had to make significant changes in their lifestyles because of the Covid-19 pandemic, it is imperative to ensure the much-needed empirical gap is filled. It necessitates studies that could inform an appreciation of the digital inequalities that exist which could potentially work against bringing about "liberation" through technology access (Chen 2016), which can impact democracy, beside the economic and social implications of usage.

## Conclusion

Through the scoping review of relevant literature, this article explored digital inequalities suffered by 'digital natives' which render them 'strangers' in the digital technological world, although they have been born at a time of an abundance of digital communications technologies. The article discussed the nuances of the digital native concept – being native based on a period in which one was born and being native through competence in the use of digital technologies. It was also found that, among other things, 'digital natives' could be 'strangers' in the digital world as a result of non-enthusiasm, illiteracy, economic constraints, poor network connectivity, lack of electric power and inadequate practical accessibility. It can therefore be argued that real 'digital natives' are the ones who use and express competence in the use of digital technologies, no matter which period they were born in.

The study has established that this period, marked by limited physical contacts, demands great efforts in bridging the digital disparity gap among all generational cohorts. This is because the shift of work, business, teaching and learning online is likely to be the new norm or a good

part of daily lifestyles. These major activities of our lives cut across all generational groupings. It becomes imperative that everyone has access, resources, infrastructure and skills to effectively use digital technologies. Anyone left out will likely suffer dire consequences as the economy intrinsically demands digital/new media technology accessibility and skills to be able to thrive. In places where illiteracy is prevalent and is preventing the effective uptake of digital technologies, there should be a way of localising or customising these technologies so they can be effectively deployed for important transactions, among other things. There should therefore be customised applications to suit the needs of the digitally marginalised, especially those rendered strangers as a result of illiteracy. One way is to include the languages of digitally marginalised groups when programming digital technologies, so such users can have the option of setting their devices to their local languages. This can afford them the opportunity to use the voice optimisation features of the devices in their local languages or be able to translate text on devices into their local languages in order to effectively deploy the technologies.

This study has equally shed light on the need for researching the digitally marginalised groups, especially in a time when the importance of digital technologies has become heightened. In order to avoid the technology bias suffered by digital strangers, it is important for researchers to turn their attention to studying the digitally marginalised or digital strangers to understand their needs and other pertinent questions about it, including socio-cultural, economic and political, that pertain to their unique contexts and other implications. This will help inform the development of government policies and call for state and industry support for technological infrastructure and the promotion of digital skills among members of digitally marginalised communities. Studies on non-enthusiasts and conscientious objectors could also shed light on the other forces that hamper the uptake of digital technologies for appropriate measures and actions to be taken by relevant bodies, agencies or institutions.

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