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Digital Natives' Appropriation of New Media Technologies: A Survey of Literature

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Abstract: This work unveils the research trajectory of how digital natives exploit the new media technologies in the context of the uses and gratifications, and technology appropriation theories. A total of 43 scholarly works published between 2010 and 2016 were examined, using the qualitative approach. Findings show a visible trace of creativity exhibited by the indigenes of a digital world, which helped in the gratification of their desire for communication and socialization. Not visible, however, is the relationship between the gratifications sought (GS) and gratifications obtained (GO) as well as the specific new media technologies and platforms or social media applications that helped them to achieve both. This unveiling shows the future directions in the area of digital natives' disproportionate use of new media technologies and how that affects their academics, amongst other things.

Keywords: Digital natives, appropriation, uses, gratifications, new media technologies

Introduction

New media technologies are "digital media that are interactive, incorporate two-way communication, and involve some form of computing as opposed to 'old media' such as the telephone, radio, and television" (Logan, 2010, p. 4). According to Socha and Eber-Schmid (2013), a distinguishing attribute of new media is the fact that it is a network of images, sounds, and text data unlike the old media formats such as hardcopy newspapers. Logan (2010) also describes the information mediated by new media technologies as "very easily processed, stored, transformed, retrieved, hyper-linked and, perhaps most radical of all, easily searched for and accessed" (p. 7). These technologies have the distinctive features of being computerized, a merger of old media platforms, digital, interactive and allowing for participation and feedback (Adjin-Tettey, 2017, p.2). Examples of such technologies are found in mobile phones, iPods, PCs, laptops and tablet computers.

The usage of new media technologies among young people is widespread (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013; McAfee 2014) but this description of Africa, Ghana especially, is usually a conjecture as there are a few empirical studies to back up the claim. Pfeiffer, Kleeb, Mbelwa, and Ahorlu (2014) stress that there is more research on social media usage by young people in the Global North than the South, which explains the preponderance of the studies examined in this study. Livingstone (2011) suggests that amongst the earliest and most enthusiastic users of information and communications technologies are children and young people, the resultant effect being that households with children come ahead of the pack of the new media diffusion process. This has informed similar contextualization of the African continent, albeit un-empirically.

Prensky (2001) categorized digital natives as people born during a time of pervasive usage of communications technologies. Bolton et al. (2013) assert that a digital native is skilled and "actively contributes, shares, searches for and consumes content – plus works and plays – on social media platforms" (p. 245-246). Pfeiffer, Kleeb, Mbelwa, and Ahorlu (2014) state that the availability of various forms of communication technologies has dramatically transformed how young people get information and communicate with one another as well as re-shape their lives. When new media technologies become intrinsically woven into their lifestyles with visible transformation that is proof they have appropriated the technologies.

According to Gonzalez, Kraemer and Castro (2009), technology appropriation is "the effort of users to make sense of the technology within their own contexts" (p. 143) while Beenkens and Verburg (2008) define same as "the process of adopting and adapting technology by users or groups of users to integrate it into their lives, practices and (work) routines" (p. 271). Appropriation is not just about a user's ability to effectively use a technology but also how that technology is embraced and absorbed into the individual's lifestyle to meet specific needs. Appropriation of new media technologies, therefore, means how new media technologies are taken on (adapted); high proficiency in the use of the technologies; and the alteration in lifestyle that occurs as a result of the adaption of the technologies.

Although nearly everybody is exposed to new media technologies (Akingbade, 2013), Livingstone (2011) asserts that children and young people, in general, tend to be in the frontline of new media adoption. Contemporary teens have been described as digital natives as they have been born and raised during the digital age (Prensky, 2001). Seal-Warner (2007) observes that teens enter adolescence or teen years practically encircled by and heavily reliant on new media technologies, using them to study, to entertain themselves, socialize and transact business simultaneously, without leaving the couch. It is reasonable, therefore, to conclude that digital natives are the leading end-users of new media technologies.

Teens, by growing up in the era of abundance of technology, tend to use technology to do almost everything, including play and work. Such teens grow and continue to be dependent on these technologies. As the use and appropriation of new media technologies among digital natives grow, there is the need to investigate how and why this phenomenon has become rife among this set of end-users. The need to investigate this is equally borne out of the exhibition of great talent in and dependence on such technologies among these natives.

Prensky (2001) has theorized that the demands of the computer or web interface do render many parents 'digital immigrants' in the information-age populated by their digital native children. He also christens those who have grown up with new media technologies and are comparatively confident and deeply reliant on these technologies "digital natives". This is evidenced in a study by Ng (2012) which

explored the "digital nativeness" of undergraduate students by looking at their degree of digital literacy and ease with which they adopted unfamiliar technologies. Findings showed that the undergraduates were generally able to use unfamiliar technologies easily in their learning to create useful artifacts. This is the unlikely situation in the case of digital immigrants who exhibit resistance towards new media technologies or most likely struggle in accepting the same (Vodanovich et al. 2010). They are the parents of digital natives and they have been labeled "dinosaurs" of the information age because they have been obstructed by the demands of the computer interface (Livingstone 2008).

This study provides an overview of published works in the area of digital natives' appropriation, uses of and gratifications from new media technologies to determine the future directions in this component of the information and communicational technologies. (ICT). The study considers digital natives to be pre-teens (from age ten to age twelve), teens (from age thirteen to age nineteen) and young adults from age twenty to thirty-five.

The Problem Statement
The use of new media technologies is a fresh dimension to the lives of digital natives that have been captured in several reports by scholars. This is confirmed in studies by Bittman, Rutherford, Brown and Unsworth (2011), Loos, Haddon and Mante-Meijer (2012), Thompson (2013), Khedo, Suntoo, Elaheebocus and Mocktoolah (2013) and Hlatshwayo (2014). This is a survey of these reports to determine the path that they follow and what that portends for future research.

Aim of the study
The study investigates the reports on the appropriation of new media technologies by digital natives and how they are gratified by them.

Research questions
The research questions that guide the study are:

- What is the trend in literature concerning the extent of use and appropriation of new media technologies among digital natives?
- What are the gratifications sought from the use of new media technologies by digital natives?
- What is the research direction in the area of digital natives' new media usage?

Significance of the Study
Digital natives constitute one generation that has lived with new channels for gathering and sharing information as well as staying in

touch with networks (Levine, 2011) – an indication of appropriation. Since appropriation, in this case, implies the internalization of technologies, it also indicates the emergence of cultural artifacts, which bring into being new ways of life. Weber and Dixon (2016) admit that technology has become predominantly entrenched in almost every aspect of modern lifestyle "evident in how people work, play and how technology influences culture and media as well as redefining who we are" (p.1).

The new cultural norm among digital natives is to contract friendships, study and communicate through the use of new media technologies. Since digital natives are ethnic speakers (Johnson, 2014) and sometimes originators and tutors of the digital language, it is no surprise that they show much expertise in the use of new media technologies. Consequently, critically synthesizing the findings of studies on digital natives' affinity with new media technologies becomes important to determine the new research directions.

Rationale of the study

The justification of this study is that it zeros in on an important demographic, the way they interact with the new media technologies and how these have been captured in literature over the years. This study could serve as a worthy resource for researchers to identify the gaps that need to be explored in future studies. Insight into digital natives' new media technology usage and gratification patterns can inform the future development of the software that these natives use.

Literature review

This literature review section focuses on survey of literature as an empirical method of inquiry and how it is related to this particular study. It also looks at the type of analysis required to carry out this type of investigation.

Survey of literature as empirical inquiry

Literature review is "a survey of scholarly works" (Ramdhani et al., 2014, p. 48). It is also sometimes called literature survey. Onwuegbuzie, Leech and Collins (2010) consider literature review as a complex process that scrutinizes both published and unpublished documents from different sources on a particular subject and "optimally involves summarization, analysis, evaluation, and synthesis of the documents" (p. 173).

Literature review is a method of data collection and analysis in its own right, albeit, the subject of analysis, in this context, are documented secondary data.

Johnston (2014) notes that secondary data analysis is the examination of data that was collected by someone else for another primary purpose. It is a viable method to establish what has been the trend of research in an area in previous studies and to explore other areas that need attention in future studies. The reasons for undertaking literature review are numerous but in this study, it is to establish the possible new directions for research on the subject matter. This is consistent with McCaston (1998) who says that secondary information helps generate hypotheses and find important grey areas of a broader subject matter that can be investigated during primary data collection activities.

Secondary data analysis is considered a workable option for researchers who have to work within a limited timeframe and resource environments. It must be noted that secondary data analysis is a valid empirical exercise that applies the same basic research principles as studies utilizing primary data. It is a systematic method with procedural and evaluative steps just like any research method (Johnston, 2014, p. 619). One can adopt qualitative data analysis techniques to analyze literature. Onwuegbuzie, Leech and Collins. (2010) agree that every

selected literature contains numerous sources of qualitative data such as literature review of the source article, conceptual/theoretical framework, interpretations made and conclusions made by authors. They argue that when sources are compared and contrasted, no matter the research paradigm used, cross-case qualitative analyses are acceptable (Unwuegbuzie et al., 2010).

Onwuegbuzie, Leech and Collins (2012), among other approaches, recommend thematic analysis for analyzing data collected from documents. This must be carried out in an ethical way Omojola 2008a; 2008b). The thematic analysis involves "looking out for "relationships among domains, as well as searching for how these relationships are linked to the overall cultural context" (Onwuegbuzie et al. 2012, p. 12). This study tows similar lines to know what the trend of literature is concerning appropriation and uses of new media technologies among digital natives. It also looks out for emerging themes in line with gratifications sought from the use of new media technologies by youthful demographics as reported in previous studies. After establishing this trajectory, we hypothesize and suggest new directions for research.

Theoretical framework

This study was informed by the Uses and Gratifications (U&G) and Technology Appropriation theories. The U&G theory was proffered by Blumler and Katz (1974). The tenets of the theory are that media audiences are active and their media use goal-oriented. Individual members of the audience actively seek mass media to satisfy their needs (Matei, 2010). This makes the U&G theory go beyond merely listing what the audiences use the media for to how the media gratify their desires. Matei (2010) says that Blumler and Katz take a non-prescriptive and non-predictive perspective on media effects and postulate that individuals mix and match use with goals according to specific contexts, needs, and social backgrounds.

Ruggerio (2000) asserts that the U&G theory has provided "a cutting edge approach in the initial stages of each new communication medium: newspaper, radio, television, and now the Internet" (p. 27). Stafford, Stafford and Schkade (2004) also affirm that the U&G theory has become a significant framework that serves as the basis for looking into trends in usage for internet-based media (new media technologies). This theory is suitably in line with the objectives and adequately answer the research questions of this study because it looks at what digital natives use new media technologies for and how that usage gratifies their desires. Insight into these parameters can put research in good stead to determine what future research directions.

Technology appropriation theory emerged from research into information systems by Poole and DeSanctis in 1994 as a component of the adaptive structuration theory (Alberts, 2013). Technology appropriation is the use of cognitive and physical resources by individuals in their daily practices (Simoes & Gouveia, 2011; Morah & Omojola, 2014). The theory specifies how technology users exert their intellect to understand and use technologies daily and the behavior patterns that emerge in the process. Carroll et al. (2002) aver that the process of appropriation begins with people trying out a technology, shaping it to their individual or group's needs and making it an integral part of their lives.

Although the type, manner, and outcomes of technology appropriation cannot be decisively predicted (Sey, 2011), DeSanctis and Poole (1994) suggest that desired outcomes are more likely to occur under the following conditions: faithful appropriations;

high number of appropriation moves; task/process-oriented; and positive attitudes towards appropriation. In theoretical terms, whereas mastering a tool involves acquiring the skills necessary to use it, appropriation goes beyond that and includes the development of competence to use that tool in a social context (Simões & Gouveia, 2011).

According to Alberts (2013), there are three main components of the model: technology-as-designed, the process of appropriation, and technology-in-use. Aside from being what has been produced from the factory, technology-as-designed is detailed with attractors and repellents (Carroll et al., 2002). Attractors are aspects of the technology that make a potential user want to engage with it or otherwise. If the technology is discarded, this is called non-appropriation. If, however, the user chooses to engage with the technology, the process of appropriation is entered. Literature shows that digital natives highly engage in new media technologies. This means that there are certain aspects of new media technologies that attract digital natives to use them. As part of knowing how much digital natives are appropriating new media technologies, the major attractors of these devices are also examined.

Yet another aspect of appropriation is technologies becoming a symbolic part of end-users. This means technologies become cultural symbols and communicate metaphorically. For instance, the use of certain brands of new media devices defines the identities of the users. Linked to this is the cultural norms emanating from the use of new media devices. Cultural norms include how, where and when new media technologies are used. Cultural norms and symbols associated with new media technology use are also studied in this paper.

Method

The study adopts a qualitative approach. It carries out a thematic analysis of findings of secondary data. Many researchers (Andrews, Higgins, Andrews & Lalor, 2012; Newton & Rudestam (2012); Smith et al., 2011 and Greenhoot & Dowsett, 2012) are of the view that in a time where vast amounts of data are being collected and archived by researchers all over the world, it is only practical that existing data are used for research as long as such data can be used to address relevant research questions. 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, p.16).

Stewart and Kamins (1993) propose the following evaluative steps in determining the appropriateness of secondary data to a research investigation in question forms: (a) what was the purpose of this study? (b) who was responsible for collecting the information? (c) what information was collected? (d) when was the information collected? (e) how was the information obtained? and (f) how consistent is the information obtained from one source with information available from other sources? These proposed steps are checked against secondary data collected and found to be appropriate before using them. Worth noting is that the specified information/steps could easily be accessed as scholarly publications sourced had detailed them out.

This study applies an in-depth review of literature in examining the areas of interest - the trend in literature concerning the extent of use and appropriation of new media technologies among digital natives and the gratifications sought from

the usage - to ascertain the relevance of each retrieved article for the study. The data investigated are mainly online journal articles published between 2010 and 2016 and retrieved using the Google Scholar search engine. A six-year interval is considered appropriate for the analysis. Overall, 43 relevant items are retrieved for analysis. Once content is deemed relevant to the study after the initial in-depth literature review, a thematic analysis is further conducted.

Findings and discussions

The findings are discussed, guided by the following:

- Trend in literature concerning the extent of use and appropriation of new media technologies among digital natives.
- Gratifications sought from the use of new media technologies by digital natives.
- New directions for research in the area of digital natives' new media usage.

Table 1 below shows the themes that emerge from the data analysis, followed by a discussion of the findings.

Table 1: Dominant themes from data analysis and interpretation

Trend in literature concerning the extent of use and appropriation of new media technologies among digital natives		Gratifications sought from the use of new media technologies by digital natives	
Broad Themes	Sub-themes	Broad Themes	Sub-themes
Access and ownership	• Shifting to younger teens (younger teens are owning new media)	Sociability (Function of new media technologies which enables communication, socialization and spend virtual time with networks.	Communication • To stay in touch • Sharing information • Plan future activities • Keeping in touch for surveillance • Information distribution
How new media technologies are used	• Used to stay connected with friends (communication) • Define and redefine identities • Form social groups • Pass time/for leisure (entertainment) • Mediate romantic relationships.		Socialization • Extension of social interaction • Prevent social isolation • Social searching (desire to reconnect with offline connections) • Shed off loneliness Feedback or participation in a community of connected individuals
Gender differences in usage	• Boys visit pornographic sites than girls • Girls want to use it to chat • Boys want to use it to date	Entertainment	• Pass time • Combat boredom • Relaxation
Social media usage pervasive	• Considered favorite and leading channel among other channels like television and radio. • Facebook tops the pack • Usage patterns similar in African countries (e.g. Nigeria and Swaziland) • Use for networking/socializati on • Use for communication • The reason for social media usage is the	Social inclusion/ Cultural artifact to re-present oneself and to feel a sense of belongingness.	• Carve identities • Ascribing identities • Reputation building/formulation • Affection • Share problems • Bonding/social capital • Belonging • Self-indulgence • Self-esteem • information distribution, feedback or participation in a community of connected individuals

	fact that it allowed for sharing and connecting with others.		
Digital natives multitasking with new media technologies	• Very pervasive. • Using social media while doing other things • Chatting on the phone while doing other things • The reason for multitasking is because of the amount of time spent on new media technologies.		

Trend in literature concerning the extent of use and appropriation of new media technologies among digital natives

The adoption of new media technologies by digital natives inherently comes with its challenges as the monitoring of online behavior or activities of this group of people is sometimes difficult. A McAfee (2012) study examining digital activity across multiple computing devices found that 70 percent of teens actively sought to hide their online behavior from their parents, smacking off some level of mischievousness among this group of users.

However, hiding online behavior can easily be achieved since smartphones by their very nature are designed for use by a single person - unlike a family computer in the living room. This makes it even harder for parents to know what their children do online through these gadgets. Some studies such as those conducted by Ito et al. (2010), Rideout, Lauricella, Wartella (2011) and Ellison, Steinfield and Lampe (2011), however, have been able to reveal what teens do with new media technologies including their online behaviors. Following is a discussion of findings related to what secondary data reveal about the extent of digital natives' use, appropriation of and gratifications from new media technologies.

Access and ownership

Although television is a leading medium, new media technologies are increasingly becoming popular amongst young people (Strasburger et al. 2013). Apart from portable devices, computer use has also evidently grown (Rideout, Foehr &

Roberts 2010). Ownership of mobile phones also seems to be shifting to ever-younger teens. Rideout, Lauricella and Wartella (2011) report that 58 percent of 12-year olds own mobile phones in the United States (US). Rideout, Foehr and Roberts reported that 8- to 18-year-olds spend an average of 1.5 hours each day using computers outside of school work which is an increase of nearly 30 minutes five years earlier. Worthy of note is the fact that although computers are used quite often in accessing the internet, mobile devices provide access to the use of "Mobile Web" which is a convergence of voice communication, text messaging, video, audio and print media allowing for jet speed access to information over the Internet without the use of a desktop or laptop computer.

The trend of using mobile phones to access web content is gradually becoming a norm and may not necessarily be related to a person's economic circumstances. Some 75 percent of 12 to 17 year-olds in the United States owned mobile phones in 2010 which was a 45 percent leap from 2004 and a substantial part of this percentage accessed the internet (Lenhart et al., 2010).

High Appropriation
The technologies are appropriated to the extent that they become cultural artifacts, thereby signifying modernity. The new cultural norm for digital natives is to communicate, stay in touch with networks, socialize and combat boredom through the use of new media technologies. Digital natives rely heavily on new media technologies for their daily activities including communication. The fact that new media technologies have turned out to be extensions of social interactions, academic and career partners without which digital natives can handle less of their day-to-day activities is a typical indication of the extent of new media technology appropriation by digital natives.

Social media usage pervasive
Milton (2014) finds that *Facebook*, *LinkedIn*, *Twitter* and *Google+* are the frequently used Social Networking Sites (SNSs) in the United States. The findings identify 32 uses of SNSs and the categories of users which include networkers, chatters, buddy's info seekers, content makers, professors, hobby vicars, reporters, preachers, frequent communicators, status stealers, self-broadcasters, philosophers, pet lovers, attractive posters, best wishers, attention grabbers, vernacular posters, like likers, responders, silent observers, social stars, players, endorsers, dedicated followers, daters, feature lovers, career seekers, learners,

political campaigners, and info pilfers.

The patterns of social media usage seem no different in Africa generally. In Swaziland, for instance, 43 percent of digital natives aged between 10 and 24 admit using social media sometimes, 40 percent always, and 17 percent often (Hlatshwayo, 2014). A Nigerian study also reveals that the majority of the students use social media more than five hours per day (Buhari, Ahmad & Ashara, 2014). A Mauritius study reports that 52 percent of the respondents access SNS daily, 35 percent weekly, six percent twice a month, and seven percent once (Khedo, Ally, Suntoo & Mocktoolah, 2013). Social media use feature prominently in their overall daily activities and are indispensable to them. These studies show that this indispensability enables them to influence their day-to-day social lives through production, distribution, and exchange of information. Out of the four channels of communication provided the respondents, social media top the list which also includes television, radio, and newspaper. Respondents also pick social media as their leading channel of communication as well as their favorite medium for the

reason that it allows for sharing and connecting with networks.

Digital natives are multitasking with new media technologies
According to Hyden and Cohall (2011), teens are also highly involved in multitasking with new media technologies, an example being watching TV while surfing the Internet and messaging friends. The authors indicate that young people in the US spend an average of 6.5 hours per day with the media, which translates to 8.5 hours' worth of media content, owing to multitasking with new media technologies. Pea et al. (2012) confirm this, adding that some association exists between media multitasking and negative social indicators whereas face-to-face communication is strongly associated with positive social well-being.

Gender differences in new media technologies usage
Some studies have established patterns of usage of new media technologies based on gender. Pfeiffer et al. (2014) find that boys visit pornographic sites more than girls in two cities (Dar es Salaam and Mtwara in Tanzania). One of their respondents is quoted as saying: "Boys access a lot of websites, sometimes websites where you can get pornographic pictures or download videos… and we can watch it on our phones" (p.

181). In the same study, the motives for using Facebook also vary, based on gender with girls wanting to chat with friends and boys using Facebook mainly to date. Nonetheless, the majority of respondents (both boys and girls) in Pfeiffer's 2014 study say they use the internet with 22 percent admitting to using it to read the news, 15 percent watching videos, 17 percent doing homework and 10 percent playing computer games.

Gratifications sought from the use of new media technologies by digital natives

The U&G theory proffers that each medium has specific gratifications it provides because of their unique characteristics in terms of attributes and nature of interactions supported, format and content (Quan-Haase & Young 2010). Endestad et al. (2011) think that as society becomes more and more media-saturated, demographic traits may be of little significance while the media usage and gratifications from that usage become the issue of importance. Accordingly, (Alpizar 2010) notes:

> Adolescents [digital natives] are not puppets sitting in front of a computer screen mindlessly communicating. They make decisions about how and why they communicate. Although individuals may be dependent

on new media to accomplish daily tasks in this high-tech world, they are not at its mercy. Ultimately, children and adolescents have power and control over how and why they use the Internet, computers, and cell phones. Individuals, both young and old, can distinguish healthy use from addiction and are capable of balancing their offline and online worlds (p. 23).

The trends visible in various studies show that the use of new media technologies has become prominent in digital natives' communication. Further, digital natives' use of new media technologies seems to be geared toward communication, socializing and entertainment. The broad themes that emerge from data analysis regarding gratifications sought by digital natives are discussed below.

Sociability gratifications
Sociability gratification is operationalized in this study as the feature or function of new media technologies which makes it possible to communicate, connect, interact, contract friendships, have leisure and spend virtual time with others. Ito et al. (2010) find that young people use new media technologies to stay connected to friends and as a means to mediate romantic relationships. A study by the Quan-Haase & Young (2010) reveals that Facebook serves a

sociability function, enabling users to maintain interactions with offline connections no matter the location. The study establishes that additional gratifications obtained from Facebook include killing time, affection, fashion, and sharing problems. Steinfield, Ellison, Lampe and Vitak (2012) note that Facebook is used and adopted primarily for maintaining pre-existing close relationships (bonding social capital) and keeping in touch with high school acquaintances and classmates (maintaining social capital).

Davis (2012) finds that text messaging is the means through which friends plan future meetings and is, therefore, found to be a very effective complementary tool for enhancing interpersonal relationships among teens with long-established friendships. Quan-Haase and Young (2010) suggest that the dimension of 'keeping in touch' with compatriots through Facebook (social media) has two functions: (1) surveillance– the desire to see what old contacts and friends are up to, how they look, and how they behave, and (2) social searching, that is, the desire to maintain and reconnect with offline connections. Rideout, Lauricella and Wartella (2011) discover that most teens and young adults use new media technologies to watch videos, play games, and listen to music on mobile devices such as mobile phones and iPods. Among Asians, an average of 3:07 minutes is spent daily on mobile media use, 2:53 among Hispanics, 2:52 among blacks, and 1:20 among whites.

When digital natives listen to music on tech gadgets they are gratified and relax from their busy schedules. This appears positive because that is a good way to manage stress after a busy day at school. It is a way of surmounting some of the challenges that confront them at this early stage of their lives (Allen, 2018). Stassen (2010) suggests users of social media seek gratifications in the areas of information distribution, feedback or participation in a community of connected individuals.

Social inclusion, identity formation and new media as a cultural artifact
Social inclusion gratification is defined in this study as using new media technologies to satisfy the needs relating to identity formulation or reinventing, building one's self-esteem and feeling a sense of belongingness. Pai and Arnott (2013) find that the four main gratifications users attain through social network users are belongingness, self-indulgence, self-esteem, and reciprocity. Ito et al. (2010) remark that young people

use new media technologies to form social groupings, and define and redefine their identities. New media technologies have become cultural artifacts used to re-present oneself and are regarded as an important part of modernity, on the fact that digital natives have been able to appropriate these technologies in every aspect of their lives; a view shared by Pachler, Cook and Bachmair (2012), Folayan et al. (2018), Okorie, Loto & Omojola, 2018).

One can ascribe an identity to a phone according to Alberts (2013, p.13). The author provides the anecdote of a person who refers to herself as an iPhone or Android phone user with an air of superiority because the ownership and usage comes with a certain level of prestige. Likewise, using the internet and particularly social media is associated with images of modernity. New media is also generally used to define/re-define oneself. The following quote in Pfeiffer et al. (2014) illustrates that:

> "They just take it as normal, because due to the development of globalization, for a youth like me, I have to use and access the internet…There are these girls who upload pictures showing themselves wearing short skirts or short dresses and there is also this type of boys… who upload photos which show their muscles, showing that they're strong." (p.181).

Pachler et al. (2012) shows a response to a new phone ownership: "It's fun and the best part was the comments I got from people, my family, my friends, like 'Oh my god your school has actually given you an N91 phone, how cool is that'" *(*p. 1). This statement signifies a great deal of socially-constructed imagery. The fact that people consider the ownership of mobile phones to be "cool" transforms ownership from the realm of usage to that of reputation and identity.

The study by Davis (2012) shows that teens regard high-level internet connectivity as vital to their socio-cultural development as it helps them to prevent isolation. However, the study establishes that that teens' online engagements do not include interactions with parents which, naturally, causes some level of apprehension within the ranks of stakeholders in the teens' lives.

Conclusions

The concern in this article is to examine the scholarly works on digital natives' appropriation, uses of and gratifications from new media technologies from the year 2010 to 2016, with the intent to determine future directions for research. The following questions have been answered: what is the

trend in literature concerning the extent of use and appropriation of new media technologies among digital natives? What are the gratifications sought from the use of new media technologies by digital natives and what are new directions for research? These elicited the deployment of the U&G and the technology appropriation theories.

Drawing from works studied, social connectivity/capital, belongingness, interactivity, and inclusion are the driving force behind the digital natives' usage of new media technologies. The need to shed off loneliness, entertain oneself and keep in touch with both offline and online networks can be achieved through new media technologies usage. Digital native teens, for example, are likely to look out for avenues to get affection and companionship (belongingness) which is a developmental issue for them.

Recommendations and Future Research Directions

The following points are the recommendations:

1. If digital natives spend a huge part of the time on the new mass media technologies as widely reported in the investigated literature, the question then arises: how much of the time do they have left for their academics? Future research should try and determine the time digital natives spend on their academics in the face of the overwhelming preponderance of the usage of new media technologies.

2. Creators of new media technologies should tap into the highly visible lacuna in digital natives' academics by developing apps that can fill the gaps. Such apps should not be discountenanced as unviable since they are going to utilize the means that these natives are familiar with to achieve this end.

3. It is strongly recommended that the apps that are developed toward this end should be those that gratify the digital natives' desire for communication and social inclusion.

4. Researchers like Kink and Hess (2008) have called for the need to distinguish between gratifications sought (GS) and gratifications that are obtained (GO) by media users as an extension to the U&G theory. This is based on the argument that what a media audience sets out to obtain from using a particular medium is not necessarily what is achieved.

Gratifications sought (also often referred to as "needs" or "motives") are those gratifications that audience members look forward to obtaining from a medium before coming into contact with it (Ballard, 2011). Gratifications obtained are what exactly an end-user experience is in using a medium. Palmgreen & Rayburn (1979) while critiquing the U&G theory, suggested attention be given to GO since it is a better indicator of media use than GS, highlighting that there is a greater tendency for users to

habitually use a medium if that medium satisfies or surpasses gratifications sought. The fact that new media use is prominent among digital natives gives a sense that GS and GO are positively related. It is, therefore, recommended that future research examines the relationship between GS and GO. What is more, investigations should be conducted into the specific new media technologies and platforms or apps help users achieve gratifications sought (GS). This is a critical point that the fresh app developers should keep in mind.

References

Akingbade, J. S. (2013). Students' perception of the availability and utilization of information and communication technology (ICT) in the teaching and learning of science subjects in secondary schools in Ekiti State, Nigeria. *International Journal of Education & Literacy Studies*, *1*(1), 94-99.

Alberts, B. (2013). *Technology appropriation revisited-Mediation theory as a new philosophy of technology for information systems research.* (Master's thesis, University of Twente,

Enschede, the Netherlands). Retrieved from http://essay.utwente.nl/62736/1/Berend_Alberts_-_BIT_Master _Thesis.pdf

Allen, J. (2018). *How does music affect teenagers' emotions?*. Retrieved from https://howtoadult.com/how-does-music-affect-teenagers-emotions-8169266.html

Alpizar, K. S. (2010). *New media use among high achieving adolescents*. (Master's thesis, San Jose State University, San Jose, California). Retrieved from https://scholarworks.sjsu.edu/etd_theses/3799/

Andrews, L., Higgins, A., Andrews, M. W., & Lalor, J. G. (2012). Classic grounded theory to analyze secondary data: Reality and reflections. *The Grounded Theory Review, 11*(1), 12-26.

Ballard, C. L. (2011). What's happening @ Twitter: A uses and gratifications approach. (Master's thesis, University of Kentucky, Lexington, KY). Retrieved from https://uknowledge.uky.edu/gradschool_theses/155/

Beenkens, F. H., & Verburg, R. M. (2008). Extending TAM to Measure the Adoption of E-Collaboration in Healthcare Arenas. In N. Kock (Ed.), *Encyclopedia of E-collaboration* (pp. 265-271). Hershey, Pennsylvania: IGI Global.

Bittman, M., Rutherford, L., Brown, J., & Unsworth, L. (2011). Digital natives? New and old media and children's outcomes. *Australian Journal of education*, *55*(2), 161-175.

Blumler J.G. & Katz, E. (1974). *The uses of mass communications: Current perspectives on gratifications research*. Beverly Hills, CA: Sage.

Bolton, R.N., Parasuraman, A., Hoefnagels, A., Migchels, N., Kabadayi, S., Gruber, T., Komarova Loureiro, Y. & Solnet, D. (2013). Understanding Generation Y and their use of social media: A review and research agenda. *Journal of Service Management* 24(3), 245-267.

Buhari, S. R., Ahmad, G. I., & Ashara, B. H. (2014, *April 24 - 26*). *Use of social media among students of Nigerian polytechnic.* Paper presented at *International Conference on Communication, Media, Technology and Design Istanbul – Turkey*. Retrieved from http://www.cmdconf.net/2014/pdf/47.pdf

Carr, N. G. (2010). *The shallows: What the Internet is doing to our brains*. New York: W.W. Norton

Carroll, J., Howard, S., Vetere, F., Peck, J., & Murphy, J. (2002). Just what do the youth of today want? Technology appropriation by young people. In *System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference on* (pp. 1777-1785). IEEE.

Davis, K. (2012). Tensions of identity in a networked era: Young people's perspectives on the risks and rewards of online self-expression. *New*

Media & Society 14(4): 634-651.

DeSanctis, G., & Poole, M. S. (1994). Capturing the complexity in advanced technology use: Adaptive structuration theory. *Organization Science*, 5(2), 121-147.

Ellison, N. B., Steinfield, C. & Lampe, C. (2011). Connection strategies: Social capital implications of facebook-enabled communication practices. *New Media & Society 13*(6):873– 92

Endestad, T., Heim, J., Kaare, B., Torgersen, L., & Brandtzæg, P. B. (2011). Media user types among young children and social displacement. *Nordicom Review*, *32*(1), 17-30.

Folayan, B.J., Omojola, O., Egharevba, M., Oyesomi, K., Yartey, D.,& Adeyeye, B. (2018). The use of Ict-Rooted communication codes and Slangs among Nigerian students. *Journal of Social Sciences Research, 4*(12), 633-641.

Gonzalez, V. M., Kraemer, K. L., & Castro, L. A. (2009). Beyond Safety Concerns: On the Practical Applications of Urban Neighborhood Video Cameras. In M. Foth (Ed.), *Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City* (pp. 131-143). Hershey, PA: IGI Global.

Greenhoot, A. F., & Dowsett, C. J. (2012). Secondary data analysis: An important tool for addressing developmental questions. *Journal of Cognition and Development*, *13*(1), 2-18.

Hlatshwayo, V. S. (2014, March). Youth Usage of Social Media, Swaziland: A Report for the Swaziland Chapter of the Media Institute of Southern Africa (MISA) [Blog post]. Retrieved from https://misaswaziland.files.wordpress.com/2014/07/the-youth-usage-of-social-media-2014.pdf

Hyden, C. & Cohall, A., (2011). Innovative approaches to using new media and technology in health promotion for adolescents and young adults. *Adolescent medicine: state of the art reviews*, 22(3), pp.498–520

Johnson, R. J. (2014). *Based on Teacher Perceptions, Would the Use of Social Media Via Mobile Devices in Grades 9-12 Classrooms Increase Student Engagement in Learning Activities?* (Doctoral dissertation, Louisiana State University, USA). Retrieved

from https://digitalcommons.lsu.edu /gradschool_dissertations/3368 /

Johnston M. P. (2014). Secondary Data Analysis: A Method of which the Time Has Come *Qualitative and Quantitative Methods in Libraries (QQML) 3(3), 619-626.*

Khedo, K. K., Suntoo, R., Elaheebocus, S. M. R. A., & Mocktoolah, A. (2013). Impact of online social networking on youth: case study of Mauritius. *The Electronic Journal of Information Systems in Developing Countries*, *56*(1), 1-7.

Kink, N. & Hess, T. (2008). Search engines as substitutes for traditional information sources? An investigation of media choice. *Information Society, 24*(1), 18-29.

Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). *Social Media & Mobile Internet Use among Teens and Young Adults. Millennials*. Washington DC: Pew Internet & American Life Project.

Levine, D. (2011). Using technology, new media, and mobile for sexual and reproductive health. *Sexuality Research and Social Policy*, *8*(1), 18-26.

Lindsay, J. (2009). *Digiteens go global: Best practices that go distance* [PowerPoint slides]. Retrieved from https://www.slideshare.net/juli elindsay/digiteens-go-global.

Livingstone, S. (2008). Internet literacy: Young people's negotiation of new online opportunities. In T. McPherson (Ed.), *Digital Youth, Innovation, and the Unexpected* (*Vol. 4*, pp. 101-122). Cambridge, MA: The MIT Press.

Livingstone, S. (2011). Internet, children and youth. In M. Consalvo & C. Ess (Eds.), *The Handbook of Internet Studies* (pp. 348-368). Oxford: Blackwell.

Logan, R. K. (2010). *Understanding new media: extending Marshall McLuhan*. New York, NY: Peter Lang.

Logan, R. K. (2010). *Understanding new media: extending Marshall McLuhan*. New York, NY: Peter Lang.

Loos, E., Haddon, L., & Mante-Meijer, E. (2012). *Generational use of new media*. Ashgate.

Madden, M., Lenhart, A., Duggan, M., Cortesi, S., & Gasser, U.

(2013). *Teens and technology 2013*. Washington, DC: Pew Internet & American Life Project.

Matei, S.A. (2010, July 29). *What can uses and gratifications theory tell us about social media?* Retrieved from http://matei.org/ithink/2010/07/29/whatcan-uses-and-gratifications-theory-tell-us-about-social-media/.

McAfee, Inc. (2012). *The digital divide: How the online behavior of teens is getting past parents*. Retrieved from: http://www.mcafee.com/us/resources/misc/digitaldivide-study.pdf

McAfee. (2014). Tweens, teens, and technology [Blog post]. Retrieved from: https://cybermumindia.files.wordpress.com/2014/11/ttt-2014-infographic-final.pdf

McCaston K. M. (1998). *Tips For collecting, reviewing, and analyzing secondary dat*a. Retrieved from http://pqdl.care.org/Practice/DME%20%20Tips%20for%20Collecting,%20Reviewing%20and%20Analyzing%20Secondary%20Data.pdf

Milton, J. M. & Ramakrishnan, B. (2014). A survey of various security issues in online social networks. *International Journal of Computer Networks and Applications*, 1(1): 11-14.

Morah, N. & Omojola, O. (2014) Digital Large Screens as a Community Medium: Interactivity and Community Relevance in Focus. In A. Ojebode (Ed.) *Community media in Nigeria*. Ibadan: John Archer Publishers, pp. 385-402.

Newton, R. R., & Rudestam, K. E. (2012). *Your statistical consultant: Answers to your data analysis questions*. Thousand Oaks, CA: SAGE publications

Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, *59*(3), 1065-1078.

Okorie, N, Loto, G. & Omojola, O. (2018). Blogging, civic engagement, and coverage of political conflict in Nigeria: A study of nairaland.com. *Kasetsart Journal of Social Sciences,* 39(2), 291-298.

Omojola, O. (2008a). Audience mindset and influence on personal political branding. *Journal of Social Sciences, 16* (2), 127-134.

Omojola, O. (2008b). Toward Global Ethics: Exploring the Perspectives of Local Media Stakeholders. *Ecquid Novi:*

African Journalism Studies, *29*(2), 173 – 187.

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. (2010). Innovative data collection strategies in qualitative research. *The qualitative report*, *15*(3), 696-726.

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. (2012). Qualitative analysis techniques for the review of the literature. *The qualitative report*, *17*(28), 1-28.

Pachler, N., Cook, J., & Bachmair, B. (2012). Appropriation of mobile cultural resources for learning. In D. Parsons, (Ed.), *Refining current practices in mobile and blended learning: New applications* (pp. 10-30). Hershey, Pennsylvania: IGI Global.

Pai, P., & Arnott, D. C. (2013). User adoption of social networking sites: Eliciting uses and gratifications through a means-end approach. *Computers in Human Behavior*, *29*(3), 1039-1053

Palmgreen, P. & Rayburn, J. D. (1979). Uses and gratifications and exposure to public television: A discrepancy approach. *Communication Research, 6*, 155-180.

Pea R, Nass, C., Meheula, L., Rance, M., Kumar, A. Bamford, H., Nass, M., Simha, A. Stillerman, B., Yang, S. & Zhou, M. (2012). Media use, face-to-face communication, media multitasking, and social well-being among 8 to 12-year-old girls. *Developmental psychology*, *48*(2), 327.

Pfeiffer, C., Kleeb, M., Mbelwa, A., & Ahorlu, C. (2014). The use of social media among adolescents in Dar es Salaam and Mtwara, Tanzania. *Reproductive health matters*, *22*(43), 178-186.

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the horizon*, *9*(5), 1-6.

Quan-Haase, A. & Young, A. L. (2010). Uses and gratifications of social media: A comparison of Facebook and instant messaging. *Bulletin of Science, Technology and Society, 30*(5), 350-361.

Ramdhani, A., Ramdhani, M. A., & Amin, A. S. (2014). Writing a Literature Review Research Paper: A step-by-step approach. *International Journal of Basic and Applied Science*, *3*(1), 47-56.

Rideout V., Lauricella A. & Wartella E. (2011).*Children, media, and race: Media use among white, black, Hispanic, and Asian American children*. Chicago, IL: Northwestern University.

Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M [superscript 2]: Media in the Lives of 8-to 18-Year-Olds, a Kaiser Family Foundation Study*. California: Henry J. Kaiser Family Foundation.

Ruggiero, T. E. (2000). Uses and gratifications theory in the 21st century. *Mass Communication & Society, 3*(1), 3-37

Seal-Warner, C. (2007). E-teens: teens and technology: the perfect storm? *Television Quarterly*, *37*(2), 5-16.

Sey, A. (2011). New media practices in Ghana. *International Journal of Communication 5*(2011), 380–405

Simoes, L., & Gouveia, L. B. (2011). Social technology appropriation in higher education. *Romanian Journal of Social Informatics*, *8*(16), 21-34.

Smith, A. K., Ayanian, J. Z., Covinsky, K. E., Landon, B. E., McCarthy, E. P., Wee, C. C., & Steinman, M. A. (2011). Conducting high-value secondary dataset analysis: An introductory guide and resources. *Journal of General Internal Medicine, 28*(8), 920-929. DOI:10.1007/s11606-010-1621-5

Smith, A. K., Ayanian, J. Z., Covinsky, K. E., Landon, B. E., McCarthy, E. P., Wee, C. C., & Steinman, M. A. (2011). Conducting high-value secondary dataset analysis: An introductory guide and resources. *Journal of General Internal Medicine, 28*(8), 920-929.

Socha, B., & Eber-Schmid, B. (2013). *What is new media? Defining new media isn't easy.* Retrieved from: http://www.newmedia.org/what-is-new-media.html.

Stafford, T. F., Stafford, M. R., & Schkade, L. L. (2004). Determining uses and gratifications for the Internet. *Decision Sciences*, *35*(2), 259-288.

Stassen, W. (2010). Your news in 140 characters: Exploring the role of social media in journalism. *Global Media Journal, 4*(1), 1-16.

Steinfield, C., Ellison, N., Lampe, C., & Vitak, J. (2012). Online social network sites and the concept of social capital. *Frontiers in new media research*, *15*(115).

Strasburger, V. C., Hogan, M. J., Mulligan, D. A., Ameenuddin, N., Christakis, D. A., Cross, C..., & Swanson, W. S. L. (2013). Children, adolescents,

and the media. *Pediatrics, 132*(5), 958–961.

Thompson, P. (2013). The digital natives as learners: Technology use patterns and approaches to learning. *Computers & Education*, *65*, 12-33.

Tosun, L. P. (2012). Motives for Facebook use and expressing "true self" on the Internet. *Computers in Human Behavior*, *28*(4), 1510-1517.

use: Adaptive structuration theory. *Organizational Science, 5*(2), 121-147.

Vodanovich, S., Sundaram, D., & Myers, M. D. (2010). Research commentary – digital natives and ubiquitous information systems. *Information Systems Research 21*(4):711–723

Weber, S., & Dixon, S. (Eds.). (2016). *Growing up online: young people and digital technologies*. Springer.