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DIGITAL NATIVES AND DIGITAL DIVIDE: ANALYSING PERSPECTIVE FOR EMERGING PEDAGOGY

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ABSTRACT

This paper addresses the concepts of digital natives and digital divide from the perspective of the digital outsiders (part of digital natives). It takes a critical look at the implications of available ICT in both developed and underdeveloped countries in the fight against digital divide. The major contribution to literature is by drawing attention to the inevitability of technology mediated learning and the need to embrace ICT adapted to countries strengths and weaknesses in the fight against digital divide. However, data used for this study significantly reveal how digital natives in the developed countries and digital outsiders in underdeveloped countries could achieve digital diffusion, especially those from underdeveloped countries with highly limited opportunities. As a result, there is no contesting the future of educational pedagogy depends on technology. Hence, people must take advantage of available technology in designing pedagogy. In the end, digital divide is relative and should apply differently in both developed and underdeveloped regions to enable rapid and sustainable digital diffusion despite the odds confronting digital natives globally.

KEYWORDS

Digital natives, digital divide, digital outsiders, educational pedagogy, bridging the gap

1. INTRODUCTION

When Prensky claimed to have recognized a pattern change in the learning behavior of people belonging to a certain age group, little did he know that learning pedagogy was about to witness a paradigm shift unparalleled in recent history. He regarded children born from the 1980's downwards as 'digital natives' while people from earlier generations became the 'digital immigrants'. The evolutionary effects of information technology (ICT) created a contrast between the two groups leaving the impression that the education system in place did not capture the learning needs and abilities of the digital natives (Prensky, 2001). Chains of debate concerning the claim erupted in both academic and professional quarters engulfing research questions and answers. Numerous debate among educators, academics and professionals took different perspectives in what later became the problems and solutions surrounding digital natives. The major problem confronting us today is that of 'digital divide' which symbolizes the inequalities in social, political, cultural and economic classification of people, families, communities and races into 'haves' and 'have nots'. In other words, Van Dijk (2006) puts it as the unequal distribution of access to information communications technology (ICT) between society's 'haves' and 'have-nots'.

Hence, prevailing factors against 'digital diffusion' increased the concept of digital divide, thereby forcing 'digital inclusion' into a major channel of bridging 'digital gap'. Today, digital inclusion has emerged into a model for neutralizing the divisions of digital divide between the digital haves and have nots. As a result of digital inclusion initiative, 100% of public schools in the U.S now provide internet access for students (Attewell, 2001). This solution is major boost to digital diffusion campaign. Unfortunately, digital divide goes beyond access to computer and internet, to include what has escaped the minds of people, "that some greater portion of these digital natives are not included in the digital divide paradigm because their demographics are outsides the boundaries constituting Prensky's digital natives." This paper refers to them as "digital outsiders" because they are the excluded component of an all-inclusive digital native paradigm.

2. INCLUDE AND DIFFUSE: THE OUTSIDERS CROSS

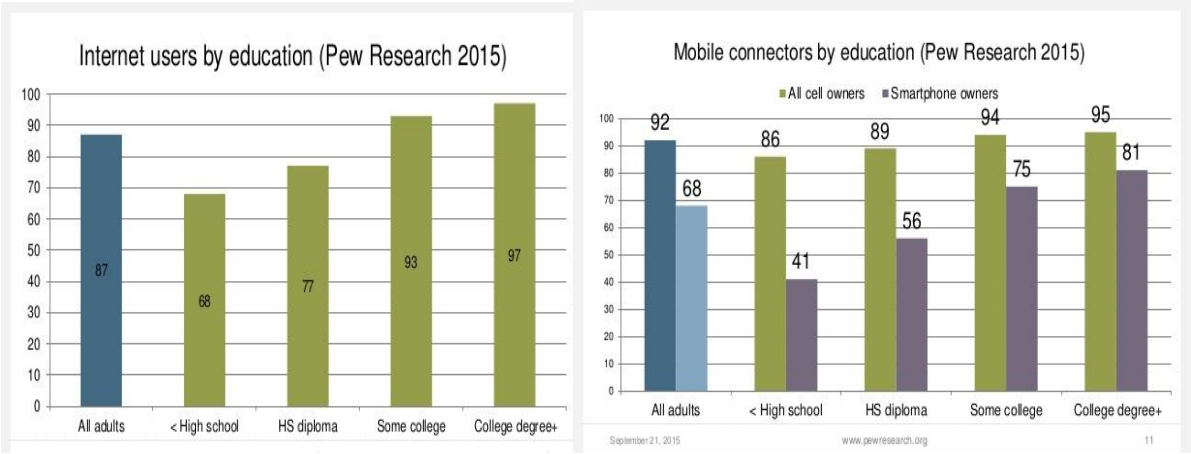
Researchers agree that access to ICT suffer from different types of inequalities throughout the developed countries of Europe and America (Selwyn, 2006). Judging from an international perspective, Mariscal (2005) describes the contrast in ICT access as huge when underdeveloped countries are compared with developed countries. As a result, digital inclusion is no longer a fight to bridge the gap between the rich and the poor (Howland, 1998), but to enable diffusion between the 'information rich' and the 'information poor' for everyone (Black, 1986; Doctor, 1991). Unfortunately still, the evolving nature of ICT combined with classism keeps the gap between the 'haves' and 'have nots' in constant expansion. Selwyn (2006) agrees with the factors that contribute to the continued expansion (digital divide) to include the inability and unlikelihood of members of certain social groups to meaningfully engage with new technologies. In other words, demographics with non-availability of computers and broadband internet connection at home and schools plus the required skill and knowledge to meaningfully use ICT (Hesseldhl, 2008).

This brings in the open conditions of the "digital outsiders" who are members of digital natives by definition, but are far removed from the operational standards of 'digital divide'. These groups have not by any means being digitally diffused through any digital inclusion programs. Lack of external digital inclusion programs has lowered the rate at which they are digitally diffused with the rest of the natives. In many case, all attempts to use ICT comes from the outsiders efforts to close the digital divide. It goes that 'jumping the bridge' sequels 'bridging the gap' as a means to enable members achieve digital diffusion in the absence of guided digital inclusion program as seen in the developed countries. Thus, jumping the bridge, becomes an effective way of curbing digital divide and ensuring digital diffusion is possible from the outsiders perspective and ICT needs. The aim is to bridge the digital divide and enable digital diffusion with the rest of the natives. Ironically, although the outsiders are not included in digital inclusion programs, they find it imperative to devise a method best adapted to their ICT problems and needs. Thus, 'jumping the bridge' describes the outsiders version of 'digital inclusion' which serve as channel for members to stay connected in the digital age. As seen in Africa, diffusion of cellphones suggest a reliable means of curbing digital divide and boosting mass mobilization for ICT (Buys, Dasgupta, Thomas and Wheeler, 2009).

3. DATA OUTCOME

The first set of tables show the use of both internet and mobile connections of different school age of digital natives in the U.S. While the second table compares internet landlines and mobile network acceptance in Africa. Campaigns against digital divide in the U.S emanated such programs as digital inclusion and digital diffusion. The programs includes free access to every school child to computers, internet and Wi-Fi connections in all public schools. However, it is an achievement only possible in areas where internet connection is not limited to mobile network. In Africa the case is different. Poor landlines begat dysfunctional ICT access in most public schools. On the contrary, the penetration of mobile networks in areas previously inaccessible to ICT has created a surge in cellphones ownership by members.

Tables 1 & 2. Shows the educational use of internet and mobile network by different levels of students in the U.S. (Source: Pew Research Center, 2015)



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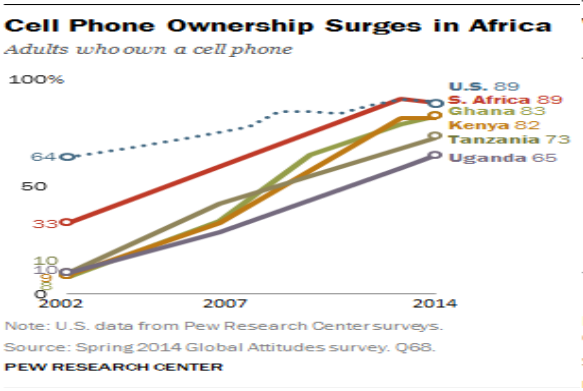
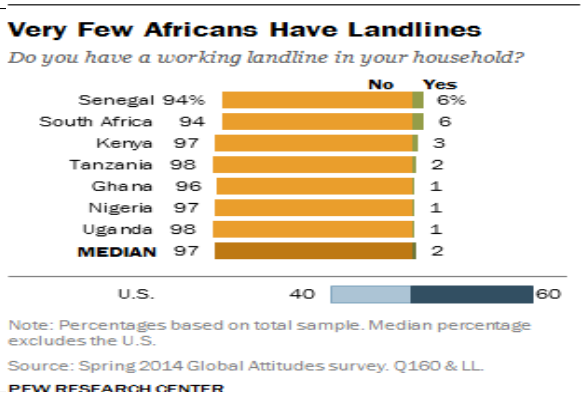
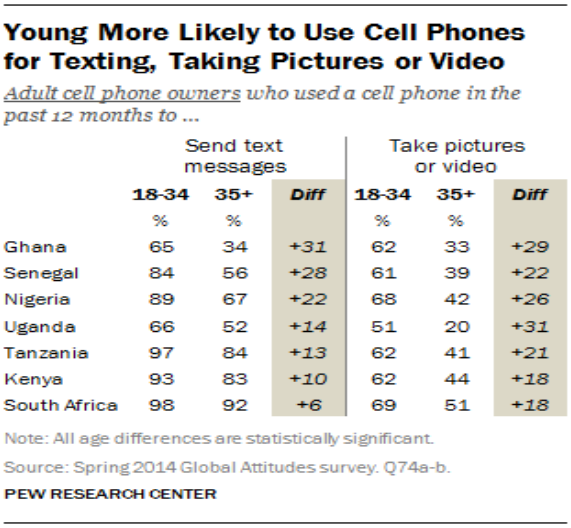
Tables 3 & 4. Shows a comparative use of mobile network and landlines in Africa (Source: Pew Research Center, 2015)

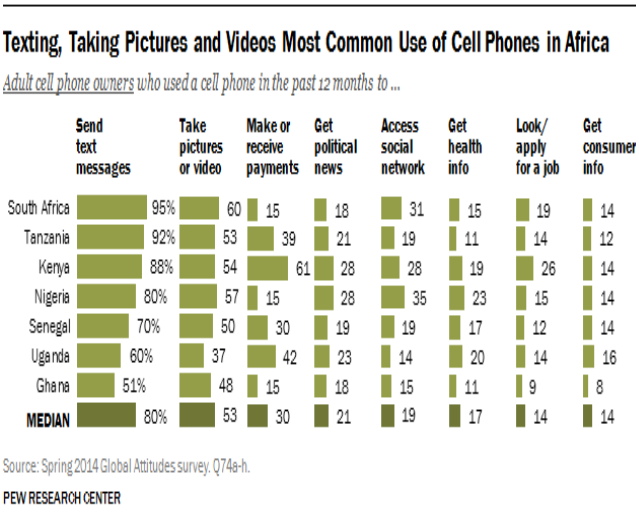




Internet and cellphone uses in select African countries indicate an effort by digital outsiders to re-integrate themselves with technology. "By personal efforts of the outsiders" reference is made to the group individual acquisition of mobile devices and use of mobile network without any planned inclusion initiative from any sources. That's why when comparing the trends in landlines and mobile network in Africa, evidence show how mobile network is championing the future of ICT in the region. Landline use in the U.S is over 80% while in Africa the highest country with landline network is Senegal with 6% and the lowest are Ghana, Nigeria and Uganda with 1% respectively. On the other hand, mobile network by cellphone ownership indicate the following: U.S. has 89%, South Africa 89%, Ghana 83%, Kenya 82%, Uganda 65% and Tanzania 73%. The trend shows that most underdeveloped countries that have introduced mobile telecommunications market have been able to achieve ICT penetration (Mariscal, 2015).

Tables 5 & 6. Shows different capabilities of mobile network uses in Africa in perspective





The figure shows great achievement for those regions despite most of the integration coming from the outsiders strive to survive digital divide in regions bereft of ICT options. Taking advantage of mobile network to bridge gaps in technology is a commendable step that makes the region stand peculiar in the fight against digital divide (Poushter and Oates, 2015). Table 2 & 3 shows the most common uses of cellphones in African schools indicating a meaningful application of mobile technology for information sharing and a mechanism to fight digital divide. Mobile network as the dominant ICT provider in most regions of Africa unveils the dominant digital divide and possible diffusion methods that could be supported by the technology already in use by people. Such implication can transform ICT policy and propel the trajectory of educational pedagogy if well understood and utilized. Moreover, it reemphasizes the suggestion that integrating technology already in use will bridge gaps in digital divide in those region (Savery and Duffy, 2001).

4. IMPLICATION FOR ONLINE PEDAGOGY

Several intervening measures have arisen over the years as pedagogy confronts technology. Pew Research Center describes the future of education as becoming one with technology. What this indicates is that the direction of technology knows no bounds, and if well harnessed technology can direct the trajectory of learning pedagogies to accommodate all peoples regardless their ICT skills for meaningful purpose and personal empowerment (Kim and Kim, 2001). Since information communications technology is changing radically, it is also transforming traditional learning methods and instructional patterns (Lage, Platt and Treglia, 2000). Technology is putting different pedagogical philosophy to test, and has become a crucible polishing both content and context of educational delivery channels irrespective of demographic differences. It then holds that integrating technology with educational pedagogy cannot be obstructed without detrimental consequence to emerging educational channels such as digital learning, online learning, cloud-based learning, e-learning and even traditional learning settings. Regardless of the angle of ones perception, technology has become both the question and answer to the future of ICT directed educational pedagogy.

The percentages of students from African countries that utilize mobile network for information sourcing and sharing other than texting and calls leaves impressive feelings that countries in Africa could utilize method of the people in closing the level of digital divide facing the area. Mostly, in African countries the digital outsiders method of diffusion base on a communication needs and does not reflect actual inclusion. The cost of equipping schools with computers and Internet access cannot be realized by the locals themselves, but requires government intervention to achieve. Unfortunately, most digital inclusion programs that receive government funding take place in regions advanced in technology such as Britain, Canada and the United States. Chon (2001) laments the situation whereby developed countries are the ones benefiting from internet far more than the underdeveloped countries due to a lack of both human and material mechanisms. This contributes to the levels of technology delinquency in most countries of Africa. A condition so bad that hardly does any university in that region boast of supportive tools capable of successful hosting of functional online programs. How then are schools expected to adopt innovative pedagogy and implement online learning education without computers and Internet access? What could have been the fate of African countries if ICT excluded mobile network technology? Maybe the people will have one choice to migrate abroad or stagnate at home. Instead, underdeveloped countries are locally curbing digital divide with limited ICT options available. This pattern of bridging the gap by digital outsiders in Africa is a milestone achievement reflecting how India and China narrowed down digital divide by effectively taking advantage of available ICT the region (Chon, 2001).

5. CONCLUSION

This paper addresses digital divide as it pertains the evolution of Prensky's assertion of digital natives. The study agrees with Hohlfeld, Ritzhaupt, Barron and Kember (2008) that digital divide (DD) is a multilayered phenomenon. However, we have seen a different class of digital natives which is herein referred to as the 'digital outsiders' emerge in most underdeveloped countries. These digital natives shouldn't be neglected because Schlomab (2004) digital divide is not just for individuals and groups in the developed countries alone. It is therefore important to employ caution as a yardstick when determining what presently constitutes and defines digital divide in general. Basically, all efforts should be channeled towards bridging all digital gaps in technology access globally. Researchers and educationists can learn from the digital natives use of 'Mobile Network/ Social Medias' in the struggle to improve emerging educational pedagogy, especially online education. The collective efforts towards bridging digital gap between the 'haves' and 'have nots' has significantly contributed to changes in technology-use-behavior of these actors and campaigners for technology driven educational pedagogy. The outcomes include integrating technology with instructional materials and the evolving pattern of research in different online learning, cloud learning and SMART learning programs.

Based on the inconclusive description of digital divide which Hohlfed et al., (2008) said to have grown from access to computer hardware and software, internet and technology support within schools, to broadband computer internet connection at home and skills and knowledge to use ICT (Attewell, 2001; Hesseldah, 2008). The variances in what constitutes digital divide makes any single definition incapable of

serving as a global indicator for the assessment of digital divide and ICT inequalities. All the same, different regions are devising ways to bridge the divide and diffuse pedagogy with available technologies. Digital access based on internet via computer and mobile network connections has different implications and practical outcomes for developed countries and their underdeveloped counterpart. The possibility for all public schools in the United States to provide 100% computers and internet access for students is unrealistic when used as yardstick in assessing the conditions of educational pedagogy in underdeveloped countries facing numerous challenges caused by sporadic innovations in the areas of ICT. However, notwithstanding numerous technology challenges confronting African countries, the digital outsiders irrespective of dearth landlines connectivity are making maximum use of limited but growing mobile network technology in bridging digital divide, albeit, to a recognizable extent of neutralizing the inequalities between developed and underdeveloped countries (James, 2013).

Finally, this study used existing data on the distribution of ICT in developed and underdeveloped countries for comparative analysis bothering on achievable educational pedagogy innovations factored on the position of ICT in the regions involved. However, more efforts should focus on ways educational pedagogy could be transformed with mobile network and devices that can match the innovations achieved in the developed countries with computers and internet access in schools. Using the figures data, ICT distribution in the various regions can be used to achieve customized innovation in educational pedagogy for locations deprived of ICT diffusion (Poushter, and Oates, 2015). Consequently, the influence of individualism on digital divide (Vandenbroek, Verschelden, Boonaert and Haute, 2007), reflects on the figures evidence that the digital outsider's method of digital inclusion (mobile technologies) could someday transform pedagogy in those regions.

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