Emphasizing Digital Literacy Among Digital Natives

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Abstract

The portrayal of Digital Natives in popular literature and the media as being innately attuned to technology is an over-generalization that has caused the idea of the tech-savvy generational gap to proliferate. In this paper, I reveal common misconceptions published in the media, define several key concepts related to digital literacy and Digital Natives, and provide sufficient evidence that Digital Natives require a learning path that includes training for relevant technology tools in education and beyond. My hope is to dispel myths surrounding multiple generations, and to emphasize the importance of being truly digitally literate in an increasingly connected world inundated with advanced technology.

Keywords: Digital Literacy, Digital Natives, Education Technology

Emphasizing Digital Literacy Among Digital Natives

It is easy to assume Digital Literacy among Digital Natives rather than assessing relevant technology skill levels. Digital literacy is often deemphasized due to generational stereotyping, and this is unfortunate as it is a key indicator of student success. This ultimately limits student success, which historically results in lower graduation rates, increased unemployment, and a host of other socioeconomic burdens. In an increasingly digital society, digital literacy is akin to reading when measuring the likelihood of student success, and it should be emphasized in instruction regardless of perceived generational advantages.

Defining Concepts

To understand digital literacy, it is important to first define literacy. At a very base level the word literate refers to an ability to read and write, but the definition of the word literacy poses a problem in that it is a relative concept. For instance, being collectively literate among one tribe or culture is not necessarily transferable to the aesthetic value of another (Bawden, 2001). Fortunately, literacy has meaning beyond this as revealed by a comparison, referenced by Bawden (2001), of multiple definitions found within dictionaries and elsewhere. Literacy as it turns out, requires more than the rote recitation of characters in print, but instead expects a certain level of understanding. To be truly literate, the transfer of knowledge must occur. In this way, the dated binary framework of literate versus illiterate has been cast away and replaced with a sliding scale of ability. Furthermore, this continuum has been abstracted away from simply reading and writing, and applied to information as a whole (Bawden, 2001).

Initially the word represented a basic understanding of the written word or the ability to use symbols to represent or understand an idea, but over time the concept of literacy has evolved beyond simply knowing or not knowing how to read. Literacy has become less binary and more relative as it often refers to a scale or range of ability. More so, the term is now widely used in conjunction with terminology from a variety of fields to represent a level of competence in a given function (Bawden, 2001).

Defining Digital Literacy

As literacy has grown from a finite reference to a singular ability into a broad term used in a myriad of instances to gauge competency, so too has digital literacy. Searches performed on abstracts from the *Library and Information Science* and *Social Scisearch* by Bawden (2001) highlight the birth of digital literacy as a concept. According to the data gathered the term was virtually non-existent until the year 1997. However, synonymous terms such as Information literacy and Computer literacy had been in use for decades. The evolution of the concept, digital literacy, began as a broad catch-all for the understanding of any form of media from sounds and images to words and numbers, but has been refined to include the retrieval and organization of information as well (Bawden, 2001). What started as a representation of knowledge assembly and the assimilation, evaluation and reintegration of all forms of information, has since been distilled into using, evaluating, and adapting digital tools pertaining to all forms of electronic media. Unfortunately, as the breadth of digital tools, media and practices expand, it is becoming increasingly important to develop frameworks that continue to challenge the concept of digital literacy (Pangrazio, 2014).

Defining Digital Natives

This group is loosely defined as the growing multitude of generations born after the advent of personal computing. The origins of the concept were cemented by Prensky (2001) when he radically declared that students of the time had crossed a line into a type of singularity event due to their constant immersion in late 20th century digital technology. He surmised that these students processed information differently from previous generations in a fundamental way, and provided the label, Digital Natives, to define the population as natively adept in the language of computers, games, and the internet.

Prensky (2001) also makes a distinction between Digital Natives and those who came before them with the label, Digital Immigrants. The importance of which, was to outline the inadequacies in their ability to adapt and reach the same supposed level of proficiency as the Digital Native. Prensky utilizes the term "accent" to demonstrate their inability to communicate effectively with this newer generation of students.

> There are hundreds of examples of the digital immigrant accent. They include printing out your email (or having your secretary print it out for you – an even "thicker" accent); needing to print out a document written on the computer in order to edit it (rather than just editing on the screen); and bringing people physically into your office to see an interesting web site (rather than just sending them the URL). (Prensky, 2001, p. 2)

This stark divide proposed by Prensky (2001) suggests that Digital Natives and their Digital Immigrant instructors are at an impasse unless they begin teaching and learning both legacy (reading, writing, logic, etc.) and future (software, hardware, robotics, etc.) content in the context of ethics, politics, sociology, and languages.

Digital Natives are often stereotyped as being digitally literate on account of their immersion in technology, but in actuality their proficiency with digital tools varies just as greatly as those considered non-digital natives. More recent research refutes the stereotypes posited by Prensky (2001), that those born into the digital age are innately gifted with technological capability, and instead utilizes the base definition of "native" to classify Digital Natives based on their environment rather than their capability. In this way, they can still be classified as natives without the same stereotypical expectation of mastery in digital literacy. This suggests that the burden be placed on instructors to teach the tools for learning before emphasizing the content or subject matter as proposed by Prensky (Ng, 2012). While Prensky (2001) was correct in his classification, he was incorrect in applying blanket assumptions to large groups of the population.

The importance of a distinction between skill and environment rests in the fact that eventually the term Digital Native will account for all of the population, as more and more people are born into a culture of hyper-connectivity, always-on digital technologies, and growing social media networks. Just as those born before the digital age needed to be taught the culture, language, and tools of their community, so to must Digital Natives be taught about educational technologies and their usefulness for the purpose of learning (Ng, 2012).

Dispelling Myths

Popular rhetoric suggests digital natives arrive at digital literacy organically, and that their environment automatically generates learning behaviors conducive to technology use (Thompson, 2013). While it is true that a large percentage of this population regularly uses digital communications technology, the majority of use is relegated to basic smartphone features (Thompson, 2013). Failure to acknowledge the limited cross-over between the narrow set of applications used by most digital natives and the more complex technologies employed in academics can be detrimental to learners. By not teaching required technologies before teaching content specific materials, educators can inadvertently hinder learner success (Thompson, 2013).

Since the inception of the concept of Digital Natives, the media has continued to disseminate a false narrative that espouses the technical wizardry of anyone born after 1980. A simple Google search for the terms “tech savvy generation” or “tech savvy youth” revealed a plethora of articles reinforcing the myth. A writer for renowned publication, *Time*, claims that the youth of today are “naturally tech-savvy, given the world in which they’re growing up,” while a piece written for The Guardian defines teenagers as a united tech-savvy tribe (Bajarin, 2016, Hanman, 2005). This is in contrast to data collected by *Pew Research Center* on the knowledge of the modern technology landscape. The results of the survey revealed that while younger users were more familiar with social media and common internet conventions, they performed equally with older users on the majority of the survey (Smith, 2014). In fact, level of education was a larger separator for most concepts rather than age (Smith, 2014). Fortunately, the platitudes

espoused by major media outlets are beginning to be disproven, but as with any cliché a healthy amount of time and reinforcement is required to overcome discrimination.

Contrary to popular belief and anecdotal evidence, Digital Natives are not naturally adept in the field of digital literacy especially within academic settings. While immersion in a particular environment does aid in familiarity with the tools required to succeed in that environment, said immersion does not generate proficiency without guidance (Ng, 2012). Assuming Digital Natives are digitally literate can be detrimental to their academic success, as it has been revealed through various methods that internet communication technology skills among them range wildly (Stahl, 2017).

In a study performed by Stahl (2017) and published in the *Nordic Journal of Digital Literacy*, the Information and Communication Technology (ICT) skills of a diverse population of students were analyzed. The research involved the use of a survey to classify the students and then to implement a corresponding exam to measure their level of competency in ICT and media skills. The results from the survey and exam administered to students entering Arcada University revealed that only 16.2% of participants reached the threshold required to be considered digitally literate on an academic level. On the low-end, participants with poor ICT skills made up 19.8% of the population, only exhibiting skills related to the use of digital news media (Stahl, 2017). The rest of the participants were rated as having a medium level of ICT skills with varying degrees of strengths and weaknesses. This research reinforces the idea that assumptions about learner proficiency in digital literacy does not track with the popular narrative (Stahl, 2017).

The relationship between technology and learning among Digital Natives is actually much less deterministic than is popularized, and the approach taken when effectively teaching with technology among them is strikingly similar to that of any other generation. Unfortunately, popular press authors hold influence over educators and administration with alluring claims about the supposed characteristics of Digital Natives:

> They claim that "digital natives" (often defined as those born after 1980) have a distinctive set of characteristics that includes preference for speed, nonlinear processing, multitasking, and social learning, allegedly developed through immersion in digital technology during childhood and adolescence when neural plasticity is high. (Thompson, 2013, p. 13)

This has led to misspent technology budgets, poor instructional design, and outright neglect to teach education technology skills that are required for academic success (Thompson, 2013). Thompson (2013) goes on to suggest that while basic communication via technological means is common among Digital Natives, very few are using technology in an advanced manner to productively create audio, textual, or video content. This refutes the claims by the mass media and Prensky (2001) that digital literacy is somehow age dependent.

The methodology used by Thompson (2013) to prove these claims consisted of an online survey sampling a random group of 3000 freshman from a large Midwestern university. The 388 respondents were asked to rate themselves on a scale based on their digital characteristics, productive learning habits, technology use, and basic

demographics. The resulting data provided evidence that students averaging 18 years of age were using a surprisingly narrow range of technology tools mainly related to rapid communication technology, and even then, these technology tools weren't being utilized to their full potential (Thompson, 2013). Again, this research uncovers a patent need to emphasize digital literacy among Digital Natives. In order to utilize technology tools effectively for school and work, Thompson (2013) provides a strategy and examples for providing scaffolding that students may need in order to go beyond their comfort zone. This is a stark reminder that, while important, technology has not yet replaced the role of the instructor, and guidance traversing the digital landscape is still quite necessary for student success (Thompson, 2013).

Emphasizing Importance

As literacy is a key indicator of student success, by extension digital literacy has become a new metric in indicating student success. Unfortunately, as highlighted previously, common misconceptions surrounding new generations of learners has hindered their ability to master digital literacy, and unlike reading requirements, technology requirements are downplayed in non-technology related fields of study. With an increased emphasis on technical capabilities in the job market it is imperative that Digital Natives excel in a form of Digital Literacy that rises above comfortably navigating a smart device.

The case for sound strategies that emphasize critical digital skills among Digital Natives throughout their college experience is strong. According to *Issues in Informing Science and Information Technology*, digital literacy is considered necessary in the current competitive, global job market (Murray & Perez, 2014). However, unlike other

major literacies in the liberal arts, digital literacy tends to be "taken for granted or assumed to be at an adequate level rather than being assessed, remediated and amplified" (Murray & Perez, 2014, p. 85).

Not only are employers taking notice, but also major government entities across the world. In fact, the United States, under the Obama administration, set up a digital literacy initiative containing resources and collaborative opportunities in order to educate its citizens and advance the adoption of essential technology skills. The mission statement articulates the need for digitally literate Americans as a means to increase opportunity and elevate the economy (U.S. Department of Commerce, 2017).

This importance combined with a lack of sufficient instruction of technology skills among academia has prompted a call for digital literacy to be acknowledged among traditional literacies (reading, writing, arithmetic) as the fourth literacy (Murray & Perez, 2014). Unlike the traditional literacies, where college seniors are expected to excel in order to graduate, there are minimal requirements for digital literacy competency. To highlight this, Murray and Perez (2014) conducted research on students in a senior level seminar and concluded that exposure to technology does not equate to understanding of it.

> …the results of the digital literacy assessment. With caveats that include a small sample size and an instrument that has not undergone psycho- metric evaluation, it is at least anecdotally noteworthy that only 12% of the students answered 80% of the items correctly. Perhaps more illuminating still is that 72% of the students

> would have "failed" the assessment based on a traditional scale. (Murray & Perez, 2014, p. 95)

Another enlightening study which reiterates the importance of digital literacy among Digital Natives was released by the *New Media Consortium* just this year. The survey, which consists of responses from 700 college graduates across 36 institutions, revealed that an overwhelming percentage of the students received little to no training in the realm of digital production and responsible use. While the students did fair better when asked about communication and collaboration training, this study suggests that there is a gap in technology training among Digital Natives throughout their college careers (Adams, Pasquini, & Zentner, 2017).

The value of digital literacy in student populations and the workforce cannot be understated. *Educause Review* references a survey that illuminates a gap between what employers expect when hiring and what skills students actually have (Ventimiglia & Pullman, 2016). While 44% of students surveyed responded that they felt prepared, only 18% of employers felt that students had the necessary technology skills to fulfill entry level positions in varying fields (Ventimiglia & Pullman, 2016).

Ventimiglia and Pullman (2016) continue by comparing traditional and digital literacy, suggesting that it isn't enough to simply know how to write and think critically, but instead that intellectual freedom can only be obtained through the understanding of computational structures and "thinking digitally." They further clarify by offering examples of necessary skills such as creating web-forms and utilizing spreadsheets for data analysis (Ventimiglia & Pullman, 2016). Through these recommendations it is

revealed that while it isn't necessary for every student to be proficient in application development, it is appropriate for them to be adept at linking tools in order to create tailor-made solutions that will ultimately increase their efficiency (Ventimiglia & Pullman, 2016).

Summary and Conclusion

Common literacy was once a staple in predicting success or failure in education, but the advent of technology has brought about a new form of literacy that is equally as critical. Ignoring digital literacy due to preconceived notions about particular populations of students can be highly detrimental to student success which in turn results in lower quality job opportunities. Instead, digital literacy should be elevated among subjects in an academic setting to better prepare Digital Natives for careers that are increasingly technical regardless of field.

Technology is the bridge by which teachers and students can reach their audiences, without which, the great leaps humanity has made in the past century might not have been possible. The research highlighted in this paper has proven that focused instruction in digital literacy is highly paramount among Digital Natives, and that a basis for comprehensive digital training should be implemented. Educators can take action by evaluating their current curriculum and implementing relevant activities that allow students to practice and show-case digital literacy skills related to their core discipline (Ventimiglia & Pullman, 2016).

References

Adams, B., Pasquini, L. A., & Zentner, A. (2017, September 1). Digital literacy impact study: An NMC Horizon Project strategic brief. *3.5*. Austin, Texas: The New Media Consortium.

Bajarin, T. (2016, March 16). *Time: Tech*. Retrieved from Time Magazine: http://time.com/4261554/why-schools-should-teach-more-than-basic-coding/

Bawden, D. (2001). Information and digital literacies: A review of concepts. *Journal of Documentation, 57*(2), 218-259.

Hanman, N. (2005, November 10). *The Guardian: Technology*. Retrieved from The Guardian: https://www.theguardian.com/technology/2005/nov/10/newmedia.media

Murray, M. C., & Perez, J. (2014). Unraveling the digital literacy paradox: How higher education fails at the fourth literacy. *Issues in Informing Science and Information Technology, 11*, 85-100.

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

Prensky, M. (2001). Digital natives, digital immigrants. *MCB University Press, 9*(5), 1-6.

Smith, A. (2014). *What internet users know about technology and the web.* Washington, DC: Pew Research Center.

Stahl, T. (2017). How ICT savvy are digital natives actually? *Nordic Journal of Digital Literacy, 12*(3), 89-108.

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

U.S. Department of Commerce. (2017, November 26). *About Us*. Retrieved from Digital Literacy Government Web site: https://digitalliteracy.gov/about

Ventimiglia, P., & Pullman, G. (2016). From written to digital: The new literacy. *Educause Review, 51*(2), 36-48