

Digital learners not digital natives

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Aprendices digitales no nativos digitales

RESUMEN

En el discurso de los usuarios habituales de las nuevas tecnologías se percibe un llamamiento urgente que sugiere que los estudiantes de hoy en día no están muy satisfechos con los modos tradicionales de aprendizaje. Nuestra investigación, llevada a cabo en seis países diferentes y en diversas instituciones, sugiere que el estudio de la aplicación de las nuevas tecnologías en el aprendizaje debe estar enfocado, más que a los usuarios habituales, a los principiantes en la utilización de estas herramientas. Aunque algunas experiencias claramente muestren un aumento del uso de las tecnologías digitales, más pronunciado en los jóvenes que en los adultos, esto no significa que los resultados publicados al respecto estén determinados por la edad. Además, las implicaciones que tiene para la educación están lejos de ser claras. Es hora de que el debate evolucione más allá de la dicotomía simplista usuarios habituales de las nuevas tecnologías y recién iniciados en las mismas. Nuestra investigación muestra que los nuevos usuarios, independientemente de la edad, comparten las siguientes características: poseen las habilidades que estas herramientas requieren, tienen acceso a ellas, saben cómo utilizarlas y conocen sus beneficios. Lo que les diferencia son los puntos de vista sobre cómo integrar los usos sociales y los académicos. Generalmente no contradicen el paradigma académico dominante.

Palabras clave: aprendices digitales, generación de la red, tecnología educativa, diseño instruccional.

ABSTRACT

There is a sense of urgency in the digital natives discourse that suggests today's learners are becoming impatient with traditional modes of teaching because they have grown up digitally. Our research and research conducted in six different countries and at a range of different institutions suggests we need to be focusing on digital learners, not digital natives. While the empirical evidence clearly shows the use of digital technology is growing, and young people tend to use it more than older people, it just as clearly shows that the issues are not defined by generation and the implications for education are far from clear.

It is time to move beyond the simplistic dichotomy of digital natives and digital immigrants. Our research shows today's learners, regardless of age, are on a continuum of technological access, skill, use and comfort. They have differing views about the integration of social and academic uses and are not generally challenging the dominant academic paradigm.

Keywords: digital learners, net generation, digital natives, educational technology, instructional design

Background

The popular digital natives discourse suggests that the generation, born roughly between 1980 and 2000, has been profoundly influenced by the advent of digital technologies and the immersion in a digital and networked world. We are urged to develop new approaches to teaching and learning and to make radical changes to our educational systems because, it is argued, these digital natives behave differently, have different social characteristics, ways of using and making sense of information, ways of learning, and expectations about life and learning, all due to their exposure to digital technology. (Howe & Strauss, 2000; Oblinger & Oblinger, 2005; Palfrey & Gasser, 2008; Prensky, 2001a, b, 2005; Tapscott, 1998, 2009). However, there is no empirical support for this techno-deterministic perspective and there is a growing body of evidence that suggests a generational frame of reference obscures deeper issues and that the implications for learning are more complex and nuanced. (Bullen et al, 2011; Bennett et al., 2008; Cameron et al., 2011; Corrin, et al., 2011). In this article we provide a critical review of the digital natives discourse and report on the results of an international research project that is attempting to gain a deeper understanding of digital learners and their use of information and communication technologies (ICTs).

The Digital Natives Discourse

The key claims in the digital natives discourse emerge from non-scholarly literature. Some appear in the popular or lay press; others are found in proprietary research funded by and conducted for private business. Still others can be found in quasi-academic publications that have the appearance of academic or scholarly quality but turn out not be informed by empirical research. These claims can be sorted into three categories: claims about the widespread use ICTs, claims about the impact of digital immersion (particularly on learning) and claims about the distinctive personal and behavioral characteristics of this generation. The latter two categories have particular relevance for teaching and learning.

The Widespread Use of ICTs

There is little doubt that the use of ICTs is growing and that younger people tend to use digital technologies more than older people, although digital technology use by older people is growing faster. Numerous surveys have been conducted over the past decade that confirm this and, in the developed world at least, we can observe the pervasiveness of digital technology use in all facets of life (Jones and Fox, 2009).

The Impact of Digital Immersion

The impact of being immersed in a digital world is at the heart of the digital natives discourse and it is claims related to this that provoke controversy both because they are more bold and because the evidence to support them is often absent or of dubious quality. Prensky (2001a, 2001b, 2005), Tapscott (1998, 2009) and, to a lesser extent, Palfrey & Gasser (2008) have all claimed that the ubiquity of digital

technologies and digital natives' intensive use of these technologies is affecting how digital natives think, interact, and makes sense of the world. The following assertions are typical of the claims in popular literature about the impact on this generation of being immersed in digital technology:

Prensky (2001a, 2001b) makes similar claims but goes even further, arguing that the pervasive use of these technologies is actually changing the physical structure of this generation's brains, which allows them, among other things, to multitask effectively.

Personal and Behavioural Characteristics of Digital Natives

The personal and behavioural characteristics of digital natives have been the subject of numerous books and articles. These claims are often difficult to separate from the claims about digital immersion and it is not always clear if an argument is being made that the characteristics attributed to this generation are due to their intensive use of digital technology or to other social and environmental factors unique to this generation.

One of the more widely-cited references in support of the claims about the distinct characteristics of digital natives is Howe & Strauss' *Millennials Rising: The Next Great Generation* (2000). They state: "Over the next decade, the Millennial Generation will entirely recast the image of youth from downbeat and alienated to upbeat and engaged - with potentially seismic consequences for America" (p. 4).

Tapscott (2009) also makes some sweeping statements about digital natives and coined the term the "net generation". He proposes what he calls his eight net generation norms: freedom, customization, integrity, scrutiny, collaboration, entertainment, innovation and speed. Oblinger & Oblinger (2005) have probably done the most to legitimize the notion that this generation has unique personal and behavioral characteristics because their book was published by the well-known EDUCAUSE organization and made available as a free download. They echo much of what Howe & Strauss (2000) say about this generation but they tend to conflate claims about the impact of digital immersion and personal and behavioural characteristics. Drawing on the work of Prensky (2001a, b), Tapscott (1998), Seely-Brown (2002) and Howe & Strauss (2000), they argue that the net generation is digitally literate, connected, social, and has a preference for experiential learning and immediate feedback.

The Digital Natives Discourse and Implications for Teaching and Learning

If one accepts these claims, there are clear implications for teaching and learning. In fact, there is a distinctly prescriptive thread to the digital natives discourse. Tapscott (2009), for example, argues that we need to move away from what he claims is the dominant broadcast mode of education and incorporate more interactive, collaborative and constructivist pedagogies and instructional designs. Prensky (2001a, 2001b) makes similar recommendations but also argues for greater use of gaming and game-based designs. Palfrey & Gasser (2008) are more cautious in their recommendations, arguing that "learning will always have certain enduring qualities that have little or nothing to do with technologies" (p. 246). They urge educators to resist the temptation to implement radical changes but they also suggest we need to respond to the changing nature of learners by using more team-based, collaborative learning, and game-based learning. In addition to more team-based and collaborative approaches, Oblinger & Oblinger (2005) also recommend structured learning experiences that are socially meaningful and use visual and kinesethic approaches.

There is something intuitively appealing about these claims and the prescriptions for educational change. It does seem to make sense that using these technologies intensively should have some impact, and that if today's students are indeed learning differently then we should consider new instructional designs. However, to date there is no convincing evidence to support these claims (Bekebrede et al 2011, Bennett

et al, 2008; Bullen et al., 2011; Guo, Dobson & Petrina, 2008; Jones & Cross, 2009; Kennedy et al, 2007, 2009; Margaryan et al, 2011; Pedro, 2009; Reeves & Oh, 2007; Selwyn, 2009, van den Beemt et al, 2010).

Until recently, there has been a largely uncritical acceptance of the digital natives discourse. The claims have been repeated by other researchers, writers and commentators, which has helped to give the discourse a sense of legitimacy. This phenomenon has been called the “snark syndrome”. This is the idea (taken from the Lewis Carroll poem, *The Hunting of the Snark*) that if you repeat something frequently enough it eventually becomes accepted as fact (Byrne, 1993). Even researchers who acknowledge the lack of empirical support for the generational argument continue to either frame the issue in generational terms or give prominence to the unfounded generational claims, which further entrenches the digital natives discourse (Bates & Sangrà, 2011; Corrin et al, 2011; Gilewicz, 2011).

Digging Deeper

However, the lack of empirical support for the key claims of the digital natives discourse does not imply that the educational landscape has been unaffected by the growth in the use of digital technology. While today’s students may not fit stereotype portrayed in the digital natives discourse, there is no question that digital technologies are an important part of their social and educational lives, as it is for most students in the developed world. Educators around the world are scrambling to understand the rapidly changing technological landscape and determine how, or if, their teaching should change to accommodate emerging technologies. And while we can now say with certainty that generation is not relevant, the question of how post secondary education should respond to the growth in digital, networked technology use remains to be explored.

Our discussions with international researchers investigating this topic have underlined the importance of investigating these questions on a global scale, given the penetration of ICTs in the developed world, and the increased mobility of students internationally. Our goal is to build on the completed and active research in this area to try to develop a comprehensive understanding of the issues that take into account the diversity of cultural and institutional contexts.

Research Questions

There are three research questions driving our research:

Do postsecondary students distinguish their social and educational use of ICTs?

What impact do students’ social use of ICTs have on postsecondary learning environments?

What is the relationship between social and educational uses of ICTs at in postsecondary education?

Theoretical Framework & Research Design

The question of social versus educational use implies a sociocultural orientation to our study, and requires the use of theories or frameworks that help to understand use-in-context. We are using third generation activity theory (AT) (Engestrom, 1987) as a framework to examine more closely the nature of social and educational use, and the implications for teaching and learning. AT provides a means of looking at both social and educational contexts and a way of examining how these two contexts intersect or collide. AT is also valuable when examining larger units of analysis (e.g. institutions) in understanding the phenomenon being investigated.

We are using a multi-case study embedded research design of three cases of social and educational use of digital technology. Data is being collected through in-depth individual and focus group interviews with students at each institution.

Case Contexts

BC Institute of Technology: BCIT is a Canadian campus-based polytechnic teaching institution with a large online and distance education program. It offers career-oriented programs in trades, professional and technical fields that are driven by employer-identified needs.

Open University of Catalonia: OUC is a fully online European university that offers undergraduate and graduate programs. It tends to attract older learners who have delayed their postsecondary education or are returning because of career changes or the need for new skills. They offer programs in Spanish, Catalan and English. Students come from Spain, Latin America and, increasingly, other European countries.

University of Regina: The University of Regina is relatively small Canadian research-intensive university. Students are primarily from Saskatchewan but it has international students and number of international programs.

Preliminary Findings

The following themes have emerged from a preliminary analysis of the interviews conducted at BCIT.

Profiles of Use

Given our critical stance on the generational classification of technology and learners (Bullen, et al., 2011) we are cautious in any attempt to categorize profiles of use. However, if viewed on a continuum, our interviews with students revealed that there are clear resisters to technology, cautious users, specific or limited users, and integrators. Within these profiles are interesting conditions and affordances that contribute to the social and educational practices of students that we interviewed. One thing is clear, it would be unwise to assume a homogeneous set of generational characteristics with respect to the use of digital technologies.

Relationship of Social Use to Educational Practices

Students approach these practices within a range of conscious separation to a desire for more integration. As expected, mobile phone use and texting is a predominant practice, but smartphone uptake is limited. Ease of use, convenience, and cost determine the selection of technology for both social and academic use. There are overlapping uses (e.g. email), largely social uses (texting and Facebook) and largely educational uses (program specific technologies). Most of the students we talked to kept their social and academic lives separate but few had technologies that were used exclusively for one or the other. Some of the technologies that were used for primarily social purposes (e.g., Facebook, texting) were often also used to communicate with fellow students on academic issues.

Limited Challenge to the Current Academic Paradigm

Perhaps the most surprising and important finding to emerge out of our discussions with students is that none of them challenged the current academic paradigm. In fact, several students talked about the importance of paying attention in lectures, of limiting distractions, and of the value of notetaking by

hand. One student told us how she used Facebook during her lectures to keep her awake so she could pay attention. When asked if she thought the technology might be used more directly to support her learning, she was uncertain. Furthermore, when students were asked if they could recommend any changes to their programs or how technology might be used more effectively, they had little to say and generally expressed satisfaction with the status quo. This conservative perspective is in direct contradiction to the digital natives discourse, which argues that today's students are bored with conventional teaching methods and are demanding more interactive, collaborative, and technology-based approaches. We hasten to emphasize that this apparent support for the status quo by our students does not absolve us from our responsibility to innovate. If students have not been exposed to innovative teaching and have not seen how digital technology can be used to enhance learning, it should not be surprising that they are unable to offer suggestions for change.

Recommendations for Teaching and Learning

While our research is still in its early stages, we can make some preliminary observations about the implications for teaching and learning. The dominant theme to emerge from our research is that good instructional design is contextual. This is no surprise to experienced educators but in face of the dominant digital natives discourse, it seems to get overlooked. The following recommendations emerge from our findings:

It is essential that we design instruction based on the needs of the students we have in front of us (or online), not a mythical "net generation" student. This does not mean we make design decisions solely based on what our students want. Sometimes students what students want is not necessarily the best approach to teaching. However, good instructional design begins by analyzing the audience and taking that into consideration as one of the many factors that influence our design.

Use technologies that are program-relevant. There is a tendency to jump on technology bandwagons. Social media are the current rage and we are being urged to use tools like Twitter and Facebook in our teaching. We believe there may be a place for these tools in some program but are those the most useful and relevant for the programs you are teaching? As an example, we found that in one of our steel fabrication programs, what students most needed was the ability to see some of the instructor demonstrations of how to use particular steel fabrication tools. This was difficult because of the students' ability to see the demonstrations was limited by the large number of students in the class. The technology solution for this problem was to make simple video demonstrations available online so that students could view them at a time and place that was convenient.

Don't assume that all your students have access to the latest technologies or are proficient in their use. Our research is showing clearly that there is a continuum of access, use and comfort with digital technologies. This will vary from institution to institution but also within institutions. The profile of the students in our technology programs is very different from those in our vocational programs, for example.

Conclusion

Our research as well as research conducted in six different countries and at a range of different institutions suggests we need to resist the technological imperative of the digital natives discourse. While the use of digital, networked technology is growing, it is a social not generational issue and the implications for education are far from clear. Our research suggests today's learners, regardless of age, are on a continuum of technology access, skill, use and comfort. They have differing views about the

integration of social and academic uses and are not generally challenging the dominant academic paradigm. This is not a rationale for maintaining the status quo but it does suggest a need for caution and for ensuring that the use of ICTs in education is driven by instructional design that is clearly grounded in the context, i.e., that it takes into account the specific student, program and technology variables. It is time to put the digital natives discourse to rest and focus on digital learners.

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