From Digital Natives to Student Experiences With Technology

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INTRODUCTION

The term 'digital native' was popularized by Prensky (2001) as a means to distinguish young people who were highly technologically literate and engaged. A 'digital native' can be defined as an individual who has grown up immersed in digital technology and is technologically adept and interested. The digital native is described in direct contrast to the 'digital immigrant', who having been exposed to digital technology later in life is fearful of it, mistrustful and lacks the skills to use technology adeptly. According to Prensky's (2001) vision, all young people who have grown up since the widespread advent of the personal computer can be considered digital natives, and, by elimination, all older people are digital immigrants.

It is argued that the existence of the digital native makes dramatic educational reforms necessary because traditional education systems do not, and can not, cater for the needs and interests of young people. As a result, outdated schools and universities and outmoded teaching simply alienate students from learning, leaving them disengaged and disenchanted by education's alleged failure to adapt to the new digital world. By implication, education must be transformed by technology, coupled with new pedagogies. Although this argument is a familiar one to those acquainted with the broader educational technology literature, the digital native hypothesis provides a new basis for claims for revolutionary educational change through technology integration.

Recent research has revealed that the term is misapplied when used to generalized about an entire generation, and instead indicates that only a small sub-set of the population fits this characterization. This research shows significant diversity in the technology skills, knowledge and interest of young people, and suggests that there are important 'digital divides' which are ignored by the digital native concept.

This chapter charts the development of the digital native idea and the debate that has surrounded it. It provides an account of the research and conceptual work it has stimulated, and suggests future directions research may take in the coming decades.

BACKGROUND

The idea of the digital native appears to have first emerged in an essay entitled *Declaration of the Independence of Cyberspace* by Barlow (1995) in which he admonished parents with the charge: "You are terrified of your own children, since they are natives in a world where you will always be immigrants" (p.12). Papert (1996), in *The Connected Family*, similarly evokes a rift between parents and children, and teachers and students, portraying older generations as being both afraid of computers and technically incompetent. Clearly,

the idea of a digital generation gap was gaining currency at this time.

Regardless of its exact provenance, it has been Prensky who popularized the term 'digital native' in his widely cited 2001 article, *Digital Natives, Digital Immigrants*. Around the same time, Tapscott (1998) had put forward the similar notion of 'the Net Generation', while social commentators coined the term 'Millenials' as a generational label (Howe & Strauss, 2000). Since then a proliferation of less widely used epithets has appeared, all attempting to capture the essence of the same phenomenon (e.g., Generation C, Google Generation, Nintendo Generation, etc.).

In short, the idea of the digital native captured the imaginations of teachers, parents, journalists, commentators and academics. Closer examination of Prensky's arguments, particularly in his influential 2001 paper, reveals little in way of evidence to substantiate his claims, however. He relies on anecdotes, conjecture and speculation. Nonetheless his ideas have often been uncritically repeated and cited as if fact. Similar arguments purportedly based on evidence provide few details of the data collection methods and analysis processes, thwarting critical scrutiny of these studies (e.g., Tapscott, 1998; Palfrey & Gasser, 2008). This presents a significant challenge in assessing the quality of this research.

It was a few years after Prensky's 2001 paper before researchers began to seriously address his claims, apparently galvanized by dissatisfaction with his arguments. Since that time a significant body of international research has largely debunked the idea of a uniformly technically savvy generation. Instead it suggests that the label 'digital native' likely only applies to a small minority of the population. Of much greater interest is the wide diversity of technology use uncovered by this research. These differences are often thought of as 'digital divides' because they highlight significant gaps between the ways individuals and/or communities engage with technology. These gaps present an ongoing challenge to those concerned with equity and justice in education, and in society more broadly.

More recently there have been attempts to redefine and rehabilitate the term 'digital native'. In fact, this emerged in Dede's (2005) argument that aptitude with technology is not necessarily related to age but to other personal characteristics. In recent years Prensky (2009) has also seemed to resile from his earlier sharp distinctions, praising rather than criticizing the role of the teacher. Nevertheless the original divisive idea remains potent.

In the next section we turn to examine some of the research evidence that has emerged in response to the idea of the digital native.

RESEARCHING 'DIGITAL NATIVES'

Researching Technology Use

In the mid 2000s researchers began to investigate some of Prensky's key claims about digital natives. The initial area of focus was on determining whether, in fact, digital technologies were as extensively used within younger generations of the population as was supposed by the digital native thesis (e.g. Kennedy, Krause, Judd, Churchward & Gray, 2006; Kvavik, Caruso & Morgan, 2004; Oliver & Goerke, 2007). These studies set about to establish the extent of access to and ownership of a wide range of technologies, and to discover the extent to which they were used for particular activities. In short, researchers wanted to know who was using what technology, how often and for what purposes. Similar research had already been conducted, for example through studies of children's use of technology in and out of school (e.g., Downes, 2002; Kent & Facer, 2004; Kerawalla & Crook, 2002), but these studies were not specifically driven by the digital native concept. Related work was also being conducted in disciplines outside of education, such as youth studies, cultural studies and media studies, but again these did not relate to the digital native idea (e.g.,

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