

BEING A DIGITAL TEACHER: MYTHS, DILEMMA AND CHALLENGES FOR 21ST CENTURY TEACHERS

Lucia M. M. Giraffa ¹, Sabrina Marczak ²

¹PUCRS - Computer Science School, Faculty of Education (BRAZIL)

²PUCRS - Computer Science School (BRAZIL)
giraffa@pucrs.br, sabrina.marczak@pucrs.br

Abstract

Since Prensky has postulate the division between “Digital Natives” and “Digital Immigrants” in his famous article (Prensky, 2001), the worldwide educational community has been trying to identify itself as one or another. Being an “Immigrant” is something uncomfortable for many teachers because the immigrant word expresses the idea of a person who leaves one country and wants to settle permanently in another. Teachers are placed where they must be: in the students’ world. In other words, they are “native”. Teachers exist to work with students. Together they jointly play choreography in order to achieve their goals: one wants to teach, the other wants to learn. There is no teaching process disconnect to the learning process. One role needs the other; one process depends on the other. Technology is a powerful tool. But it is still a tool to be learned as any other tool we have learned to use in our face-to-face or virtual classes. Prensky’ striking article has been promoting broad reflection in the academic community and has had effects beyond the Educational field. Prensky’s work has won repercussions, followers, and opponents.

The goal of our paper is to discuss concepts related to the original work of Prensky in 2001 as well as to his other contributions to the present day. We also contrast and discuss ideas presented by other authors such as Sue Bennett and Karl Matton. These authors have joined the community of academics that have been arguing about this overwhelming idealization. In addition, we discuss the myths, dilemmas, and challenges that teachers from the 21st century should consider when working with the current generation of students. It is unquestionable that these students are immersed in digital technologies and constantly connected to and dependent of the Internet. They are also used to solve their problems related to communication, leisure, and relationships over the Web in front of a digital monitor screen. Moreover, these students often have poor critical training for the use of these digital technologies as well as they do not understand the potential these technologies have for helping the development of their Education. To change this scenario and improve the use of such technological and digital resources, and teacher’s formation need to be better in order to help them to choose what kind of resources they want to use for teaching and learning process organization. Our paper sheds some light on the ocean of ideas about the meaning of becoming a digital teacher and offers a critical analysis about which aspects should be considered when one wants to become such a teacher.

Keywords: Digital Native Students, Digital Immigrants Teachers, Education and Technology.

1 DIGITAL NATIVE STUDENTS?

Since Prensky (2001) said our students have changed radically. Today' students are no longer the people our educational system was designed to teach and students today are all "native speakers" of the digital language of computers, video games, and the Internet. The discussion regarding the dichotomy created by Prensky when he proposed to classify students and teachers as Digital Natives or Digital Immigrants (those of us who were not born into the digital world but have, at some later point in our lives, become fascinated by and adopted many or most aspects of the new technology) has been flamed teacher's imagination and self-esteem.

Prensky criticizes the resistance to accept the student behavior changes and the necessity to consider the need to invent Digital Native methodologies for all subjects, at all levels, using our students to guide us.

Prensky first paper intends to invite us to reflect the necessity to pay attention on students' behavior and teacher's "old fashion" methodologies. He was not the first to aware us about this. However, his typology caused a big impact on educational communities because it exposes our inability to communicate with this new generation in a very effective way.

Bennett and Maton (2011) say Prensky's ideas have evolved intense criticism by scholars for their lack of rigor, exemplified by the absence of empirical evidences in his 2001 article. Nonetheless, they authors highlights that article has alerted educators and institutions to the diversity of technology practices among what may appears as first glance to be "homogeneous" generational groups.

The Net generation was born in the 1980s were raised with electronic devices from infancy, and according to Rosen (2010) their first toys were talking, flashing, and technological. No more simple stuffed bears for those children. These youngsters' form of igation was the first generation of truly cyber-savvy children.

Rosen also describes the igation as children born in the 1990s and as the author said they are even more enmeshed with technology than their older brothers and sister. They grow up with many technologies artifact's' in their bedrooms. They are surrounded by technology. They are technologically immersed. So, it sounds natural that they have created and redefined communication in order to express their highly social abilities. Yes it seems odd but they are very social using their virtual tools in their virtual social communities. Their cyberworld is a place for them to explore their identity, figure out who and what they want to be when they grow up, and connect, connect, connect. Rosen highlights that iGenders have also adapted technology to "represent" themselves in myriad ways. Most Net Genders have never experience a world without Internet, cell phones, videogames, tablets, smartphones, 3D movies, and interactive digital TV. They spend more hours gobble it up than sleeping or attending school. They have some issues to expose themselves and their opinions in face-to-face classes' discussions because they use to be more comfortable speaking "behind the screen".

In our experience we have been working with students labeled as lazy or uninterested in face-to-face classes, and on virtual communities they are leaders, self-motivated to do research, to solve problems, to help others to solve problems and so on. What had happened to them?

Rosen (2010) identified some important aspects that may help us (teachers and parents) to understand this "dual" behavior:

- They have grown up in an environment where technology is everywhere and much of it is invisible for them. It was always there! Just it!
- They have grown up with the largest storehouse of information: the Internet. It is just a mouse-click away. Easy and quick to find.
- They got older learned support by Google, MapQuest, Wikipedia, and others digital resources.
- News is spread out on different websites, blogs, Facebook, Twitters, and so on.

- For them technology is not a tool to be learned, it is the center of their lives, there are most certainly consumed by it and with it.

Bennett and Maton (2011) analyzed several findings from empirical investigations conducted by different authors about school and universities students. Such surveys support the notion that technology is highly accessible and therefore potentially well-integrated where young people live.

Maton and Bennett (2010) emphasize that it is not a true premise the idea that all young people have equal access to digital technologies. There are different types of technologies-supported practices feature in young people live. Some themes emerge more than others. The students use digital technologies for communicating and consuming information than for creative or gaming activities.

The finding suggested that rather than a homogeneous population of always connected digital natives, technology-related activities of young people widely vary, turning out to become a core set of common activities involving communication and information retrieval.

Bennett and Maton (2011) point out that “a significant body of research also suggests that factors such as socioeconomic status, gender, educational background as well as age influence the extent and type of technology-supported activities that we chose in our life’s supported by technologies. The authors highlight some important aspect that come up on their findings disparities among young people in proficiency with digital technologies due socioeconomic background, school computer, and home computer. We faced with the same characteristics in our personal context.

Students’ behavior regarding ICT (Information Communication and Technology) skills ability varies with the environment in which they live and their personal goals. The update computer model, the quality of Internet connection caused different young people behaviors. For countries like Brazil where Internet access is not so easy to have and it varies from high speed velocity to radio access, assume that Digital Natives behavior are a homogenous population seems not true. Therefore, we do believe the studies made by Prensky (2001, 2010, 2011, 2012) have significant impact on educational community due the discussion and reflections proposed by him.

Bennett and Maton (2011) claim the disparity the confidence with some authors like Prensky claims about a new generation of “Digital Natives” students have been made and the lack of empirical evidence to support such claims raises the question of why they have gained such currency. They mention Cohen works (Cohen, 1972 in Bennett and Maton, 2011, p.173) where the author claims some dilemmas creates a moral panic in society. “A moral panic is a form of public discourse that rises when a group is portrayed as representing a challenge to accept norms and values in a society. The concept is widely used in Sociology and cultural studies to explain how this public concern gains prominence and monument far beyond the evidence to support it”.

The authors mentioned that such moral panic regarding Digital natives could be superseded by a moral panic over those lacking “Digital Wisdom” in Prensky (2012) latest assertions (we will discuss this at the next section). To better emphasis their ideas Bennett and Maton quote past examples of generational differences and calls for change in education. We agree with this approach in some way. Prensky got a smart way to claims our attention for an old problem: teachers and students must to communicate in a better way.

The impact of ICT resources caused a revolution in our society. We have changed the way we communicate, we do information retrieval, we spend our leisure time, and of course the way we can teach and learn. It is time to do it!

Teachers and students have been using technologies since ever. Blackboards and chalk bars, slides projectors, flip charts, and so on composed a “new tech” when they first appeared over decades ago. Every time a new tool is created we need to learn how to use it considering the pedagogical view point. It is intrinsically challenging for teachers to become up-to-date with all new technologies. However, it is a part of being a teacher.

Students seem to be very comfortable with their computers like extensions of their hands. They demonstrate a familiarity with its management, and they seem not to have problems in solving all their questions and doubts with them. For sure they have all these abilities and have a strong connection with the ICTs. Our experience working with technology supporting educational activities in the last twenty years have showed us that there is a difference between using resources to communicate, to play, to find information and to support education.

It seems a lack of knowledge and understanding caused by misunderstood and misconceptions about the role of such tools, and the students and teachers communication. New methodologies are made by teachers not by ICT resources. These resources itself do not help us to support the teaching and learning process. Now we have an opportunity to include the ITCs in the process. If students can handle ITC tools better than teachers ... that is great! Let's add the tools in our classroom! Let's give the students the opportunity to teach the teachers and show their skills regarding ICTs. They still need to learn Biology, Math, English, and so on. We need to understand the side effects of this ICT tools on the students educational development. They need to define limits and understand the role of Internet and its context in their lives to make a better use of it. They still need to be taught in many ways. There are a lot of things to do. The problem nowadays is the same: generation communication.

Prensky (2011) postulate the partnership pedagogy where teachers and students can collaborate to create a better educational environment where student's skills and knowledge can guide us to find a way to explore ICT resources to do our job: to teach. Again, it is not a new idea. We have been seeking this (at least many of us) since schools were created.

Jones (2011, p42) argues there are potentially two different arguments about the changes taking place among young people: "The ubiquitous nature of certain technologies, specifically gaming and the Web, has affected the outlook of an entire age cohort in advance economies. New technologies emerging with this generation have particular characteristics that afford certain types of social engagement."

The author postulate this first argument may need to abandon in the face of empirical evidence. The arguments regarding Digital Natives or Net Generation persist due the draw attention to the way technologies are changing the approaches that young people take in significant ways. However, the idea that technologies simply determine the outlook of an entire generation is one that should be discarded. The idea of technology expands the educational possibilities is something to be taken in account. Jones concludes that "educational change is not fixed into generational patterns, which themselves are determined by technology, even though the affordances of technology still set the limits to what is possible".

2. Digital Immigrant Teachers?

We begin this section citing Prensky (2001) regarding his Digital Immigrant teachers. According to him "many teachers assume that learners are the same as they have always been, and that the same methods that worked for the teachers when they were students will work for their students now. But that assumption is no longer valid. Today's learners are different." In his recent book he questioned himself: "Have my ideas changed since I wrote this?" (Prensky, 2012, p.7). He answers immediately "I still strongly believe in what I have written".

He has a vision for education like many of us have. He wants to teach students based on their needs and prepare them to succeed in their 21st century, not in the 21st century we think will be. Prensky brought up the acronym VUCA (Variability, Uncertainty, Chaos, and Ambiguity) to characterize 21st century. It is very hard to us to predict the challenge face by us who were born before years 2000. So VUCA is an interest way to consider the difficulties we have been face regarding the need to promote school changes.

Despite Prensky oppositions he keeps working in his vision: inspire and motivate teachers to think about students' needs and the role of ICT technologies in their lives. Prensky (2012) says we need to improve our teaching "meta" skills in order to aid students to develop critical thinking, problem solving, and to integrate video, and programming, just as we now integrate reading and writing. To make this happen he postulates the "pedagogy of partnership" (Prensky, 2011). Students do their best: use technology, find information, and create products that demonstrate their state of knowledge of

something. Teachers also do their best: guide the students, ask right questions, put the information into proper context, and ensure quality and rigor on the process.

If we expect changings from government guidelines to cause school transformation we think it will not work properly. The education system plays an important role to contribute for such changes: infrastructure (computers, devices, Internet access with high speed and quality), flexibility for teachers to experiment their new methodologies, pay for teacher's education in order to keep them up-to-date, and of course, pay teachers well.

Teachers need to know in advance what they can obtain pedagogically using a specific technology. As Prensky (2012) remarks unfortunately the obsolescence of the technologies we do not have enough time to postulate an experiment the effects of a specific tech due it's intrinsically obsolescence. It causes some problems for immigrant teacher that need to acquire skills first and after start to think about pedagogical possibilities.

We also have been in face with this situation along years of research with teacher's training. Teachers with less fluency with ICT technologies seems to have more difficult to identify pedagogical potential of a specific tool or technology due those who have familiarity with ICT tools used to be more creative and develop a special skill to have "a glance" to identify the potential of some resource and to create methodologies in order to include them in their class activities.

The ability to quickly learn new skills relate to new tools is something that we need to pursuit as teachers. We need to behave like our students do. We used to say to our programming students: do not be trustworthy to a specific tech. While we are learning how to use it, you need to pay attention on surroundings and follow the tendencies and the alternatives to find a way to do whatever you need to do in a better and quick way. We believe this spirit guides some of student's behavior nowadays.

Areas such as Computer Science need a special approach in order to promote real learning opportunities for our students. For example, good Programming Teachers works like mentors and coach for their students. They give problem to be solved and explain the available tools. The students must find a way to solve the problem and teachers are there to support them.

Regarding curriculum and its changes, Prensky (2012, p.21) says "changing what we teach is harder than changing how we teach, because the needed changes face so many political and cultural hurdles". It seems the opposite at the first moment, however Prensky claims that there are several teachers with great ideas and they faced a lot of restrictions due educational policies based on old paradigms.

"The new curriculum should be much more cross-disciplinary and integrated than is currently the casa, because this is how the world works. Additionally, it needs to focus much of its teaching on at least three areas that are not given enough (or often any) systematic attention. Let's call them the "3 P's": Passion, Problem Solving, and Producing." Prensky (2012, p.23)

Passion is not mentioned regarding teacher's motivation. Prensky always emphasizes the student view point. So, he wants to integrate student's passion in some way into our teaching.

Regarding Problem Solving he connects it straight to communication due the most of 21st century problems solving is done in groups, an even the best of solutions are worthless when not shared (Prensky, 2012, p.25)

Prensky comes up with a new provocation: Digital Wisdom.

"Digital wisdom transcends the generation divided defined by the Immigrant/native distinction." (Prensky (2012, p.205)

This emerging digitally person the *homo sapiens digital* or *wise digital human* according Prensky differs from today's human in two key aspects: he/she accepts are digitally enhancement to complement his/her innate abilities and he/she uses enhancements to facilitate wiser decisions.

"Digital wisdom means not just manipulating technology easily, or even creatively; it means making wiser decisions because one is enhanced by technology". (Prensky, 2012, p.212)

Prensky smoothes his previous proposed division between natives and immigrants but still argues that technology can drive educational process to changes. It means ICT resources can be used as

supported tools to lead teacher's to think about the necessity to change and to adapt them to this new scenario.

Teachers who simply refuse to consider the use of technology in their activities with his/her students will face a huge risk to speak without being heard. Technologies will be replaced all times, methodologies must be adapted ... but a professor who teaches and understands his role ... remains! (Giraffa, 2012). When we change our beliefs regarding student's roles in the educational process we have been arguing that students are the reason for teacher's existence.

3. Teaching in 21st schools

Berry at all (2012) point out some interesting aspects regarding what we can do in order to build a 21st teaching profession embracing teacher leadership. Berry suggested seven steps to be achieved in order to really start to modify educational scenario:

- First step: school administrators need to leave their offices and spend more time in classrooms teaching students. It will help them to understand the challenges and the changes face by teacher's nowadays. It also will help administrators work together with teachers in order to create more powerful ways to overcome the lack between we have and what we need to be successful in our work: to help young people to be prepare to work in a different way (we do not know exactly what will expect them);
- Second step: union leaders need to get beyond their limiting 20th century concepts of teacher world rules and embrace efforts to establish an enforce standards of quality among teachers ranks.
- Third step: policymakers need to invest in hybrid teaching roles in order to quick escalate the number of expert teachers available to lead reforms from the classroom to educational policies. They need to promote different teaching profession with multiple pathways and carrees.
- Fourth step: universities presidents need to invest in teacher education very differently in the future by rewarding their faculty in education schools, arts and sciences, and allied professions who work more closely with teachers from k-12 system (or equivalent).
- Fifth step: community leaders need to step up and embraces teacher-leaders offering them encouragement and support as they work to transcendent the current labor/management divides that impede the development of teaching as full profession.
- Sixth step: parents and students need to speak up about the many effective teachers who currently teach in our schools. Parents and students must to understand changing proposals and know in advance what will change and why. Sometimes good intentions are buried by parents and students misconceptions.
- Seventh step: teachers need to band together a document with their professional practice and assemble both empirical evidence and compelling stories about what works in their classrooms and communities, And therefore what most matters for public policies.

Berry (2012, 210) highlights: "If teaching is to become the results-oriented profession that students truly deserved, then classroom practitioners, not just researchers and think tank analysts, must weight in on what it means to be an effective teacher... The public, which has always had respect for teachers, will begin to pay attention as never before and invest in the profession in ways that make a difference for student learning".

These ideas related to Berry's team work/research can be found at the Teaching 2030 website (www.teaching2030.org). One can also find here different materials like an interesting YouTube video that explains the overall idea of Teaching in 2030 and related topics. Figure 1 shows the opening of the video.



Figure 1: Teaching 2030 video

Addressing some final words of Berry's team clever ideas we want to say that despite the difference among countries economic development, cultural approaches, school organization we, the authors, have had the opportunity to study and work abroad as teacher. We observed in our humble experiences that the challenges and problems faced by teachers who want to innovate, administrators who want to change schools and policymakers who are really engaged with society transformation are similar around the globe.

Despite all critics that may be made to Prensky, he has done something very important: he started a discussion with a worldwide impact.

Due to his first paper teachers needed to think about their particular situation in a word "divided" by natives and immigrants. Some ideas are not brand new. Since the first time a computer based instruction was written in the latest 1950's to support US navy training teachers and school administrators have been paying attention to technologies evolution. Internet and its resources changed the way we communicate, teach and learn. We do not need empirical evidences; they are anywhere we look around.

In order to promote a real educational changing we must to create conditions to reorganize and to redesign teacher's formation curricula. Universities have an important role on it. The challenge is to educate the young generation to work and to live in a society where we (current teachers) have no idea how it will be. However, some important things we know:

- An egalitarian society must fight to ensure fair educational access for its young people;
- Teachers should be recognized as agents of change and receive conditions to be and to act in this way.

The remaining are consequences!

The problems that exist in the world today cannot be solved by the level of thinking that created them. (Albert Einstein)

REFERENCES

- [1] Bennett, S; Matton, K. (2011). Intellectual Field or Faith-based Religion: Moving on from idea of "Digital natives". In: Thomas, M. (2011). Deconstructing Digital natives. New York: Routledge.pp. 169-185.
- [2] Berry, B. (2011) Teaching 2030: what we must do for our students and our public schools, now and in the future.
- [3] Giraffa, L.M.M. (2012) Docentes analógicos e alunos da geração digital:Desafios e possibilidades na escola do século XXI. In: Giraffa et al. (Re)invenção pedagógica? Reflexões acerca do uso de tecnologias digitais na educação . Porto Alegre: EDIPUCRS.pp. 24-32.(Portuguese)
- [4] Jones, C. (2011). Students, the Net Generation, and Digital natives: accounting for Educational Change. In: Thomas, M. (2011). Deconstructing Digital natives. New York: Routledge. pp. 30-48.
- [5] Matton, k; Bennett, S. The role of ICTs at the University of Sidney: a report on the experiences and expectations of students and teaching staff. Sidney: Office of the DVC (E), University of Sidney.
- [6] Prensky, M.(2001) Digital Natives Digital Immigrants. On the Horizon (NCB University Press, Vol. 9 No. 5.
- [7] Prensky, M. (2010). Teaching Digital Natives Partnering for Real Learning. Thousand Oaks, CA Corwin.
- [8] Prensky, M. (2012). From Digital Natives to Digital Wisdom Hopeful Essays for 21st Century Learning. Thousand Oaks, CA Corwin.
- [9] Rosen (2010). Rewired: understanding the igitneration and the way they learn. New York: Palgrave.