Teaching the Digital Natives

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Abstract

"If we teach today's students as we taught yesterday's, we rob them of tomorrow." (West, 2013). Although the words of the philosopher, psychologist and educational reformer John Dewey, were uttered almost a century ago, he could not have predicted the current internet era or the technological resources available today, digital textbooks, projectors, social media, iPhones, iPads, blogs, wikis; yet his words reverberate today louder than they must have echoed in the past. If school infrastructure and teachers do not reinvent themselves to keep up with the technological advances of the 21st century, students will suffer. Subsequent of the growth of ground-breaking didactic technologies, the common apprehension of teaching and didactics progresses together with the expansion of learning theories. Today's teachers must learn to communicate in the language and style of their students, re-thinking old-style teaching in education in the digital age, where educators often find themselves as immigrants trying to cope with the digital natives that are no longer engaged with chalk and blackboard and one educational flow from the teacher to the student. Teachers must recognize that their students are digital natives who master essential skills for accessing digital, cloud libraries and informational resources available from their own devices. Phones, today no longer serve the purpose of speaking, they are digital tools, mini worlds, from where the holders connect with the entire world, in a blink of an eye. How do we master teaching in the miscellaneous scenery of the 21st century classroom? How can we use Multimodal training and technology to create an engaging learning atmosphere? How can we merge old-style literacy with the new idea of plural literacies to get students ready for standardized assessments and life outside the teaching space?

Keywords: *digital natives; digital immigrants; technological curriculum; digital literacy; internet.*

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Teaching the Digital Natives

Introduction

What is a Digital Native?

The term of digital native has been coined by education advisor Marc Prensky in his 2001 article entitled *Digital Natives, Digital Immigrants*, in which he shows the modern deterioration in the American teaching system putting the blame on the educators' fiasco to recognise the needs of contemporary students. The quick arrival of digital technology, of touch -basically anything, had changed the manner our kids and students grew up and evolved, process, share and filter the information, thus the world today is split into two types of people: digital natives and digital immigrants.

Types of digital users

A **digital native** has grown up in the age of technology, can distribute ideas and knowledge and interconnect in a continuous 24/7 environment; he is assured in the dialectal of the internet, being exposed, at an early age, to online games, Twitter, Facebook, Instagram, blogs, podcasts, YouTube, online news, text messaging, instant messaging, smart phones, iPads. Digital natives are born in the digital era, i.e., **generation X** and or even younger. This cluster is also mentioned as the "**iGeneration**" or is labelled as having been born with **digital DNA**. In addition, "Today's average college grads have spent fewer than 5,000 hours of their lives reading, but over 10,000 hours playing video games (not to mention 20,000 hours watching TV). Computer games, e-mail, the Internet, cell phones and instant messaging are integral parts of their lives." (Prensky, 2001).

A **digital immigrant**, on the other hand, is a person born/brought up before 1964 and who grew up in a pre- extensive use of digital technology. In the over-all terms, digital natives state and breathe the language of computers and web culture and philosophy into which they were literally born, while digital immigrants will never manage and understand technology as obviously as those who grew up with it. While most digital natives start using phones and tablets or phablets as early as one year old by the advantage of their being born around technology, others do not have the ability for technology and computers, or even the curiosity or predisposition to study more. Digital immigrants are undoubtedly an extremely varied cluster in terms of their predilection and skilfulness in respect to digital technologies. Moreover, "Unfortunately for our Digital Immigrant teachers, the people sitting in their classes grew up on the "twitch speed" of video games and MTV. They are used to the instantaneity of hypertext, downloaded music, phones in their pockets, a library on their laptops, beamed messages and instant messaging. They've been networked most or all of their lives. They have little patience for lectures, step-by-step logic, and "tell-test" instruction." (Prensky, 2001).

The evaders are the digital immigrants who prefer a routine that does not incorporate technology in their daily lives, although they do not totally block the idea and clusters that use minimal-technology have been met. They usually have no cell phone and no email account, have heard of Twitter or Facebook, but not used them, and what is extremely descriptive for this cluster is that they do not see much worth in these activities.

The hesitant users are the second type of digital immigrants that understand technology as essential nowadays and they are willingly to include it in their everyday life and work space, but it feels unfamiliar and causes them anxiety thus the hesitation. This assembly is widely varied and undoubtedly comprises the majority of the digital

immigrant group. While they may own an old-fashioned phone or even a smart phone, they do not use all its functions, they find it difficult to text messages, but they are able to access the message box and read the received messages. They may use Google sporadically, do not own a Facebook account, but do have a yahoo mail account, and do check their emails occasionally. They are labeled hesitant for a reason and that is the extreme cautious and unease attitude towards digital technology rather than by its inclination to incorporate and make use of these technologies in every day life, and teaching, provided they are teachers.

The keen users are those digital immigrants who can keep up with natives, mostly due to their comfort, easiness and pleasure in using technology, either in their jobs, teaching or in daily routine. Their jobs range from managers, programmers, teachers, administrators, business and basically everybody who loves technology and plunge themselves in the web culture. This cluster treasures technology and love using it, notwithstanding their position as digital immigrants are keen users of Skype, own and use a Facebook account, praising technology for the new blessing of socializing with their kids, that are abroad, perhaps, or old friends, whom otherwise could not reach; this cluster verifies the email frequently, and are curious and enthusiastic about new devices they want to acquire in order to updated. They may, in rare occasions, have a blog, a twitter account or a website if they are in business or teaching area.

Digital natives versus Digital immigrants

A **digital native** is a person who includes in his everyday communication web applications that he considers to be part of his life: Twitter, WhatsApp, chat, Facebook, online games, etc. These native, who seems to favor a synchronistic or consecutive interaction, can text messages with his eyes closed, is an intuitive learner with zero tolerance or patience, with an extensive preference to discover via actions, trialing and communication rather than by reflection. He abhors manuals and loves media channels that deliver information swiftly and concurrently from numerous sources, **multitasking** through pages, interacting with pictures, charts, sounds and YouTube trail videos before actually reading a text, whom he reads in quick spurts, one passage at a time, jumping to additional activities, such as texting, vlogging, or Instagram posting. He is the kind of person who does not perceive value in waiting, with an egalitarian view on life and workplace, he desires immediate satisfaction and recompense, living in a continuous flow alternating between performance, labor, and more important socializing, which never stops 24/7. In addition, "Because the Internet gives young people a world of information at their fingertips, they have to struggle to understand and synthesize. It can be a great intellectual exercise. And yes, they do multitask, and switch from one stream of information to the next, with an ease that surprises their parents. Of course, they need to focus deeply to accomplish a complex task, but the rest of the time, they're developing multitasking skills that are very useful, even essential, in the modern digital world." (Tapscot, 2008). This digital native will greatly value personal fulfilment, experience and trialing, as indispensable to immediate career gratification rather than steadiness; he will work remotely, present remotely living both online (Facebook, texting) and also offline (gigs, parties), using texting and prompt message shorthand, communicating visually by posting pictures on Facebook (visual as opposed to verbal) interacting and participating actively online playing, having fun, watching movies, creating, chatting, liking, following or unfollowing, and, more important, studying, provided he is a student or a researcher. Moreover, "But young people have a natural affinity for technology that seems uncanny. They instinctively turn

first to the Net to communicate, understand, learn, find, and do many things." (Tapscot, 2008). As opposed to the digital immigrant he has hundreds or even thousands of friends and followers who can interact with, displaying personal videos or recording with live Facebook camera, not frightened to be known, and not particularly concerned with privacy, checking -in and checking out from locations, which he shares with all his friends, and receive immediate gratifications, likes and comments, to his posts. He perceives learning in a fun manner regularly assimilated through enjoyable actions, such as social networking, online gaming, surfing the web or online project-based activities, if he is a student. He might as well access online libraries, video trails on academic matters, teachers' blogs or clouds, or even political blogs, networking concurrently with many, or with best few friends, writing on their walls, continually meeting each other and knowing one another, although having never met face to face, discussing, texting and posting what they think, in that moment.

Marc Prensky advocates that the digital natives' brains are physically dissimilar from the digital immigrants', due to phenomenon called **neuroplasticity** and **malleability**, additionally we can say that the digital immigrants fall into the resulting three key categories: evaders, hesitant users and keen users. So, if your teacher is born after 1970, no wonder digital didactics is not a task he/she might want to take up. **Neuroplasticity** is a phenomenon in life, where in the brain constantly reorganizes itself. According to Prensky, digital natives' brain has adapted to the digital world because or due to early exposure, giving them a different physical brain compared to the digital immigrants. To exemplify we take the musicians' cerebellums which has a greater volume of 5% compared to non-musicians', due to rigorous musical training and practices. Also commonly called brain plasticity or neural plasticity, is the capability of the brain to change uninterruptedly during a person's entire life, meaning the proportion of grey matter can alter, and synapses could fortify or deteriorate. The neuroplasticity can be present even through adulthood; however, the emerging brain displays a more sophisticated gradation of plasticity than the adult brain. **Malleability** is a phenomenon where one's experiences affect the thinking pattern allowing the brain to adapt recurrently to changes in the environment. People who grow up in different culture- might as well be technological culture, think differently about things, and this is almost physiologically diverse, moreover "Neuro is for neuron, the nerve cells in our brains and nervous systems. Plastic is for changeable, malleable, modifiable." (Doidge, 2007).

It is an undeniable fact that technology has the capacity to change the digital natives' way of thinking, the process developing on the long run, as the brain needs time to adapt, taking baby steps, up to few hours a day, seven days a week and strident preoccupation and attention. These are the today students we encounter in the seminar rooms and try to teach them a second language, for example, a learning process that is not accepted by the brain promptly but through an extended period of practice and the acceptance of our surroundings and culture towards that language will also affect the way we learn it. The digital natives have a dissimilar combination of intellectual skills compared to the digital immigrants, especially due to the mixture of neuroplasticity and malleability phenomenon, being brought up in a generation of technology thus we can observe that the interest of the digital natives toward traditional paper back and blackboard, chalk teaching that doesn't encompass interactivity and digital technology has diminished. The new digital technology has limited students from the old, traditional way of thinking and perceiving a written text narrowing the time and opportunity for reflection. Today's teachers, digital immigrants must comprehend this twist in

generation X and take up the challenge to comprise reflection and critical thinking in teaching, because digital natives need an instruction that ignite and sparkle their curiosity. In addition, "We need to invent Digital Native methodologies for all subjects, at all levels, using our students to guide us. The process has already begun – I know college professors inventing games for teaching subjects ranging from math to engineering to the Spanish Inquisition. We need to find ways of publicizing and spreading their successes." (Prensky, 2001).

Digital immigrants are often parents, and teachers who are aware of the time their children and students spend on Internet, on their mobile phones and these tutors know something is mistaken, because they are not touching their digital native harts and interest as well as they touched students in the past. In addition, "The educational model was to cram as much knowledge into your head as possible to build up your inventory of knowledge before you entered the world of work, where you could retrieve that information when needed. This worked in a relatively slow-moving world. But now we're faced with the fast-paced world of the information age, where, as jobs change, you can't take the time to send workers back to school for retraining." (Tapscot, 2008). The division and gap between these two generation, of immigrants and x generation is limiting or stopping the digital natives to learn in their own manner, harming and preventing their evolution. In the touch age, traditional education concepts - behaviorism, constructionism and cognitivism must be boosted by **connectivism**, which endorses teaching in the progression of communication under the web, interactive, visual, sounding umbrella. A teacher can no longer enter a digital native seminar room today and address his students an intimidating sentence, write by dictation, or solve that exercise, or turn their back and write on the blackboard sentences that only half of the students see, and urge them to copy, in a speechless environment, lack of engagement, dragging the course up to the point of complete boredom. This kind of teaching is a waste of time because natives today find no benefit, no interaction, no visual communication and take no pleasure in this old-fashioned course. In addition, "Digital immigrant instructors, who speak an outdated language are struggling to teach a population that speaks an entirely new language." (Prensky, 2001).

Re-thinking education

Using technology to permit digital natives the autonomy to discover keys to problems both autonomously and in pair work engages them with the subject turning the them into active learners, opening a world of possibilities in the hands and eyes of every digital native inside the boundaries of your seminar room.

Students need digital space to direct their own learning, to trial and error, to discover solutions, to take delight in video presentation, in visual communication, in theatre like environment and teachers, the digital immigrants need to allow the use of technology in their seminar rooms in order to be freed from the rigid confinements of lesson-plans and enjoy magic moments. Technology allows the digital native to feel that easiness they experience when they surf the internet for information, it is the at home, relaxed freedom to touch, multitask, search and discover the subject, making them independent learners, who have incorporated the power that is already in the hands of students. Never before had students such a great tool, to research, to learn, to translate on the spot, to multitask as now, and never before had teachers such unique tools to facilitate the teaching learning process. Most students have iPad, iPhone, smart phones, tablets, phablets, powerful devices, in their pockets – the so dreaded-by the teachers-

mobile phone. Allowing your students to unleash the potential of these devices is a redeeming experience for both teacher and student. Consenting yourself as teacher the possibility to do something new using technology as a facilitator instrument can open up a cave of treasures that hooks the attention of the student and once you have that it can lead them anywhere. Filming a role play, a peer valuation or recording a group debates and uploading it to a cloud based board **wiki class**, or asking them to write themselves messages in the future, on **Futureme.org** as a part of producing the language they have been taught, or having them watch a **Prezi presentation** on a subject matter, is yet another way of appealing to students.

The concept of **digital literacy** in the scenery of the digital age education is the ability and dexterity students possess in how and what language to use when suitable; it is also the facility in the digital language of technology and the capacity to critically inspect various kinds of language and texts. Students need to be prepared to succeed in the academic or business world after they finish school since social media skills and digital literacy are extremely appreciated in today's job marketplace, this world being flooded with technology as a fundamental portion of the job market. Teachers must prepare students not just for life inside the seminar room but for the life outside the university, thus adjusting lesson plans to integrate class twitter accounts, vlogs and blogs, YouTube videos, and podcasts. Even assessments are beginning to change: students display their homework with **Seesaw**, an application that puts together photos, videos, PDFs, audio recording, text and even drawing, or slide presenter, which allows students to make their own presentations and record themselves; teachers can prompt the students to clarify their rational on an inquiry or theme using video with **Recap** or the awesome **Classkick** to create dynamic lesson content, or **Prezi** application, where teachers can embed a draft or even a whole lesson, with videos, audio, voice over, text and **share** it via **WhatsApp**, or **Twitter**, creating a true **flipped classroom** content for students to go through before they can actually come physically into the seminar room. With the content of the lesson at heir fingertip, enclosed into their mobile phones, portable and available to see as many times as they wish, students become engaged and feel valued by their teachers. Coming into the classroom with a clear idea of the lesson is productive both for teachers and students alongside, and in such seminar rooms where over the head projectors with built-in speakers for audio material or and interactive whiteboards (IWBs) and internet access exists students are fully absorbed, they are all active with their mobile devices and each time their teachers require them to do a quick research, they can use Google, or dictionaries and share the results with the whole class. Such setting is suitable for pair work, group work or whole class working together, and in making perhaps a task-based video project, the students can share their labours rapidly, with everyone, provided they have an internet connection. To be able to concentrate solely on the student, teachers must leave the old scheme in which the role of the teacher was to distribute the lecture by ongoing dictation, to all students. If we want our students to be engaged and attending our seminars, we, teachers must turn their faces from the blackboard to the students and start listening and communicating instead of just broadcasting our lecture and assume an interactive and collaborative one. Digital teachers speaking the language of their digital students must above all inspire students to be awake, to comprehend and absorb information digitally packaged enhancing critical thinking instead of just writing and learning by heart the teacher's oral and sometimes chunky information. In order to adapt the style of instruction to their students' separate learning styles, digital teachers and digital natives should

encourage sharing the information and collaborate among themselves, outside the school, too.

Both teachers and students are progressively making use of their **mobile phones,** phablets, tablets computers that can be used for teaching and learning resolutions - whether the students are watching or listening to videos, texting, communicating with the teacher and each other or browsing to research a given topic. A reading activity has never been more exciting until now when a task such as **WebQuest** can be performed using the mobile phones in order to improve accuracy and fluency through reading skills, increase knowledge about reading practices that expand compression. In today's digital era, there is almost no end to the devices a teacher and student can use in the teaching learning process, teachers and students can work together in any social media platforms that permit individuals to interconnect and share materials, such as Twitter and **Facebook** groups. Such clusters can deliver a real and available medium for students to use the acquisitions of the second / foreign language outside the teaching space, whether it is to work together on a task-based project, homework, or involve in sociable communication with group members from the country or abroad.

This new literacy involves thought, preparation, collective learning, listening viewing and inspecting, writing and reviewing before a concluding public presentation, a sum of internet skills our digital natives surely possess, and we can only think it is similar to the playwriting or other presentation projects that teachers used to do when they were students. So, literacy is no longer confined to just being able to read and write, no, literacy today translates into the easiness of the internet use, of to know how, from the simple act of **internet surfing** or browsing to presentations done in a viral, sophisticated and effective way. This means that the students needed to know how to create an account, sign in, join a platform, a cloud or a Classkick, to send files, how to be culturally subtle and appropriate and how to appraise judgmentally what they read, listen. Acknowledging that the students have these operational, cultural and critical literacies is a crucial element in the accomplishment of any digital project. Language literacy is about considering how blogs are written and organized and what kind of language is appropriate for use, perceiving how to read different text embedded in journals,   blogs. Furthermore, "NetGeners are transforming the Internet from a place where you mainly find information to a place where you share information, collaborate on projects of mutual   interest,   and   create   new   ways   to   solve some of our most pressing problems. One way that they are doing this is by creating content - in the form of their own blogs, or in combination with other people's content. In this way, the Net Generation is democratizing the creation of content, and this new paradigm of communication will have a revolutionary impact on everything it touches - from music and movies, to political life, business, and education." (Tapscot, 2008).

Now students have gone from notebooks and workbooks to variety of digital substitutes such as Chromebook and graphical tablets thus the learning and practice process can take the form of 'digital homework' allowing students to simply go online to access libraries and google books, in a blink on an eye. The Internet has greatly extended the students' power and authorship, allowing them to work in pairs or groups even when they are not physically together, bound to the confinements of the seminar rooms. **Educreations** is a platform where students can make an account and gain access to a whiteboard that has been contracted in size, there they can accomplish a task-based

project or a collaborative homework, record their voices drag documents, pictures, maps, and videos that they can access from anywhere. Students can produce collaborative stories together using snapshots they have in their computers, or on Flickr website and they bring together these pictures into slideshows, which they then share with the whole class and the teacher using. When students tell stories using pictures, record their own voice and eventually use background music, the students not only write their script, but they also express themselves in a second language, for example, listen to their own recording in English, and hand-pick the accurate pictures and tune to augment the application of their digital storytelling, therefore, they are the advocates of multiple digital literacies.

Encouraging students to write, not with pen and paper, but on teacher's **Twitter** account or respond to each other's blogs engages the digital natives in posting and sharing their feelings experiences and thoughts on blogs, where their colleagues can leave their tweets or comments and responses. Such blog writing is done with tremendous care, since it is public and involves a certain number of Twitters and teachers have the certainty that students revise the text before posting it. There is always the possibility of editing and even deleting an unwanted post. In addition, "General online activity - hunting for information, reading, and responding - is far from mindless. Kids are, in fact, reading, but they're reading fewer books of literature and more nonfiction online. Online reading requires many of the same mental skills that are required to read a book - and then some. You are not led along every step of the way by the hand; you have to construct your own narrative and scenarios, and you must critique whatever it is you are reading along the way." (Tapscot, 2008).

The first technology ever introduced was the printing press, with the main purpose of mass education this is why teaching with technology is not a new idea, but unfortunately, for many digital immigrants it is still unapproachable. Many ground-breaking technological practises of instruction have moulded our present system of teaching, however, with the speedy, ever shifting technologies and social media boom, educational policies must keep up with the new trends in order to yield life-long students. Currently, more and more individuals are getting deeply involved in their personal education by taking gain of the newest technology as on-line courses, on line libraries, platforms of education that empower one to learn almost anything the technologies have to offer. In the growing competitive job market of today, it is a must to have technological knowledge of word, excel, spreadsheets, numerical programs, e-mail, making PowerPoint, or Prezi presentations, so, our students of today, students graduating universities, tomorrow, must have skills and expertise in know-how and to meet the digital request the job market, hence the necessity of the transition in schools to embrace technology. A school or university that does not take advantage of the abilities of today's technology to improve the teaching - learning process deprives its students of the chances to a better life, a better education, to a lifelong learning model that involves our student needs, providing thus 'just in time' learning prospects to explain complex problems, digital citizenship; such reshaping of education empowers the student to direct their learning in the way that interests them.

Conclusions

The role of the 21st century teacher has undergone a substantial transformation: from a spreader of knowledge to an engineer of student education. Sequentially, the conversion goes both ways, teacher's part effects the modification in student's part: from

an information receiver to a connected learner. Another dangerous alteration could be observed in the key manner of learning: passive learning converts to interactive trial and error student assignation; writing and visuals in traditional teaching are substituted by **hypertext** and **media** in on-line teaching. The digital revolution we are currently assisting in the education, worldwide, has been known to enhance the excellence of learning throughout time, moreover "School fosters just-in-case learning while technology fosters just-in time learning" (Collins and Halverson, 2018).

Universities and schools alike are intended to teach students the things they necessitate to recognise in later life, although it is a paradox that we still teach our students valuable things from the past but still refuse to see the technological revolution and make use of it in seminar rooms. The quantity of data accessible today is shocking; therefore, students should study what they need, at what time they need it, either it is distance education, learning centres, adult education, digital education. Students are now able to attend a course that is being taught, for example, in India, in the confinements of their own home, the only beneficiary being the student, moreover the advantages realised with technology in education are fixated seriously on the individuals. Technology has the power to provide for the student and future job market employee, for their benefits, predilections, and educational requirements, in ways traditional teaching cannot anymore, assuring the digital native an ownership only the digital teaching has to offer, which is incomparable to the traditional one, where the student was a passive receiver. Thus, education must be organised around the awareness of **lifelong learning**, one that does not happen entirely within the exceedingly structured and improperly equipped institutions. For this, a new **technological curriculum** is needed, that would locate the future graduates in the centre of the technological possibilities, promoting their individual interest ranges. In addition, "Now we are going through another revolution, on the same scale as the Industrial Revolution. It is variously called the Information Revolution or the Knowledge Revolution, and it is fuelled by new media technologies such as computers, video games, the Internet, tablets, smart phones, FitBits and artificial intelligence. While the imperative of industrial-age learning technologies can be thought of as uniformity, didacticism, and teacher control, knowledge-age learning technologies have their own imperatives of customization, interaction, and user control." (Collins and Halverson, 2018).

Technology simplifies the transition from education to work, the exploration, distribution, and making of information, therefore altering our career paths in ways that are beneficiary to us. Education is no longer dependent on chalk and blackboard, it is interactive, lifelong learning, visual, kinetic and, above all, aware and responsive to students needs bringing forth the compulsory skills in order to have a smooth conversion towards the work force. We can no longer overlook the technological reality our students and us, teachers, live in, and the demands for a customised education through technology appears to be a resolution for meeting learners needs, although the concrete execution of such a system might be complicated and has the tendency to lead to additional breaches in impartiality for education. Notwithstanding, decisional education parties should not deny the role of technology in the teaching space and its positive, beneficial outcome in students.

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