

Reaching the Digital Natives: a New way of Partnering at Digital Interfaces

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Abstract:

The emergence of knowledge society has placed the system of higher education with challenges of completely new nature. The significance of networks, and collaboration, is being emphasized in every sector, the working environment becomes global and the development of information technology takes place at a speed that has no match in history. The higher educations and the highly educated graduates of today are facing a world of work completely different from the one previous generations have become familiar with. They are also required to acquire new types of skills in order to be successful in the immerging knowledge society. Although, these are perceived as characteristics of the generation of "digital natives", they are hardly taken into consideration in today's system of education in general and the higher education in particular. The education sector has been blamed for lagging behind the development taking place outside the universities' doors. Even the use of information technology in education has not always yielded the desired outcomes; instead the new tools have been harnessed to serve traditional purposes. Industrial-era conceptions of teaching and learning have proven very hard to change. The present generation of teachers which are the digital immigrants are required to be in a key role in building the knowledge society. For this, they need to adopt the participatory pedagogical strategies facilitating the engaged learning of the digital natives who will lead the world in the 21st century. This paper will throw light on some of the issues associated with the higher education of the digital natives, and suggest few ways to foster engaged learning among them through "Connecting, Collaborating and Creating".

Key words: Digital natives, digital immigrants, the 21st century skills, participatory pedagogy

1. Introduction

In the present knowledge age, the modes of learning have changed dramatically. Similarly our sources of information, the ways we exchange and interact with information, how information informs and shapes us have also undergone drastic change. But our institutions of higher education - how we teach, where we teach, whom we teach, who teaches, who administers, and who serves - have changed mostly around the edges. It is observed that, our institutions of higher learning are changing far more slowly than the modes of inventive, collaborative, participatory learning offered by the Internet contemporary mobile technologies.

This changing landscape of higher education, which brought increasing access to higher education, has resulted in massification leading to the diversification of student populations, that comes with a wide range of learning styles and learning needs which are rather different from the traditional, elitist student populations. At the same time, the higher education institutions are asked to respond to the demands of globalization and the knowledge economy, to prepare students with the 21st century skills and competencies for the labor markets, which require changes in the curriculum and teaching practices. There are demands for increased efficiency, more transparent accountability and better performance, in both research and teaching. Some policy makers see digital technology as a tool to help manage some of these changes, and in particular, to use it as a transformative tool in teaching and learning.

Hence in this paper, we'll discuss how the use of digital technologies may support a shift of culturally traditional practices in teaching and learning, to better meet the needs of the 21st century higher education learners.

The following sections of the paper will provide a brief discussion on the characteristics and changing needs of the learners who are the "Digital Natives", followed by a review of the overall impact of digital technologies on teaching and learning, and few suggestions how digital technologies may provide a more active and flexible learning experience by adopting a participatory pedagogical approach, and by blending formal learning with informal learning.

2. The Digital Natives

The credit of inventing and popularizing the terms "The Digital Natives"- the learners and "The Digital Immigrants"- the teachers go to the well-known American writer Marc Prensky (2001).

Digital Natives represent the first generation to grow up with this new technology. They are used to all kinds of digital toys and tools, which are an integral part of their life. Digital activity is like a mother tongue or a native language for them. They are the generation of technological acceleration, of the Internet and net -facilitated social networks. Growing up in such an environment, they think and process information in a totally different way than previous generations: their thinking patterns have changed, and Mark Prensky says it is likely that their brains have physically changed. This has

brought about a radical change, such that there is a big discontinuity between their generation and previous ones.

Digital Natives understand the value of digital technology, and they can practice it in a spontaneous way. Among these values, one can quote immediacy and accessibility. The abilities and competences of Digital Natives do not mean that they all are really the specialists, inventors, creators, developers. Basically, they are digital users.

In terms of technology, the digital generation has a lot of new and impressive competences. Unlike the previous generation, they have an intuitive mastery of informatics, computers, electronic devices, and mobile equipment. They don't need to read the user manual and they don't ask for lessons on how to use any electronic gazettes. This generation belongs to "web 2.0": interactivity, teaching community, communication, collaboration. This gives them a new vision of time and space. Constant accessibility to people is now considered as common. They are used to a multiplicity of communication modes, they are permanently connected, even over-connected, in a kind of digital hyper-activity. Multitasking is a very important competency that makes it difficult for them to concentrate for a long time on one activity (UNESCO Policy Brief, 2011). These digital natives are living and working together with the digital immigrants in the digital society.

Digital immigrants are those 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 and always will be compared to the digital natives.

A digital society is a technological society, one in which information and communication are core concepts: Information has become a valuable economic good that can be easily transported and one can buy, store, and sell. Communication has become an economic challenge.

The generation of digital natives is very comfortable with digital communication and it is now accessible to majority of our population. In the digital society, some core concepts, skills and competences have emerged; a citizen of the digital society needs to master these concepts, skills and competences. These are often referred to as the "21st century skills".

Let us have a cursory glance at them.

- According to Trilling & Fadel (2009), these skills include critical thinking, collaboration, creativity and innovation, flexibility, adaptability, initiative, self-direction, social and cross-cultural interaction and responsibility.
- Florida (2002) emphasizes that the defining feature of economic life today is the rise of the human creativity. The expert of this age is required to think independently, apply standard approaches in unique ways to fit a new type of situation, exercise judgment and try out radically new solutions to complex problems.
- Ruohotie (2002) mentions that, these skills and competences cannot be directly taught. Moreover, they are difficult to measure with traditional assessment methods. He further points out that the 21st century skills can only be acquired when the learning environment supports their acquisition.

3. Changing Learning Needs of the “Digital Natives”

Tapscott (2009) describes the distinctive features of digital natives in his study. According to his research findings, digital natives are, among other things, globally thinking and tolerant for diversity, they are natural collaborators, they appreciate freedom of choice and expression and they are innovative, looking for creative ways of collaborating, learning and working. He also emphasizes that, a strong evidence indicates that the organizations that embrace these new ways of working experience, show better performance, growth and success. This view is supported by many researchers. For example Stacey (2001) points out that in the era of knowledge intensive work, hierarchical, industrial age organization models are no longer effective, and they are being replaced with networks in which the decision-making and responsibility are decentralized and distributed. Collaboration is a necessary element for innovation in this digital age. In the light of this discussion, the 21st century skills described in the previous section seem to fit naturally in the skill profile of the digital natives. Some researchers assert that, that there is a fundamental difference between the current and previous generations of young people, in terms of learning styles and how they access information (Prensky, 2001), as recent advances in neuroscience research suggest that technology may affect developments of the brain during adolescent years (Ali & Kor,

2007; Carr, 2010). These students expect that technologies should be widely used in teaching and learning. It is thus argued that teaching in the higher education institutions should respond to these learning needs of the digital natives, to accommodate the "more technology-driven, spontaneous, and multi-sensory" learning styles (Prensky, 2001). But the reality seems to be quite different and far from being desirable. The Indian system of the higher education is hardly in keeping with the changing needs of the digital natives in terms of curriculum, teaching and learning, system of evaluation, institutional infrastructure for providing the support services for facilitating learning among the learners. Sadly, but truly the system of education appears to be the missing link. Teräs & Teräs (2010) have observed that students in the higher education are often just as resistant to change in learning methods and environments as are many of their teachers. The initial results of their on-going study suggest that by the time of higher education, many digital native learners have adopted the role of the passive learner who is unwilling to explore, test, try, innovate and collaborate, has no tolerance of uncertainty and is accustomed to rote learning, following instructions and memorizing facts rather than creating their own ways of working.

Although such technology use can facilitate communication, today's students must learn how to change their learning approach so they can gain their deserved place in a rapidly changing, global society. They must learn to apply technology tools, appropriately, in order to process multiple perspectives on real-world problems and formulate solutions to these problems (Partnership for 21st Century Skills, 2002).

4. Preparing for the Teaching in Digital Age

With new demands for meaningful and contextual application of technology in classrooms, teacher preparation as "digital Immigrants" becomes both increasingly important and increasingly challenging even if the teachers have a 21st Century classroom (flexible and adaptable); even if they are a 21st Century teacher; (an adaptor, a communicator, a leader and a learner, a visionary and a model, a collaborator and risk taker) even if their curriculum reflects the new paradigm and they have the facilities and resources that could enable the 21st century learning – they will be able to catch up with the digital natives if only they change their pedagogy. These teachers will have to seek new ways to integrate the 21st- century skills, nonlinear thinking skills, and

digital-age reflections into their instructional practices. How they teach must reflect how their students learn. It must also reflect the world their students will move into. This is a world which is rapidly changing, connected, adapting and evolving. Their style and approach to teaching must emphasize the learning in the 21st century. Teachers should not need to pretend to be digital natives. They must stick to the core roles and the core values of the teacher, as an organizer of the interaction between the student and knowledge, as a knowledge mediator. They have a crucial role, mediated by technology, and this role is increasingly less face-to-face.

Let us have a look at these essential skills for the digital age teaching:

- matching the teaching styles with the learning styles of the learners,
- building technological, information and media fluencies among themselves and among their learners,
- focusing up on the development of the 21st century skills among the learners through formal and informal learning experiences,
- making use of constructivist instructional practices like inquiry learning, problem based and project based learning,
- using problem solving as a teaching tool,
- using the 21st century assessments with timely, appropriate and detailed feedback and reflection,
- fostering collaborative and contextual learning among the learners,

The digital technology is going to play a revolutionary role to bring positive shift in the instructional practices of today's teachers. As discussed in earlier section, the learners of today are having the access to technology which is providing them with the opportunity of networking and collaborating locally as well as globally. Not surprisingly, research shows that today's digital students learn more when engaged in meaningful, relevant, and intellectually stimulating learning activities and that the use of technology can increase the frequency for this type of learning. Using technology, teachers can tap into the knowledge of experts; visualize and analyze data with their students; link learning to authentic contexts; and take advantage of opportunities for electronic, shared reflection (Bransford, Brown, & Cocking, 1999). All of these pedagogical opportunities need to be part of current pre-service and in-service teacher education programs. Preparation of teachers for the digital age, however, does not depend solely

on how well emerging technologies are integrated into teachers training programs; instead, it rests on how well incoming teachers are taught to leverage the technologies to help their students develop these same skills.

Here, we would like to mention few words of caution. Teaching and learning in a digital society does not mean technologizing education. The human relationship between the students and teachers is a main prerequisite of the learning process. But this relationship has to take new forms, synchronous and asynchronous, face-to-face or at a distance. Blended learning and e-Learning must all play their role and place in the education process of digital age.

This will necessitate transforming pedagogy to invent new forms of it, the pedagogies of the generation Y: pedagogies of time and space (Policy Brief, UNESCO, 2011). While doing so, it is essential to take into account the possibility of learning "when one wants, where one wants," through presence or distance teaching. The diversity of spaces and times can enrich pedagogy. It will also become imperative to move from "paper pedagogy" to digital pedagogies. Paper pedagogies cannot adapt to digital tools. We have to invent digital pedagogies. It will also be required to invent mobile pedagogies, adapted to the new mobile tools. It does not mean only to transfer the traditional resources to mobile devices, but it will demand Pedagogical scenarios to be adapted to the specificities of mobile devices and "mobile learning." We also have to design "social pedagogies", adapted for collaborative learning, collaborative minds, collaborative competences and collaborative achievement. The development of networks at local and global levels will lead to new forms of pedagogies oriented towards collaborative work and there use all the possibilities of interactions in those networks (for example the web 2.0). The researchers of today will have to investigate how social networks can enhance teaching and learning, and the teachers will have to explore the use of the most advanced technologies in order to design "enhanced and enriched pedagogies".

5. Few Suggestions

Towards the end, we would like to give few suggestions for becoming effective teachers of digital natives.

- Let us remember that digital natives are going to be the citizens of digital societies. Therefore let us identify and analyze the core changes occurring in a digital society,

which are not only technological, but social, political, economic and psychological too.

- We should analyse the competences of digital natives: competences that they have, competences that they should acquire and work collaboratively towards their development.
- We should be aware about the knowledge base for the digital natives in the digital society.
- We must remember that, the digital societies lead to information societies and knowledge societies. Let us keep in mind and take into account the human stakes of a knowledge society, and develop the human aspects of the digital societies.
- For designing the teaching and learning strategies for digital natives, we must identify not only their digital characteristics, but also their social, economic, and human characteristics.
- Let us not forget that, digital natives are involved in social networks and collaborative working. Hence, teaching and learning strategies must take into account such concepts. Collaborative networks should be introduced in schools and schools should be networked.
- Let us accept and always keep in mind that, digital natives learn in a new way. Therefore research projects on designing and experimenting with innovative digital pedagogical strategies facilitating learning should be undertaken.
- There should be nationwide as well as at global level Brainstorming for identifying the political stakes for digital natives in a knowledge society. There should be deliberations on the political vision and political and socio economic values to be developed among the learners.

6. Conclusion

In the emerging digital society, the issues and challenges related to the digital citizenship are going to be very alarming. Education must prepare the citizens of such a society. There is a major risk of digital divide, not in terms of technology or availability of digital devices, but mainly in terms of accessing knowledge and acquiring digital competences. It is true that, even the teachers will strive to catch up with the pace with which the digital society is moving, there is always going to be a gap between the new natives and the previous generations. Changing generations is now going to be a permanent feature

of society. Hence the teachers of tomorrow will have to be the lifelong learners, and should keep themselves up to date with all the immerging core concepts, competences and knowledge frameworks.

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