

The 8th International Scientific Conference
eLearning and software for Education
Bucharest, April 26-27, 2012
10.5682/2066-026X-12-043

EDUCATING NET GENERATION STUDENTS: IS “GUTENBERG TEACHING APPROACH” ENOUGH?

Anca NEDELICU
University of Bucharest,
E-mail: anedelicu@cedu.ro

Abstract: *A significant part of building a valid learning process, in any kind of environment, is to know and understand the learners. Starting from their needs and abilities, from their aspirations and interests, a successful learning process can be built for the mutual benefit of all school actors and wider community. Consequently, an important pre-action for any educational reforming process is to visualize and understand the real profile of nowadays students as a basis for generating improved actions. Therefore, how are these students? Are they different from other cohorts, are they unlike any others teachers have ever interacted with? If “yes”, if their new lifestyle, abilities, learning and communication styles represent a powerful demarcation from the predecessors, is school prepared enough to manage these changes? Do teachers find the right approaches to facilitate students’ learning? Is the book the only source of knowledge reliable in school context? Is, for example, book and textbook based “Gutenberg teaching style” powerful enough to address the diversified learning needs of Net generation students? These are, in fact, the basic questions addressed by the present paper; the intention is to identify the challenges addressed by what Marc Prensky calls “digital natives” students on teaching provided by adult educators, usually “digital immigrants”. The approach aims to analyze the “meeting” between the two generations placed alongside the intergenerational digital divide (Prensky, 2001), students and teachers, with the goal of mediating the possible gap. For illustrating the approach, examples from different researches on nowadays students and teachers’ didactical approaches will be taken into consideration.*

Keywords: *Net generation, teaching methods, learning environment*

I. CHAPTER I. Nowadays students in nowadays schools: is this a consonant picture?

Recently, a significant body of scientific literature is developed depicting nowadays students’ portrait. Before anything else, they are considered different from their predecessors, as being highly influenced in their behavior, attitudes, learning approaches by surrounding digital developments. They are called “net generation” (Tapscott, 1998), “N-Geners”, “homo zappiens” (Veen, 2006), “digi” or “cyber kids”. They are described as “bathed in bits”, “grown up digital” (Tapscott, 2008) in a time when computers, internet, mobile phones are as natural part of their living environment as the refrigerator.

As Alan Kay said “technology is technology only for people who were born before it was invented” (as cited in Tapscott, 1998, p.17). Therefore, nowadays children are called “digital natives” (Prensky, 2001), comparative with the rest of us considered “digital immigrants”, belatedly trying to incorporate technology within our “analog” existence. This multimedia immersion starting from their date of birth and accompanying them along all formative stages transform children development and way of thinking. They are naturally raised in a time of convenient access to digital tools, so they “deal with information differently compared to previous cohorts” (Oblinger& Oblinger, 2005). They are

multitasking, assertive, self-reliant, curious persons (Tapscott, 1998), “they develop hypertext minds and leap around” (Prensky, 2001).

Complementary, as Brown noticed these “digital natives” think of information and communication technology (ICT) as something akin to oxygen: they expect it, it’s what they breathe, and it’s how they live (Brown, 2000). They use ICT to meet, play, date, and learn. It’s an integral part of their social life; it’s how they acknowledge each other and form their personal identities (Brown, 2010).

If only a part of such assumptions regarding nowadays children prove to be true, an important question is to be answered: are schools and teachers following such changes in students’ development? Are they all constructing a consonant picture or they represent two different, parallel worlds encapsulated in a traditional building called school?

A recent study developed by Centre Education 2000+, Romania and UNICEF - “School as it is – research on students and teachers profiles and interactions” (2007-2009) – offers a wide range of illustrations for the last description. Within this Romanian “school as it is”, a today world of demotivated and resigned students is facing the yesterday world of teachers, surrounded by traditionalism and idyllic self perceptions. A world of students asking clearly for more communication, involvement and interactions stands in front of their teachers’ universe focused on overloading contents waiting to be delivered.

For exploring this environment, the mentioned investigation - mainly qualitative - combined a complex range of research methods: questionnaires for teachers (505), focus groups and structured interviews with teachers and students, analyses of students’ drawings (146 drawings describing “My classroom”) and of 129 compositions describing “My teacher” (How is she/he? How does he/she look? How does he/she act?). Each of these instruments produced relevant findings for describing main school actors’ worlds; however, for the purpose of the present paper a further presentation of students’ drawings of classroom environment is considered relevant. This option is motivated by different reasons: first, because classroom is the first concrete social space able to illustrate the type and functionality of students and teachers “meetings”. Classroom is (still) a dominant setting for learning and a generous source of describing teachers’ axiological or methodological preferences. The second reason is referring to drawing as a research tool. Useful not only as iconic images, but also as layered paintings that hide or combine other social, cultural, and personal images (Mitchell, Weber, 2000), students’ drawings revealed a powerful, convincing image of the learning environment.

Thus, most of the investigated students draw a traditional classroom, described by “classical” identifiers of a rigid spatial and methodological configuration. The space as it was pictured is exclusively a “chalk and blackboard” classroom. The central physical symbol of this space is the “big, black” chalkboard which has a central position in majority of the images. It is often oversized in comparison with the rest of the elements, dominating and invading the drawing paper page. Frequently supersized is the teacher desk, too, symbolising even in their absence, the educators dominating position as a controller of the learning environment. In front of the teacher, there are the desks set in rows facing the blackboard. Students turn their backs on each other, frequently listening to “magister”. Thus, even most of the teachers from the investigated schools underlined their preference of working in small groups, of using collaborative methods, drawings show the teacher often lecturing in front of the children sitting in orderly rows.

The drawn image of actors of educational space also brings a lot of colour for describing the “place called school” (Goodlad, 2004). Inevitable, these actors are students and teachers; additionally, as an improvement aspiration, students place in the classroom space friends from other schools, relatives or characters from cartoons or from computers games. A half of the students drew themselves alone, unaccompanied by the teacher, 3 drawings presented only the teacher: “*the students were having a break and the teacher was in the classroom writing exercises on the blackboard*”. That shows clearly the fact that text is central to the classroom space, as a symbolic attribute of the teacher.

Another illustration of the dominancy of the classical 3 R’s literacy– reading, writing and mathematics - is again offered by the blackboard. When something is written on this ever-present chalkboard it is usually referring to mathematics, confirming that in students’ drawings, no matter the cultural background, “my classroom” means “my classroom at mathematics” (Mitchell, Weber,

2000). “Numbers and maths symbols are among the most frequently used symbolic markers used by both children and adults to draw a classroom. Maths seems to be perceived as *the* school subject that speaks directly to the purpose of teaching. It's as if the ability to interpret the code/language of maths is a central part of what makes a teacher a teacher” (idem).

Briefly described above, this classroom from the “school as it is” is clearly dissonant with the image of “digital born” children, previously mentioned. Therefore, some questions are still open to be discussed. Is this instructional environment the best solution for nowadays students? Are these two realities concomitant or they are specific to different moment of time or different contexts? Are the theories about “digikids” overgeneralized, unrealistically expanded to a whole generation of children (as, for instance in Romania this portrait of net generation is applying mainly to students living especially in urban developed areas)? And, in fact, is Mioduser et al. quotation “*one step forward for the technology, two steps backward for the pedagogy*” (cited in Huffaker, Calvert, 2003) true?

II. CHAPTER II. Gutenberg teaching approach: “talk, text, test”

In 1900, in his book “The School and Society” (chapter “The School and the Life of the Child”), John Dewey (1900) gave perhaps the most convincing distinction between the two items of the title. He started by recounting his efforts in finding proper desks and chairs for a new Laboratory School and he described the reaction of one of the dealers who finally understood what Dewey was looking for: “I'm afraid we have not what you want. *You* want something at which the children may work; these are all for listening.” “That tells the story of the traditional education”, considered Dewey (1900, pag. 31): “ugly desks placed in geometrical order, crowded together so that there shall be as little moving room as possible, desks almost all of the same size, with just space enough to hold books, pencils and paper, and add a table, some chairs, the bare walls and possibly a few pictures”. According to Dewey, “It is all made *for listening* - for simply studying lessons out of a book is only another kind of listening; it marks the dependency of one mind upon another” (Dewey, 1900, p. 31). “If everything is on a '*listening*' basis, you can have uniformity of material and method. The ear, and the book which reflects the ear, constitute the medium which is alike for all” (1900, p. 33).

These realities described one century ago by Dewey seem to be everlasting; they also represent the central point of what we called “*Gutenberg teaching approach*”. This construction does not refer narrowly to book or textbook based teaching, perceived as the only reliable source of knowledge. The expression is not meant to undermine the tremendous importance printed materials have and will have for schooling and education. It is not intended also to be discomfoting to readers heavily involved in a typographic world or to those unconvinced that digital words are useful to their established rituals. This term is an umbrella perspective covering the didactical practices and routines unable to adapt to the “*post-typographic*” (Reinking et al, 2006) world we live in. It refers to the same realities criticized by Dewey, realities incredible resistant over the time. It is a term coined for identifying traditional teachers' approaches to learning, prevalent in many schools, focused on the literacy of the 3 R's and on disseminating knowledge in a linear, frequently unidirectional way.

In fact, “Gutenberg teaching approach” represents that didactical perspective Oblinger & Oblinger (2005) inspirationally described as “*talk, text, test*”. This refers to “traditional teaching emphasized the acquisition of facts” (idem), “the authoritarian, lecture-based model of education” (Brown, 2000). It is, as Brown believes, an approach focused strictly on logical sequencing of knowledge, emphasized memorization, repetition and recall, which believes “*one size fit all*” (Brown, 2005).

The perspective of describing Gutenberg teaching approach share some characteristics with what D. Tapscott calls “the broadcasted type of pedagogy”, similar to what the television is proving for its viewers. In his paper “The Net Generation and the School”, Tapscott comments: “Historically, the field of education has been oriented to models of learning that focus on instruction-- what we can call “*broadcast learning*.” The term “teacher” has implied approaches to learning where an expert who has information transmits or broadcasts it to students. Those students that are “tuned in” take the

information they are "taught". "Most of the activity in the classroom involves the teacher speaking and the student listening. The lecture, textbook, homework assignment, and school are all analogies for the broadcast media - one-way, centralized, and with an emphasis on pre-defined structure that will work best for the mass audience."

Finally, for illustrating the significance attributed to this approach and for highlighting that Gutenberg perspective represents an important demarcation line for judging practices, a short story shared by Tapscott (cited by Turner and Cariveau, 2010) will be presented. Thus, Tapscott remembered a conversation between two college presidents about their faculty's teaching styles. One college president remarks that the faculty is teaching in a post-Gutenberg mode. The other replies, "Our model is pre-Gutenberg. We're got a bunch of professors reading from handwritten notes, writing on the blackboards and the students are writing down what they say. This is a pre-Gutenberg model – the printing press is not even part of the learning paradigm".

III. CONCLUSION: starting from the students needs

One important direction of understanding what Gutenberg teaching approach stands for is exactly the moral of the story Tapscott narrated. It refers to educators' inability to adapt to nowadays challenges, to students diversified needs. It refers to educators who ignore that "*today's students are no longer the people our educational system was designed to teach*" (Prensky, 2001, pag.1) and do not revise accordingly their didactical options.

This is, in fact, one of the dysfunctionalities this expression refers to: the construction of teaching practices exclusively on one sole perspective, in this case the Gutenberg based approach. "Sage on the stage" style is not inefficient per se or is totally outdated, but the stubbornness to limit only to this approach is! Using texts for learning enlarges students' experience, but considering books the only reliable, trustful source of knowledge affects the efficiency of the approach. Teachers' perspective, their wisdom and experience, classroom lecture-note taking scenario might be useful in different context (see for instance Schwerdt and Wuppermann, 2009), but only when combined with methods requiring construction and reconstruction of knowledge. Therefore, a well balanced blend of "sage on the stage" with "guide on the side" techniques is desirable. As well as the plurality of sources, styles and practices, combined consciously in a comprehensive perspective over teaching.

Another strong recommendation in order to neutralize the excesses of Gutenberg teaching approach is to start consciously from the students needs and not from the educators' routines.

As it was mentioned students are changed. Different authors say students changed dramatically. They point to the existence of a real "anthropological" difference that specifically characterizes the digital native students of the multicultural and globalized informational society (Cavalli et al., 2009). Other voices indicate even the fact this generation of children think significant differently as compared with the preceding generation. For instance M. Prensky (2001) claims that "digital natives" exposed so early to technology may have brains that are wired differently. In his claim, information is processed in a random access manner, rather than linear, yielding to a simple "stepping stone" effect in lieu of the winding "side walk model" of thinking. Complementary, Net generation students are seen not only as assertive information seekers but also as social persons, who seek to interact with others, whether in their personal lives, their online presence, or in class (Oblinger, Oblinger, pag. 2.5).

Such changes in students' behavior and way of thinking should certainly be of interest for educators. For supporting teachers to go beyond their Gutenberg approach, two categories of characteristics of net generation will be further considered; they refer to:

- Students' visual and digital literacy which implies an urgent need to move from classical 3 R's perspective to fostering multiple illiteracies.
- Students' increased need for interactivity.

Having grown up in technologically saturated world, Net Generation is able to intuitively use a variety of digital devices. They share the ability to use technology, including visuals and audio

segments to enhance personal learning and to communicate more effectively with others (Looney, 2005, pag. 58). They are both information and multimedia literate (Brown, 2000).

More than that, students are more visually literate than previous generations; many express themselves using images and they have clear visual spatial skills. “They are able to weave together images, text, and sound in a natural way, expanding their literacy well beyond text” Oblinger and Oblinger (pag. 2.5). In fact, continuing Oblinger and Oblinger description, these students are “*are more comfortable in image-rich environments than with text*”. Because of the availability of visual media, their text literacy may be less well developed than previous cohorts. And that is a clear challenge to classical idea of literacy Gutenberg teaching approach is significant focused on. More concrete, this challenge means that a new type of literacy relying less on text, but requiring integration of images in the form of both graphics and videos will be necessary for students to communicate effectively (Mustafa, 2011). Literacy no longer encompasses only what is taken in from presented material, but also concludes the production of materials, such as the products yielded through Bloom’s Synthesis Level (idem). His larger openness to different learning means and environments will not replace the text or the lecture but it will reinforce them.

Students are not only highly digitally literates but they have a bias towards action (Brown, 2000), they are dynamic, immediately engaged in the processes. They are vocal, they like to express their views and incorporate their experiences into their learning (Tapscott,1998). Net generation representatives need self-directed learning opportunities, interactive environments, multiple forms of feedback, and assignment choices that use different resources to create personally meaningful learning experiences (Glenn, 2000). Therefore, the efficiency of their learning is connected with the idea of simulations, case analyses and other contexts of collaborative and participatory learning. They want “more hands-on, inquiry-based approaches to learning and are less willing simply to absorb what is put before them Hay (2000). Rich contexts – and not only texts – are an important part of their learning repertoire. That is for sure another challenge to Gutenberg teaching approach.

The answer to such can be developed in multiple ways and by incorporating multiple perspective and sources of improvement. One condition will certainly requested in any context: this refers to the willingness and abilities of teachers to revise their practices and revisit their assumptions. And technology can be helpful again in this approach. As one teacher confessed, (cit. by Ramaley, J., Zia, L., 2005, pag. 8.16) “technology is a giant mirror reflecting back to you your own deepest issues. It challenges you to clarify what you value, to rediscover why you went into teaching in the first place, and to be honest about whether your original hopes have been realized. It also sheds light on how we interact with our students and how they respond to our courses, and [it] forces us to think about the real meaning of community”.

Reference Text and Citations

- [1] Brown, J.S. , 2000. Growing Up Digital: How the Web Changes Work, Education, and the Ways People Learn” in Change, 32(2), pp.10-20.
- [2] Brown, J.S. 2010. Learning in the Digital Age” in <http://net.educause.edu/ir/library/pdf/ffp0203s.pdf>
- [3] Brown, M., 2005. Learning Spaces in Oblinger, D. G., Oblinger, J. L., 2005. Educating the Net Generation, EDUCAUSE www.educause.edu/educatingthenetgen
- [4] Cavalli, N., Costa, E., Ferri, P., Mangiatordi, A., Mizzella, S., Pozzali, A., , Scenini, F., Paganoni, J., How do University Students Approach Digital Technologies: Empirical Results and Theoretical Considerations, <http://web.mit.edu/comm-forum/mit6/papers/cavalli.pdf>
- [5] Dewey, J., 1900. The School and Society, University of Chicago Press, Chicago
- [6] Glenn, J. M., 2000. Teaching the Net Generation, in Business Education Forum 54 (3): 6-14.
- [7] Hay, L. E., 2000. Educating the Net Generation. The Social Administrator 57 (54): 6-10.
- [8] Huffaker, D. A. & Calvert, S. L., 2003. The new science of learning: Active learning, metacognition, and transfer of knowledge in E-learning applications. Journal of Educational Computing Research, 29, 325-334.
- [9] Looney, M.A. ,2005. Giving Students a 21st Century Education in THE Journal, 33(2)
- [10] Mustapha, R., 2011. Effective Models of Teaching and Learning for New Type of Students, Atikan: Jurnal Kajian Pendidikan
- [11] Oblinger, D. G., Oblinger, J. L., 2005. Educating the Net Generation, EDUCAUSE www.educause.edu/educatingthenetgen

- [12] Papert, S. , 1993. *The children's machine, Rethinking School in the Age of the Computer*, Basic Books, New York
- [13] Prensky, M. ,2001. *Digital Natives, Digital Immigrants in On the Horizon*, Vol.9, No.5., www.marcprensky.com/writing
- [14] Ramaley, J., Zia, L., 2005. *The Real Versus the Possible: Closing the Gaps in Engagement and Learning in Oblinger, D. G., Oblinger, J. L., 2005. Educating the Net Generation*, EDUCAUSE www.educause.edu/educatingthenetgen
- [15] Reinking, D., McKenna, M.C., Labbo, D., D., Kieffer, R.D.(editors), 1998. *Handbook of Literacy and Technology: Transformations in a Post-Typographic World*. Contributors: editor. Publisher: Lawrence Erlbaum Associates. Place of Publication: Mahwah, NJ.
- [16] Schwerdt, Wuppermann, 2009 "Is Traditional Teaching really all that Bad? A Within-Student Between-Subject Approach," CESifo Working Paper Series 2634, CESifo Group Munich.
- [17] Skiba, D., Barton, A., 2006. *Adapting Your Teaching to Accommodate the Net Generation of Learners*. OJIN: The Online Journal of Issues in Nursing. Vol. 11 No. 2, Manuscript 4.
- [18] Tapscott, D. ,1998. *Growing Up Digital: The Rise of the Net Generation*. New York: McGraw-Hill.
- [19] Tapscott, D., 2008. *Grown Up Digital: How the Net Generation is Changing Your World*, McGraw-Hill
- [20] Tapscott, D., *The Net Generation and the School*, http://www.mff.org/edtech/article.taf?_function=detail&Content_uid1=109
- [21] Turner, P.M. , Carriveau, R.S., 2010. *Next Generation Course Redesign*. New York: Peter Lang Publishing
- [22] Veen, V., 2006, *Homo Zappiens: Growing Up in a Digital Age*, Continuum International Publishing Group
- [23] Weber, S., Mitchell, C. ,2000. *That's Funny, You Don't Look Like A Teacher! Interrogating Images and Identity in Popular Culture*, The Falmer Press, London