STUDYING THE LEARNING PARTICULARITIES OF NEW STUDENTS GENERATIONS - GUIDANCE FOR DEVELOPING FUTURE E-LEARNING SYSTEMS FOR HIGHER EDUCATION

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Abstract: *The key to developing a successful product, regardless of the domain for which it is considered, consists in understanding the needs of the final recipients and, consequently, in meeting those needs. While discussing the e-learning phenomenon, a learner-centered approach becomes essential, this representing the consumer or the direct beneficiaries. Students' expectations, habits and learning styles are constantly changing as a result of interferences made by the environment they grow and develop in. The current generation of learners grows surrounded by technology, smart devices and Social Media applications, which became an integral part of their life from the very early ages. Given the above, the challenge arises while identifying the functions and particularities that future e-learning systems must meet in order to create a familiar learning environment, serving the needs of contemporary learners.The purpose of this research is to identify the behavioral learning characteristics congruent to the current students' generation. In the first stage, the work in question aims to review the specialized literature on student-centered training and the characteristics of new generations of learners. To address the goal of the subsequent phase, we chose a quantitative analysis method based on a specific questionnaire designed for the research in question. The target group consists of students from all study programs, the sample being formed taking into account the number of students enrolled, as of 1st of October 2017, in all universities with economic profile from Romania. The results will show us particularities such as the learning style, goal orientation, learning approach and so on, being aimed to guide the development of future e-learning systems that should be used in higher education, shaped in accordance to the identified particularities of learners.*

Keywords: *Future e-Learning Perspectives; Web-Based Education; Virtual Learning Environment; Learner-Centered Approach; Students Behavioral Characteristics;*

Introduction

With an undeniable positive impact on all the areas in which it is used, information and communication technology is increasingly exerting its beneficial role on the educational environment. Although traditional learning cannot be fully replaced, teaching, learning and evaluation processes can be continuously diversified and refined benefiting of the opportunities offered by modern technologies.

Regarding the influence of technology on educational processes, we can say that these have been gradually adapted, giving rise to interdependence between technology and learning, teaching and evaluating processes. While a common view is that technology represents a modern addition to educational processes, it has in fact been part of education from centuries. However, if we strictly refer to the concept of "educational technology", the idea that technology has recently become part of education can be caused by a conceptualization of the word in popular consciousness. This conceptualization focuses on

information and telecommunication tools, emphasizing the initial use of physical ICT devices, followed by a growing use of online devices.

Changing the vision in terms of technology usage in education was primarily due to the strong impact the Web had over the last decade on the development of educational technologies. This fruitful evolution of the Web services has given rise to what today, in a general and common sense, represents the collective synonym of educational technology, namely e-Learning.

The progress in the field of information and communication technology, and in particular the unceasing development of online media, currently represents probably the fastest-growing sphere. Thus, the need to adapt, improve and evolve future e-Learning systems following the trends imposed by technology advance, becomes compulsory.

However, as a product or service reaches its maximum point of effectiveness, it must serve and meet the needs of the final beneficiary. Therefore, the social side must certainly be given special attention when it comes to developing and implementing next-generation educational technologies.

In a socio-technical educational context, the social system is closely linked to human characteristics, such as abilities, attitudes, values and relationships between individuals, structure authority and reward systems (Upadhyaya & Mallik, 2013). Thus, the behavioral attitudes and learning characteristics of the final beneficiaries, in this instance of the learners, have a special importance in the efficiency of the educational systems.

These characteristics differ from individual to individual, people reacting differently to similar circumstances and contexts. However, the existence of generalized similarities from one generation to the next has been established over time. Thus, the research in question aims to analyze and identify the preferences, needs and learning peculiarities of the new generations of learners. The results of the study are intended to serve as a guide for the development of future e-learning systems for higher education, but leave open opportunities for applying the model to other areas.

1. The Learner-Centered Approach and Its Importance

Long before being scientifically treated as a branch of various fields of research such as psychology or social sciences, the learning process existed, representing the bridge and force that underpinned the mankind evolution. Learning represents the way a person acquires and develops new knowledge, skills, abilities, behaviors and attitudes. According to Honey and Mumford (Honey & Mumford, 1996): "Learning occurs when people can prove they know something they did not know before (understandings, achievements, and facts) and when they can do something they could not do before (abilities)."

With a simplistic approach, starting from the words of Ambrose et al. (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010), the notion of learning can be defined as a process that leads to change, emerging as a result of experience and increasing the potential for improving performance and learning. However, the complexity of the process has given rise over time to various currents, paradigms, visions and attempts to define the notion itself.

Initially, learning was regarded as predominantly focused on the creation and distribution of educational content and information from someone who knows to unaware learners. Practically, it was considered to be a product of training or learning of an individual, the status of the student being actually reduced to the beneficiary of the information transfer.

However, the new learning theories, consecutively emerging, have been increasingly directed towards the application of learning in which the learner plays a primordial role and this is no longer a mere receiver of information. Concerning this new vision, with a wide and

intense applicability nowadays, many benefits that support the need for continuity of this type of learning approach have been identified and highlighted.

1.1 Learning Theories over Time

Over time, visions on educational and formative processes have benefited from important changes, aiming to streamline their outcomes. Thus, around the notion of learning, also linked to teaching and evaluation, several trends, well known as theories of learning, have developed. Their main result consists in the historical change of the paradigm from teacher and content-centered approaches to what we call a learner-centered approach today.

Referring to the theory of behaviorism or behavioral theory, we can mention that, in the beginning, learning was characterized by the view that human behavior can be explained by external factors. Hence, behavioral conditioning could be used as a universal learning process. In behavior theory, positive and negative consolidation ideas, as well as punishment and reward systems, were effective tools for learning and changing behavior. However, behaviorism was considered to be limited, not taking into account the characteristics differentiating between learners and being predominantly focused on the teacher.

In response to behaviourism criticism, a distinction was made among the following four modern theories of learning in the chronological order of their emergence: cognitivism, constructivism, experimentalism and connectivism. The latter modern theories of learning have gradually made the transition to visions where learning is focused on the individual:

The Cognitive Theory: the considerations were closely related to the fact that learning represents an internal process that depends on the learner's ability, motivation and determination (Piaget, 1962; Bruner, 1966).

The Constructivism Theory: supported the idea that people are responsible for developing their own understanding by using what they already know from previous experiences and linking new information to these experiences (Vygotsky, 1978).

The Experimental Theory: in the experimental vision of learning, it is believed that people learn from experience, being marked with four main stages cyclically related: concrete experience, observation and reflection, abstract conceptualization and testing of knowledge acquired in new situations (Kolb, 1984).

The Connectivism Theory: was developed based on the idea that people process information by forming connections; this new trend suggests that the learning process is perpetual, with individuals continuing to learn beyond formal education by obtaining information from multiple and predominantly external sources such as social networks, websites, blogs and other tools provided of technology; in addition, connectivism integrates the principles explored by chaos, network, complexity, and self-organization theories (Siemens, Connectivism: A learning theory for the digital age, 2005).

Each theory of learning has in fact, emerged as a result of the limitations and criticism of the previous one, the new learning paradigms being designed to incorporate visions that favor learner-centered approach. Therefore, a gradual transition to a vision in which learning is directed towards the individual can be easily observed, the considerations on educational processes being increasingly focused on individual learning needs, capacities and abilities.

1.2 The Benefits of Learner-Centered Education

Taking into consideration the issues discussed above, a natural question arises: why it is important for an education approach to be centered on the individual? The necessity of this type of education can be argued in many ways and through various evidences so far exhibited by specialized researches. However, the main answer to this question is very simple and easy to offer: for streamlining educational processes and, more importantly, their outputs.

Weimer stated in his paper, based on the theories of radical and feminist pedagogy, and theories and researches related to self-regulated learners, that student motivation, trust and enthusiasm are adversely affected when teachers control the learning processes (Weimer, 2002). These issues are extremely important when it comes to increasing learners' potential and also represent key points that need to be positively addressed through learning, teaching and evaluation processes. The author has, in fact, marked the limitation and predominantly negative influence of the education focused on teachers and content distribution in favor of the student-centered education.

In order to identify elements of the importance of learner-centered training, Cornelius-White and Harbaugh (Cornelius-White & Harbaugh, 2009) examined the effects of this approach on individuals in training and on educational processes as a whole. The authors have indicated that this approach promotes student involvement, emphasized by increasing their presence, basic respect for others, motivation, participation, intrinsic satisfaction, social connections and self-regulation. Again, we notice findings that underline the basic elements of a successful educational process.

More recent research conducted by Reigeluth et al. (Reigeluth, Beatty, & Myers, 2017) outlines a general but comprehensive vision, mentioning two main spheres that highlight the particular importance of this type of learning where the learner is the main actor: the personal sphere and the societal sphere.

The personal plan refers to the capacities of individuals to acquire knowledge, their learning pace, the skills and talents of learners as individuals. Since people are different, there is a need for different services, contents and contexts tailored to the needs of the beneficiaries. According to Reigeluth et al. (Reigeluth, Beatty, & Myers, 2017), learner-centered education represents the only way to maximize students' learning by helping them to achieve their potential.

At the societal level, the authors refer to the requirements imposed currently by the current society, which puts pressure on the high-level training and education of future employees in the workplace. They pointed out that only learner-centered education can meet the needs of today's society, bringing benefits to the economic competitiveness and the political system (through better informed voters and leaders), but also to individual citizens' ability to thrive in an increasingly complex digital world (Reigeluth, Beatty, & Myers, 2017).

The above mentioned are just few of the positive effects that the student-centered approach can have on education. Surely, the subject can be deepened, but the ability of this type of learning to improve educational processes is obvious.

1.3 Opportunities of E-Learning Systems for a Learner-Centered Education

In the recent vision of Reigeluth et al.(Reigeluth, Beatty, & Myers, 2017), we noticed that an extremely important aspect was mentioned, namely the increasingly complex digital world. The process of digitization, now globally, influences not only the way of organizing the activities of society as a whole, but also people at the individual, cognitive level. An individual who was born and grew up surrounded by technology definitely needs it in its further development. Technology is, in fact, the familiar environment of progress and development of current and future generations of learners. Therefore, it is essential to understand the importance of student-centered learning not only in terms of education as a whole, but also from the perspective of using e-Learning systems.

Most studies conducted in this regard have mentioned that the main advantage of using eLearning systems in education as its ability to focus on the needs and requirements of individual students, promoting personalized learning. Among the main research findings on this topic, we mention the following with reference to the use of e-Learning systems:

allows each student to learn at their own pace, which increases motivation and reduces the stress of not being like others (Klein & Ware, 2003);

provides increased flexibility in terms of time and place related to educational processes, which means that each learner can choose the temporal and dwelling circumstances appropriate to his or her needs (Smedley, 2010);

encourages the transition of learners from passive students to active learners who are keen to deepen new educational subjects, given that instructors are no longer the only source of knowledge (Alsalem, 2004);

involves prior assessments and ongoing evaluations regarding the interests, objectives, backgrounds and needs of students in order to adapt practices to each individual (Mccombs & Vakili, 2005);

supports and encourages learner involvement in co-creating learning and instruction experiences with their "teachers" and others in their learning communities (Mccombs & Vakili, 2005);

offers a flexible and dynamic curriculum with a minimum organized structure based on student needs and/or development considerations (Mccombs & Vakili, 2005).

The above mentioned are just a few of the aspects that highlight the learner-centered orientation offered by the use of e-Learning systems. In addition, we can mention other aspects such as: promoting equality between individuals; excluding barriers related to ethnicity, region, etc.; promoting equality of opportunity by providing a learning environment that is almost unlimited in terms of accessibility and whose costs are extremely low; the ability to quickly get feedback, which can trigger immediate action to help the learner to meet the needs of the moment.

All this, but also many others, highlight the undeniable advantages of learner-centered training both on the individual's development and on the efficiency of education. At the same time, the capacities to provide online learning environments that promote and support students' individual needs cannot be challenged.

2. Understanding New Generations' Learning Characteristics

Identifying and understanding the characteristics and needs of individuals has always been an important and deeply debated branch of the academic world. The need to address this research theme has emerged as a need driven by the changes that have occured in the behaviors of new generations over time.

The delimitation of these generations was initially made taking into account intervals of 15-20 years. However, with the rapid progress in the field of information and communication technology, the timeframe has been diminished, in some respects being merely 10 years for the latter generations. A strict delimitation of the corresponding period of each generation is less relevant. However, the roughly timed interval attributed for the formation of a new generation of learners characteristics was directly related to the evolution of the computer domain. This was due to the awareness of the strong influences that these technologies have on the formation of individuals.

Currently, according to the information provided by Seemiller and Grace (Seemiller & Grace, 2016), four generations of learners were identified as follows: Baby Boomers (1946-1964), Generation X/Gen X-ers (1954 - 1980), Generation Y/Millenials (1980s - early 1990s) and Generation Z/Net Generation/iGeneration (1995-2010). However, previous research by Griffiths (Griffiths, 2012), quoted by Duse and Duse (Duse & Duse, 2016), marked the existence of a first generation, GI Generation/The Silents/Veterans/Traditionalists (1925-1945).

Baby Boomers

The name of Baby Boomers was given to the generation born after the end of the World War II when, with the return of war soldiers, birth rates grew amazingly. Experienced freedom after the war gave rise to a desire to change with which the Baby Boomers were endowed. They valued the work, considering it to be the main success driver, but they were the followers of the desire to change. As per Duse and Duse (Duse & Duse, 2016), Baby Boomers gave importance to values such as peace, freedom, great welfare, while believing that their generation will change the world.

Generation X/Gen X-ers

Generation X, whose development was marked by the post-World Wide II era, has proven to be a generation with an increased degree of independence and ability to act on the basis of its own visions and desires. Being the period when it was common for both parents to work, the youngsters of this generation were often left home on their own, hence the name often attributed to them of "latchkey kids".

As for the formation of the second generation, technology tools have begun to exert their influence, as they were born in the predominant era of cable television but witnessed the emergence of the first computers at Apple and IBM (Seemiller & Grace, 2016). Thus, adults in the X Generation have become the first tech savvy professionals capable of using it to personalize and humanize everything by technology.

Generation Y/Millenials

Also known as "Millennials", Generation Y represent the direct followers of Baby Boomers who, as parents, have provided them with a high degree of material and emotional support. As the main features of the Millennials, it has been found that their preferences are directed towards teamwork, technology, structure, entertainment, enthusiasm and experimental activities (Raines, 2003).

Generation Y accepts the change, but it is characterized by curiosity and deepening of subjects. They do not accept answers without checking on their own. This control of information mainly derives from the unlimited access to the information that Generation Y had since birth. Technology has been part of the training environment for those which have clearly supported and motivated their desire to be informed, to seek real answers.

Generation Z/Net Generation/iGeneration

The most recent generation on which intensive specialty studies have been made is the Z Generation. Being born between 1995 and 2010, young people of this generation are actually current and future learners, some of whom are already active in the workforce. Their behavioral and learning characteristics are noticeably different from those of previous generations.

Generation Z was born, grew and developed in an environment where technology has gradually guided almost all aspects of life, being present in all areas where society, as a whole, operates. In addition, the time attributed to the occurence of this generation has overlapped with the development of the second Web generation, known as Web 2.0 or Read-Write Web, being considered a dynamic network. At this stage of the Web's progress, online Social Media has revolutionized the way people communicate, create and share content, online social environments becoming the main form of interaction.

Being guided by technology, the dependence of the Net Generation of smart devices, Internet, socialization and other tools and services offered by the ICT domain, is obvious. Generation Z benefit from more opportunities, such as reading, writing and collaborating through new technology tools. Therefore, characteristics such as willingness to engage, innovation, creativity, preference for acting in participatory environments by others, increasing the artistic side, and so on, can be attributed to them.

Online media distribution opportunities are extremely varied in the social context, including images, video, music, video streaming and more. Extremely familiar with such

means of communication, the Z generation has an extraordinary ability to transmit and understand the information in visual and auditory forms, where meaning may often be less obvious.

With multiple online opportunities to find information about contexts, situations, peoples, events and others in real time, Generation Z can be considered more anchored or aware of the surrounding reality. If previous generations had the limited opportunity to witness events only by hearing or reading news about them, Net Generation benefits from the opportunity to surf the Internet through different paths in order to deepen the subject. Thus, they are considered a value-based cohort, with the desire to identify causes, not just to witness the effects.

Additionally, the awareness to which they were exposed since their birth through online media has significantly reduced the degree of racism of the Z generation. According to Adweek, studies have shown that Gen Z is interested in equality between race, sex and income, as well as environmental issues (Perlstein, 2017). These values that new generation harness are supported in online environments where they succeed in creating communities of volunteering, help, or simply sharing common interests.

Moreover, online-distributed environments favored the development of team-gaming activities, a context that attracted many adherents of the new generation. They have switched from simple games available on desktop devices to complex games developed in accordance with current technological capabilities, gradually including elements of augmented reality, artificial intelligence, and beyond.

All of these elements have influenced not only the behavioral characteristics of the Z generation, not just their values and beliefs, but also their learning needs and requirements. In this regard, Rothman (Rothman, 2016) mentioned the main issues that engage young people in the learning process, some of which are synthesized as follows:

Prefer fast delivery of complex graphics content.

Prefer access to chance, graphics in the first place and connected activities.

They are interested in interactive multimedia such as Second Life or World of Warcraft.

They need integration of continuous classification, instant feedback, clear goals, rewards, positive challenges and reinforcements.

Prefer learning delivered in smaller "bites".

Learn more effectively if they are left to solve problems and find solutions through experimentation, trials and errors.

They have an increased ability to express their views in group discussions and questions and answers sessions.

They do not allow enough time to determine the reliability of their information.

Prefer to work in teams/small groups.

Creativity and collaboration are natural to them, even if it is a spontaneous or structured activity.

They need increased flexibility in learning, choices, so that learning process can be personalized.

With an increased dependence on technology, Generation Z tends to adopt social learning environments, where they can be directly involved in the educational process (Kozinsky, 2017). A study by Barnes and Noble College (Barnes and Noble College, 2016) had as a main result the observation that students in Generation Z refuse to be passive students. In fact, they tend to thrive when they are given the opportunity to be part of the educational experience and even enjoy the challenges they have to face.

Addressing the same theme, in 2018, LinkedIn conducted a research through two surveys, the first being distributed among 400 learning and human resources professionals,

and the second among more than 2,000 of individuals from Generation Z (Poague, 2018). This study aimed, on the one hand, to identify how companies plan development for learners of new generations and, on the other hand, on identifying the main learning characteristics of Generation Z. Thus, two main features of Generation Z were mentioned with respect to the training processes:

the preference to short-term learning based on micro-content: native Internet users, Generation Z are accustomed to fast moving technology and immediate gratification so they feel that time is limited;

the need of independence in learning: Generation Z need an increased degree of independence in training, which means that knowledge accumulation processes should be predominantly self-directed.

The main findings mentioned above not only emphasize the dependence of the current generation of technology learners, but clearly indicate the course in which educational processes must be directed to serve students' needs. This direction is closely related to the use of high-performance Social e-Learning systems. In a context of online e-Learning, performance will result on one hand with the capabilities of these systems to combine modern technology and, on the other hand, with the capabilities to meet the learning needs of the Z-generation.

3. Conclusion

While Generation X or Milennials currently represent the vast majority of the labor and consumer markets, Generation Z represents the future first and foremost as trainees and later as professionals and consumers. Thus, their proper development is perhaps the most important prerequisite of the succesfull future of society.

The awareness of the main learning features is imminent in the development of next generation e-Learning systems. Thus, the work in question intended to solve the first purpose of research, providing a review of the literature on student-centered training and on the characteristics of new learners generations. This preliminary analysis represents the basis for solving the purpose of the second stage of research, namely identifying the learning characteristics of new generations of students by conducting a survey.

In order to address the purpose of the subsequent step of the research, a quantitative analysis method was chosen based on a specific questionnaire for the research in question. The target group consists of students from all study programs, the sample being based on the number of students enrolled on 1st of October 2017 in all universities with economic profile from Romania. The study is currently underway, with the results intending to highlight peculiarities such as learning style, goal orientation, learning approach, and so on. The data obtained from the completion of the research is intended to serve as a guide for the development of future e-Learning systems that should be used in higher education, shaped according to the learners' particularities.

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