


Connectivism and the challenges of teacher training in the digital age

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Abstract

This article aims to question and highlight significant aspects of the definition of the teaching role and its requirements for the education of citizens in the digital age, as well as to contextualize learning and the development of skills and abilities from a connectivist perspective. For this analysis, the bibliographic method, material survey and up-to-date research on the subject were used. We found that the most significant obstacles are more related to the requirements of continuing education, development and application of technologies in the classroom, due to the profile of students from a digital and connected society, as well as the scarcity of technological resources of institutions and the school community. For the real implementation of a connectivist model, we need structural and organizational changes in order to adapt to the information and knowledge society.

Keywords: Connectivism. Teacher training. Changing paradigms.

Conectivismo e os desafios da formação docente na era digital

Resumo

O presente artigo objetiva questionar e destacar aspectos significativos de definição da função docente e suas exigências para a formação do cidadão da era digital, bem como realizar uma contextualização da aprendizagem e desenvolvimento de competências e habilidades partindo de uma perspectiva conectivista. Para essa análise foi utilizado o método bibliográfico, levantamento de material e pesquisas atualizadas sobre o tema. Constatamos que os obstáculos mais significativos estão mais relacionados às exigências de formação continuada, desenvolvimento e aplicação de tecnologias em sala de aula, devido ao perfil dos educandos oriundos de uma sociedade digital e conectada, como para a escassez de recursos tecnológicos das instituições e comunidade escolar. Para a real implementação de um modelo conectivista necessitamos de mudanças estruturais e organizacionais a fim de nos adequarmos á sociedade da informação e do conhecimento.



Palavras-chave: Conectivismo. Formação de professores. Mudança de paradigmas

1 Introduction

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Communication and interaction in today's society have presented differentiated and innovative characteristics. This phenomenon can be perceived in several contexts (formal or informal), because it uses tools that until recently were accessible to a smaller portion of the population or seen as alternative forms of dialogue. Although for the students it is an immersion environment, for the educators it is a challenge. These changes and new models of communicability have reached the school, demanding new competencies from the educator and redefining the teaching/learning parameters. We then have a new way to approach and understand the relationships, this pedagogical current or learning theory is based on Connectivism. Its main representatives are George Siemens and Stephen Downes (2004). Its interactionist characteristics and learning profile for a digital generation have had a profound impact on knowledge relations, autonomy, collaborative learning, and global development.

These modifications have also impacted the view of the educator who can be defined as a mediator of learning, no longer a central figure, but an articulator, a promoter and enabler of meaningful and contextualized learning. Such conceptualization demanded a new profile of the educator. Not only a mastery of digital tools, but also the ability to develop new competencies, constant connection with their students, and to be in constant training, since connectivism is an active and integrated model.

The educational models have been changing throughout history, because each society has its moments of rupture and needs answers that fit the historical moment and the social context. Paradigm shifts are not abrupt breaks, but transition periods. For Morin (2011) cultural changes are determining factors for structural and attitudinal changes to occur. Siemens (2004) states that:





Connectivism presents a model of learning that recognizes the tectonic shifts in society, where learning is no longer an internal and individual activity. The field of education has been slow to recognize both the impact of new learning tools and the environmental changes in which learning has meant.. (p. 8).

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In this perspective we must think of a different education for a different student. Every change is a movement, an evolution or modification of a certain conjuncture or situation, and its necessity comes from an associated context.

In the connectivist conception, man is the focus and the starting point. For Siemens (2004) "[...] feeds back into organizations and institutions, which in turn feeds back into the Network and then continues to provide learning for the individual." (p.7). The individual is the core. Its relationships and interrelationships, because it starts from the premise that knowledge begins in a personal and individualized perception that generates connections, unfolding and possibilities for communication and growth with exponential implications.

2 Profile of the student and the educator today

Based on the arguments cited above, we should try to recognize and determine what the parameters of the learner are today. Our conclusions are based on the use of the bibliographical method, material survey, and updated research on the theme.

For connectivism, learning is distributed on a network, has a social function, and is technologically empowered to recognize and interpret patterns. These patterns in turn are adaptive, representative of the current state of learning and development, existing in the networks. Thus, the function of memory is to recognize and differentiate the adaptive and representative patterns of the current state of knowledge existing in the networks. We realize in this relationship that learning is complex and variable, as its core changes rapidly, driven by various sources of knowledge.

Siemens (2004), argues that learning takes place in cloudy environments in which the fundamental characteristics and elements are constantly changing. From this perspective learning, can be defined as knowledge, actionable or accessible, in





multifaceted and interconnected situations that can occur outside the subject. This approach allows us to think of knowledge organization or database. Thus, the function of learning would be to connect specific information, by improving these connections, no longer seen as information, but as knowledge that is no longer just significant but inherent and active, because through internal connections of knowledge it has gained meaning and integrated into the memory of the learner as meaningful learning, amenable to use and the possibility of new connections with future information.

We see in this apparently chaotic environment a miscellany of ideas and contexts. In the current "knowledge society", we can't get stuck in the molds of mere memorization and mechanical treatment of learning. The connectivist proposal, as a theoretical model, aims at grounding learning in connected environments, whether they are face-to-face or semi-attendance. In the scope of this proposal we see aspects of social interactionism, as well as concepts related to the Net society. From this integration emerges the possibility of a new form of academic learning based on technology and on the singularity in the learning process. However, it is worth pointing out the difference between information and knowledge. Morin (2010, p.16) differentiates the process of informing and knowing:

Knowledge is only knowledge while it is organized, related to information and inserted in the context of information. Information constitutes scattered parcels of knowledge. Everywhere, in the sciences as in the media, we are drowned in information.

The changes and adaptations have also affected the teachers. The basic training was not able to keep up with the changing student profile and new paradigms, so innovations and diversifications were also required from education professionals. For the challenge has become to instrument and develop skills and competencies in "digital natives". This is what we call the generation that was born in the midst of technological development and has had access to technologies since forever. Langaro (2013) exemplifies this concept by explaining that these subjects were born in a digital society. In



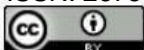


a context where information and transformations are agile and constantly improving and redefining. Its time span is short and its reach is maximized by social and interactive networks. Everything can be created and taken down in a short period of time. The Internet provides information from all over the world almost synchronously. This speed of information and connection is a challenge to the molds and training of the teacher.

Therefore, the educator now has a new profile of mediator, facilitator, and information manager. For Frade (2007), Garcia and Galán (2009), besides the didactic competence for the ideal training of students, it is necessary to articulate eight other competencies: cognitive, diagnostic, ethical, logical, empathic, communicative, playful, and metacognitive. All these skills must exist at a lower or higher level of development in order for the teacher of the digital age to be able to develop his or her own skills and competencies in the students. Such desired characteristics are not spontaneous. They must be developed through continuous training, cooperation and support networks, to search for new reflections in the processes of educational practices where the teacher starts to experience transformations in order to benefit his classes, innovative didactic and methodological aspects, capable of influencing the quality of the teaching and learning process.

The main change that we must develop as educators is "learning how to learn". The current demands require us to rethink our educational practice. It is very important to overcome our limitations through updates, to be theoretically grounded, to observe our practice, and to reflect on our experiences in order to make them meaningful. This scenario drives us to be in constant improvement, according to Silva (1991, p.3) "Update yourself, update yourself, update yourself... - this repetition is intentional and intends to erase from your consciousness any possible remnant of the desire for accommodation".

However, we should also take the broader view that the teacher cannot be responsible for everything, knowing what the competencies are and having good will is not everything. There are external factors personal, social, and financial issues. For Hoffmann (2002, apud Furlan and Nascimento, 2007, p. 6): "The teacher cannot be taught what he needs to learn. Meaningful learning is the subject's own construction".





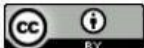
Sometimes even the institutional structure and pedagogical direction limit interaction, intervention, and change.

Our biggest challenge at the moment is the implementation of methodologies that can encompass the new educational profile. According to Souza (2021), he argues that in the context of pedagogical theories, it is widely accepted that conductivism (or behaviorism), cognitivism, and constructivism are the three major learning theories most frequently adopted and implemented as a subsidy and theoretical/methodological reference in the development of educational environments. However, these models have not been able to respond effectively to a society impacted and transformed by technology. In the design of the information and knowledge society, the connectivist assumptions have gained prominence. Downes (2005, p.6), argues that:

The property of one entity must lead to or become the property of another entity for it to be considered connected; the knowledge that results from such connections is connective knowledge. This is more than just the existence of a relationship between one entity and another; it implies interaction.

In the scope of these new trends we find terms such as VLE (virtual learning environment), ICT's (Information and Communication Technologies), TAC's (learning and living technologies), collaborative learning and networking. In each of these modalities and concepts we find diversified tools and a range of possibilities for intervention. We realize then that the teaching work has become broad, as we are permeated by formative processes of multiple educational networks, with greater reach and projection at the same time as connected and interrelated. We see in all this repertoire and multiplicity of themes the basis of connectivism. For Siemens (2008) knowledge is disseminated through an information network, and can be stored in a wide variety of digital formats, which would support the connections developed. "Learning and knowledge rest on the diversity of opinions" (p. 8).

3 Challenges for implementing a connectivist proposal,



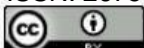


All the referential previously mentioned leads us to a central question: how to implement and develop a connectivist educational proposal? According to Freire (1996, p.46) "teaching requires understanding that education is a form of intervention in the world". We perceive in the connectivist approach the possibility of working with new visions of learning that meet the needs of the current profile of students. Whose principle is the problematization of reality and the development of tools already used by the students as a possibility of intervention and methodological diversification. Teaching students to experience knowledge in their reality in a reflective way in order to develop their skills and potentialities.

However, such a proposal cannot become a reality in limiting environments or in inflexible pedagogical proposals. We do not intend to defend in this study that the connectivist approach has no oppositions. Some scholars such as Kerr (2007), Kop and Hill (2008), and Campos (2011) argue that the Connectivist Theory cannot be defined as a learning theory, but as a pedagogical method; since the principles advocated by Connectivism are part of other learning theories. Another very relevant observation is that learning, being a phenomenon of human societies, being part of their development and inherent to their condition, cannot exist, according to this definition, in non-human mechanisms. We see that there is no consensus, but there is recognition of connectivism as a methodology to be explored in learning environments.

The current learning proposals highlight that the access and use of new technologies and forms of communication have been gradually evolving, thus remodeling the way of analyzing and evaluating the contexts of the current society. There are no absolute certainties or immutable concepts. We are in a process of reviewing our attitudes and knowledge and readjusting our teaching vision, taking as a starting point new ways of seeing learning.

When we analyze our history and evolution, we see that the social revolutions have shown us the power of ideas, of new ways of interpreting and seeing the world. This contextualization, more than necessary, makes us realize that this power of transformation is also in education. A rigid school, closed to dialogue and to the desires





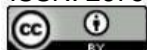
of teachers and students, has no chance of surviving the changes that are taking place in society and in the ways of interacting with knowledge. Such a position is not supported by the level of creativity and autonomy of the students, or by the longing and versatility of the teachers.

Another relevant point is our lack of technological resources, as well as limited or almost non-existent access to new technologies. We well know that some educational environments have minimal conditions for working and developing interactive or connected learning. In these places what stands out is the creativity, flexibility, and adaptability of the teacher. To talk about learning technologies when we have institutions that do not even have access to the internet is offensive and derogatory.

In order for us to really manage to implement a connectivist approach, we need up-to-date professionals with the capacity to mediate, intervene, promote, and incentivate the development of abilities and competencies, making the students' curiosity and motivation be directed to meaningful, cooperative, and knowledge-promoting learning. As well as institutional environments with minimal structuring for the development of work proposals whose use of the Internet and technological tools are not accessories, but are part of everyday school life. In addition, a dialogical and dialectical pedagogical proposal is necessary. Which starts from the principle that we are beings in constant formation and that we train for a complex and changing world.

4 Final considerations

The new educational needs demand an updated approach that requires professionals and institutions to re-read and reformulate. Among the possibilities, this work sought to highlight the connectivist assumptions as an alternative for the improvement of cognitive skills through the use of technological resources, perceiving networked learning as a training proposal for students today. The demands and needs for the training and improvement of teachers, in order to follow, transform, guide, intervene, train, stimulate, redefine, and develop skills and competencies in an increasingly





demanding and connected society have been a challenge for education professionals. For even though the educational goals for a society of information and complexity in constant change and technological improvement are clear, they have little support, incentive, and adequate training.

Connectivism can be seen as the current epistemology that best suits the society of the information age. But its implementation and development should be preceded by structural and organizational changes in which teachers have little or no influence. Methodologies and pedagogical currents are widespread concepts when we talk about society and revolutionary ideas. But paradigm shifts only occur when there is engagement, public policies appropriate to the contexts, and the definition of regulatory parameters. Education has been and always will be a definitive point for social transformation, so teacher training and the definition of the skills and competencies of the education professional should be the starting point for any society that intends to evolve and transform innovative concepts into educational reality.

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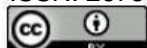
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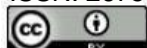
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