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THE BARRIERS THAT PREVENT THE EFFECTIVE USE OF CONNECTIVIST THEORY IN THE PUBLIC EDUCATION SYSTEM - INITIAL AND CONTINUING TRAINING OF TEACHING STAFF AND LACK OF ACCESS TO CONNECTED EDUCATIONAL TECHNOLOGIES

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Abstract: The article discusses the foundations, opportunities and challenges associated with implementing the connectivist approach in education, with a focus on schools in Amaralina-GO. Connectivist theory highlights the importance of interconnections between individuals, resources and information in the construction of knowledge, shifting the focus from the accumulation of data to the ability to discern and apply information in diverse contexts. Amaralina's exemplary infrastructure and qualified teaching staff provide an environment conducive to the successful integration of connectivism. The article highlights the opportunities for teachers, including redefining their roles as facilitators of knowledge, promoting dynamic pedagogical practices and empowering students to face contemporary challenges. However, challenges are also addressed, such as resistance to change, the need to adapt assessment methods and understanding the learning dynamics of the digital generation. The implementation of connectivism requires thoughtful investments in infrastructure, teacher training, teaching materials and technology, aligned with the guidelines of the National Common Curriculum Base. In conclusion, the adoption of connectivism represents a substantial transformation in Amaralina's education, driving a more connected, collaborative and meaningful approach. The article highlights the importance of overcoming challenges and seizing opportunities to prepare students for the challenges and innovations of the 21st century.

Keywords: Connectivism; Contemporary education; Amaralina-GO; National Common Core Curriculum (BNCC); Educational Challenges and Innovations.

INTRODUCTION

In the digital age, where society is intrinsically connected, connectivist theory has emerged as a revolutionary paradigm in contemporary education, challenging traditional learning models. Proposed by Siemens (2005), this approach highlights the interconnection between individuals, resources and information as the core of the educational process, emphasizing networks as the essential context for acquiring knowledge.

Connectivism shifts the emphasis from the simple accumulation of data to the ability to discern, interpret and apply information in various contexts, promoting a holistic view of learning (Davis, 2011). This new paradigm challenges conventional structures, transforming the school into a space where networks and interactions converge, where constant interaction is the foundation of knowledge (Siemens, 2005).

In the specific context of Amaralina-GO, a locality that stands out for its commitment to education, the implementation of connectivism presents unique challenges and opportunities. This text explores the foundations of connectivist theory, its applications in Amaralina's educational environment, the opportunities it offers teachers and the challenges they face in transitioning to this innovative approach. By examining the educational context and the opportunities for integration, as well as the challenges to be overcome, it seeks to provide a comprehensive overview of the implementation of connectivism in the schools of Amaralina-GO.

FOUNDATIONS OF CONNECTIVIST THEORY

In the digital age, connectivist theory has emerged as a beacon in contemporary education, revolutionizing traditional learning paradigms. As Siemens (2005) points out, connectivism proposes an approach where learning is largely shaped by the interconnection between individuals, resources and information, highlighting the relevance of networks as the primary setting for acquiring knowledge.

In this context, the emphasis is on the dynamics of connections. As Downes (2007) points out, learning is no longer an isolated act, but a process intrinsically linked to the ability to establish and nurture connections. Knowledge is not contained in specific individuals or resources, but is forged in continuous interaction with a complex web of information and agents.

This approach shifts the focus from the simple accumulation of data to the ability to discern, interpret and apply information in diverse contexts. As pointed out by Davis (2011), connectivist learning promotes a more holistic vision, in which students are encouraged to explore, collaborate and build knowledge in dynamic and fluid learning communities.

Connectivity is the essence of this paradigm. Rheingold (2012) highlights the importance of connections not just as a means of accessing information, but as a powerful tool for solving complex problems. Constant interaction with diverse people, resources and ideas expands the ability to solve challenges, developing adaptive skills that are fundamental to the contemporary world.

In this sense, the school, once seen as an isolated enclave, has become a space where networks and interactions converge. The connectivist vision of learning challenges conventional structures, prompting educators to rethink pedagogical practices and integrate technologies in order to foster meaningful connections.

In short, connectivism in education represents a paradigm shift, where learning transcends physical boundaries and is built on the hive of interactions, networks and connections. As Siemens (2005) points out, effective learning today must be seen as a synergy between the ability to connect and the ability to discern the relevance of information. The network, as a learning ecosystem, is the epicenter of this new educational path, in which constant interaction is the foundation of knowledge.

Connectivism is a theory that explores how learning takes place. Siemens (2004) describes a community as a group of similar interests that promotes interaction, sharing and collaborative dialog. In the connectivist view, a learning community is like a focal point in a larger network. Focal points are the places of connection in a network, formed by several points interconnected to share resources. These points can vary in size and influence, depending on the amount of information and people who connect to them (Downes, 2008).

According to connectivism, knowledge is dispersed in a network of information and can exist in different digital forms. The theory emphasizes that learning and knowledge are based on a diversity of opinions (Siemens, 2008). It occurs through the interaction between the cognitive and emotional domains, both of which are essential in the learning process.

As information is constantly evolving, its validity can change over time with new discoveries. This implies that the understanding of a subject and the ability to learn about it also change. Connectivism highlights two crucial skills: the ability to search for up-to-date information and the ability to filter out irrelevant information. Simply put, "Knowing how to find it is more important than what you already know" (Siemens, 2008). Making decisions based on the information acquired is an integral part of the learning process.

Learning is a cycle in which students connect to networks to exchange information, adapt their beliefs based on their learning and then reconnect to share these changes and seek new knowledge. It is seen as a process of creating knowledge, not just consuming it. One's personal learning network is formed from how a student connects to learning communities.

Students can move between different areas of knowledge, as the boundaries between them are flexible, allowing for interdisciplinary connections. Siemens points out: The ability to see connections between areas, ideas and concepts is fundamental (Siemens, 2008). The connectivist metaphor is especially relevant today, considering how the internet and the dissemination of information on it have become central to Siemens' ideas.

CONNECTIVIST EDUCATIONAL ENVIRONMENT

In an interconnected world, schools have the challenge and opportunity to transform themselves into a space that promotes not only the transmission of knowledge, but also the cultivation of connective, collaborative skills and autonomy in students. Adopting a connectivist approach requires not just the integration of technologies, but a fundamental change in educational culture and practices.

Connectivity, as Siemens (2004) points out, goes beyond simply connecting to the internet; it encompasses the ability to create, collaborate and share knowledge. The connectivist school seeks to create environments where students are immersed in meaningful learning networks. This implies not only the use of technologies, but the creation of physical and virtual spaces that encourage constant interaction between students, teachers and resources.

To promote connectivity, schools can adopt strategies that encourage collaboration. Student-centered pedagogical approaches, such as collaborative projects and problem-based learning, encourage the exchange of ideas and the co-construction of knowledge. Teachers become facilitators, guiding and encouraging students' active participation in learning communities.

Student autonomy is a central pillar of connectivism. Davis (2011) points out that the ability to learn how to learn is fundamental in today's connected world. The connectivist school empowers students to be autonomous in searching for, evaluating and applying information. This can be achieved by implementing personalized learning methods, allowing students to choose learning paths that align with their individual interests and styles.

The integration of online platforms, educational social networks and collaborative tools also plays a crucial role in building a connected school. These tools not only facilitate the connection between students and teachers, but also allow learning networks to expand beyond the physical boundaries of the school, connecting to experts, institutions and resources around the world.

In short, adopting a connectivist approach requires a change in mentality, where the school becomes an environment that values connectivity, the collaboration and student autonomy. By creating a learning culture based on networks and connections, the school not only prepares students for today's world, but also empowers them to become lifelong learners, ready to thrive in a constantly evolving environment.

EDUCATIONAL CONTEXT OF AMARALINA-GO

Amaralina, located in Goiás, stands out for its remarkable commitment to the educational sphere, evidenced both in the exemplary infrastructure of the schools and in the quality of the teaching staff. In addition, many of the teachers have specializations in education, demonstrating a solid alignment with current pedagogical guidelines.

According to Silva (2018), the solid training of teaching staff has a direct impact on the quality of teaching, which is reflected in the academic success of students. Uniformity in teacher training proves to be a significant differentiator in the local educational landscape, contributing to a cohesive approach aligned with the best pedagogical practices, fostering a learning environment that is more adaptive and integrated with students' needs.

The well-planned infrastructure of the schools in Amaralina reflects the local authorities' continuous investment in improving educational quality. Modern classrooms, quality technological devices and spaces for extracurricular activities make up an environment conducive to students' integral learning. These elements not only provide resources to enhance the educational experience, but also foster a diversity of pedagogical approaches.

In Amaralina, the educational infrastructure stands out for its investment in technology to improve the learning environment. All the schools are equipped with high-quality internet access, guaranteeing a stable and reliable connection. In addition, computers are available for both the management team and teachers, enabling efficient and productive use of these resources.

The integration of devices such as cell phones for pedagogical use has become a reality, providing an additional tool to enhance teaching and learning dynamics. In every classroom, the presence of TVs with internet access offer a wide range of possibilities for enriching lessons, making it possible to use audiovisual resources in a dynamic and interactive way.

In addition, the presence of technologies such as Data Show, big screens, amplified speakers and security cameras demonstrates the commitment to providing a safe school environment conducive to advanced learning. These tools not only enrich the teaching environment, but also contribute to the safety and well-being of the entire school community.

These investments in technology not only modernize the educational environment, but also reflect Amaralina's commitment to providing quality education in line with the demands and challenges of the 21st century. Access to these technologies promotes not only pedagogical innovation, but also the preparation of students for an increasingly connected and technological future.

In Amaralina's school routine, management and pedagogical organization adopt a digitalized and technology-integrated approach. Student attendance, class diary entries and all teacher planning are carried out electronically, optimizing the practicality and precision of these processes.

The integration of families into the school environment is prioritized, with all parents and guardians connected to remote communication groups. This enables continuous dialog, keeping them informed about academic progress, school events and other activities via online platforms.

All school events are shared and publicized online, ensuring that the entire school community has access to relevant information. This transparency contributes to the involvement and engagement of parents and students in the school's activities and events.

Teachers have support and access to Information and Communication Technologies (ICT) and Learning and Knowledge Techno-

logies (LKT) during lessons. They receive all the support they need to develop their educational projects in an integrated way with educational technologies, promoting more dynamic and effective learning.

This approach not only makes it possible to use digital resources in the classroom, but also gives teachers the autonomy to explore new tools, enriching the educational process and stimulating pedagogical innovation. Valuing and supporting the use of these technologies provides a an environment conducive to the development and application of more integrated and efficient educational methods.

In short, the Amaralina schools are committed to offering quality education, in line with contemporary demands, and stand out not only for their infrastructure, but also for the effective integration of technologies into the educational environment.

OPPORTUNITIES FOR TEACHERS IN THE CONNECTIVIST APPROACH

In the digital age, connectivist theory has emerged as a beacon in contemporary education, revolutionizing traditional learning paradigms. As Siemens (2005) points out, connectivism proposes an approach where learning is largely shaped by the interconnection between individuals, resources and information, highlighting the relevance of networks as the primary setting for acquiring knowledge.

In this context, the emphasis is on the dynamics of connections. As Downes (2007) points out, learning is no longer an isolated act, but a process intrinsically linked to the ability to establish and nurture connections. Knowledge is not contained in specific individuals or resources, but is forged in continuous interaction with a complex web of information and agents.

This approach shifts the focus from the simple accumulation of data to the ability to discern, interpret and apply information in diverse contexts. As pointed out by Davis (2011), connectivist learning promotes a more holistic vision, in which students are encouraged to explore, collaborate and build knowledge in dynamic and fluid learning communities.

Connectivity is the essence of this paradigm. Rheingold (2012) highlights the importance of connections not just as a means of accessing information, but as a powerful tool for solving complex problems. Constant interaction with diverse people, resources and ideas expands the ability to solve challenges, developing adaptive skills that are fundamental to the contemporary world.

In this sense, the school, once seen as an isolated enclave, has become a space where networks and interactions converge. The connectivist vision of learning challenges conventional structures, prompting educators to rethinking pedagogical practices and integrating technologies in order to foster meaningful connections.

In short, connectivism in education represents a paradigm shift, where learning transcends physical boundaries and is built on the hive of interactions, networks and connections. As Siemens (2005) points out, "effective learning today must be seen as a synergy between the ability to connect and the ability to discern the relevance of information". The network, as a learning ecosystem, is the epicenter of this new educational path, in which constant interaction is the foundation of knowledge.

Faced with these challenges and opportunities, the process of implementing connectivist practices requires well-defined steps. In line with Pereira's (2020) conclusions, reflection on connectivist theory and redefining the role of the teacher as a facilitator of knowledge are the starting point. Training and continuing

education, according to Oliveira's (2021) studies, emerge as essential steps, providing tools and strategies to integrate the connectivist approach effectively into the classroom.

Another relevant aspect, as pointed out by Silva (2019), is the creation of learning environments that encourage interaction and connection between students and educational resources. The adoption of active methodologies, as highlighted by Costa (2022), complements this process, challenging students to solve problems and promoting collaboration between them.

According to Gomes' studies (2020), reflective and continuous assessment closes the cycle of this process, ensuring that assessment methods are aligned with the objectives of the connectivist approach, valuing not only the end result, but also the students' learning process.

Understanding and applying connectivist theory requires a gradual process of adaptation and development on the part of educators, as advocated in the studies by Alves (2021). Transforming the role of the teacher from a mere holder of knowledge to a facilitator and guide is crucial, as discussed by Silva (2019). This redirection reinforces the role of students in the construction of their own knowledge.

One of the first steps in implementing connectivist practices, according to Santos (2022), is to reflect on the underlying theory, understanding that knowledge is constructed through interactions and connections. Training the continuous updating of teachers, as highlighted by Lima (2021), is essential for integrating effective connectivist strategies into pedagogical practice. This updating not only familiarizes educators with new methods, but also inspires them to adopt innovative approaches, as highlighted by Almeida (2018).

The creation of connected learning environments, as discussed by Carvalho (2019), is another crucial step. Such environments encourage interaction between students and educational resources, promoting collabo-ration and the collective construction of knowledge. The introduction of active methodologies, emphasized by Pereira (2020), complements this transition by challenging students to develop analytical and problem--solving skills.

Continuous assessment, according to Oliveira (2021), plays a key role in this process. Assessment methods should reflect not only knowledge retention, but also the learning process and students' connection skills. This approach provides more contextualized feedback, directing learning more precisely and effectively.

In summary, the implementation of connectivist pedagogical practices requires a progressive process that encompasses understanding the underlying theory, continuous training, the creation of collaborative learning environments and reflective assessment. This transition, although challenging, is fundamental to preparing students for the challenges of the contemporary world.

It is crucial to recognize that the Common National Curriculum Base highlights the importance of information and communication technologies (ICTs) as essential resources for educational development. The BNCC highlights the need to integrate ICTs across the board in all subjects and areas of knowledge, promoting not only the acquisition of knowledge, but also the development of digital skills, research, collaboration and problem-solving.

In addition, it emphasizes that the use of technologies should not be limited to access to devices, but should promote an active digital culture, where students become protagonists in the ethical, critical and responsible creation, production and sharing of content in the school environment and beyond. This approach resonates with the connectivist perspective, which values not only obtaining information, but also the ability to connect, interpret and apply it in a variety of contexts.

Therefore, when considering the alignment between the BNCC guidelines and connectivist practices, there is a convergence in the emphasis on the meaningful use of technologies in the educational process. These guidelines offer solid conceptual and pedagogical support for the implementation of connectivist approaches, boosting not only interaction-based learning, but also the formation of critical, collaborative students who are able to face the challenges of the contemporary world.

In order to guarantee quality education in line with the guidelines of the Common National Curriculum Base (BNCC), it is essential to consider various aspects that permeate public investment in this sector.

The allocation of financial resources is a critical point in this process. It is essential to analyze whether these investments meet educational demands, covering infrastructure, teacher training, materials and technology, as highlighted by Santos (2019). These must be aligned with the goals established by the BNCC to ensure effectiveness in the implementation of educational policies.

School infrastructure and the availability of technology play a central role in this context. Analyzing the adequacy of facilities and access to technological resources, in accordance with the requirements of the BNCC, is crucial to fostering an environment conducive to learning, corroborating the perspectives of Oliveira (2020).

Teacher training and teaching materials must also reflect the BNCC guidelines. Investments in continuing education programs for teachers, in line with the expected competencies, and in the provision of appropriate teaching materials are critical aspects, as argued by Silva (2021).

Curriculum alignment and the adoption of methodological approaches are equally fundamental to meeting the BNCC guidelines. Reviewing and adapting school curricula and teaching practices in line with the BNCC proposals are essential steps, as Lima (2018) points out.

Evaluating educational results in relation to the investments made is crucial to understanding the impact on the quality of education. Implementation constant monitoring and evaluation mechanisms are necessary, as mentioned by Almeida (2019), to ensure the effectiveness of investments and educational policies aligned with the BNCC.

CHALLENGES AND INNOVATIONS IN CONNECTIVIST EDUCATION

Implementing this connectivist approach in schools in Amaralina-GO, as in all schools in the countryside, poses initial challenges for teachers. Mendes (2020) highlights resistance to change, pointing out the reluctance to abandon traditional teaching methods. In this context, Sousa (2019) emphasizes the importance of continuous training to integrate active pedagogical practices and the effective use of technologies in the classroom.

The need to adapt assessment methods is also critical, as shown by Lima (2021). Assessment aligned with the connectivist approach demands a review of the processes for analyzing students' knowledge, prioritizing not only the end result, but also the learning process.

A crucial aspect in implementing the connectivist approach is the current generation of students, digital natives who grow up immersed in technology. These students are familiar with digital devices from an early age, and connectivity is an intrinsic part of their daily lives. The speed with which they access information and interact with different media is astonishing, which underscores the need for teachers to adapt to the reality of students in the digital age.

This connected generation has a very dynamic learning pace and search for information. Students are constantly interacting with varied content, seeking immediate answers and valuing interactivity. Faced with this scenario, teachers face the challenge of keeping up with and directing this drive for learning, without losing sight of the quality and depth of the knowledge transmitted.

Adapting teachers to students' digital reality requires not only the use of technological tools, but also an understanding of the learning dynamics of this new generation. The classroom, once a space predominantly for transmitting content, is now becoming an environment of exchange, where interaction and the collective construction of knowledge are becoming more important.

In this context, the figure of the teacher is being redefined from the exclusive holder of knowledge to a facilitator and guide of the learning process. This requires a more flexible and open attitude towards collaboration with students, encouraging active participation, critical thinking and creative problem-solving.

Even so, it's important to note that the transition to a more connected model adapted to students' expectations requires time and investment in training. Educators need not only to acquire the technical skills to deal with digital tools, but also to understand how to integrate them effectively into the educational process.

The challenge is not just to master the technologies, but to create strategies that guarantee meaningful and relevant learning, taking advantage of the potential of digital tools to engage students effectively.

CONCLUSION

Given the challenges and opportunities involved in implementing the connectivist approach in Amaralina-GO schools, it is clear that this educational transformation represents a significant step towards a model that is more adapted to the digital reality and contemporary demands.

When considering the foundations of connectivism, we note that the interconnection between individuals, resources and information becomes the basis for the construction of knowledge. Amaralina, with its outstanding commitment to the educational sphere, has a qualified infrastructure and teaching staff, offering an environment conducive to the successful integration of this innovative approach. The opportunities for teachers in this new paradigm are vast, ranging from redefining the role of the educator as a facilitator of knowledge to promoting more dynamic and interactive teaching practices. Student autonomy, collaboration and the ability to discern information are highlighted, preparing them to face the challenges of a constantly evolving world.

However, we cannot ignore the challenges inherent in this transition. Resistance to change, the need to adapt assessment methods and the demand for an in-depth understanding of the learning dynamics of the he digital generation are obstacles that require continuous efforts on the part of educators.

In line with the guidelines of the Common National Curriculum Base (BNCC), the implementation of connectivism requires thoughtful investment in infrastructure, teacher training, teaching materials and technology. The constant evaluation of educational results in relation to these investments is crucial to ensure the effectiveness of educational policies.

Ultimately, the adoption of connectivism in the Amaralina-GO schools represents a leap towards an education that is more aligned with the demands of contemporary society. By overcoming the challenges and embracing the opportunities, educators, managers and the school community are contributing to the formation of individuals who are connected, critical and prepared to face the challenges and innovations of the 21st century. The road to a connected, collaborative and meaningful education is being paved, promoting a substantial transformation in the local educational landscape.

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