

Empathy in virtual environments as a facilitator of learning in basic education

ABSTRACT

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The new educational technologies have brought about a relational and interactive dimension with relevant characteristics, making empathy a key skill for promoting innovative learning processes in virtual environments. The objective of this work was to analyze the importance of virtual empathy as a socio-emotional skill and social presence in digital platforms, as relevant elements to be incorporated in basic education for children in the 21st century. The work was developed from a master's dissertation research, which aimed to investigate the possible articulations of the Active Methodology Design Thinking with the teaching of Astronomy in the early years of elementary school. The research methodology was a descriptive case study, with a qualitative approach, which allows for in-depth knowledge of a specific topic, while also fostering the development of problem-solving skills. The target audience was a 5th grade class of elementary school in a public school in the countryside of the State of São Paulo. In a first moment, a reflection on remote teaching and the influence of new educational technologies on effective interactivity was necessary. In a second moment, it was discussed how empathy is built and integrated into memory, corroborating as a fundamental factor for the student-teacher relationship in the teaching and learning process in virtual environments. It is concluded that the exercise of empathy in remote pedagogical activities is relevant and interactivity through virtual social presence when using digital educational technologies contributes to engagement, motivation and well-being in the classroom. It was also found that teachers, by establishing a dialogical communication and associating it with formative measures, stimulate the empathic potential of their students in the educational environment, even in a virtual environment.

KEYWORDS: Empathy; Educational Technologies; Virtual Environment.

INTRODUCTION

Postmodernity presents unique characteristics that involve significant changes provoked by humans in terms of relationships and communication. With globalization and the emergence of new technologies, new types of relationships have been triggered through virtual interaction, showing that empathic communication plays a relevant role in the learning process in the 21st century (BAUMAN, 2007).

Learning must follow paths that provide dialogue, conflict resolution through empathy and collaboration, promoting respect for the diversity of individuals and social groups. According to the Base Comum Curricular - BNCC (BRASIL, 2017), the development of these competencies should be linked to biopsychosocial practices aimed at solving demands of daily life, exercising citizenship, and preparing students for social coexistence and entry into the job market.

At the beginning of the 21st century, the transformation of educational strategies shows that the transition from face-to-face to virtual teaching is a reality that is happening. It is evident that learning does not only happen through rational discourse, but through the plural and intuitive way in which people are acquiring knowledge and developing skills. The behavioral and relational change is noticeable. Levy (2011, p. 78) also emphasizes that,

Learning through digital platforms is a space of knowledge, inhabited and animated by a collective intelligence, in permanent dynamic reconfiguration, capable of inventing mutant languages, building virtual universes, cyberspaces in which new forms of communication are sought.

For learning to occur, both in-person and virtual, interpersonal relationship skills such as empathy and communication must be considered essential as social life is one of the characteristics of our species (COSTA, 2016).

The word empathy has been around for just over a hundred years and was conceptualized as the ability to understand a situation from another person's perspective and, through this predisposition, understand each other (GALVÃO, 2010). Thus, empathy is seen as an essential emotional skill to develop social awareness as it presents affective-cognitive responses linked to specific situations, and thus becoming more dispositional than constitutional.

Paranhos (2016, p. 30-31) states that,

[...] socioemotional skills are understood as the individual's ability to reflect on their actions and how they affect themselves and others. Knowing oneself better, the individual perceives their best skills and can enhance them to succeed in activities.

Galvão (2010) emphasizes that the development of skills and competencies related to empathy can provide children with an understanding of emotions, both their own and those of others, for the improvement of interpersonal relationships.

Considering the moment of social distancing due to COVID-19 (BRAZIL, 2020), there was a sudden and drastic change from face-to-face to remote classes. Education faced challenges in incorporating digital technology into pedagogical strategies for a more contemporary, open, and flexible formal learning, corresponding to the demands of the new knowledge society.

Thus, the objective of this research was to understand how empathy through digital environments can favor virtual learning. For this, a research based on a descriptive case study, with a qualitative approach, was conducted to clarify the causes that guide the problem broadly in interpretations.

EMPATHY AND SOCIAL PRESENCE IN DIGITAL EDUCATION

According to Santos, Alves, and Porto (2018), the 21st century presents an educational scenario in which knowledge must be actively and creatively constructed. The teacher is no longer just a physical presence but also a virtual one, with the responsibility of practicing empathy with their students in different contexts.

Academic environments are increasingly interconnected and emphasize the congruence between interdisciplinary knowledge, interaction, and collaboration. The social and interactive dimension has gained particular relevance with the emergence of new technologies in education in the 21st century, making empathy in virtual environments a key skill for promoting learning processes (BACKES, 2015).

Technology can be a tool to foster dialogue between the parties involved in the educational process. Lévy (2011) highlights the importance of transformative education through strategies that allow students to develop skills for understanding and acting on the social environment in which they are inserted.

Connecting teaching and learning with the student's life through experiences, including in virtual environments, can be a resource that helps educators in a new educational scenario (BACICH; MORAN, 2018). New technologies present content in a more interesting way for the knowledge society and are therefore efficient when it comes to strengthening the bond between students and teachers.

Bacich and Moran (2018, p. 02) explain that,

We learn actively from birth and throughout life, in open design processes, facing complex challenges, combining flexible and semi-structured tracks, in all fields (personal, professional, social) that expand our perception, knowledge, and skills for more liberating and fulfilling choices.

With the Technological Revolution, the learning process undergoes an adaptation to the new ways in which people connect, relate, and build knowledge (UNESCO, 2016). Because empathy is a skill, it must be practiced and improved to give meaning and allow for a deeper understanding of the needs and desires of people inserted in a plural society (PERES, 2020).

Considering remote teaching, it is essential to practice empathy to reduce the issue of space-time distance, that is, the cognitive space that exists between teacher and student (COSENZA; GUERRA, 2014). Costa (2016) states that the teacher must be able to understand their students' behaviors, even through digital technologies, and should rely on skills such as empathy to establish dialogical communication in a virtual environment.

There is a whole set of knowledge about the effects of empathy on educational processes because, according to Cardoso (2015), empathetic teachers tend to create safer and more motivating environments, as well as establishing positive

relationships with their students, and consequently improving their academic performance.

When a teacher puts empathic communication into practice, students respond with responsible attitudes towards the proposed school activities, as they feel understood in their emotions and feelings (FESHBACH; FESHBACH, 2009).

Exercising empathy in virtual environments means involving the student in the emotional perspective when seeking to solve challenges of concrete situations, recognizing signs, and activating elements of communication to manage cognitive, emotional, social, and moral aspects to favor scientific literacy in the Digital Age (CONTE; MARTINI, 2015).

Costa (2016) emphasizes that empathy can influence the teacher's work to achieve the goal of education by promoting citizenship, transforming students into active, reflective subjects, with sufficient autonomy for decision-making focused on problem-solving in the midst of the problems of a post-modern society.

One of the biggest challenges related to virtual environments is getting students to exercise an empathetic attitude towards their classmates (ROMANÓ, 2002). Thus, the author recommends that each teacher make a diagnostic evaluation of the group they will work with, verifying the levels of understanding and knowledge of the same about a particular subject and the objectives to be achieved.

The human being is essentially a social being, and their ability to learn in exchange with others since birth reinforces relationships (OLIVEIRA, 1995). The author recalls that Vygotsky considered the importance of relationships from the beginning of life, where social activities that occur in the family, school, work, and leisure aim to develop each individual in their singularity and be one of the bases for the construction of knowledge.

In this sociocultural perspective, learning processes are based on the idea that social and relational activities, positioned in cultural contexts, are mediated by language and other symbolic systems (VYGOSTSKY, 2005). Communication is constituted from a set of verbal and nonverbal signals, constructed through culture, and internalized by individuals throughout human development, whose manifestation occurs through social presence.

Santos, Alves and Porto (2018) also confirm that for learning to occur efficiently in virtual environments, interaction is essential and empathy is indispensable for recognizing the existence and importance of others, characterizing presence and belonging outside the known real world.

The contribution provided by social presence in virtual learning environments is to encourage interaction between people, as they need to feel connected to each other for sharing ideas and opinions to occur. Vygotsky (2005, p.38) explains that,

[...] the learning processes are constantly being constructed, relating and adding acquired knowledge from each individual and taking into account their personal experience, relationships, abilities, based on the construction of collective knowledge, and interaction with their more experienced peers.

personal component (CUPERTINO, 2016). The author emphasizes that understanding the other is a subjective condition of being open to the possibility of taking into account what they can offer for the construction of the social relationship.

Costa (2016) points to empathy as a key skill for education and for the development of autonomous and committed individuals in building a democratic society. Thus, the use of digital educational technologies in the midst of the Technological Revolution favors new forms of teaching and learning, even based on the development of socio-emotional skills such as empathy by the protagonists of education who interact in the technological environment.

EMPATHY AND MIRROR NEURONS

Throughout the 20th century, empathy came to be understood as a term to explain the relationship between inner bonding and the ability to recognize in others their feelings, emotions, and thoughts. It is a concept studied by fields of knowledge such as psychology, sociology, and neuroscience (ALMEIDA, 2020). Technology may have the potential to reshape these processes by offering new interfaces that interfere with communication, mediating and altering it.

To understand the origins of empathy, we can trace it back to the 19th century when the term was conceptualized by British psychologist Edward Titchener (1867-1927) as a translation of the German term "Einfühlung." According to Galvão (2010), Titchener described empathy as the experience of feeling an emotional resonance with another person. The notion of how we can understand the mind and feelings of another individual is the basis of empathy, an ability that serves as a link connecting us to society.

Shamay-Tsoory (2009) defines empathy as a shared effect, in the sense of feeling what the other person is feeling. The neuroscientist explains that there are at least two forms of empathy: cognitive and affective. Cognitive empathy presupposes psychological understanding of the other individual. In affective empathy, emotions and feelings are shared. Both act mutually, and it is not possible to have effective empathic communication considering only the cognitive aspect without emotional exchange associated with it.

Empathy has been considered a unique characteristic of human consciousness, but evidence suggests that emotional contagion is the result of social consciousness resulting from neural network evolution (CARTER, 2012). The first emotional contagion as a consequence of a physiological bond begins in the relationship between mother and child. During the first interactions between mother and child, the mother's emotional state is reflected through non-verbal behaviors and physiological responses, which are felt and perceived by the child, generating symbiosis in this intimate relationship.

Neural circuits are related to motivational impulses and emotional responses, involving the prefrontal cortex, amygdala, hypothalamus, and other components of the neural system, for the perception of facial expressions and communication between individuals (SHAMAY-TSOORY, 2009). Due to the brain's neural plasticity to adapt and create new neural networks, this system will allow the execution of new connections that will influence the performance of a fundamental role in establishing the physiological bond, in addition to emotional and attentional

modulation, for the identification and formation of similar reactions when analyzing the expressions of their peers.

Pro-social behavior consists of a set of voluntary behaviors that aim to provide support to others, without aiming for any type of reward. Such behaviors are expressed through supportive attitudes, capable of favoring a positive, altruistic, and supportive reciprocity in both interpersonal and social relationships (CARTER, 2012).

In this context, Kandel et al. (2021, p. 946) explain empathy as,

complex feelings associated with social interaction (...). Like primary emotions such as fear, pleasure, or sadness, social emotions consist of bodily changes and specific behaviors and are consciously experienced as distinct feelings. These feelings contribute importantly to normal social interactions.

The brain possesses a distinct group of cells called mirror neurons that are activated when an individual becomes emotional while observing another person making a certain movement or expression. Scientific research in this field shows that these phenomena, conceptualized as movement mirroring and emotional mirroring, form the basis of empathy (CARTER, 2012).

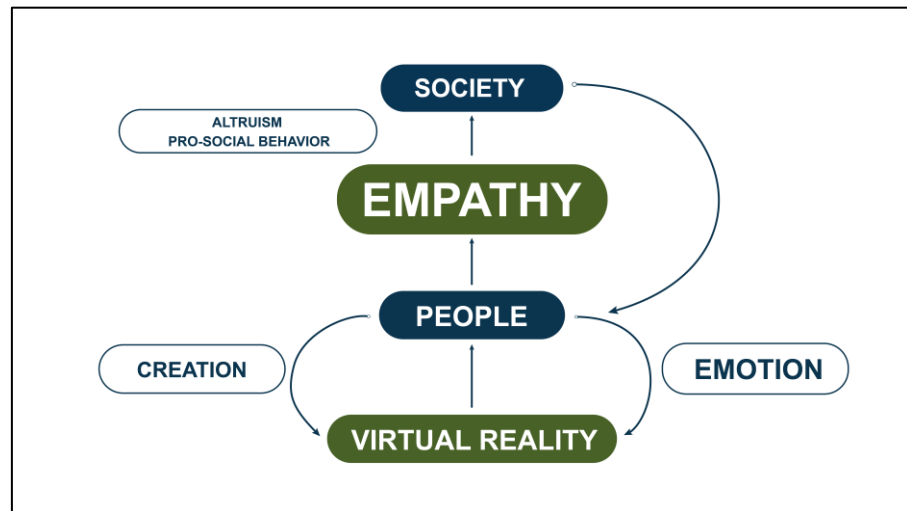
The mirror neurons in the human brain are programmed to create empathy with each other. Rifkin (2009) emphasized the importance of addressing socio-educational issues that stimulate empathy in virtual education so that teachers can teach their students how to deal with social and emotional issues and competitive challenges of survival and learning in an increasingly digital world.

In digital platforms, presence is understood as a subjective illusion of place because this place is located within a virtual world, and the feeling of presence is conditioned by the degree of immersion that each environment can offer (BAILENSEN, 2018). When the feeling of presence is well achieved, participants react, behave, and feel as if they were in non-virtual situations.

Another subjective experience that virtual environments can create is the sense of embodiment, which is the sensation of experiencing the body inhabiting digital representations, also known as avatars (BACKES, 2015). The author states that immersive experiences in virtual environments demonstrate that people react more emotionally than in other media.

Figure 1 shows the interconnection and dynamics between empathy, virtual reality, and society.

Figure 1- Interconnection and dynamics between empathy, virtual reality, and society.



Source: Adapted from Backes (2015)

The joint participation of educational actors in pro-social actions may encourage others to follow similar behaviors, promoting feelings of autonomy and well-being, while developing self-confidence in their abilities to help others (ALMEIDA, 2020). Interpersonal trust and empathy are being perceived as a fundamental basis for functioning for society.

Cognitive empathy can be understood as the active effort of the individual to think about the causes and consequences of the other's affective states, as well as their own knowledge of character, values, and desires, causing our motor, perceptual, and physiological systems to function in virtual scenarios in the same way as they do in the real world (BAILENSEN, 2018).

Emotional contagion results from the convergence of cognitive and emotional processes, in which empathic level represents the most affective manifestation of the process, as it involves an emotional response to mirroring the emotions of others. Even in virtual interactions, empathy allows for the construction and maintenance of relationships between students and teachers (WALSHAW; DUNCAN, 2014), enabling the reciprocal interpretation of emotions during dialogic engagement.

The development of a sense of presence in the virtual environment is facilitated by empathic relationships, creating an illusion of reality where the perception of the other is closely linked to the recognition of similarities with the other participant (BAILENSEN, 2018). The perception of the presence of others on digital platforms occurs from the intrinsic combination of message exchange and how they are interpreted.

METHODOLOGY

This article presents the results of a Professional Master's dissertation research entitled "Design Thinking and Astronomy: possible connections in the early years of Elementary Education", conducted with 5th-grade students from a public school located in the countryside of the state of São Paulo. The target audience consisted of 26 children of both sexes, aged between nine and ten years

old. The parents of the participating students signed the Informed Consent Form (ICF), and the students themselves signed the Informed Assent Form (IAF).

The research project was submitted to the Research Ethics Committee (CEP-CONEP) as it involved human subjects, and was approved by the Ethics Committee under number 35917320.9.0000.5431, with a substantiated opinion under number 4.243.320.

The research methodology was a descriptive case study with a qualitative approach, which allows for in-depth knowledge of a specific topic and verifies the student's ability to investigate a theme, while also providing the development of skills to solve a problem.

The action plan took place in 10 stages, comprising the months of February, March, and April 2021. According to protocols issued by the Ministry of Education, there was a need to rotate in-person classes, allowing only 30% of students per day to attend, to maintain social distancing imposed by the government (BRAZIL, 2020). During this period, a new wave of COVID-19 began, and in-person classes were suspended from March 15, 2021. As a result, research activities were conducted remotely.

Design Thinking was chosen because it is an active methodology centered on the human being capable of promoting creative and innovative solutions to complex problems through an empathetic and collaborative process (BROWN, 2017). According to the author, the creator of the term "Design Thinking", in addition to collaboration and innovation, empathy is considered the main pillar of this methodology, and exercising it means approaching people, listening to them, and involving them, favoring the collection of information and inspiring the experiences of those who live with the problem to be solved.

To carry out the relevant research activities, students were divided into 4 groups, including those who participated both remotely and in-person. Each group needed to develop a project that would culminate in the elaboration of a prototype, to be exhibited at the event celebrating World Astronomy Day on April 08.

RESULTS AND DISCUSSION

The research, which took place both in-person and remotely through a digital platform, revealed what was expected: that there was some resistance to adapting to the new form of learning, even for younger students who are considered digital natives (PERES, 2020).

During the implementation of the research project's stages, moments were observed in which empathy in a virtual environment emerged.

In one of the activities that took place in the sixth stage, each student was supposed to record a video with a question about what they researched about Astronomy so that the invited astronomer could answer it. One student wrote his question but felt ashamed to record the video. This problem was noticed by other classmates, who soon presented a solution: one of the classmates volunteered to make the video with the question and mentioning the name of the student who came up with the question. This act demonstrated an attitude of empathy and collaboration from the children towards their peers. They noticed, even in a virtual

environment, the difficulty of a classmate and found a solution so that no question would be left unasked, as for the children, "all questions were important".

In the seventh stage, the groups were divided, and it was when the second moment of virtual empathy between the students happened. Each of the four groups was supposed to choose a theme to be developed and presented at the Astronomy exhibition, which would take place virtually on April 4th, World Astronomy Day. This event would be presented to other students and teachers at the school, as well as guests from the Municipal Education Secretariat. Because the students participated and interacted through a virtual group, they became aware of the activities that the other groups would carry out. Requests arose from students who wanted to participate not only in their group's activity but also wanted to collaborate with other activities that sparked their interest. This movement made the students aware of the difficulty of other classmates when carrying out an activity. One of them was observing the night sky to identify and differentiate stars and planets. Some children did not understand how to differentiate such celestial bodies with the naked eye. The students who learned to identify them, eager to help their classmates, had the attitude of instructing them by saying that "a star is a little dot in the sky that twinkles, a planet is a little dot in the sky that doesn't twinkle. And that Mars is a little dot in the sky that doesn't twinkle and is reddish". The children engaged in this virtual empathy movement until everyone could learn, locate, and photograph the celestial bodies.

The third moment of empathy in a virtual environment, which occurred in the eighth stage, happened when one of the children encountered difficulty participating in the origami folding activity, becoming frustrated because she was unable to follow remote instructions. She claimed to have no skill in making the paper folds, felt angry, and wanted to give up on the activity. A student in the virtual group, noticing the discomfort of the classmate, offered to help her. At first, she remained impatient and resistant, not wanting to participate in the activity anymore. However, the student was able to persuade her, and they arranged to meet virtually via video call. This way, she was able to make the origami Sun. In the post-activity questionnaire, this student, who had previously indicated in the pre-activity questionnaire that she did not like to do group activities, claiming that no one understood her, changed her response in the post-activity questionnaire, saying that she enjoyed working in a team because, in addition to being able to help some classmates in other activities, she received help from her classmates when she encountered difficulties.

On the day of the virtual exhibition, which took place through a digital platform, empathy was exercised once again. The students organized themselves to present their productions, to play virtually with an Astronomy question and answer game that they created themselves. They noticed that the internet connection of some classmates was experiencing some instability, and they led the way, involving everyone to participate with questions, playing, interacting, creating emotional contagion, causing everyone to participate and rejoice in this learning moment.

The methodology applied to education in a virtual environment in the research project resulting from the Master's dissertation revealed an active and empathetic participation of the students, as well as the promotion of changes, in which the construction of knowledge resulted from the combination of theory and practice.

Thus, it was perceived that for the completion of the activities relevant to the research, the students needed to interact, whether remotely or in person. At the same time that some students encountered difficulties in performing group activities remotely, those who noticed this difficulty presented solutions to integrate those who were finding limitations.

The groups developed projects such as models, drawings, painting, collage, paper folding, video interviews, creation of poems, music, and stories that were elaborated through observation, research, empathy, ideation, collaboration, testing, and evolution, i.e., the combination of the pillars and stages of Design Thinking, which was the active methodology applied in the research.

Resistance and difficulties in adaptation were encountered by both teachers and students, as a consequence of fear of the new or not knowing new teaching methodologies. Almeida (2020, p. 18) reinforces this idea when he reveals that

all those actors in the educational process who resisted change needed to experience it. And, of course, since there was no prior preparation, the action, composed emergently to ensure student involvement with the content, could not have been 100% successful. I'm talking about remote teaching.

Almeida (2020) argues that for student-centered methodology to be successful, teaching needs to develop a plan of interventions that offer learning experiences capable of bringing together school content and the reality experienced by the student.

The remote teaching model provides greater flexibility, autonomy, and discipline to students. The current teaching process is characterized by the use of digital technologies to favor empathic communication and interactivity, as a way of disseminating knowledge and building social relationships (PERES, 2020).

The constant technological innovations have an impact and provoke cultural changes in digital society, leading to a virtualization of relationships (BERTHOLDO NETO, 2017). The author emphasizes that, due to all these transformations, there has been a rupture in the way relationships between students and teachers occur in traditional school and how this dynamic is happening in remote teaching.

The teaching and learning process must undergo a restructuring regarding the pedagogical approach, both in relationships and in facing challenges in a co-responsible way in the construction of knowledge (PERES, 2020). For the author, it is necessary for new educational strategies to undergo constant evaluation and discussion as a way of ensuring positive feedback, so that goals and objectives can be achieved.

The attitude of the participants during the research, as they exercised critical-scientific and creative thinking, instigated playful and interactive ideas during the activities, favored and provided the researcher with the opportunity to further stimulate the students' ability to think empathetically and creatively while seeking to solve real-world problems (MOREIRA; HENRIQUES; BARROS, 2020).

The importance of empathetic communication in the learning process helps students develop their potential, promoting self-learning and reinforcing autonomy. Therefore, empathy is a fundamental skill in the learning process and in the evolution of the human being.

There was involvement and engagement, which were perceived through observations of the behavior of the children, analyzed qualitatively. In addition to paying attention to active participation during the execution of the activities, the way in which students researched the subject was also evaluated.

Even with the end of the project, the students continued to interact with each other, including to participate in the Brazilian Astronomy and Astronautics Olympiad (OBA), which is an event held since 1998 by the Brazilian Astronomical Society (SAB). With this new proposal, they continued to put empathy into practice to study together, help each other prepare for the annual nationwide competition.

In this sense, the results demonstrated that the application of the project was able to offer the students the possibility of developing empathy in a virtual environment. Even when there were some conflicts, putting oneself in the other's place so that everyone could experience and build something together prevailed, favoring the construction of knowledge.

FINAL CONSIDERATIONS

Digital educational technologies have been gaining prominence in the current scenario, and the results obtained with their application reveal that, in the virtual environment, empathy also contributes to engagement, motivation, and emotional, cognitive, and social well-being.

Emphasizing the value of empathy in the student-teacher relationship in online education is to recognize the importance of social presence and dialogical communication as an anthropological foundation and to provide new possibilities for promoting learning processes.

The results of this study demonstrate that virtual empathy has proved to be a multidimensional skill that has gained a relevant social and interactive dimension, capable of promoting learning in digital environments by involving cognitive, emotional, and situational aspects.

However, even with so many resources available, there is still a gap in terms of interactivity. That is, offering resources is not enough: it is necessary to direct the focus on people even in the virtual environment.

Virtual reality allows for the "presence effect" to be felt and is conceptualized through a sense of realism enabled by computer-generated environments. Technology has provided this level of development, in which immersion in another reality makes it possible for people to interact from anywhere, without traveling long distances.

Interaction and collaboration through empathic communication provide a humanized environment, closer to social reality, by promoting learning for knowledge construction. Therefore, being "behind a screen" does not diminish or eliminate empathy between technology users. Moreover, the results show that interaction in a digital environment does not seem to reduce people's capacity for empathy in the real world.

Exercising empathy in virtual environments enables pro-social behavior, which implies educating for citizenship, commitment, and responsibility that require understanding one's own and others' rights and duties. Practicing empathy

through social presence on digital platforms brings educational benefits and presents itself as a multidimensional phenomenon on digital platforms, which can be employed through interdisciplinary methodologies.

In an immersive and interactive narrative, virtual empathy mediated the effects of presence on engagement among participants, allowing individuals to identify situations by putting themselves in the other person's shoes to understand subjective experiences when experiencing and understanding the world from another person's perspective.

Active teaching and learning methodologies in virtual environments have the potential to develop people's intercultural and emotional sensitivity, as well as strengthen the relationship between intercultural sensitivity and empathy in the teacher-student and student-student relationships.

It can be concluded from the results that exercising empathy in remote pedagogical activities is relevant, especially given the prevalence of interactivity through social virtual presence in meetings scheduled through digital educational technologies, to optimize the relationship between educational actors.

EMPATIA EM AMBIENTE VIRTUAL COMO HABILIDADE FACILITADORA DA APRENDIZAGEM NA EDUCAÇÃO BÁSICA

RESUMO

As novas tecnologias educacionais fizeram surgir uma dimensão relacional e interativa com características relevantes, tornando a empatia uma habilidade chave para a promoção de processos de aprendizagem inovadores em ambientes virtuais. O objetivo deste trabalho foi analisar a importância da empatia virtual como habilidade socioemocional e da presença social em plataformas digitais, como elementos relevantes a serem incorporados na educação básica para crianças no Século XXI. O trabalho foi desenvolvido a partir de uma pesquisa de dissertação de mestrado, que se propôs a investigar as possíveis articulações da Metodologia Ativa *Design Thinking* com o ensino da Astronomia nos anos iniciais do ensino fundamental. A metodologia de pesquisa foi um estudo de caso descritivo, com abordagem qualitativa, que permite aprofundar um conhecimento específico e verificar a capacidade do aluno ao investigar sobre uma temática, ao mesmo tempo que propicia o desenvolvimento de habilidades para solucionar um problema. O público-alvo foi uma turma de 5º ano do Ensino Fundamental de uma escola pública no interior do Estado de São Paulo. Em um primeiro momento fez-se necessário uma reflexão sobre o ensino remoto e a influência das novas tecnologias educacionais para uma efetiva interatividade. Em um segundo momento, foi abordado como a empatia é construída e integrada à memória, corroborando como um fator fundamental para relação aluno-professor no processo de ensino e aprendizagem em ambientes virtuais. Conclui-se que o exercício da empatia nas atividades pedagógicas remotas é relevante e a interatividade por meio da presença social virtual ao utilizarem das tecnologias educacionais digitais contribui para o engajamento, motivação e bem-estar em sala de aula. Verificou-se também que os professores, ao estabelecerem uma comunicação dialógica e a associarem às medidas formativas, estimulam o potencial empático de seus alunos no âmbito educacional, ainda que em ambiente virtual.

PALAVRAS-CHAVE: Empatia; Tecnologias Educacionais; Ambiente Virtual.

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