REVISTA @mbienteeducação

INTERFACES BETWEEN EDUCATION AND CYBERCULTURE: HUMAN RELATIONS AND THE DIGITAL CONNECTION TRANSVERSALITY

INTERFACES ENTRE EDUCAÇÃO E CIBERCULTURA: AS RELAÇÕES HUMANAS E A TRANSVERSALIDADE DE CONEXÃO DIGITAL

INTERFACES ENTRE EDUCACIÓN Y CIBERCULTURA: RELACIONES HUMANAS Y TRANSVERSALIDAD DE LA CONEXIÓN DIGITAL

Elisabete CERUTTI[1]
Fernando BATTISTI [2]
Judite Inês Schreiner GAUER[3]

ABSTRACT: The present study reflects on the interfaces between Education and Cyberculture in view of the perspective of a transversal digital connection. Among the researched questions are human relations in the face of the exponential growth of digital connectivity in the educational context, enabling the questioning: How does the breadth of digital connections in different sociocultural spaces converge in the construction of subjectivity in times of cyberculture? Through the dynamism of the contemporary scenario, especially in terms of education, the research initially seeks to deepen the transformations of cyberculture in terms of its educational interfaces and later studies the construction of cybercultural subjectivity as a possibility for understanding the transversality of these digital connections in human sociocultural formation in teaching and learning processes. The theoretical framework of the research is based on the works of Pierre Lévy. As for its methodology, it is a bibliographic and qualitative, dialectical study, which is linked to the PPGEDU of URI- Campus Frederico Westphalen, in the Line: Educational Processes, Languages and Technologies.

KEYWORDS: Cyberculture. Education. Subjectivity. Transversality.

RESUMO: *O presente estudo reflete acerca das interfaces entre Educação e Cibercultura diante da perspectiva de uma transversalidade de conexão digital. Dentre as questões pesquisadas estão as relações humanas frente ao crescimento exponencial da conectividade digital no contexto educacional, possibilitando o interrogar sobre: Como a amplitude de conexões digitais nos diversos espaços socioculturais converge na construção da subjetividade em tempos de cibercultura? Mediante a dinamicidade do*

[1] Integrated Regional University of Upper Uruguay and Missions (URI), Frederico Westphalen – RS – Brazil. Professor of undergraduate courses and of the Postgraduate Program in Education. Doctorate in Education (PUCRS). ORCID: https://orcid.org/0000-0002-3467-5052. E-mail: beticerutti@uri.edu.br
[2] Integrated Regional University of Upper Uruguay and Missions (URI), Frederico Westphalen – RS – Brazil. Doctoral student in the Postgraduate Program in Education. Professor and Philosopher. ORCID: https://orcid.org/0000-0001-6808-4595. E-mail: fernando@uri.edu.br
[3] Integrated Regional University of Upper Uruguay and Missions (URI), Frederico Westphalen – RS – Brazil. Master's student in the Postgraduate Program in Education. Educator and Psychologist. ORCID: https://orcid.org/0000-0001-9454-2887. E-mail: judite.schreiner@hotmail.com

cenário contemporâneo, em especial, no viés educacional, a pesquisa inicialmente busca aprofundar as transformações da cibercultura quanto às suas interfaces educacionais e, posteriormente, estuda a construção da subjetividade cibercultural enquanto possibilidade de compreensão da transversalidade dessas conexões digitais na formação sociocultural humana nos processos de ensino e aprendizagem. O marco teórico da pesquisa está constituído a partir das obras de Pierre Lévy. Quanto a sua metodologia, trata-se de um estudo bibliográfico e de caráter qualitativo, dialético, que está vinculado ao PPGEDU da URI - Campus Frederico Westphalen, na Linha: Processos Educativos, Linguagens e Tecnologias.

***PALAVRAS-CHAVE**: Cibercultura. Educação. Subjetividade. Transversalidadade.*

***RESUMEN**: El presente estudio reflexiona sobre las interfaces entre Educación y Cibercultura en la perspectiva de una conexión digital transversal. Entre las cuestiones investigadas se encuentran las relaciones humanas ante el crecimiento exponencial de la conectividad digital en el contexto educativo, posibilitando el cuestionamiento: ¿Cómo converge la amplitud de las conexiones digitales en diferentes espacios socioculturales en la construcción de subjetividad en tiempos de cibercultura? A través del dinamismo del escenario contemporáneo, especialmente en materia de educación, la investigación busca inicialmente profundizar las transformaciones de la cibercultura en cuanto a sus interfaces educativas y posteriormente estudia la construcción de la subjetividad cibercultural como posibilidad de comprender la transversalidad de estas conexiones digitales en La formación sociocultural humana en los procesos de enseñanza y aprendizaje. El marco teórico de la investigación se basa en los trabajos de Pierre Lévy. En cuanto a su metodología, se trata de un estudio bibliográfico y cualitativo, dialéctico, que está vinculado al PPGEDU de URI-Campus Frederico Westphalen, en la Línea: Procesos Educativos, Lenguajes y Tecnologías.*

***PALABRAS CLAVE**: Cibercultura. Educación. Subjetividad. Transversalidad.*

Introduction

This study deals with the interfaces of education in relation to the understanding of a cybercultural transversality resulting from contemporary sociocultural digital connectivity. The research highlights the connections about education in relation to digital technologies and their interactions, through Lévy's perspective, which deepens the meaning of cyberculture regarding the Internet's reflections on society, culture, communications, relationships, digital technologies, education, and cyberspace, expressed in different ways, configurations, and visions.

Based on this dialectical prerogative of deepening the relations between cyberculture and education regarding the construction of subjectivity in times of cyberculture, the study also goes around the transformations of cyberculture, the

interfaces between education and cyberculture, and the meaning of subjectivity, under the viewpoint of the concepts of "cyberspace" and "cyberculture" in Lévy.

Through digital connectivity and the plurality of this space, it initially infers to deepen the meaning of cyberspace, which more broadly, according to Lévy (2010, p. 17, our translation), "[...] refers not only to the material infrastructure of digital communication, but also to the oceanic universe of information it houses, as well as the human beings who navigate and feed this universe".

In this sense, also Lévy (2010) understands about cyberculture that it is necessary to "place it within the perspective of the previous mutations of communication" and perceive its evolution in time considering communication previously in a perspective of orality and writing in a given context and space.

Thus, the cyberculture theme may also represent a cross-cutting theme, from which it is possible to reflect and rethink the challenges of contemporary society and, especially, of education in all its perspectives, in view of the exponential growth of digital technologies and how human relations start to occur under this prism.

In this perspective, the medium may be the answer to the digital, or the digital to the medium, or both are simultaneously constituted in the interaction relationship in which the medium expresses itself, whether in the social, face-to-face, or virtual aspect, and more than that, influences and defines, with an ever-increasing reach, regardless of the nature of the information, impacting on various perspectives from economic or social, reaching visibility through the Internet, which has great power of influence and opinion formation. We realize that the medium nowadays does not reflect only the physical space, but also the social and virtual environment.

Thinking about education in the cyberculture interface means reflecting on the social and educational context, a process that has repercussions in this social, cultural and, especially, subjective transformation. Considering transformation in the current context means understanding and recognizing the interdependence and complexity of the moment. It is a context that reflects inseparable economic, social, behavioral and, above all, cultural changes.

The cyberculture that transforms

Cyberculture is not restricted only to digital technologies, but to the possible transformations that these bring to society, individuals, and how culture and behaviors are

influenced, that is, communication, art, consumption, information, relationships, and all habits change as cyberculture is established.

In the understanding of constant transformations, Lévy (2010) emphasizes that "the general attitude towards the progress of new technologies, the virtualization of information that is underway and the global mutation of civilization that results from it. What makes us think of a continuous social making and remaking that manifest and shows itself in the face of "new artistic forms, transformations in the relationship with knowledge, issues related to education and training and city and democracy, the maintenance of the diversity of languages and cultures, the problems of exclusion and inequality" (LÉVY, 2010, p. 17, our translation).

Cyberculture, from the concepts of communication, information, and dialogue that are established, enables society to be connected by various channels, forms, and tools, which constitutes a web of relationships, building new knowledge and practices, relationships, behaviors, cultures, subjects, and new visions from the opportunity of interaction between the present and the virtual in a constant social and collective re-signification, promoting the emergence of the "global village", a communication content that has evolved and is transformed.

When addressing universality, marked by global interconnectedness, Lévy (2010) points out that "we find, through different paths, certain intuitions of McLuhan about the 'global village'". Regarding the chronological dynamics of the informatic-mediatic pole, it should be remembered that the explosion suggested by the 'plurality of devires' and the 'pure speed without horizon', which according to the author "is compensated, to some extent, by the world unification realized in the informatic-mediatic network, as well as by the emergence of 'planetary problems' of demographic, economic and ecological order." (LÉVY, 2010, p. 127, our translation).

As for the diversity of possibilities Pierre Levy (2010, p. 94, our translation) points out that

> [...] this media library is populated, worldwide, and constantly growing. It contains the equivalent of books, records, radio programs, magazines, newspapers, brochures, curriculum vitae, video games, discussion and meeting places, marketplaces, all interconnected, alive, fluid. Far from becoming uniform, the Internet harbors more languages, cultures and variety every year.

In this perspective, cultures merge into a global culture, a globalized and cybernated culture; these interconnections affect the physical, virtual, geographic space,

in a growing process of digitalization of the world, influencing arts, culture, politics and relationships, communication, work, affection, desires, consumption, entertainment, production, economy and education, a great interdependence and ambivalence: from an economic perspective cyberspace promotes the social distancing of power and consumption; from another aspect, cyberspace promotes liberation, the democratization of belonging, access to important image and text content, games, books that circulate freely and simultaneously in cyberspace.

For Lévy (2015), "the space of the new nomadism is not the geographical territory, nor that of institutions or states, but an invisible space of knowledge, wisdom, powers of thought in which qualities of being, ways of constituting society sprout and transform themselves. In this vein, Lévy points out that "not the organizational charts of power, nor the borders of disciplines, nor the statistics of traders, but the qualitative, dynamic, living space of humanity in the process of inventing itself, producing its world" (LÉVY, 2015, p. 15, our translation).

Cyberspace is a place of interaction, in multiple dimensions about the "new" relationship with knowledge, from cyberculture and its consequent developments in education, training, and the construction of collective intelligence, which Lévy (2015), "The collective intelligence, let's remember, is an intelligence distributed everywhere, incessantly valued, coordinated and mobilized in real time" (LÉVY, 2015, p. 31, our translation).

Also, according to the author, "Cyberspace hosts negotiations about meanings, processes, and mutual recognition of individuals and groups *through the* activity of communication (harmonization and debate among participants)" (LÉVY, 2010, p. 231, our translation). The author reflects on the various intentionalities, but this does not mean that they are good or bad. Regarding this issue, it seems that nowadays we have a space open to the exposure and sharing of content that adds, educates, informs, and generates development and learning, that is, a large virtual library, accessible. However, there is also inappropriate content that needs to be mentioned and that interferes with social education.

Lévy (2010) further reiterates that "Cyberspace hosts negotiations about meanings, processes of mutual recognition of individuals and groups *through the* activity of communication (harmonization and debate among participants)" (LÉVY, 2010, p. 231, our translation).

The changes at the end of the 20th century and especially in the first two decades of the 21st century regarding digital technologies have been so intense and continue to grow exponentially, making it difficult to assimilate and prepare for such abrupt changes, to make the transition from one system to the other. In this way, digital media has an immense impact on society and in a different way than previous changes. Lévy (2010) reflects on the importance of "recognizing the qualitative changes in the ecology of signs, the unprecedented environment that results from the extension of the new communication networks into social and cultural life. Possibility that will make us able to "develop these new technologies within a humanistic perspective" (LÉVY, 2010, p. 12, our translation).

Nowadays, education is in focus and is being intensely thought and discussed, especially about what should be taught and what methodologies should be employed, what strategies should be adopted, about the roles and places of students, teachers, and education professionals, and how this will impact the present and the future from practices shared in the school context through different learning spaces and visions that expand. Lévy (2015) argues that "the ideal of collective intelligence implies the technical, economic, legal and human valorization of an intelligence distributed everywhere, in order to trigger a positive dynamic of recognition and mobilization of competencies" (LÉVY, 2015, p. 30, our translation).

Digital transformation implies abandoning the old models, pedagogical and work practices, concepts, and a culture built on the industrial revolution and its unfoldings, based on mechanical practices and evolutions, which instantly became digital. From these innovations we create two parallel worlds in which we have the digital immigrants, who were born in the last century and followed several slow processes in history, and who are now entering the digital world, and the digital natives, who are those who were born into this new methodology of communication, interaction, creation, relationship, and way of working.

Interfaces between Education and Cyberculture

Education plays a role of fundamental importance in overcoming contemporary challenges. In this perspective, it does not mean to attribute all the responsibility for successes and failures to professionals or education, but to recognize the importance in the social context for representing the basis of all academic and human training, from which other professions are born. Moran (2012) reflects that "universal and quality

education is perceived today as a fundamental condition for the advancement of any country.

Perhaps it is not possible to dimension the relationship between education and cyberculture with knowledge, its construction, the universalization of information that is not restricted to technological changes in a digital perspective, but something that impacts society in the perspective of what we can call a revolution in communication, in the form and access to information, which is shared and, in some way, made available on the web.

For the author, "cyberspace opens space for new models of education". Thinking about the society that emerges to more and more modern technology models, "we must build new models of the knowledge space", instead of a representation in linear and parallel scales, in pyramids structured in "levels". Understanding education within this perspective of change "converging towards 'higher' knowledge, from now on we must prefer the image of emerging, open, continuous, in flux, non-linear spaces of knowledge" that are constituted and organized "with the objectives or contexts, in which each one occupies a singular and evolving position" (LÉVY, 2010, p. 160, our translation).

For Lévy (2010), "the hypertext or interactive multimedia with personal involvement of the student, thanks to its reticular or non-linear dimension, favors an exploratory attitude, or even playfulness, towards the material to be assimilated". This construction process "is, therefore, an instrument well suited to an active pedagogy" (LÉVY, 2010, p. 40, our translation).

The innovations in a society need to move in the same proportion, so that there is harmony and social insertion of all areas. In this aspect, education represents a perspective that brings out all the others, which justifies the need to be aligned with technological and digital innovations in the face of the challenges of our society, which is projected to extremes in terms of economic and intellectual inequalities.

It is also noticeable that every day new configurations arise in the world of work, in a dynamic space of rapid change, driven by economic demands generated by competitiveness and the race for innovation and generation of new products and services for consumption, which requires preparation, talent, and creativity to build knowledge for a new perspective of education and meet the expectations of a society increasingly eager for the consumption of new technologies.

The democratization of access to information, the new learning styles, and the emergence of collective intelligence direct us to an ambivalent reality in constant transformation and speed of technological innovations resulting from changes in the

globalized context and the dissemination of new knowledge and technologies that demand different teaching models, far beyond the reproduction and transmission of information, but that develop critical and creative skills and competencies for leadership and protagonism, since the information is already available on the web.

One can project education in a futuristic and technological perspective, in the face of disruption we wonder about the future of education in this context of insecurity in which professions are strongly influenced. And in this sense, we realize that preparation must be constant, "*lifelonglearning*", which means learning throughout life, in the face of a universe of changes and dynamics, we have the important mission to review practices, build, share knowledge, produce knowledge, especially in a collaborative perspective throughout the educational context.

In this sense, it is fundamental to analyze who the subject is, the culture that is established, its demands, and how and whom to form for the future. Are we in harmony with all these possibilities that now present themselves?

In this context there is a two-way interaction between external contexts, technologies, and cognitive processes that influence each other. Nowadays, *startups* are promoting, besides acceleration, a polarization, access to small entrepreneurs, and revolutionizing the market through great ideas, cooperation, and generating opportunities.

We realize that the transformations arising from digital technologies extend to all spaces and demand new teaching methodologies that make it necessary to re-signify the concept of teaching and learning and the roles of teacher and students, based on issues posed by studies of cognition and the distinct knowledge of students, training for a more critical and existential view before the diversities and challenges of contemporary life. For Lévy (2010), "permanent and personalized learning through navigation, student orientation in a floating and detotalized[4] knowledge space" inserting and adding "cooperative learning, collective intelligence at the center of virtual communities, partial deregulation of the ways of recognizing knowledge, dynamic management of skills in real time.

It is possible to understand the transformations of knowledge no longer restricted to some space as it was before the internet, but a dynamic, cooperative, shared knowledge, constantly built in different spaces and social actors that form this macro-knowledge and cognitively influence the constant collective dialogue. Lévy (2011) argues that "an

[4] Detotalized: In this sense fragmented, in parts, decompartmentalized, without a fixed defined place.

intellectual technology almost always externalizes, objectifies, virtualizes a cognitive function, a mental activity (LÉVY, 2011, p. 38, our translation).

Knowledge and the very innovation and evolution that arises from it reflects the construction of individual knowledge that is shared and collectively constituted, forming, and creating a complex of knowledge that is self-constituted into new knowledge, elaborating and dialoguing among themselves. For Lévy (2010), "Intelligence or cognition are the result of complex networks where a large number of humans, biological and technical actors interact." Under a vision not individualized, but of collectivity "It is not 'I' who am intelligent, but 'I' with the human group of which I am a member, with my language, with a whole heritage of intellectual methods and technologies (among which, the use of writing)" (LÉVY, 2010, p. 137, our translation).

Thus, any attempt to predict the future of education requires an analysis of the impact and possible transformations today. Lévy (2010) argues that "any reflection on the future of education and training systems in cyberculture must be founded on a prior analysis of the contemporary mutation of the relationship with knowledge" (LÉVY, 2010, p. 159, our translation).

Considering the challenges imposed by the rapid and profound transformation of digital technologies, uncertainties about the future arise, concerning professions, the world of work, technologies, and humanity itself, which demand an analysis of the complexity that all the nuances of society represent.

Cyberculture enables the development of creativity, of construction and reconstruction. For Lévy (2010), "among the new modes of knowledge brought by cyberculture, simulation occupies a central place." Which can be understood as "an intellectual technology that amplifies individual imagination," increasing individual intelligence and once shared increases collective intelligence, as it "allows groups to share, negotiate and refine common mental models, whatever their complexity," enabling greater cognitive performance in various areas of knowledge (LÉVY, 2010, p. 167, our translation).

It is necessary to conceive learning from a broad perspective, from spaces and interactions and relationships; for Lévy (2010), "both at the cognitive level and at the level of work organization, intellectual technologies must be thought of in terms of articulation and the creation of synergy, and not according to the scheme of substitution" (LÉVY, 2010, p. 168, our translation).

A priori, it seems a contradiction to speak of place, of space for learning, when it is everywhere, whether in physical or virtual space, in social, labor, and relational experiences with others. For Lévy (2010), "knowledge is now encoded in databases accessible online, in maps fed in real time by the phenomena of the world, and in interactive simulations". In other words, "knowledge, detotalized, fluctuates". It is in the middle, in cyberspace, where it is replicated at an ever-increasing speed and which causes a feeling of disconnectedness, of liquidity "from which results a violent feeling of disorientation". This feeling of insecurity, of deconstruction, of the instantaneous, of the uncertainty of the future, of identity, of the transition time for the formation of a new culture expressed "the real-time interconnection of everyone with everyone is certainly the cause of disorder". However, in another aspect "is also the condition of existence of practical solutions to problems of orientation and learning in the universe of knowledge in flux", since this interconnection produces collective intelligence (LÉVY, 2010, p. 169, our translation).

These changes in access to knowledge, sharing, and forms of communication have impacted education. For Lévy (2010), "The growing use of digital technologies and interactive communication networks accompanies and amplifies a profound mutation in the relationship with knowledge". From this perspective, it is necessary to evaluate the extent of these impacts, through "reflections and practices on the incidence of new technologies in education that have developed along several axes. Understand how these new configurations impact the school and the world of work and how they self-regulate and interfere with each other, "as human cognitive capabilities (memory, imagination, perception), intellectual technologies with digital support redefine their scope, meaning, and sometimes even their nature" (LÉVY, 2010, p. 174, our translation).

In the face of this diversity, Lévy (2010) reflects on "how to keep pedagogical practices up to date" how to live within this changing context that affects institutions, individual and collective subjectivity, social relations, with knowledge "and the culture of traditional educational systems and especially the roles of teacher and student" (LÉVY, 2010, p. 174, our translation).

Subjectivity in times of cyberculture

To start this dialog, it is important to point out that when referring to subjectivity, we are talking about the subject and the subjects that constitute themselves throughout

life, in contact with their experiences of human formation. Reflecting about the human in the contemporaneity in times of cyberculture is necessary, considering the existential dilemmas and the changes that hinder the construction of bonds, concepts, and knowledge that are always fluctuating. By being presented to an ephemerality, which seems to be always late or outdated in relation to the human dimension, we have the human constitution in cyberculture. There is no longer the subject, but the subjects, in an individual and collective perspective, and to account for the complexity and importance that it deserves to discuss the human dimension, the central point of all our efforts and evolution.

Widely discussed the exponential expansion of information and digital technologies, the virtualization of knowledge, services, spaces, relationships that converge in rapid transformations, opportunities arise to reflect on the accommodation of all the transformations in people and discuss the constitution of the human in this context of diversity, feelings, behaviors, and identity in the face of disruptive changes. In this sense, Lévy (2010, p. 224, our translation) reflects that "the habits, skills, modes of subjectivation of groups and people adapted to the old world are no longer adequate. Technical change generates, therefore, almost necessarily a suffering", since we feel difficulties in adapting to reality that is no longer static, it is in constant motion.

For Giraffa (2012), "the Internet network and its multiple and diverse services have changed the way contemporary society accesses, produces, and makes knowledge available".

For Lévy (2011, p. 11, our translation), we live "a general movement of virtualization, which affects not only information and communication, but also the bodies, the economic functioning, the collective frameworks of sensitivity or the exercise of intelligence" in fact, affects the functioning of society "virtualization affects even the modalities of being together, the constitution of the "we": virtual communities, virtual companies, virtual democracy [...]" From this perspective it is important to understand the breadth and depth of this transformation, according to the author, "although the digitalization of messages and the extension of cyberspace play a major role in the mutation underway, it is a groundswell that goes far beyond computerization".

One realizes how challenging it is to harmonize and include different generations and subjects in the current moment, and how challenging it is to imagine a future that seems increasingly uncertain and complex. Silva (2013) points out that "the 21st century school needs to find a way to educate the generations for the times in which they will live,

defined by digital technologies. The world has changed, and the school lives the problems and dilemmas of the transition of eras" (SILVA, 2013, p. 140, our translation).

To continue this reflection, it is necessary to rethink this man of today, product and producer of his evolution under the view of some theorists. For Lévy (2010), "The transcendental subject is historical, variable, undefined, composite[5]. It comprises objects and codes of representation linked to the biological organism by the first learnings" (LÉVY, 2010, p. 163, our translation).

It is not possible to dissociate the social and cultural environment from cyberspace, it is a dialectical relationship, which is built over time. For Lévy (2010), it is impossible to separate the human from its material environment. Therefore, technology is not a "cause", which actively and independently promotes effects, and modifies culture, but there is, in fact, an interconnection, and number of human actors who invent, produce, use, and interpret techniques.

It is extremely challenging to address and establish limits and factors that influence the human being nowadays, about the impacts of the internet on the brain, ways of thinking, habits, and attention. In this sense, Carr (2011, p. 24, our translation) reflects that "the very way my brain worked seemed to be changing. It was then that I began to worry about my inability to pay attention to one thing for more than a few minutes."

For Lévy (2010, p. 21, our translation), "techniques are imagined, fabricated, and reinterpreted during their use by men, just as it is the intensive use of tools itself that constitutes humanity as (along with language and complex social institutions)."

When reflecting on models of social control and their influences today, we perceive the interactions. Also, according to the author, techniques condition cultural and social environments, but what determines their application is "an infinitely complex and partially *indeterminate* set of interacting processes that either sustain or inhibit themselves" (LÉVY, 2010, p. 25, our translation).

Thinking about the future, education, and the human, according to Morin (2011), is to recognize that "the education of the future should be the first and universal education centered on the human condition", from the very interaction with diversity, of references, of belonging. In this perspective, we are "in the planetary era; a common adventure with human beings, wherever it is found point they must recognize themselves in their common

[5] Composite - Mixed, heterogeneous.

humanity and, at the same time, recognize the cultural diversity inherent in everything that is human" (MORIN, 2011, p. 43, our translation).

The technologies are subtly appearing in our lives, bringing practicality and ease to our daily lives, incorporating themselves into our lives, in a way cyberculture is linked to the concrete globalization of society, in which we are led to understand the impossibility of separation or delimitation of borders and influences.

According to Lévy (2015, p. 19, our translation), "the better human groups manage to constitute themselves into intelligent collectives, into cognitive subjects, open, capable of initiative, imagination and quick reaction, the better they ensure their success in the highly competitive environment that is ours".

Regarding the contemporary style of living and establishing relationships with the other and the environment considering the advances in technology that occurred in different perspectives, speed, and contexts, we understand the impact on cultural and subjective formation, the diversity that is woven in this dialogicity and interaction. Thus, digital technologies, communication, information sharing, network society connections, and service applications have optimized time, moved from physical to virtual contact, and consequently influenced culture and behaviors. Apart from the major trends of virtualization and universalization that have already been addressed, there is no automatic or predetermined "impact" of new technologies on society and culture (LÉVY, 2010, p. 205, our translation).

However, it is necessary to recognize that every change or technology, digital or not, brings in itself nuances, thus cyberculture presents contradictions and conflicts of interest that are configured in various aspects in the social, economic, political, cultural, philosophical, educational context. For Lévy (2010, p. 240, our translation), "the contemporary acceleration of the race towards the virtual and the universal can be reduced neither to the 'social impact of new technologies' nor to the advent of a particular domination, be it economic".

In the aspect of access to information, democratization, inclusion and sharing of knowledge, cyberculture represents a fundamental role. For Lévy (2010), "the point of view of the public good: in favor of collective intelligence". Thus, it is necessary to consider that there is no control and selectivity over the content shared on the network, nor education for the use of this content, given the speed with which technologies advance. In this sense, Lévy (2010): "there is text circulating on a large scale all over the world through cyberspace without ever having passed through the hands of any editor or

writer". This issue the author also foresaw "in music, movies, hyper-documents, interactive games or virtual worlds". Nowadays we notice this evolution in which the commercialization of music and films has changed drastically. Being cyberspace an open space, Lévy (2010, p. 237, our translation) argues "as it is possible to disseminate new ideas and new experiences without going through the editorial boards of specialized journals, the whole system of science regulation is already questioned".

It is perceived the role of an education focused on thinking for a critical training, which enables to discern about the content and the information that are placed on the network and what digital education represents in the face of the possibility of a threatened freedom, thought of totalitarianism and domination by some segments with greater economic power in the social spectrum. For Lévy (2010, p. 134, our translation), if by one aspect it offers opportunities by other consequences, "the social and cultural movement" that lies hidden behind this technical phenomenon.

There is no exact prediction of the longitudinal effects on cultural formation, but following this approach with a close look at the economic aspect, the race for ever more modern and efficient solutions, which brings out economic competition, among which, the area of digital technologies, electronics, software, applications, programs, platforms, among other examples, as a consequence we have the speculations in the capital markets that extend to all areas involving some kind of media or technology corporations and nations.

For Lévy (2015), "in the sphere of the human, molecular technologies propose to groups and people tools that allow them to value themselves, quality by quality. From this perspective, "they promote the mutual recognition and synergization[6] of anthropic[7] qualities. In the language appropriate to material techniques, one speaks of control of microstructures." However, "moving to molecular politics, this idea is translated into the language of the reflexive, the subjective, the respect for the human: invitations to the active expression of singularities, systematic resumption of creativity and competence, transmutation of diversities into sociability [...]" (LÉVY, 2015, p. 59, our translation).

Aiming to understand the impacts between techniques and society, in this two-way relationship, Lévy (2010) believes that "Even supposing that three entities -

[6] Synergization: is defined as the active, feedback effect of the coordinated work or effort of multiple subsystems in accomplishing a complex task or function.

[7] Anthropic: Resulting from the action of man, especially in relation to the modifications in the environment, in nature, caused by this action. Related to man (human race) and his time of existence on planet Earth.

technique, culture and society - really exist, instead of emphasizing the impact of technologies, we could equally think that technologies are products of a society and a culture". However, "the distinction drawn between culture (the dynamics of representations), society (the good people, their bonds, their exchanges, their relations from outside), and technique (effective artifacts) can only be conceptual".

This multiple constitution, in which one seeks to understand cause and effect, beginning and end, in the face of the context in which they are expressed, Lévy (2010, p. 23, our translation) says that: "in fact, techniques carry with them quite varied projects, imaginary schemes, social and cultural implications. Their presence and use in a certain place and time crystallize relations of forces between different human beings".

The interaction, construction and, in a way, dependence[8] on digital technologies as logistics in the functioning of complex systems of the digital and physical world, thus Lévy (2010) reflects that "society is conditioned, but not determined by technology" since, there is a correspondence relationship between society and technology emergence of cyberspace (LÉVY, 2010, p. 206, our translation).

Thus, one must understand the place of production, sharing and production of new knowledge and information from what has been previously produced, in the perspective of the virtualization of knowledge. We can interpret it as two parallel worlds, one physical, presential, touchable, and the other in cyberspace, in which information, audiovisual, communication multiplies and stores itself exponentially. Lévy (2010, p. 49, our translation) emphasizes that "virtual is that which exists only in potency and not in act".

Regarding the impacts of cyberspace on society, relationships and challenges, there are no ready formulas capable of solving issues that, for the most part, are linked to other issues and, above all, to human action regarding attitudes and decisions. Thus, Lévy (2010) reflects that "the development of cyberspace will not miraculously 'change life' or solve contemporary economic and social problems. It opens, however, new plans of existence".

The transformations that are taking place in our society represent the natural evolution in all aspects driven by digital technologies. By studying and analyzing history

[8] Dependency in the text refers to the necessity of digital technologies such as the Internet in professional and social relationships, in the exercise of work, and in the operation of systems, machines, and equipment.

over the years, especially the industrial revolutions[9] that culminated in the digital revolution[10], especially in the last century, we realize that they occurred and were drivers of social change. However, perhaps the greatest impact is due to the speed in which the latest changes occurred, not allowing for cultural assimilation or incorporation. Lévy (2010) argues that we are not experiencing a replacement, but a change of media: "neither the devices and communication, nor the modes of knowledge, nor the genres characteristic of cyberculture will purely and simply replace previous modes and genres.

Final considerations

To approach cyberculture requires that we understand the complexity in which it is established, in the contexts and universes. Certainly, cyberculture has influenced and will continue to influence culture, subjects, habits, behaviors, and relationships. It is a natural process that has always existed throughout history and that will mark the present within the characteristics of cyberspace.

Considering the broad aspect, Castells (2018, p. 123, our translation) reflects that "globalization and informationalization, determined by networks of wealth, technology, power, are transforming our world, enabling the enhancement of our productive capacity, cultural creativity, and communication potential".

To understand the impacts of changes and innovations and their influence on subjectivity, according to Lévy (2010): "Our species makes its strangeness grow in parallel in relation to itself and its power. This perspective characterizes the ambivalence between cause and effect and what results will be generated from this interaction between a human and new technologies. By complexifying and intensifying its relations, by finding new forms of communication language, by multiplying its technical means, it becomes *even more human*."

In reflecting on an individual and collective that is constituted in this becoming of subjects in their actions and relations with the world, Lévy (2010, p. 240, our translation) reflects that: "The open universal, without totality, of cyberculture welcomes and values singularities, offers many accesses to expression". An open system, which receives, sends,

[9] Industrial revolutions in the text refer to the evolutions over the years started by the agricultural revolution and followed by a series of industrial revolutions such as the replacement of muscular force by mechanics, later on with the improvement allied to cognition, culminating in the digital revolution.
[10] The digital or computer revolution in the text refers to the current moment when operations are marked by digital technologies with Artificial Intelligence (AI) (SCHWAB, 2016).

exchanges, that "in the absence of a war, the fear of control, totalitarianism or uniformity choose an evil a target that should have been sought with the classical media and authoritarian and hierarchical social forms.

It is realized that every day our relationships, work, services and society adapt to the digital and in this sense, Palfrey and Gasser (2011) point out that "The increasingly diversifying digital universe places a huge burden on the so-called "audience". This participatory digital environment requires us all to become more media literate. This means that we will increasingly have the opportunity to evaluate for ourselves news, music, fiction, and all other cultural forms.

It is in the relationships with their peers that the human erupts, in its constant search for improvement, Lévy (2010, p. 241) reflects that even if "the positive potentialities cyberculture, even if they lead to new powers of the human, in no way guarantee peace or happiness. It is necessary to be vigilant, for "for us to become more human, vigilance must be aroused, for man alone is inhuman to the same extent as his humanity.

Faced with the large amount of content available on the Internet, where there is no regulation of this flow, selectivity, direction, and management of this knowledge is required, whether in the school, family or social context, given the influence it has on the subjective and cultural formation, and one must consider the positive and negative consequences and the ability to influence and dominate. This approach brings a perspective of the ambivalent influence between environment and development, that is, the multiple competencies of a group reflect on the community where they are inserted and impact a collective or individual process.

With the advances in technology, access to education has become more effective, which enables the democratization of knowledge, which besides changing the model of access to information and knowledge brings possibilities of exchange, because the access is on the net, no longer solely and exclusively restricted to educational institutions, but in cyberspace, where knowledge is democratized, and the potential of collective intelligence is expanded.

Nowadays, we realize that there are demands that arise concomitantly with digital solutions and innovations. The security of data, whether from a personal or corporate perspective, exposed and shared in cyberspace, puts in doubt the security of the future, privacy, and the security of institutions, nations, and humanity itself, as it reflects power and the possibility of domination.

A similar reflection is made in relation to the future of work, which, despite not being the focus of our reflections, we consider important from a systemic and transdisciplinary perspective of education. With the growth of digital service applications, of self-service, of the extinction of some professions, services and products, and the emergence of others, reflecting about the disruptive changes, the digital natives and the digital immigrants, it is up to us, as educators, to talk about what the future holds and the possibility of an increase between a dominant class and the digital outcasts, once we have the growth of possibilities and perspectives of work in digital services and digital platforms.

REFERENCES

CARR, N. **A geração superficial**: o que a internet está fazendo com os nossos cérebros**.** Rio de Janeiro, RJ: Agir, 2011.

CASTELLS, M. **O poder da identidade**. Editora Paz e Terra, 2018.

COMPÓSITO. **Dicionário Infopédia da Língua Portuguesa**. 2003. Disponível em: https://www.infopedia.pt/dicionarios/lingua-portuguesa/composito. Acesso em: 05 maio 2021.

GIRAFFA, L. M. M. **(Re)invenção pedagógica?** Reflexões acerca do uso de tecnologias digitais na educação. Porto Alegre, RS: EdiPUCRS, 2012.

LÉVY, P. **As tecnologias da inteligência:** o futuro do pensamento na era da informática. São Paulo, SP: Editora 34, 2010.

LÉVY, P. **Cibercultura**. São Paulo, SP: Editorial 34, 2010.

LÉVY, P. **O que é o virtual?** São Paulo, SP: Editorial 34, 2011.

MORAN, J. M. **A educação que desejamos**: novos desafios e como chegar lá. Papirus Editora, 2012.

MORIN, E. **Os sete saberes necessários à educação do futuro**. São Paulo: Cortez, 2011.

MORIN, E. **Introdução ao pensamento complexo**. Porto Alegre: Sulina, 2015.

PALFREY, J.; GASSER, U. **Nascidos na era digital**: entendendo a primeira geração de nativos digitais. Penso Editora, 2011.

SCHWAB, K. **A quarta revolução industrial**. São Paulo, SP: Edipro, 2016.

SILVA, P. K. L. A escola na era digita. *In*: ABREU, C. N.; EISENSTEIN, E.; ESTEFENON, S. G. B. **Vivendo esse mundo digital**: impactos na saúde, na educação e nos comportamentos sociais. Porto Alegre, RS: Artmed, 2013.

SKINNER, B. Frederic. **O mito da liberdade.** São Paulo, SP: Summus, 1971.

How to reference this article

CERUTTI, E.; BATTISTI, F.; GAUER, J. I. S. Interfaces between education and cyberculture: human relations and the digital connection transversality. **Revista @mbienteeducação**, São Paulo, v. 14, n. 2, p. 479-497, maio/ago. 2021. e-ISSN: 1982-8632. DOI: https://doi.org/10.26843/v14.n2.2021.1135.p480-498

Submitted: 10/03/2021
Required revisions: 20/05/2021
Approved: 10/07/2021
Published: 01/08/2021

Responsible for the translation: Editora Ibero-Americana de Educação.
English version by: Alexander Vinicius Leite da Silva - ORCID: https://orcid.org/0000-0002-4672-8799.