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Studies on Cybernetics in Virtual Learning Environment from the Perspective of Autopoiesis: Forming Teachers

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Marked by several contradictions, the end of the 20th century put a concern with human life in ways alarming as emphasized Mature (1994), Dreifuss (1996), Masseto (1999) among others.

On the other hand, a strong desire to want to be well, to enjoy the comfort and joy as the conquest of a job; the purchase of home ownership; a child is born; have good health; the joy of a reunion; the dream trip or a true love.
All of this constitutes moments that find and reanimate the meaning of our life. Are times needed to feed the reasons that lead us to seek a happy life and this quest is not only to survive, but to enjoy a full and happy life.

> overcome the unjust suffering and avoid unnecessary suffering. (Mature, 1994, p. 31)

On the other hand, the irrational quest of satisfaction of these wishes have led us to stress, depression, unhappiness and fear. There is a constant struggle for minimum conditions of survival which costs a physical, emotional and intellectual journal without boundaries, bringing most of the time, pain and sadness.

This reality is not providing even the hope for survival. Every day losses are strengthened by this situation.

> More than 3 million people die every year of preventable diseases such as tuberculosis, dysentery or malaria. In the least developed countries, more than 95 million children under 15 years are working to help their families, more than 1 million children were forced into prostitution, about one and a half million were killed in the war, and around 5 million are living in refugee camps and the like. (DREIFUSS, 2006, p. 12-13)

These are some of the early 21st century, showing how life is not being cared for, preserved and valued.

The pursuit of survival, by the majority of the population, has been demanding a superhuman effort, bypassing existing problems from the family to the school and society. The lack of dialogue, the misunderstanding and the prejudice, end up provoking the violence, insecurity and the impatience and these conditions seem to determine our behaviors and attitudes in the face of the collective.

Individually, we have suffered the impact of external voltages that cause unnecessary imbalance reaching social groups of which participate, in which cultures, feelings and values reflect who we are and how we, as a whole, conceiving life, the other beings and the planet itself.

This whole tension that we live daily come into being as a sign of the need to resume some conceptions that have passed over our history and rethink ways of living in society. This conflict does not occur only within individual, but also social and at all levels. There is tension, "between the global and the local, between the universal and the singular, between tradition and modernity, short-term solutions and long-term tension between competition and equality of opportunity, between the development of knowledge and skills of human assimilation, between the spiritual and material." (MASETTO, 1999, p. 22-23).
Growing lack of dialogue in the family, at school, and in virtually all places Yes, there seems to be no room for all of us in a competitive world in which the competition sometimes cost her life.

In nature, natural phenomena has been manifesting unevenly in various regions of the planet.

The Organization and relationship we have seen adopting throughout history put ethical and moral values, the practical and theoretical/scientific knowledge, coexistence, tolerance and understanding at risk of extinction.

in everyday life.

However, the misuse of that technology has become harmful to human reality. The potential of annihilation of the species increased with the nuclear threat, with the return of known bacteria that are resistant to existing antibiotics, with the imbalance of the ecosystem caused by chemical pollutants, to access social networks children and teenagers who exposed the exploitation of adults are victims of trafficking and consumption market, among other situations.

This leads us to recognize the importance of the various initiatives that come popping up, mobilizing the society to the urgent need to change our attitudes and our way of thinking about the world, life and ourselves when we refer to the use of technology.

We feature as one of these initiatives the insertion of computer in society and at school. For the first, favors the growth and mobilization of various sectors such as economic, scientific, cultural, among others, which end up creating job opportunities and access to its products, services and information.

As for the school in an attempt to promote access to computers and information, the development of skills and knowledge along with the proposal of a methodology consistent with school needs.

However, education, in our way of thinking, is there to get a life, lead to the humanization, a consciousness that promotes solidarity, autonomy and the knowledge. The attitudes, behaviors, facts and ideas are intrinsically articulated, are in constant motion, we, teachers, work with the complexity, with the new every day, with the questions that arise at all times, in a tangle of information technology brings causing new situations so almost, snapshot.

Any reflections that do on education and technology must be founded on issues that directly involve the life of the people; one of them is the contemporary mutation analysis of the relationship with the knowledge that involves:

1. the speed of emergence and renewal of the information;
2. the new nature of the work that indicates more and more, learn, communicate information and produce knowledge;
3. the virtual network supports intellectual technologies that amplify, exteriorize and modify various human cognitive functions such as memory, perception, imagination and reasoning.

It promotes new forms of access to information and new styles of thought and knowledge.

Firstly, by amending the structure of interest, i.e. the things we think, or what has important consequences on the assessment of what is considered a priority, and are obsolete and the settings of power relations.

social networks or virtual environments.

On the other hand, we can not think all this in the void. Most people living in the technologically developed world have unprecedented access to information, but that does not mean they have the skills and knowledge to turn it into knowledge, let us think about the emerging countries whose technology is still insipid. The production of goods and wealth has increased significantly, but its distribution among the population maintains and aggravates socio-cultural inequalities. Information and communication technologies have contributed greatly to the development of the arms industry and are being used for war as they are being developed and used in a world of values and interests that do not favor the entire population. In addition to considering that most people will remain without access to the applications of these technologies for a long time, we must still remember that the processes generated by the combination of these technologies and the dominant political and economic practices are not always positive for individuals and for society.

How then can we, as educators, intervene in this process?

We live this gift filled with challenges and discoveries is that requires the pursuit of scientific-technological knowledge to awaken the ability of opening new and be prepared to lead the social and cultural changes, recognizing each other "in your another legitimate "(MATURANA, 2001) and disseminating ethical, noble and practical in order to review the human postures in everyday life.

Who believes that learning is based on Exchange and cooperation in coping with risks, in contrast, in argument, acceptance of diversity; see computer systems in navigation for the information and in the expansion of communication with people and geographically distant institutions, some responses to limitations of space.

The main difficulty to transform the teaching contexts with the incorporation of diverse information and communication technologies seem to find in fact that the typology of dominant education at school is still centered on the teacher.

In an increasingly complex society, attempts to situate the learning of students and their educational needs in the school of pedagogical action are still a minority. As either, seem to thrive in educational situations who consider themselves the new representations and knowledge construction, alternative forms of assessment and the role of the community in the processes of teaching and learning.

It is important for us teachers to be clear that we need to educate our students to this society, so they can think critically and autonomously, know how to solve problems, communicate, "recognize and respect living beings" (MATURANA, 2001) , to work cooperatively and to use the technologies intensively and extensively. An education like this requires autonomous teachers with a solid

Education requires more and more the instruments necessary to be in the world as a dynamic and transforming being and therefore know the limits and the possibilities that it has to develop their human abilities and abilities. In technology, we see information of all order interfering in the day to day of children and adolescents of uncontrollable form, constructing ideas and shaping behaviors.

The list is enormous of situations, daily, good and not so good, coming from actions coming from the internet, but we cannot lose sight of the perspective of change that the appropriate use of computer systems can bring benefits to the individual and their learning .
We highlight how positive aspects of such use the requirement of writing and reading as the expressive way of communication and interaction between the subject in the virtual environment; the responsibility over the content exposed that demand an assert committed to the public reached; the intellectual capacity to absorb the reactions about your proposal including critically the various placements, know the time and the space in which you can use the technological resources without affecting or harming the progress of their daily activities and that be seen as a complement to able to boost your performance in your field of expertise, among other forms of manifestation.

For these aspects become attitudinal, one should consider two essential factors:
1. the conception of Cybernetics accompanied by new forms of language and socio-cultural manifestation, which is configured as a wave that propagates in growing movements in cyberspace, time dimension, extending it as building a new reality in permanent evolution. Cybernetics works with the integration of all the dimensions of life and non-life, as well as the processes and not things. The mind, learning and life are not things and processes. Therefore, it would be more appropriate to say that living beings are "not", but "happen" (BENNATON, 1984, p. 45).

The term cybernetics has "Greek origin *kibernetes* whose meaning refers to the pilot of the boat or helmsman" (CAPRA, 1997, 56), who is attentive to the direction that the ship follows, observing the influences of the wind and the movement of the water. It is the one who is in charge, the leader, the one who directs society, recognizing the importance and the need that each of the individuals, who make it up, performs individually and collectively.

Maturana (1997) defines this condition as within an autopoietic system, which deepens the systemic understanding (the interdependence of beings among themselves) and broaden the discussions about the specificities of the interactions of living systems. For the author, when speaking of knowledge we must turn our attention to the living that we mentioned earlier in this text, whose moment is on the verge of chaos.

2. Science and technology are portals to the construction of new knowledge and new techniques that provoke epistemological ruptures in relation to the cognitive structures formed and activated by signs of different epochs. Through the concept of autopoiesis human beings are seen as systems

notion of dependence or interdependence and this is inseparable from the notion of self-organization. In the scope of this study, the virtual environment is considered a system composed of autopoietic microsystems.

This means that each scenario is considered an autopoietic microsystem, the statements being the elements of this system. The autopoiesis here can be understood as self-production of intersubjective relations that constitute the learning, expressed in the messages or in the intertextuar of the subjects. These relationships make up or constitute the subjects as learning actors who self-produce and organize the broader autopoietic system that is the Virtual Learning Environment - AVA.

Multimedia support in learning environments can be a facilitator for changes in epistemological conceptions by educators and learners, taking into account the construction of knowledge based on the principles of cybernetics.

In the virtual environment, there is the purpose of resuming the use of the technique together with the development of human capacities, with the perspective of inserting the individual as a starting point to rescue the vision of a stable world, in equilibrium with living organisms, at the same time which promotes technological, human and sustainable development.

For this we see the opportunity to stimulate the analysis and the ability both to compose and to recompose data, information and arguments through a social network or site during the academic year of 2019 with students of the second to the fourth year of the Pedagogy Course, in the disciplines of Education Research I, II and III of the Santa Cruz *Campus* of the State University of the Western Center - UNICENTRO in Guarapuava in the State of Paraná - Brazil.

We seek to understand the autopoietic and cognitive movement of subjects interacting in virtual learning environments using their process interactions, their interactions, actions and reactions in the different environment scenarios, defining autopoietic and cognitive indicators from the theoretical approaches constructed and others to be incorporated during the process.

The perspective is that there is interaction and the possibility of assimilating the research process as an unparalleled element in self-training and self-learning.

These communicative exchanges between the subjects involved will feed the proposed framework and the following exchanges will define new directions for interaction. That is, a message from a subject can guide a change of course in interactions or a new link (a new conversation topic). This movement of self-organization and construction of interactions operates as an autonomous system that constitutes its own identity from the exchanges that take place there.

> [...] every exchange implies a structural meeting between the interacting agents, and this encounter results in the triggering of structural changes among the participants. Thus, a structural coupling refers to the dynamics of the structure of the organism that always develops coupled to the medium. If you say anything to the other, I am open to your proposal, to your return.

According to Maturana (2001: 60): "The course of our spontaneous and reactive structural change is done in a contingent way with the history of our interactions." Having different positions does not mean denying the other. This understanding is what the author calls objectivity-parentheses.

This experience may indicate parameters to verify the possibilities of application and comprehensiveness of a social network in the educational scope and its efficiency in the autonomy necessary for the acquisition, construction and application of a new knowledge. However, it is necessary to seek to instigate the student to recognize the existing realities, reflecting on their actions in the various spaces in which they operate.

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Author

Estudante-pesquisadora
UNIVERSIDADE DE ESTUDOS AVANÇADOS
Brazil

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