

# Expressions of the Individual's behavior in Digital Network: Education in a Technological Society

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**Abstract**— *The article assumes that the behavior of expressions of individuals is related to the digital network, in which forms of human relationships are being forged in order to understand differently the process of teaching and learning with autonomy that can generate a new way of thinking, creating values and representations. This may resize behaviors in individuals and affect the perception of the subject in relation to themselves and others. New technologies, consumption and media influence shape and build the contemporary psyche. Thus, it becomes essential to consider the force with which the new messaging serving media plays in order to socialize and in the individual subjectivity. In this context, new challenges for education that allow the birth of studies and concepts, in order to explain this new reality and to contribute to the art of teaching and learning. One of these, therefore, will be part of this work, which is called Informational Normosis or Informatosis.*

**Keywords**— *Cyberspace, development, education, Informational Normosis.*

## I. INTRODUCTION

The contemporary society has been facing day by day the changes imposed by technological evolution, that impel social and cultural transformations, and are characterized by the relations of production and consumption, permeating the social interactions.

We follow changes in the relationships established between adults and children in parallel with the emergence of a new production of subjectivity in function

of the organization of daily life by the new information and communication technologies and the way in which the experience of children, young people and adults have been transformed in the consumer society. These individuals change their interpersonal relations from the influences that new means of transmission of information and consumer culture have on them.

Today's children and teenagers have not known the world in any other way. They were born immersed in the world with smartphones, computers, televisions etc. TVs connected most of the time and the internet accessed by any age group end up playing a significant role in their construction of cultural values. The culture of consumption has shaped the social field, however, the individual transforms greatly his way of inserting himself in the world. According to several theorists, such as Bauman (1999), Lévy (1999) and Souza (2004), this new form of relation that comes from exchanges between society and the new technologies creates the cyberculture that relies on the interconnection of digital networks, as well as its technological tools, consolidating the cyberspace.

Thus, it can be understood that the access to the new media of communication and information is part of the contemporary universe and that its dynamics focuses on the cognitive development of the individual, in which when constructing it and defining itself as an "individual self", people can see themselves as beings who are endowed with skills provided by experiences in this physical and virtual environment.

These abilities indicate new parameters for the

body to be situated in the world and generate new forms of interpersonal relations, posing challenges for education and the management of the art of teaching. In view of the discussions presented, the following question arises: What challenges are presented to the education of individuals who are immersed in an information society?

We separate a part of this study to define and explain in more detail the neologism "Informatosis". This term is derived from Normosis, created by a French philosopher named Jean Leloup, and defined as the attitudes and behaviors of people which are considered normal, however, as they are repeated, in an increasingly intense way, it can generate pathological or even lethal risks to the individual.

It is believed that digital logic increasingly influences forms of human relationships, producing deeply transformed processes of subjectivation and with powers to generate a new order of thought, creating other values and representations. So, it is imperative to consider the influence with which the new means of message transmission exert on the subject's socialization and subjectivity, since digital technologies have introduced unprecedented elements, both experiential and aesthetic, in our computerized culture.

Through this "boom" of information that affects the routine of people, a new rhythm prevails, where new technologies, consumption and the influence of digital media mark, shape and construct the contemporary psyche. The relevance of the article is strictly based on the viewpoint of the changes originated by cyberspace, which are consolidated in the digital networks and in the concept of normosis, with a clipping in informatosis, that end up producing behaviors, thoughts, tastes, values, entailing new modes of sociability, in which more and more followers appear, being necessary to the reinvention of the educational scope in order to follow its cadence.

## **II. TECHNOLOGY AND EDUCATION: THEORIES ABOUT THE EDUCATIONAL DEVELOPMENT OF THE INDIVIDUAL IN THIS NEW CONTEXT**

The canonical model of communication, also known as cybernetic model, has its main precursor the mathematician Norbert Wiener, who publishes the book "Cybernetics" in 1948, which sowed the bases for the conception of biological or mechanical living organisms and the notion of information.

Later, this work served as inspiration for countless filmmakers in science fiction. It also laid the foundation for both the development of computer science and awareness of the importance of interdisciplinarity. According to this author, cybernetics means "the art of governing" (from Greek *kybernetiké*, pilot), and during the

Second War, he had his studies directed to the direction of missiles and automatic piloting of airplanes.

The term cyberspace arises in 1984 by William Gibson, an American writer. However, there may be a greater understanding of the term in light of Pierre Levy's clarification of the virtual (LEVY, 1999). According to the researcher, the virtual is a new modality of being, whose understanding is facilitated if we consider the process that leads to it: virtualization.

The same author describes cyberspace as "(...) the communication space opened by the worldwide interconnection of computers and computer memories" (LÉVY, 1999). He postulates that it will become the main link of communication, economic transactions, fun and learning of human societies. It is there that we know the beauty that rests in the memory of the old cultures, and also that will arise from the proper forms of cyberculture, here determined as the general culture, developed in this cyberspace.

For Vygotsky (1998), human-environment interaction will always be mediated by the use of sign systems, created by societies throughout history, in order to make the development of interpersonal relations of individuals peculiar and innovative.

In other words, the subjectivity that was socially constructed is manifested in interaction, therefore, human development is characterized as an ongoing process of quantitative acquisitions and qualitative changes that occur in the psychological subject from experiences in the context of social relations. The psychological functions that emerge and consolidate in the intersubjective plane (action between subjects) become internalized, transforming to constitute the internal functioning of the individual (intra-subjective plane) (GÓES, 1991).

Thus, it can be said that the world today, compared to the previous centuries, has a very fast paced daily rhythm. Scientific knowledge and technological advances, which are factors responsible for increasing the excellence of results in the most varied sectors of life, are also those that offer conditions for human development and improvements of its existence. Technological resources can offer playful possibilities and be mediating instruments between individuals and the real world, leading us to understand that mediation is "(...) the intervention process of an intermediate element in a relation" (KOHL DE OLIVEIRA, 1999, p. 23).

According to Góes (1991), the intra-subjective plane, not being merely a copy of the external plane, is characterized by the synthesis elaborated by the subject, from "(...) strategies and knowledge already dominated by the subject and occurrences in the interactive context" (p.53). This brings up the symbolic activity, which is a specific organizing function that invades the process of

instrument use and produces fundamentally new forms of behavior (VYGOTSKY, 1998). Connected to this idea, it is known that new technologies are increasingly becoming important tools of our culture and that their use may be a concrete means of inclusion and interaction in the world (LEVY, 1999).

For Vygotsky (1998), process of appropriation is of paramount importance for human development, from the individual experiments of the present in his/her culture. The author emphasizes the importance of action, language and interactive processes in the construction of higher mental structures. In accordance with this, Lévy (1999) argues that it is impossible to separate the human from its material environment, as well as the signs and images, through which people attribute meaning to life and the world.

The changes that have been occurring in people's daily lives due to the evolution of electronic media and the revolution in the forms of communication and expression, caused by the emergence of the technologies that make up the contemporary cultural scene, are subject to constant changes. Nowadays, there are several resources available in the area of technology aimed at favoring both the learning process and interaction and communication.

From this perspective, new configurations tend to mark education in general, educational policies, school and teaching practices. According to Godoi (2010), whether through cell phone, computer or satellite TV, different technologies are already part of the daily life of students and teachers of any school. However, making these tools actually help teaching, learning, and producing knowledge in the classroom is no easy task: it requires teacher training.

For the scholar of science and education above, we have not yet been able to massively develop methodologies so that teachers can make use of these wide range of information and communication technologies that could be useful in the educational environment. The challenge is worldwide, but it may be even more severe in Brazil, due to possible gaps in teacher training and upgrading, and the structural limitations of Internet access - a problem that affects schools, teachers and students.

Appropriate school knowledge is what generally enables the student to perform well in the immediate world as well as to the analysis and transcendence of their cultural universe. In order to do this, the students' voices and experiences must be valued, welcomed and criticized. Promoting quality education depends on profound changes in society, education systems and school. In the two last situations, the following conditions are required: adequate conditions for the pedagogical work; knowledge and skills; strategies and technologies that favor teaching and learning; evaluation procedures that subsidize the planning

and improvement of pedagogical activities; democratic forms of school management; collaboration of different individuals and groups; dialogue with non-formal educational experiences; well-trained teachers (who recognize the potential of the student and who conceive education as a right and a social good) (KRAMER et al, 2007).

In Avalos's (1992) understanding, a renewed conception of quality includes to believe in both a reformed and expanded school and a less unequal and exclusionary social order. The great challenge for schools and universities is to offer teachers the opportunity to explore knowledge as they would explore a mountain, forest or sea. Only then will they develop the power to create relevant knowledge and ideas to face the needs and problems of the individuals of our time.

In an optimistic line, Lévy (1999) understands computer science as an intellectual technology that engenders a new way of thinking the world, to understand learning and relationships with this world. However, beyond pessimism or optimism, what seems most dangerous is the renunciation of recognition that there are changes and new technological devices that form and inform a generation.

Educational exclusion is articulated with mechanisms of social, racial, sexual and regional discrimination, which is the starting point for a consequent debate on technology (RAMAL, 2002). In other words, alongside the incorporation of technology, it is necessary to question the model of society that we want to construct.

Also, according to Ramal (2002) there are three scenarios for education, with regard to technology.

- The first one is the domesticating technocracy: the multiplicity of ephemeral and fragmented information make individuals slaves of technology, consequently school is replaced by other modes of instruction.
- The second one is pay-per-learn, which accentuates exclusion and prioritizes teachers with technical skills rather than criticism of the production or use of information and communication technologies. It is believed that there is education for all through the network, although the privileged students attend better equipped schools.
- In the third scenario, the integrative e-education, the school becomes hybrid, integrating man and technology. (p.41)

There are indications of the three scenarios in this historical moment. It remains to be seen whether the third

will become a possibility, more than just a desire, in the game of forces of economic and social power (MOREIRA, 2007).

Researching practices that cause changes in knowledge processes and consumer behavior of young people, Rivoltella (2007), reflects on these issues, to address the relationship between image and reality, redefining the boundaries between public and private space, work and leisure, human and nonhuman, as well as the relations between the order of vision and action.

The author advocates the formation of a professional prepared to deal with these new issues. Still in the field of technology, it is worth recording the emblematic example of the contradictions inherent in contemporary cultural practices, studied by Chartier (1999), in which he shows how new technologies (the particular computer and the internet in general), changing conditions and media, increase access to reading and modify forms of written production. On the one hand, the media favors a greater number of readers and writers and the technologies act towards democratization and inclusion, not just discrimination and exclusion.

Thus, according to Kramer et al (2007), conceiving teachers and managers as intellectuals contributes to rethinking school, training and technology, so that the construction of narratives of life histories is the goal.

### **III. INFORMATOSIS: TERM, DEFINITION AND CONCEPTS ACCORDING TO WEIL (2000)**

Informatosis is a term which designates "(...) disorders or even diseases caused by the overflow of informational messages in relation to a single receiver, that is, to a single person". (WEIL, 2000, p.35). It is the pathological consequences of the accumulation of information or simply the use of information technology under certain conditions.

In this category, we highlight the flow of informational messages to which the network society is submitted. The cognitive dissonance between aspiration and actual information absorption capacity creates tensions.

(...) if dissonance repeats itself constantly, it can lead to stress and its psychosomatic consequences. It seems to us the case of many netizens and also of the holders of email. (WEIL, 2000, p. 60, our translation).

Pierre Weil (2000) exemplifies that in the case of Internet users, many of them are:

(...) constantly in the situation of coming across thousands of indications, references and diverse information regarding each

subject that they are researching. They are left with the constant illusion that they can all know. They spend their nights researching, in a very similar environment to casino players who never lose hope of winning and who almost never win. This hunger for knowledge already existed in the time of Simone de Beauvoir about books. At the end of her life she came to the conclusion that we cannot all know... The problem is that netizens risk exhausting their energy reserves in infernal bets. Behind this behavior are destructive emotions, more particularly attachment. (WEIL, 2000, p. 62, our translation)

The author also points out an issue known by all, to some extent, and exemplifies the subject by citing e-mails, so widespread in contemporary society. Weil (2000) believes that e-mail is bound to sooner or later lose its freedom due to the increasingly pressing expectation that the individual has an obligation to respond on time. In this way, according to the author, any postponement is worrisome or even suspect for those who wait.

This type of pressure increases proportionally to the daily number of emails, since there are individuals who receive hundreds of them per day. And, due to a cognitive organizational issue, they have to make a superficial selection and only respond the ones that are indispensable. However, Weil (2000, p. 61, our translation) notes:

(...) many are those who feel bad and guilty. And indeed, the feeling is grounded, because all unanswered e-mail risks creating disappointment and who knows hostility from the sender towards the recipient of the message. Not everyone can afford a desk ...! The problem increases even more for women who work outside the home and care for their children. E-mail takes away nights of sleep, and many end up exhausted and stressed out.

It is therefore perceived that these practices are constant and must be thought and pondered by the individuals and users of these potentialities. Weil (2000, p. 61, our translation) also adds:

(...) the reality is that we were all taken by surprise by this "shock to the future", and nobody prepared us to avoid these excesses. I believe that as we become aware of the dangers of overuse of information technology, the most informed people will

have to organize themselves to preserve their mental and physical health.

Pierre Weil (2000, pp. 62-63) also presents a list of the pathological consequences generated by this pathology that, according to the author, can cause: family isolation and dismemberment, a situation in which family members fail to notice their lack of communication and affective relationship with one another. The author questions to which the extent this intense use of technological devices such as the computer, the Internet, would affect this relationship.

The second consequence highlighted by the author would be the cognitive dissonance. Weil points out, according to psychology, the discrepancy between our level of aspiration to perform a given task and our true ability to perform it. This dissonance creates tensions and if it is consistently repeated, it can lead to stress and its psychosomatic consequences. In the case of Internet users, many are constantly faced with thousands of indications, references and diverse information about each subject they are researching and are left with the constant illusion that they can know everything. The author believes that behind this behavior are destructive emotions.

Another issue identified by Weil (2000) is the subtle computer-human link. The author inquires whether the fact of manipulating a computer for hours and day after day would not affect the nervous system of the individual in some ways and asks if this influence would be beneficial or not. According to this reasoning, the author presents a personal example, emphasizing that every night he worked with the computer, while he was lying in bed, he used to work differently; something happened as if the keyboard were part of his nervous system and there was so much interdependence, that he began to think in cybernetic terms, in a "neurocybernetic symbiosis".

A fourth consequence is also identified: Virtual Neurosis. The author comments on the fact that spending hours dealing with virtual programming completely changes the view of the world, where everything would also become virtual for the patient.

Another point that also deserves attention would be the dissemination of violence, the spread of information about violent acts by news programs on newspapers, radio and TV, as well as certain toys and video games, which may contribute to the increase in violence. "It is an informatosis, because it produces wounds, suffering and death, and it is part of considering as normal the disclosure of any information" (WEIL, 2000, p. 63).

Even in view of the broad aspects that permeate this discussion, Weil (2000) states that the pathologies described above cannot be attributed simply to informatics or technology, but to the way individuals use them. They become normotics as the behaviors that generate them are

considered normal by the majority of the population, although they are destructive to the physical and/or mental health.

To avoid being the target of the disturbances that informational normosis can cause, there must be preventive disclosure, a type of alert. In the educational context, Weil (2000) recommends including discussions that will draw people's attention to a critical view of what they watch, read, access and search the web, especially considering the benefits and dangers of information technology and NICTs in general.

It should be emphasized that the relation between normosis/informatosis and the challenges of Education is directly punctuated by the imposition on which students are obliged to comply, diversified disciplines, activities to be done outside the class hours, rules of behavior "standardized" for subjects some, etc. The school and its way of presenting the education, increasingly based on the evaluative exams, dictate a normality that sometimes are not accompanied by all the students.

#### **IV. FINAL CONSIDERATIONS**

The present text reflected on the active participation of the technological environment in the development of the individual and the challenge that it entails for the education, since they are produced new ways to relate and to behave. It also sought to present the concept of "informatosis" as disturbances or even diseases caused by the excessive flow of informational society messages, but which in the end has a pathological effect on the individual's life.

It is known the need of the diverse educational environments to follow the development of these technological devices in order to promote the real interest of the students in the acquisition of knowledge, either in the school context, or in the appropriate handling of these tools. The introduction of technology in schools combined with trained teachers has made a difference in some areas, increasing, for example, the communicative potential of students.

Teachers, on the other hand, need to be given the opportunity of continuous training and updating, so that technology can be incorporated into the school curriculum, not just seen as an accessory or marginal device. It is necessary to think how to incorporate it into the school routine education in a definitive way. Also, it is imperative to take into account the construction of innovative content that exploits the full potential of these technologies.

In this perspective, the introduction of technology in the educational area, if well used, makes the distance between teacher-student gain a new dynamic. This is because students have a great deal of familiarity with these novelties and can fit into the classroom environment in a

very different way. Thus, there is less distancing in the relation with the teacher, and consequently a greater collaborative work in the construction of knowledge.

For this, the simple distribution of equipment is not enough. Thus, it is necessary to rethink new methods that can relate education and technology, so that they can deal with this generation that "does not disconnect" or "disconnect" from these new means of communication and information. Finally, the school should not isolate the child from the world in which they live, because it is through interaction and communication that they create concrete and imaginary situations, contributing to the construction of elements specific to their cultural context. Therefore, educators should constantly learn how to exploit these new resources in a positive way, in the service of knowledge construction.

### REFERENCES

- [1] ARANHA, M. S. F. A. 2015. Interação social e o desenvolvimento humano. Disponível em: <[http://pepsic.bvsalud.org/scielo.php?pid=S1413-389X1993000300004&script=sci\\_arttext](http://pepsic.bvsalud.org/scielo.php?pid=S1413-389X1993000300004&script=sci_arttext)>.
- [2] ATKINSON R.L.; ATKINSON R.C.; SMITH E.E.; Ben D.J. 1995. Introdução à Psicologia. São Paulo: Ed. Artes Médicas.
- [3] AVALOS, B. 1992. Education for the poor: quality or relevance? *British Journal of Sociology of Education*, London, v. 13, n. 4, p. 419-436.
- [4] BALLONE, G.J. 2015. Normose; patologia do normal - in. *PsiquWeb*, Internet, disponível em [www.psiqweb.med.br](http://www.psiqweb.med.br), 2006..
- [5] BAUMAN, Z. 1999. *Globalização: as conseqüências humanas*. Rio de Janeiro: Zahar.
- [6] BRUM, L. 2009. Normose na Sociedade em Rede: Paradoxos diante do fluxo informacional / Tese de Mestrado – Campos dos Goytacazes, RJ.
- [7] CAMPOS, C. C. G. 2015. Mídia, cultura do consumo e constituição da subjetividade na infância. Disponível em: <[http://www.scielo.br/scielo.php?pid=S1414-98932003000100003&script=sci\\_arttext](http://www.scielo.br/scielo.php?pid=S1414-98932003000100003&script=sci_arttext)>.
- [8] GUZZI, D. 2015. Atores em Rede: Subjetividades e desejos em expansão. Disponível em: [http://www.acessasp.sp.gov.br/html/wave\\_3\\_20080403093750.pdf](http://www.acessasp.sp.gov.br/html/wave_3_20080403093750.pdf)
- [9] CABALLO, V. E. 1996. O treinamento em habilidades sociais. In: CABALLO, V. E. (Org.). *Manual de técnicas de terapia e modificação do comportamento*. São Paulo: Santos Livraria Editora, p.361-398.
- [10] CHARTIER, R. 1999. *A aventura do livro: do leitor ao navegador*. São Paulo: UNESP.
- [11] COSTA, A. M. N. 2002. Revoluções tecnológicas e transformações subjetivas. Disponível em: <<http://www.scielo.br/pdf/ptp/v18n2/a09v18n2.pdf>>. Acessado em 12/03/2015 e aprendizagem. Porto Alegre: Artes Médicas, 2002.
- [12] GIL, A. C. 1996. *Como elaborar projetos de pesquisa*. 3.ed. São Paulo: Atlas, 1996.
- [13] GODOI, G. 2015. Desafio aos professores: Aliar tecnologia à informação. Disponível em: <http://veja.abril.com.br/noticia/educacao/desafio-aos-professores-alisar-tecnologia-e-educacao>.
- [14] GÓES, M.C. 1991. *A natureza social do desenvolvimento psicológico*. Cadernos Cedes - Pensamento e Linguagem.
- [15] GUIMARÃES, Denise Azevedo Duarte. 2015. Interações sociais e novos padrões perceptivos na construção da subjetividade. Disponível em: <[http://www.logos.uerj.br/PDFS/30/03\\_logos30\\_Denise.pdf](http://www.logos.uerj.br/PDFS/30/03_logos30_Denise.pdf)>.
- [16] HARTUP, W.; RUBIN, Z. 1986. *Relationships and development*. USA: Lawrence Earl Baum.
- [17] HERMÓGENES, José. 2000. *Saúde Plena: Yogaterapia*, Nova Era: Rio de Janeiro.
- [18] KRAMER, S. et al, 2007. *Revista Educação e Sociedade*, Campinas, vol. 28, n. 100 - Especial, p. 1037-1057, out. 2007. Disponível em <http://www.cedes.unicamp.br>.
- [19] KOHL, O. M. 1999. *Vygotsky – Aprendizado e desenvolvimento um processo sócio – histórico*. São Paulo: Scipione.
- [20] LÉVY, Pierre. 1999. *Cibercultura*. Rio de Janeiro: Editora 34 Ltda.
- [21] \_\_\_\_\_. *O que é o virtual ?*. São Paulo: Editora 34, 1996.
- [22] MOREIRA A.F.B. e KRAMER, S. 2007. Contemporaneidade, Educação e Tecnologia. *Revista Educação e Sociedade*, Campinas, vol. 28, n. 100 - Especial, p. 1037-1057, out. 2007. Disponível em <http://www.cedes.unicamp.br>.
- [23] RAMAL, A.C. 2002. *Educação na cibercultura: hipertextualidade, leitura, escrita e aprendizagem*. Porto Alegre: Artmed.
- [24] RIVOLTELLA, P.C. 2007. *Cultura digital e mídia*. Conferência realizada na Pontifícia Universidade Católica do Rio de Janeiro (mimeo.).
- [25] SOUZA, C. H. M. 2003. *Comunicação, Educação e Novas Tecnologias*. Campos dos Goytacazes: ed. FAFIC/Grafimax.
- [26] VYGOTSKY, L. S. 1998. *A formação social da mente: o desenvolvimento dos processos psicológicos superiores*. 6. ed. São Paulo: Martins Fontes.
- [27] WEIL, Pierre. 2000. *A Normose Informacional*. *Ci. Inf.*, Brasília, v. 29, n. 2, p. 61-70, maio/ago.
- [28] \_\_\_\_\_. 1997. *LELOUP, Jean Yves e CREMA, Roberto. Normose: a patologia da normalidade*. São Paulo, ed. Thot.
- [29] WIENER, N. 1948. *Cybernetics (or the control and communication in the animal and the machine)*. New York, The Technological Press Wiley & Sons, 212 p.