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TEACHING AND INNOVATION: TECHNOLOGIES, ECOFORMATION AND ACTIVE METHODOLOGIES

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Abstract: Innovation in higher education is an undeniable need given the complexity of teaching-learning processes and the issues that arise in the contemporary context, scientific and technological advances, economic and social impacts. It aims to discuss teaching in higher education and training processes based on a perspective of complexity, multi-referentiality, bringing to light the debate about the use of Digital Information and Communication Technologies - TDIC, the contribution of the ethics of responsibility and eco-training. As a result of the reflections carried out, we understand that a goal to be pursued in the scenario of teacher training today is to promote public training policies that favor innovative practices, respect the diversity, singularity and subjectivities of subjects, thus contributing to the development ethical and responsible human being towards himself, towards the other and towards the planet we inhabit.

Keywords: Teaching in higher education, Innovation, Multireferentiality, Digital Information and Communication Technologies, Eco-formation and ethics of responsibility.

INTRODUCTION

In a contemporary context permeated by numerous challenges concerning scientific and technological advances and issues related to society and culture, the task of educating, training critical, ethical professionals committed to the teaching-learning processes in a transformative, complex and multi-referential perspective is not seems to be a very easy task, it requires a set of skills and competences, pedagogical knowledge and practical knowledge that include active and innovative methodologies in the teaching environment.

We know that mobilizing teaching based on innovative characteristics reveals itself as

a pressing need in the Brazilian educational scenario. From the Escolanovista Movement to the present day, with the inclusion of digital technologies, in all corners of human life, changes in our way of existing have been causing permanent changes in educational processes to meet such demands.

The impacts of these changes call for revisions of conceptions, methodologies and resources aimed at human formation that drive the search for a teaching committed to sustainable human development and that values the subjective conditions of teachers and students. In this sense, it is important to consider training proposals that give centrality to progressive methods or that take social reality as a starting point and as a major objective of Brazilian educational policies and practices.

The objective of this article is to discuss teaching in higher education and training processes based on a perspective of complexity, of multi-referentiality, bringing to light the debate on the use of Digital Information and Communication Technologies - TDIC, the contribution of the ethics of responsibility and eco-training.

This way, we understand that TDIC, ethics of responsibility, multi-reference and eco-training, are presented as innovations of the current context, and, in addition, must be understood as structuring elements of teacher training, capable of mobilizing the didactic aspects, necessary for the significant learnings.

The present text is structured in four sections, the introduction presents the context, the object and the objective of the writing; the second portrays teaching and innovation in training processes and discusses innovation as a structuring element of teaching, considering the processes of knowledge construction through the bias of complexity, multi-referentiality, eco-training and the ethics of responsibility in line with

the innovative use of technologies digital. The debate on the concept of multi-referentiality, on the role of TDIC and active methodologies in the current context of teacher training constitutes the third section. Section four discusses Jonas and Van Manem's notions of care and the contribution of the ethics of responsibility to teacher education. In the final considerations are the main conclusions deduced from the reflections made in the text.

TEACHING AND INNOVATION IN TRAINING PROCESSES

Innovation as a structuring element of teaching includes a new look at the way of thinking about the processes of knowledge construction, a knowledge that brings the bias of complexity, multi-referentiality, eco-training and the ethics of responsibility in line with the innovative use of technologies digital.

Epistemological, cultural and political knowledge represents a link in the understanding of training as a field of knowledge and investigation. Understanding knowledge in its multiple dimensions helps to understand the complexity of the training field and the different influences that intertwine it.

Bohr (1995, p. 85,86), when discussing the nuances of a deterministic science, ends up leading us to an understanding of how the modes of knowledge production by science occur. It makes it clear as a deterministic science that makes use of an objective and unambiguous scientific language to explain the facts and phenomena of nature that it deals with; it reveals the use of the scientific method, the role of the observer, the regularities and generalizations, the ruptures, continuities and discontinuities, and presents arguments that question a unity of knowledge.

Morin (2000) refers us to the idea of a double blind task, when analyzing the role of science and its knowledge production process. He clarifies that science does not

control its own structure of thought and scientific knowledge is knowledge that is not known. "This science, which has developed such surprising and skillful methodologies to apprehend all objects external to it, does not have any method for knowing and thinking" (MORIN, 2000, p. 20).

Complex thinking confronts us with countless perspectives of building other conceptions of science and education, while pointing us to new ways to overcome the limitations arising from a linear model of science, technology and society that no longer responds to the demands of a contemporary world. immersed in issues of wide complexity. In this sense, Richardson (2005, p. 618, 619) apud Anjos (2019) when talking about knowledge discusses the universe as a complex system; tries to deconstruct a hegemonic view of science and the use of scientific methods, and strives for an ontological view of knowledge and treats it from the perspective of multi-referentiality.

In the wake of an innovative perspective on the construction of knowledge Demo (2001, p.2) reports to education and knowledge as "the most decisive strategy for development and innovation in the modern world". He says it is fundamental not to separate knowledge from education, since knowledge is a means and education represents the ends and historical ethics. Demo (2001, p.2) talks about knowledge reconstruction, presents the idea that knowledge is never just transmitted, but reconstructed, this way "learning is always a political reconstructive phenomenon, never just reproductive". In this direction, the student's role in the university is to rebuild with the professors, whose central task is the commitment to make the student learn.

For Demo (2001, p. 3), knowledge, as a human expression, can be much more innovative than educational. His fear is that the logic of questioning as a central scientific

method leads to a reckless coherence of undoing everything, in order to innovate, especially when imprisoned by neoliberal competitiveness.

The university has the reconstruction of knowledge as a central task, for this research, in the words of Demo (2001), is placed both as a scientific principle and as an educational principle and in this perspective,

This would imply not only the progress of science, but also of citizenship, in particular that citizenship that would be specific to school and university, that is, based on the reconstruction of knowledge, with formal and political quality. The political face is essential, not least because it expresses the ends and ethics, while the formal face expresses the methodological instrumentation. We could summarize the university's mandate as educating new generations and training innovative professionals, with formal and political quality (DEMO, 2001, p. 4).

From a humanity project perspective, the university and the school have a leading and undoubted role in the dissemination and orientation of values, it represents an inexhaustible source in the promotion of significant experiences that make possible the formation in citizenship, even in the midst of the existing contradictions in society and the operationalization difficulties, present in the school space.

Educational practice as a specifically human practice is ethical in nature (FREIRE, 2011, p. 18). Bringing Freire's idea to think about an ethical formation, it is recognized that there are many possibilities that the teacher has to get involved with the formation of critical, reflective subjects capable of using technologies and intervening in their environment with responsibility. It is understood that citizen training has been a major challenge for the educational field, it has not been easy to achieve, even in the face of the diversity of guidelines recommended

by curriculum specialists and documents that guide teacher training. Otherwise, it is important to understand that training subjects from a citizen perspective or another involves an implicit responsibility in the profession of the being a teacher, even if tacitly, the act of training reveals a duty towards the subject in training. "There is a duty contained in the Being of existing man." (JONAS, 2006, p. 176), It is an ontological idea of responsibility based on the affirmation of life in the future, a strong sensitization argument based on the idea of subject, since man carries within himself a duty. As stated by Jonas,

To be effectively responsible for someone or anything in certain circumstances (even if he does not assume or recognize such responsibility) is as inseparable from man's existence as the fact that he is generically capable of responsibility - in the same way that his speaking nature, a fundamental characteristic for its definition, in case someone wants to undertake this dubious task (JONAS, 2006, p. 176).

In this understanding, universities/schools are understood as loci of the field of knowledge, which can outline another proposal for a society in which the principles of justice, equity and democracy contemplate not only the concern for the present generations, but also include the generations coming. In this view, the task of education in contemporary times is challenging. It is necessary to think about teacher training in order to favor the integral development of the being, one of the possibilities is based on contributions from Jonas' thought, which brings as a principle the understanding that the Being, reinvigorated in its subjectivity, does not threaten the existence of teachers. men in the future, is able to reflect on the human condition, other species and the biosphere as a whole and also intervene ethically and responsibly in order to preserve future human existence.

This perspective of eco-formation represents a phenomenon that is multi-determined by factors influenced by historical, political, economic and social temporality, contributes to citizen formation and this implies (re-)thinking the epistemological bases and methodological contributions that guide and support the formation of teachers. It requires a multi-referential treatment, given that training for a multicultural, globalized society that imposes numerous transformations in the way of the being and being of teachers requires considering aspects of the dimensions of the being in its entirety, otherwise, privileging its ethical, aesthetic, their experiences and their subjectivities. This perspective involves the development of the human dimension that considers not only knowing and knowing how to do but it also provides ethical subsidies that allow the development of the ability to know how to be, to live with others, with differences and to know how to intervene ethically and responsibly in the environment in which he lives. An eco-formation focused on the integral dimension of the being.

MULTI-REFERENCE, DIGITAL TECHNOLOGIES AND ACTIVE METHODOLOGIES

To bring the training debate, to a multi-referential epistemology, we understand an indivisible intertwining of all knowledge built in the relationship, in the complementarity of the phenomena and knowledge that are engendered in the daily practices of teachers. An intersubjectivity that is weaved from the dialogue that welcomes multiple dimensions: scientific, historical, social, mythical, religious, ethical, biological, economic and affective, from argumentative, dialogical and critical processes of understanding the reality of each subject or groups social. For that, it is necessary to perceive the

diversity, the plurality of the culture and the multidimensional nature of the individuals, to accept and contemplate the plural and the heterogeneities with a view to the integration of the diverse knowledge, possible through a plural reading that supposes the breaking of the disciplinary boundaries.

Within this assertion, we consider a key foundation for understanding the current paradigm of teacher training, multi-referentiality and the concepts that underlie this epistemology: implication; alteration, authorization and negatricity, which defends the state of incompleteness and human fulfillment always as praxis, as movement and constant search that include different points of view.

Multi-referentiality, we can say, is a mundane epistemology, of incompleteness, impurity and realization as praxis, which speaks about our perennial tragedy, produced by the inescapable incompleteness that shapes us, identifies us and, at the same time, anguishes us and keeps us away (MACEDO, 2012, p.15).

For Ardoino (1998), precursor of the epistemology of multireferentiality, its understanding is conditioned to debates that pluralize, imply, alter and authorize in the process of thought, in the mobilization of thought in the process. It opens paths for dialogue between different points of view that complement each other, without reducing one to the other, and,

[...] It is proposed a plural reading of its objects (practical or theoretical), from different points of view, which imply both specific visions and languages appropriate to the required descriptions, in terms of distinct reference systems, considered, explicitly recognized as non-reducible to each other, that is, heterogeneous (ARDOINO, 1998, p 24.).

Reinforcing this view, Barbosa (2012) conceives of multi-referentiality as a way of

seeing the world in which we are inserted, a way of understanding science, knowledge, the other, our performance in society and with ourselves. Once again, in this process, the role of knowledge for the self-organization of the phenomenon in the process of knowledge, and of the subject's performance in the construction of reality, is highlighted. This process is linked to previous knowledge and the power of the subject to intervene; and has repercussions on teacher training, changing the modes of organization of educational practice. For Ardoino (1998) a multi-referential understanding of phenomena requires a plural reading of objects from different angles, in function of different reference systems and not reducible to each other (heterogeneous).

Such characteristics suppose the breaking of disciplinary boundaries, the monorationality and bipolarity of knowledge and points to the complementarity between the disciplines, that is, a new plural look from different angles, comprising the interdependence between all the phenomena involved in each reality. For Macedo (2012, p.39) "The multi-referential look works from the perspective that all knowledge, all theory, all systems are biodegradable as we are biodegradable". It argues that this experience with the incompleteness and ambivalence of facts and phenomena is inherent to any experience with knowledge. On this premise, knowledge is always in motion, in continuous dialogue with time, space and subjects, continuously transforming and transforming itself throughout the process. Thinking about teaching in this direction requires not only that the teacher understand both the complementarity between disciplines and knowledge, but especially students as author subjects, autonomous and involved in their training processes.

It emphasizes the need for human subjects to conquer by themselves, the ability to authorize themselves, to make themselves the author of themselves, in the sense of recognizing themselves at the origin of their becoming, implied, without antinomies, the social bond, the independence, the relationship community-mediated (MACEDO, 2012, p. 41).

The concept of implication for Ardoino (1998) is linked to the idea of authorization, the ability to authorize oneself, to make oneself at least a co-author of socially constructed knowledge. This way, the author poses the question of the subject that is made by doing and is transformed by acting on the world, a question, therefore, eminently political, of action and relationship on and with the world. This action thus established, through dialogue and interaction with the other, assumes the heterogeneous character of the relationship, where limits are produced in the meanders of existence itself, and as Galeffi (2011) defines being, the dynamic and cyclical character of existence human. The question of the other leads us to look at the heterogeneous, to identify the place for the other, for the diverse. "The other that is external to us and the countless others that inhabit us." Barbosa (2012, p.66). A two-way street in which we build knowledge from the knowledge historically produced by others.

This is one of the challenges proposed by the complex and multi-referential perspective, the dialogic encounter with this other who is different, who proposes perspectives and limits that are contrary to each other and from this point on to generate new knowledge. This hybridization of ways of the being and existing, the result of what Ardoino (1998) calls negatricity, is intrinsic to this process. It refers to the action of the other, who has negatricity, who differs from us, therefore, presents desires and propositions that are often different.

In this journey towards the author-subject, the presence of this other is necessary, who is all the time differentiated, confronted, negated, an other, to be distinguished, and not made invisible. "It is a long process of differentiation and separation from this other that has accompanied us since the beginning" (Barbosa, 2012, p. 72).

Thinking about teacher education within this perspective means being a space, a place of relativity with reference to the conditions of apprehension and production of knowledge, as well as with reference to different perspectives of possible readings. In this direction, thinking about multi-referentiality as a presupposition for teacher training requires a break with the traditional teaching model, a search for consolidating active, problematizing and diverse educational practices, which welcomes the singular and the subjective, in which learning subjects are encouraged to assume a posture of authorship in their learning process, seeking autonomy and meaningful learning. Active methodologies and digital technologies present themselves as innovative possibilities in the current educational scenario, pointing out some methodological paths in this direction.

ACTIVE METHODOLOGIES AND DIGITAL TECHNOLOGIES

We defended that thinking about teacher training in contemporary times implies seeking to consolidate experiences of sharing the production and dissemination of knowledge to avoid the deepening of inequalities linked to unequal access to cultural, economic and social goods, and to build another social model that respects the human being, human being and the planet with the care and respect necessary for the evolution and preservation of both. Active methodologies and TDICs, in their various formative experiences in face-to-face teaching or in virtual learning

environments, bring effective contributions to the democratization of knowledge for all, and for that, they need to effect teaching and learning relationships based on these perspectives and contextualized in the problems humanity today.

For Kenski (2007), the challenge of education in this process is to favor ways for everyone to critically appropriate the potential of technological artifacts, defining education as a powerful mechanism for articulating the relationships between power, knowledge and technologies. In the so-called digital revolution, the process of producing information on an industrial scale irreversibly changes the use of intelligence technologies, establishing new directions for communicative relationships, boosting the emergence of professions that focus on action, communication, information and entertainment offering. The TDICs are allied to the entertainment industry generating new ways of relationships between people and groups of people.

Digital technology breaks with the circular and repeated narratives of orality and with the continuous, sequential routing of writing and presents itself as a discontinuous, fragmented and at the same time dynamic, open and fast phenomenon (Kenski, 2007, p.32).

The TDICs assert themselves, in this motto, as means, and the impact they produce on society is linked to the objectives and epistemological concepts on which this use is based. In this sense, its appropriation must be related to the conception of man and society of each historical period. In our case, complex and multi-referential, an epistemology of difference, of the plurality of ideas, of respect for the subject and the social context in balance with the environment. Individuality and subjectivities go together and complement each other, opening interdisciplinary dialogues between areas of knowledge.

The new forms of communication mediated by TDIC, in which the perception, the apprehension of what is transmitted occurs through texts, images and sounds, require on the part of the subjects new reading skills, in addition to the competence of the written word, to also understand the didactics of images so that you can read the contents that these media produce in a broad way and make critical and conscious readings.

We believe that the use of TDIC in education changes the ways of thinking about the teaching and learning process, requiring new formative processes, more interactive, dialogic and plural, and active methodologies are based on the way of developing the learning process using real or simulated experiences with the ability to successfully solve essential tasks of professional practice in different contexts, having as a presupposition of intervention meaningful conversations that focus on learning based on dialogue, exchange and cooperation, bringing to light the important subjectivities and collective intelligences in the process of production and dissemination of knowledge, in a collaborative and multi-referential perspective. Such foundations reinforce the understanding of the complementarity between the role of individual and collective subjects for the consolidation of contemporary training processes.

We believe that teacher education within the multi-referential perspective is based on participation, requiring collaborative methodologies of dialogue and reflection. In this sense, we believe that digital technologies can favor educational practices that promote the production and dissemination of knowledge, it is necessary to develop reflective and dialogic practices within them.

Reinforcing this thought, authors such as Dewey (1979) and Alarcão (2004), argue that the function of reflection “[...] is to create a new

situation in which the difficulty is resolved, the confusion clarified, the disturbance relieved, the proposed question resolved” (DEWEY, 1979, p. 105). Consequently, the function of reflective thinking is “To transform a situation of obscurity, doubt, conflict, disturbance of some kind, into a clear, coherent, settled, harmonious situation” (DEWEY, 1979, p.105-106). Here it is found, “The epistemological value of practice and revalues the knowledge that springs from intelligent and reflective practice” (ALARCÃO, 2004, p. 17), enabling answers to questions that arise through the creation and appreciation of new knowledge produced collectively.

In order to achieve a reflective practice, communication and dialogue mechanisms are necessary within educational practices, and, furthermore, we consider that dialogue and the encouragement of participation are fundamental elements. This way, Freire (1997) states that it is essential that educators who idealize a reflective and dialogic conception of education, and act against oppression and social inequality, claim the freedom and protagonism of the subject, validating subjectivity and the ability to create each being.

The idea of dialogic action, in which dialogue is the basic process for learning and transforming reality, does not have a specific methodological format; it consists of building an attitude of dialogue that fosters epistemological curiosity and the recreation of culture (FREIRE, 1997). For the aforementioned author, the need for dialogue is part of human nature, it is a central factor in people’s lives as we create and recreate ourselves through it. In order to promote in students a liberating learning process, which creates culture and is critical of the world, educators have to provide an environment for dialogue, in which questions are asked and answers are sought from the interaction

between people and with the world (FREIRE), 1997). In this sense, dialogue is an interactive process mediated by language and, to be truly dialogic, it needs to happen horizontally.

It is clear, in this analysis, that the categories dialogue and reflection are in line with the multi-reference epistemological assumptions and with the assumptions of active methodologies, in which the construction of knowledge is not a neutral act, but linked to previous conceptions and individual and collective experiences. of each group, that is, knowledge is socially constructed and is involved with the subjective nature of time, space and the subjects that construct it.

CARE, ETHICS AND RESPONSIBILITY AS STRUCTURING AXIS OF TRAINING

The contemporary context presents us with dilemmatic questions, they are daily challenges that confront the way of the being and being in the world. Living together in society, in the midst of these issues and earthly experiences, requires us to develop habits and customs that constantly evaluate our attitudes. And in this evaluation and reassessment of experiences/attitudes, man is faced with situations and dilemmas that need a more scrutinizing look, an ethical reflection.

Having the understanding that we live in a world permeated by ethical dilemmas and even difficult to solve and understanding how society deals with them is a task that requires special attention in the field of education.

Modernity with the rapid development of science and technology has presented humanity with issues not previously experienced in other periods of history, such as the global warming, cloning, in vitro fertilization, genetic modifications, eugenics, among others. (ANJOS, 2019, p.29).

These questions require a scrutinizing look, other ways of solving them. The path

can be through an ethical bias that reaches the heart of these problems. In this perspective, Jonas presents us with the idea that they cannot be solved under the aegis of ethical foundations with contributions from ancient and traditional ethical theories, as these do not give an account of the challenges that arise today. Thus, Jonas (2006) proposes an ethics that places responsibility at the center of the discussion, that makes man responsible and assigns the collective responsibility for contemporary issues, being able to deal with current dilemmas.

Jonas' theory of responsibility is based on Being, on the ontological categories of good, duty and being, thinking about the precariousness of life and the vulnerability of nature at a time surrounded by a civilizational crisis gestated in the midst of scientific and technological advances. In his work "The Responsibility Principle", his main concern is with the future, the future of humanity. The author discusses the way in which man has appropriated these advances and in this eagerness he uses power to control life and put his own existence at risk. These are changes, arising from the progress of technique, that regulate the way of the being and being of humanity, reconfigure the spectrum of the human in a world surrounded by models and modeling. These changes, according to Jonas (2006) are the result of a technical-scientific advance that generated impacts on the political, ethical and economic aspects of contemporary societies in general, certainly caused changes in the way of acting and thinking of man.

For Jonas (2006, p. 29). "Certain transformations in our capacities have brought about a change in the nature of human action. And since ethics is about action, the logical consequence of this is that the changed nature of human action also imposes an ethical modification." In this sense, the author

proposes an ethics of responsibility capable of thinking about contemporary issues, an ethics that has its main objective the preservation of the human essence, the idea of man and as an object the preservation of individuals not yet born, deals with some delicate issues. Like the will and commitment to responsibility for something that is yet to come, it is an ethic that presents itself in the present, but with a view to the future.

In the educational field, this responsibility also represents care and the idea of care in the processes of teacher training, it brings us to an understanding of what professionalism would be in the contemporary context at the same time that it refers us to a pedagogical sensitivity, a pedagogical tact as structuring elements in the formation of the integral subject. We took the concept of care to reflect on training and educational processes based on the ideas of Hans Jonas and Van Manen.

In this sense, Anjos (2019) leads us to reflect that education is impacted by issues arising from the contemporary world and, in this context, reveals and reveals aspects of a human subjectivity that delights in the world of life, the world of work and the temporal changes arising from a society permeated by meanings, contradictions and conflicts; without a doubt, these nuances affect the ways of the being and being of the subjects in their formation processes.

As a field of knowledge and investigation, training demands the need for theoretical references that structure the multiplicity and complexity of phenomena involved in the teaching and learning processes; this way, it can be thought through the prism of complexity and multi-referentiality, to develop a proposal for investigative training, focused on a critical, reflective view of training processes and that is anchored in the heuristic of care and the heuristic of responsibility.

A pedagogy based on these precepts

invites us to constantly examine our practice and question our intentions when exercising the act of teaching and learning. This is the understanding that the one who teaches also learns; wonders why, for what and whom to teach? This is a daily exercise in pedagogical practice, reflecting on the type of man and society that one wants to form. They are reflections that are configured as principles and guide our actions in a critical way in the act of teaching and learning and, thus, the zeal, the care of the teacher with their daily practices, represent care for the other and for themselves.

It is an investment in innovative educational practice and for that, it is important to understand the relationship between it and the teaching profession, it is not enough to just revisit the pedagogical concepts previously instituted, it is necessary to invest in new concepts, in the professional culture and in the construction of values and attitudes towards a more transformative and social action in education. This implies knowing knowledge, knowing oneself and the other, learning to deal with authority and freedom, limits and autonomy in an attitude of zeal, care and responsibility.

It is the teaching act in an ethical way, learning to experience, in the midst of uncertainties, the pedagogical situations that arise in life and in everyday life. Since "Every experience of certainty is an individual phenomenon blind to the cognitive act of the other, in a solitude that is only transcended in the world that we create together with him" (MATURANA E VARELA, 2001, p. 22).

Looking at it from this angle, it is clear that education reflects the heuristic of care in Jonas, an ontology of the future that can offer mechanisms for the production of new meanings in the educational field, enabling reflection on educational processes and teacher training. A reflection that for Ibernón

(2011, p.50) “It is a practical-theoretical reflection on the practice itself through analysis, understanding, interpretation and intervention on reality. The teacher’s ability to generate pedagogical knowledge through educational practice”.

Following this line of reasoning, it is understood that training must be anchored in a perspective in which the teacher reflects on his own practice, questioning himself about his theoretical conceptions, his schemes of thought, in short, rethink his own teaching attitudes in the initiative of self-assessment. constantly and reorient their practices. In this reflexive movement on the pedagogical being and doing, the teacher is led to an important ethical behavior in the care relationship with the other, to the understanding that learning does not only involve the acquisition of knowledge. Maturana and Varela (2001) emphasizes that knowing is manifested in all our actions and in our entire being, speaks of “making a world emerge” and refers to a dimension of knowledge that is associated with the deepest roots of our being cognitive.

This way, as an action for the formation of the subject, classroom work requires attention, care, one being responsible for pedagogical actions, on the other hand, the teacher must prepare for the challenges that arise, find new ways of building and rebuild values in the midst of the relationships that are constituted in the spaces of education and that are essential in the construction of the being. Van Manen, foreshadows that all education is deeply normative and, because of its ethical foundation, practice can be thoughtful and thoughtful. “Vocation, concern and affection

for children, deep sense of responsibility, moral intuition, self-critical frankness, maturity in request, sense of contact with the child’s subjectivity, interpretive intelligence”¹ (VAN MANEN, 1998, p.24), are some of the qualities announced by him and that he considers probably essential for a good pedagogy. All these qualities enunciated by Manen represent a set of pedagogical sensitivities inherent to the formation of the subject. It also brings other structuring elements for a good pedagogy,

pedagogical understanding of children’s needs, capacity for improvisation and resolution in dealing with young people, passion for knowing and learning the mysteries of the world, the moral fiber necessary to defend something, a certain interpretation of the world, an active hope in the face of crises and, clear, a sense of humor and vitality² (VAN MANEN, 1998, p.24).

The act of training intertwines knowledge of different natures, scientific, ethical, pedagogical and experience, transcends times and spaces. To form the integral subject, in its multiple dimensions, with theoretical contributions focused on complexity and multi-referentiality is a pressing need today. For Anjos, Oliveira, Santos (2018, p. 119), it is important to think about the human greatness of the being a teacher “In the field of creative, inventive, ethical and aesthetic dimensions, it is a contemporary emergency, in the face of constant economic-social changes and scientific-technological innovations that (re) organize the life of the teacher being”

This training must contemplate the integral dimension of the being, be guided by the principles of ethics and autonomy,

1. Authors translation - Vocation, concern and affection for children, a deep sense of responsibility, moral intuition, self-critical frankness, maturity in request, sense of tact towards the child’s subjectivity, interpretive intelligence, (VAN MANEN, 1998, p.24).

2. Pedagogical understanding of the needs of children, capacity for improvisation and resolution when dealing with young people, passion for knowing and learning the mysteries of the world, the moral fiber necessary to defend something, a certain interpretation of the world, an active hope in the face of crises, and of course, sense of humor and vitality. (VAN MANEN, 1998, p.24).

include the notion of responsibility as a structuring element of educational processes and the constitution of individuals. In this line of thought, it seeks to understand how the teacher empowers himself in his daily life to face the working day, what would it mean to be a teacher who is responsible for the future? How to form ethically while forming? Undoubtedly, it is a debate that involves valuing issues related to attitudes and values in teaching.

To understand teacher training as an act of training critical, reflective, ethical and responsible citizens, committed to themselves, to others and to future generations, refers to the Principle of Responsibility, a theory that deals with the dimension of human existence and is based on the doctrine of the being — an ontology capable of overcoming the subjectivisms and relativisms prevalent in today's society. In this direction, a heuristic of responsibility is required, therefore, the concern must not be only with the transformation of social relations, but, above all, with the issues that deal with the preservation of the human essence.

It is a training perspective that contemplates the contributions of the ethics of responsibility and considers the teacher as an ethical subject with rights “Who has the task of dealing with the other in a humanizing and humanizing dimension” (ANJOS, OLIVEIRA E SANTOS, 2018, P. 133). In this sense, the authors emphasize that we cannot reduce teacher training to just coaching of skills and competences. On the contrary, it is important to think about the formation involved in political and ethical aspects essential to the integral development of the being, as a free and autonomous subject, and to understand the teacher as a subject who, in his humanity, allows himself to perceive the other as the possibility of the being, be it able to humanize itself from its own processes of reflection

about itself and from the experience of the other.

We referred here to an education aimed at training in values and attitudes, capable of guiding the subject towards a responsible ethical posture in the face of pedagogical issues, the use of information and digital technologies, in the face of life and problems arising from the contemporary context. An education that conceives the individual as an ethical, responsible subject, who can intervene in his surroundings, transform the reality of his community and guarantee the preservation of human life and other forms of life in the biosphere.

FINAL CONSIDERATIONS

We concluded this study reinforcing the intertwining of teaching with innovative processes that have dialogue and reflection as allies to any process of human development and, understanding that thinking about social scenarios, today, implies considering the role of TDIC for this process. In the field of teacher training, we understand that it is essential that the teacher has autonomy and authorship to continue learning according to the demands and subjectivities of their groups of students. We believe that multireference epistemology, eco-training, ethics of responsibility and the use of TDIC for educational purposes, allied to learning autonomy, favor the construction of knowledge in a critical, reflective way and open the possibility of an ethical, conscious and ethical pedagogical practice transformer.

The complex and multi-referential approach makes it possible to think about teacher training within this perspective, a space, a place of relativity with reference to the conditions of apprehension and production of knowledge, as well as with reference to different perspectives of possible readings. In this direction, thinking about complexity, multi-referentiality and eco-training from

a perspective of the ethics of responsibility as a presupposition for teacher training in virtual learning environments, requires a break with the traditional teaching model, a search for consolidating practices with active, problematizing methodologies and diverse that welcomes the singular and the subjective, in which learning subjects are encouraged to assume a posture of authorship in their learning process, seeking autonomy and meaningful learning.

The reflections made in this article also gave us the opportunity to revisit our practice

and plan future actions. A pedagogy based on eco-training and multi-referencing requires each of us to pay close attention to our practices and invites us to reflect and seek to offer the best of ourselves. This is the challenge posed to teacher education today, to engender practices that respect individual and collective teaching and learning processes, promoting innovative practices and the development of autonomy, negotiation of meanings, building differences and subjectivities. A truly ethical and respectful look at oneself, at the other and at the planet we inhabit.

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