Review of the possibility of knowledge in educational sciences

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Abstract: There are many trends that determine all the possibilities that exist in the education sciences. These are oriented to the formation of the human being. The current development is demarcated by the use of active methodologies through science, research, technology and innovation. where the Universities advance in the professional formation of the students through the virtualization of the education. In the present work we intend to review the current state of the research work at national and international level in relation to the different ways of covering the teaching - learning processes. For that, an exhaustive review of the bibliographical sources was made through the use of several specialized databases such as Ebsco, ISI Web of science, Latindex Open Access, Scielo and Scopus. The articles classified as most relevant by these databases were selected taking into account their citation index. As a result you can see a variety of possibilities that still use the traditional forms of education and citizenship training based on traditional master classes where the teacher is the protagonist of academic activity and you can also see new methodologies that apply the new possibilities of education based on virtualization and independent training based on a more globalized and participatory education where the student is the protagonist of their learning.

1. Introduction

This paper is the product of an analysis of the literature review that summarizes the subjects taught in the doctoral doctorate in education at the Libertador Pedagogical University in the Rubio municipality of the Bolivarian Republic of Venezuela. They also contribute the opinions and concepts of the topics debated and defended in the studies carried out by the author in the physical culture sciences at the Manuel Fajardo High School in Havana Cuba.

Education is a topic of debate and in which there is a great variety of researchers who contribute the contemporary tendencies in which the different teaching - learning processes are supported as an example we can mention the work of Jarpa [1]. In his essay he presents an example of equity with the concept of differentiated education to nurture the analysis of the phenomenon of First Generation students in higher education. To substantiate his thesis presents a good variety of background on access to higher education, also reflects on the concept of equity in this educational level and conceptually requires differentiated education as a strategy to include in the university classrooms as a mechanism of student retention. Also, the relationship between educational segmentation, equity and the possible implementation of differentiated education in university classrooms is discussed from a critical perspective. From this same study can be taken up Some Latin American studies: De los Ríos y Canales [2], Castaño et al. [3], Fernández [4], Acuña [5], Bolívar [6], Rojas, et al. [7], link the partial or total abandonment of a university career to academic reasons such as the deficit in reading and writing or socioeconomic factors. Specifically, it is recognized that a combination of academic, family and
economic responsibilities that would prevent them from integrating studies and work, precipitating their early abandonment, operates in the most vulnerable juvenile subjects.

Therefore, it can be partially concluded that: There is a great variety of knowledge and writings that speak to us about education as a science and we can appreciate many epistemological forms and positions that help us to reflect on this. Thus, knowledge is an uninterrupted process, framed always in historical spaces and times, which allows discovering the facts and natural and social phenomena, and leads to the creation of a certain picture of the universe, unique to each individual individuality. In fact, people make reality their own in a very special and personalized way, according to their own needs and potential, and according to the circumstances of their social, cultural and educational environment, since they are always and, in situation, which they know from a context and a time, from history and from their own history.

2. Method

The methodological design used in this research work was an analytical study where the most important methods of pedagogical research are used through an essay that reflects the opinion of outstanding researchers in the area of education and pedagogy. The Figure 1 represents the research model.

A bibliographic search was carried out in the databases of the most important scientific publications such as Ebsco, ISI web of science, Scielo and Scopus, different search criteria related to the interests of this research were defined using criteria and words keys related to the object of study such as history of pedagogy, didactics of education, teaching - learning processes and virtual education all this to analyze the different possibilities of knowledge that there is in the sciences of education. To analyze and collect the information, the search criteria were defined in each of the databases, then the most relevant and the most cited articles were selected for each criterion, later they were ordered, and the most significant contributions are reported below.

3. Results. Possibilities of Knowledge in the education sciences

Becerra in his article describes a line of research on the history of Colombian pedagogical thought and publishes a wide variety of lectures, essays, on local and regional education. The pedagogical thought, in the present proposal of analysis, can be defined as the set of ideas by means of which it is thought about the education in which a set of representations is at stake by a group of intellectuals of the education, which they write about the school and the teaching-learning processes [8].

For Baudrillard, he proposes that the educational is "to do, a practice, an activity, which, intentionally or not, shapes man, but from there to argue that pedagogy is an activity, that is, an art, there is a great distance, because Pedagogy does not it is education, but the discipline that has it as an object [9].
We can say that, for this author, Pedagogy is the only science of education. In the opinion of Herrera [10] defends that education cannot only, but should be subject to scientific knowledge, stating that many problems in the educational field, it cannot be treated empirically despite being conditioning educational action is not conceived an educational process that is not based on knowledge generated from the purely speculative. It would be a systematic and scientific process is not possible to understand in a task as complex as it is the educational, which act factors of biological, psychological, sociological, economic, etc, which need to be subjected to analysis of scientific order to determine as much as possible, not the totality, because we have already said that the behavioral sciences always maintain great difficulties. How they interact or influence and ultimately intervene in the educational process.

Pedagogy has to assume this problem of ends because from it, essential problems of the process are addressed in that search for perfection of man, which is the object of education and as Bolívar affirms beyond Applied pedagogy is the act of education, which is the putting into action by each educator of the knowledge of the doctrine and formulas taught by pedagogy [11].

Pedagogy as a set of sequences in which they are represented by this order: science, moral or practical philosophy, techniques and ultimately creation. Thus, no exclusive qualification is applicable: it is science and practical reflection, it is technique and art and everything at the same time. The traditional conception places education as an object of treatment of an intermediate science between the positive sciences and the philosophical sciences because it allows the empirical study of the manifestations of the educational process and also the analysis and speculative treatment around the purposes and limits of education, as well as the consequences that derive from it.

León, what is education? University of the Andes. Venezuela; They point out three very important dimensions in every educational process: 1.- Education as a practical task. 2, - Education as a speculative task. 3.- Education as a normative task [12].

Regarding the first consideration of practical task, it is obvious, that to know about education if it does not obtain practical results, nothing solves, and the educational process is not carried out. It is necessary that "art" and that continuous creation facilitating pedagogical interventions appropriate to the multiplicity of situations that occur in the process and for which, the educator as an executor of that art, must possess sufficient imagination, ability to improvisation and as not a good dose of intuition. You can: understand education as art, if art is understood as a set of positive and subjective dispositions to act. Art confers natural disposition.

Regarding the second mentioned aspect, without this being an indicator of order of importance, it refers to the speculative function, and we consider that this aspect must be joined in the process, to the practical aspect. It is not possible to act coherently without prior knowledge of the path we must follow to achieve predetermined goals. This third aspect that refers to the normative dimension is; consequence of the previous one. From this function arise principles that intervene in the process from other areas, but that interact decisively in the educational act: biological principles, principles: psychological, ethical principles.

Pedagogy has an important epistemological content because of its relationship with other sciences whose specificity is the study of man, which are called Human Sciences, and which generate areas of study on which the research is projected; in search of knowledge. Most theorists such as Hoyos [13], Civarolo [14], Barriga [15], Addine [16], Zuluaga [17], Comenius [18], Bruner [19]. They have realize important investigations that become the theoretical referents for this work so many can say that education have been concerned about epistemological studies: About pedagogy and the sciences of education especially in the last ten years, which does not mean that previously there was no such concern for these issues, not only in pedagogy but also in other sciences such as biology, psychology, sociology, etc; sciences that were studied in their etymological aspect by pedagogues, something that was not matched to the same extent by the specialists of those. Such studies were motivated by the deep interrelation that exists between Pedagogy and Biology, Psychology, Sociology, etc.

The epistemological application to the field of the Science of Education is called Pedagogical Epistemology and involves a cognitive investigation in the field: of pedagogical knowledge making
critical assessments in order to determine the logical structure of Pedagogy about the following aspects: a) The research objectives. b) The principles. c) The methods. d) The results. In the words of Sáez in Epistemology and Pedagogical research it is convenient to keep in mind that the subject and the object form a unit in which they; elements interrelate reciprocally. Pedagogy is an autonomous science of education that has its own character and its purpose is: the study of education understood as an activity of improvement [20].

The pedagogy; As an autonomous scientific discipline, it admits subdivisions that study educational processes from and in other dimensions: Experimental Pedagogy, Didactics, the History of Education, Educational Guidance, etc.

This same author Sáez, suggests that Pedagogical Research and Pedagogy as Science, admits other Auxiliary Sciences, thus avoiding isolationism and radical organicism, and this is how their support base is configured, without implying the loss of identity, but on the contrary, it conforms what Simmel calls educational reality as a whole full of heartfelt [21].

Education as a process and an institution is called more than any other to generate the conditions that allow not only the approach to knowledge, but also the development of an environment that leads to understand and submerge the social and personal need of this knowledge. Myth, religion, philosophy and science are scales of this basic effort to discover realities that directly affect the life of the individual and sociopolitical groups. All of them are modes of reasoning and each one of them individually or by groups have been able, in the course of history to locate basic problems of knowledge and to solve them in their own way or in very special cases like the religious build appearances for solve them. This is why questions like: "What we know" "How we know" have been important points of reference for all those people that through time such as Aguirre, and Jaramillo [22], and Asencio [23]. The different natural phenomena such as earthquakes, lightning, rain and drought, but these events must have natural causes and so the first so-called philosophers of nature arise, to investigate and reflect on how changes in nature are possible, and if there is a single primary substance originating from all the changes. The writings of Hilbert [24], Radice, [25] analyze the history of the Ionian School with Tales, Anaximandro and Anaxagoras. On the other hand, Parmenides says that things do not change, and nothing can be converted into something else, so, for him, the world is illusory and only reason can say it is the world, so the reason is the source of knowledge (Fundamental postulate Rationalist philosophy). Plato mediates between these two positions, by stating that some things change and not after; what changes belongs to the world of the senses or material world and what does not change belongs to the world of ideas or immutable and eternal abstract molds. His student Aristotle, born in Estagira, takes up the subject of what changes and what does not change, but reverses the conception of his teacher considering that the molds are the result of an inductive process on the empirical until reaching the generalization, as wellReality is in the world of the sensible. There is nothing in the intellect that was not first in the senses.

The Aristotelian philosophy dominates the intellectual, philosophical and religious landscape until the Renaissance where the works of Copernicus and Galileo collapsed the scientific conceptions of the Stagirite. With the apogee of the two schools mentioned above, there emerges the figure of the first university professor of philosophy, Emmanuel Kant, who generates a synthesis between empiricism and idealism, "Knowledge of the world comes from perception, but this perception is conditioned by our cognitive structures ", is his primary and fundamental postulate of his thought [26].

With Kant, clearly appears the knowing subject and the object of knowledge, and knowledge is generated through the interaction between these two elements. The subject is born with innate structures sustained in the a priori forms of sensitivity: Space and Time, which allow the subject to grasp an Object, but not as a copy of reality because before it must pass through the sieve of cognitive structures, thus generating the object "for me", because the object "in itself" can never be known by the knowing subject [26].

As a result of the "crisis of the foundations" that affected some of the sciences in the last part of the 19th century, it was demonstrated that the Kantian philosophy could not answer certain questions from science, especially its conception of space was hit hard with the appearance in 1832 and 1854 of the Euclidean geometries. Later Einstein with his theory of relativity would corroborate this collapse.
Reading the following article by Sánchez [27] it can be said that Definitely who produces an epistemological rupture is the intellectual Jean Piaget who, through his rigorous and profound investigations, and this makes him different from the other theorists, formulates a Theory of knowledge: Genetic epistemology. For this Swiss epistemologist, the genesis of knowledge is in “the action” and is the actions on subjects whether physical or mental, which once internalized produce knowledge, but differ from the Kantian position in that there is a rejection of all apriorism and at the same time rejects all empiricist reductionism. So, with Jean Piaget, the subject is an active subject, builder of meanings product of the actions on the objects of knowledge, thus laying the foundations of the constructivist theory of learning.

4. Conclusions
The processes of educational thinking and the possibilities of knowledge in the education sciences are developed using different strategies according to the area of knowledge treated: Natural Sciences, Mathematics, Social Sciences, Spanish Language and Literature.

The study of Logic is the study of the Methods and the Principles used to distinguish the Right Reason from the Incorrect. The distinction between right and wrong reasoning is the central problem that logic must deal with. Although the method of deductive logic penetrates all fields of human knowledge.

In the sixties there is a remarkable development of a series of theoretical methodological currents in the field of Social and Human Sciences that are inscribed within this hermeneutic conception of science which is also known as "Hermeneutic Paradigm", in the one that registers streams like: Ethnography, Interpretive Sociology, Symbolic Interactionism, among others. All these currents postulate a hermeneutic-linguistic phenomenological approach to capture the meaningful, intentional dimension of human action.

There is no knowledge without interest, that is, that all knowledge is governed by interests that give it meaning and that constitute its deep drivers. The Spanish socialist and anarchist emigrants promoted popular education in Latin America since the beginning of the 20th century through union schools, popular universities, cultural movements, among other modalities. The most powerful stage in Latin America took place from the mid-sixties and the eighties.

Investigating social reality is not easy. The researcher is part of the social reality that must be investigated. The subject / object opposition is blurred. For object is what is outside the subject, literally "what has been thrown from the subject", and here the subject is inside the object, and how can we understand what we understand? For subject is what is subject or bound, the object being that of which the subject is loose—that is why it can flee from the object or modify it—and here the subject is bound by the object, imprisoned in the social order that must be investigated.

References
[1] Jarpa A G 2017 Revista Académica UCMaule 53(1) 9-31
[2] De los Ríos D and Canales A 2007 Factores explicativos de la deserción universitaria Revista Calidad en la educación 26 173–201
[3] Castaño E, Gallón S, Vásquez J 2008 Análisis de los factores asociados a la deserción estudiantil en la educación superior: un estudio de caso Revista de educación 345 255–280
[4] Fernández M 2008 Hacia una pedagogía de las diferencias desde los aportes de Paulo Freire. Ed. Moacir M, Gomez V, Madra J and Fernández de Alencar 2008 A Paulo Freire. Contribuciones para la pedagogia, (Buenos Aires: Consejo Latinoamericano de Ciencias Sociales) pp. 341–348
[5] Acuña C 2012 Acceso y Deserción en la Educación Superior, Caso aplicado a Chile (Santiago de Chile: Universidad de Chile)
[6] Bolívar A 2005 Equidad educativa y teorías de la justicia Revista Electrónica Iberoamericana Sobre Calidad, Eficacia y Cambio en Educación 3(2) 42–69
[7] Olave-Arias G, Rojas-García I, Cisneros-Estupiñán M 2014 Deserción universitaria y alfabetización académica Revista Educación y educadores 16(3) 455–471
[8] Becerra-Restrepo M M 2017 Pensamiento Pedagógico Colombiano Una mirada a sus conceptos de pedagogía, infancia, maestro y escuela (Bogotá: Editorial Magisterio)
[9] Baudrillard J 2012 Cultura y Simulacro (Barcelona: Kairós)
[10] Herrera J D 2013 Pensar la educación, hacer investigación (Bogotá: Universidad de la Salle)
[11] Bolívar A 2016 Educar democráticamente para una ciudadanía activa Revista Internacional de Educación para la Justicia Social 1(5) 69–87
[12] León A 2007, ¿Qué es la Educación? (Venezuela: Universidad de los Andes)
[13] Hoyos C A 2010 Epistemología y objeto pedagógico ¿Es la pedagogía una ciencia? (México: UNAM, Instituto de investigaciones sobre la Universidad y la Educación)
[14] Civarolo M M 2011 La idea de la Didáctica (Bogotá: Magisterio)
[15] Díaz-Barriga A 2012 Pensar la didáctica (Buenos Aires: Amorrortu)
[16] Fátima A 1998 Didáctica y optimización del proceso de enseñanza-aprendizaje (La Habana: IPLAC)
[17] Zuluaga O L 1999 El saber pedagógico: Experiencias y conceptualizaciones Encuentros pedagógicos transculturales: Desarrollo comparado de las conceptualizaciones y experiencias pedagógicas en Colombia y Alemania (Medellín: Universidad de Antioquia) pp 81-88
[18] Amos-Comenio J 2012 Didáctica Magna (Madrid: Akal)
[19] Bruner J 2012 La importancia de la educación (Barcelona: Paidós)
[20] Sáez A R 2017 La prioridad del método en la investigación pedagógica Revista Española de Pedagogía 75 (267) 239-254
[21] Simmel G 2008 Pedagogía escolar (Barcelona: Gedisa)
[22] Aguierre J C and Jaramillo L G 2010 La ciencia y el sentido común: por la enseñanza de un sentido común crítico Educación y Educadores 13(3) 477-494
[23] Asencio Cabot E 2014 Una aproximación a la concepción de ciencia en la contemporaneidad desde la perspectiva de la educación científica Ciencia & Educacao 20(3) 549-560
[24] Hilbert D 1950 The Foundations of Geometry (Illinois: The Open Court Publishing Company) pp 2–16
[25] Lombardo R L 1983 La matemática de Pitágoras a Newton (Barcelona: Editorial Laia) pp15–17
[26] Mansur J C 2009 Principios precríticos y críticos del pensamiento de Emmanuel Kant Revista de Filosofía 36 67-84
[27] Sánchez M A 2016 El proceso de construcción de normas sistémicas visto desde una epistemología genética neoconstructivista basada en Jean Piaget Papel Político 21(1) 123-166