Didactic principles: A proposal from the theory of subjectivity

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Abstract

Didactics as a science is based on psychology and has developed a system of principles that underpin its theoretical body using psychological results. The article analyzes the principles that have been addressed in the literature so far. Subsequently, the essential postulates of the Subjectivity Theory as a slope of the historical–cultural approach are discussed. Finally, new principles that support a didactic system based on the theory of subjectivity are defined.

Introduction

Education is the product of a relational system with the environment that surrounds the individual, that starts when a person is born until this one dies. In these processes, the human being is developed as a social being based on the interactions that this one establishes with the environment. Pedagogy is the science that studies the learning processes at a social level, while didactics is the science that studies the learning processes in a school institution. This relation explained in the previous sentence serves as base to the appearance of the pedagogic trends. The pedagogic trend based on the historical–cultural psychological focus founded by Vygotsky (1995) is the center of the analysis in this article.

Vygotsky's cultural–historical approach explains that the development of the psychic superior functions happens from the interrelation between the environment and the

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internal of person. This cultural–historical conception considers the human being as a biological, social, and psychological being. This position explains human psychological phenomena as experiences, senses, and the psychological formations that are a part of processes studied in didactics as motivation, creativity, and intelligence (Fleer, González-Rey, & Veresov, 2017). However, despite the results of cultural–historical psychology, the cognitive elements are still preponderant over the affective process in the investigations about the didactic phenomena (Addine Fernández, 2015; Li, Li, & Chen, 2018), except in the investigations based on the theory of subjectivity where this limitation is resolved (Oliveira-dos-Santos & Mitjáns-Martínez, 2020; Subero & Esteban-Guitart, 2020).

Subjectivity has been studied from different sciences as philosophy, psychology, and others. The theory of subjectivity written by González Rey (2017, 2019a, 2019b) proposes to explain human development in its historicity from its subjective productions composed by the integration of the emotional and symbolic processes. Subjectivity "…refers to the human capacity of attributing a symbolic character to emotions, which leads to the formation of qualitative units that constitute a differentiated, ontological definition of human phenomena, both social and individual … does not refer to the intrapsychic as a property of individuals' inner world, as opposed to the objective condition, as was historically associated with the notion of subjectivism, or as it is frequently used in common parlance" (Oliveira-dos-Santos & Mitjáns-Martínez, 2020, p. 5). This means that the introduction of Subjectivity Theory on the analyses of the didactic problems resolves the separation between the cognitive and affective processes in didactic theory investigations.

The introduction of this theory in the didactic processes explained by the cultural–historical approach enables a more integrative and holistic conception of learning, unlike other proposals of didactic principles that separate the cognition and the emotion into two units of analysis (Bogatyreova, 2015; Ecaterina Tascovici and Gabriel Dragomir, 2011; Longarezi and de Araújo Souza, 2016). For González Rey (2019a, 2019b), "School is a living social scenario within which individuals and their subjectivities are inseparable from many different nexuses … and many paths are simultaneously experienced by individuals and groups in each system of human activities and communication. Our definition of subjectivity represents one way to conceptualize human functions…" (p. 14).

The author Rodríguez Arocho (2020) considers that Fernando Gonzalez Rey's works (2017, 2019a, 2019b) elaborated concepts that were not sufficiently developed in the historical–cultural approach and deny the division between internal and external dimensions of the individual, between the subjective and the objective, not surpassed in the historical–cultural approach. From Fernando Gonzalez Rey's (2017, 2019a, 2019b) perspective, it reveals the absence of a dialectic analysis of the categories of the historical–cultural approach and constitutes a barrier for more complex explanations as the didactic principles. The objective of this article is to propose didactic principles based on the theory of subjectivity for the didactic systems that have Vygotsky's historical–cultural approach as a psychological foundation.

Development

The didactic principles: A discussion

For Di Berardino & Vidal (2017), each science must be built on the basis of certain principles that remain without demonstration; these principles guarantee the reliability of science itself, and they are unprovable truths from which other assertions are derived. Thus, Aristotelian science contains axioms (principles that are not justified) and theorems derived deductively from the axioms. On the other hand, the Aristotelian syllogistic is the mechanism that allows the conservation of the truth from the axioms to the theorems.

"The characteristics of the didactic principles reflect an image through which the education system and process involve a didactic attitude towards the projecting and the evaluation of the educational activities. In this context, in the reference literature, it is underlined the fact that the typology of the didactic principles relate a coordination of the capacities acquired at the level of the disciplinary correlations. Therefore, the didactic principles generate a conceptual-pragmatic understanding and they are characterized by objectivity, systemicity, generality, dynamism and pragmatism" (Marius-Costel, 2010, p. 32).

The author Marius-Costel (2010) distinguishes two types of principles: pedagogical and didactic. For him, the pedagogical principles are "… the general norms with a strategic, pragmatic and operational value through which the planning, the organization, the development of the activities and the process of education concentrate on the axiological dimension of education" (2010, p. 25) and inside them propose four principles: "… the principle of the pedagogical communication, the principle of the pedagogical knowing, the principle of the pedagogical creativity and the principle of the pedagogical materialization" (2010, p. 25). The didactic principles are defined as "… general norms through which are projected, organized and put the activities of teaching-learning-evaluating into practice, so that the functioning of the objectives/competences should become efficient at the level of the educational dimension. The didactic principles relate to an applicative, concrete dimension of the system and process of education. Thus, the didactic principles reflect the specific of the educational activities which become concrete at the level of the formative–informative correlations" (Marius-Costel, 2010, p. 26).

An analysis of the didactic principles proposed by the author Bogatyreova (2015) puts forward five principles: "… the principle of cultural integrity—shaping the totality of relations of the individual in the environment based on the indissoluble unity of biological and mental, social and spiritual, rational and irrational, consciousness and self-consciousness; the principle of activity—following the individual's learning trajectory, based on cognitive and value-orientation pre-experience; the ego-centered principle—creating conditions for maturing individually through the development of a sense of responsibility in front of the inner "self"; the principle of tolerance—cultivating the understanding of another "ego" while getting acquainted with the aggregate social relations; the dialogical principle—shaping a humanitarian type of thinking with its dialogic and dialogue as the only possible way to communicate with the outside world" (546). In the principles of this author, the integration of the social and the individual is appreciated

as positive elements, as well as the consideration of the human being in its social, biological, and individual dimensions.

Another author, Marius-Costel (2010), proposes "… the principle of the conscious and active participation of students in the education process, the principle of thorough acquisition of knowledge, skills and abilities, the principle of accessibility and individuality, the principle of connecting theory with practice, the principle of systematization and continuity, the principle of intuition (of the unity between concrete and abstract, of the unity between sensorial and rational) and the principle of reverse connection (of feedback or retroaction)"(p. 26).

The authoress Bogatyreova (2015), in the criticism that she makes to the didactic principles that precede, proposes several developmental principles for the professionals who study the foreign languages. This author extends the didactic principles and includes some principles of curricular class that are important to consider the disciplinary relationships and the use of technologies. This is important because technologies today occupy an increasingly important space in the current learning processes.

The authors Ecaterina Tascovici and Gabriel Dragomir (2011) propose several principles: the principle of the active and conscious appropriation of the knowledge and skills; the intuition principle or the unity between real and abstract, between rational and sensorial; and the principle of connecting theory with practice, respect to the students' age and individual particularities, knowledge systematization and continuity, rigorous and durable appropriation of the knowledge, and abilities and competence, assuring the feedback within the system of learning. While for other authors, Longarezi and de Araú jo Souza (2016), the emphasis is placed on skills and the treatment of concepts but should not be part of the principles because of their general nature as assumptions that support the conceptions of learning.

The principle of psychology so-called as the unity of the conscious and the unconscious (Sobkowa, Traczyka, Kaufman, & Nosala, 2018) proves that there is a recognition of the intuitive processes as an unconscious process. The importance of this principle is that it suggests an understanding that denies the direction of learning proposed by Addine Fernández (2015). Another polemic element is the separation of cognitive and affective processes in education that it is not considered for the analyses about the psychological units that integrate these processes as learning. The importance of the unity of cognitive and affective processes in learning has been well documented in the literature of cultural–historical orientation (González Rey, 2019a, 2019b; Valsiner, 2015). However, the unity of cognitive and affective processes has been difficult to implement on the didactic process because it is always treated on theory, but it is separated for the analysis in the school context as investigated by González Hernández (2019).

Didactic implementation of the unit of the cognitive and the affective processes can be important because it provides a comprehensive, dynamic, and contradictory understanding of the complex interactions that exist between the person and the social context. From this perspective, the educational activities should assume the unit of the psychological processes from practice and the theory to explain the dynamics of the social environments and the conditions of the social praxis in which the individual implicates himself, as it is the case of learning. An interesting category for this purpose is the sense

defined by Vygotsky (1995) as "… the addition of all the psychological elements that emerge in our consciousness as a result of the word. The sense is a fluid and complex dynamic formation that has several zones that vary in its stability. The sense is just one of those areas of meaning that the word acquires in the context of speech" (pp. 275 y 276) (translated by the author). This definition clarifies the importance of the sense as a unit of analysis of the psychic life that it is integrated into all the psychological elements, especially those that intervene in the learning process. However, the sense does not explain all learning's situations because the professor may teach symbols. Mathematics is one of the courses in which words are not always used because the symbols substitute many of them. Therefore, it is necessary to analyze the postulates of the theory of subjectivity because this theory provides other units to analyze learning processes with a taller level of generality, integration, and plenitude.

Subjectivity and its implication in didactics

Following this idea, these interaction processes of the individual with the educational content in which the symbolic and emotional processes emerge are integrated with other symbolic and emotional processes that already emerged during the act of learning. In the conception of learning as a cultural–historical process, the objective is integrating the whole dynamics of the psychological, pedagogic, didactic, and sociological elements that should intervene in the interaction with the content and the social processes that have a place at that moment. This process constitutes the base of the experiences that the person acquires on learning. In order to understand this emergency process, we have to assume the subjective sense as the basic and brief unit of the emotional and the symbolic in the course of concrete experience. "Human processes occur in the present, but their subjective senses integrate symbolic and emotional processes of what has been lived and, frequently, what is projected to be lived, which are an inseparable part of the subjective configuration of current experience" (González Rey, Mitjáns Martínez, & Bezerra, 2016, p. 263) (translated by the author). The introduction of this category in the explanation of educational phenomena makes it possible to characterize the student's exclusivity and, at the same time, enables analyzing the learning that takes place in the social relation network that is established in the course of learning. On the other hand, the historicity of student learning occurs in the integration of these senses in subjective configurations defined as "... a self-organized system in the process, which generates its own alternatives throughout it. Subjective configurations represent autopoietic systems ..." (González Rey, 2013, p. 35) (translated by the author). About the previous statement, it is inferred that learning should create in the students several subjective senses that emerge with positive emotions relating to the content to learn, and also, the development of human subjectivity should guarantee understand the learning as "… the emotional symbolic production that comes up as a result of a lived experience, which integrates the historical and contextual approach under the configuration that is established. The basic unit of subjectivity is the subjective sense" (González Rey, 2017, p. 19).

Therefore, it is important to emphasize that learning is a process of the construction of subjective configurations, based on the integration of the subjective senses that take place

in individuality and in the tension that student establishes with the social objectives of learning in school defined by the society. This treatment of the learning from a subjective dimension allows assuming configurations and subjective senses in a complex way, which recognizes the historicity of the complex processes in learning and, therefore, promotes the understanding of learning as configuration (González-Hernández, 2016). At the same time, it provides to the teacher a different understanding of the learning process about the integration of individuality with the social, considering the tensions that take place among the students and between the students and the professor, process in which the professor's role is essential as a conductor.

The previous conceptions allow to infer that learning is a configuration of configurations which are present when a subject interacts and establishes flows of information with other persons such as the family, the community, the school, the professor, and the group, among others. These flows of information allow the person to reconstruct its subjective configuration from the processes of dialog that are established in the social and historic context. The integration of these subjective individual processes provokes the appearance of subjective social senses that are integrated into subjective social configuration. Learning, as a social and individual phenomenon, takes place when the dialog establishes itself as a fundamental way to reduce the tensions between the individual and the social processes. These processes also reaffirm that learning is configurational when it reorganizes in the different spaces where it happens (González-Hernández, 2016). When Mori & González Rey, 2010 say "… the social ceases to be something external to the person and happens to be treated as something that is in constant relation with the subject that constitutes it and is constituted through its actions"(p. 224). These analyses allow to consider that learning is a generating process of knowledge that enables restructuring various social contents. This category also constitutes an important tool to surpass the analyses fragmented in the present-day investigations about the roles that the family and the community have in learning.

The analysis of a complex conception on the learning that integrates the different social spaces where the individual can learn is conducted by the definition of the social subjectivity category. This conception of learning does not integrate only activity, regulation, and self-regulation but also other productive processes of human subjectivity that intervene in learning. Two examples of these processes are imagination and intuitive processes (Magalhã es Goulart, 2017). Therefore, learning can be considered a subjective social configuration because "... it is the way that the subjective senses and the subjective configurations of different social spaces are integrated by forming another complex system that is fed by the subjective productions of other social spaces as family, school, informal group, among others" (González-Rey, 2008, p. 234).

For accepting the theory of subjectivity as a psychological theory to explain the phenomenon of learning, it is necessary to analyze new principles to substitute the principles declared in the related previous literature to explain the differentiation of the students, the role of the teacher, and the interaction of these ones with the content of teaching. This means that educational situations can be explained better using the configurations and the subjectivity as qualities of learning.

The principle of the subjective trait of learning

The separation of any one of the affective, cognitive, social, and individual components can produce incompatible limitations with the cultural–historical theory. The theory of subjectivity expresses past, present, and future processes taking into account the social situations of development that are different in each individual. This theory centers the didactic analysis about the problems of the teaching method, the objective to learn, and other didactics categories, taking into consideration the uniqueness of the student personality. If didactic processes related to teaching and learning include the subjective productions, then the conceptions about teaching process and the curricular design for any educational level change.

Curriculums have to make room for the subjective productions of the students because these productions constitute part of the culture that the student should learn. Therefore, the curriculum should implicate the student into the formative processes in such a way that they take part in their learning and the professor is fundamental in this objective (González-Hernández, 2016). The theory of subjectivity, as psychological foundation, allows designing a curriculum where the conception of learning as a process prevails. These processes of curricular design should be oriented to the education of the students in tension with the social processes that take place. In this process, the integration of personal and social is a fundamental part of the methodologies the professor applies and the researches it realizes. Following this idea, the qualitative epistemology is one of the investigation paradigms (González-Rey & Patiño-Torres, 2017) that should manage the research of the persons in charge of the teaching process. In order that this process goes on with a complex foundation, it is important to take the attractors as the main elements to get because they are the elements that guarantee the stability of the theoretical system (Rubio Terrado, 2018).

Another element to consider to formulate this principle is the didactic act and the intuition, imagination, and fantasy process. The didactic act, as the execution of the accomplished beforehand planning, acquires a social configuration trait because the subjective senses of every student, the group, and the professor integrate an unrepeatable structure. In this organization, professors and students conform complex networks of information that depend on the conversational processes they establish among themselves, which explains why they can integrate to several social configurations. The analysis accomplished in the previous sentence can retake itself with the integration of the elements of the process since many variables intervene on the execution of the didactic act, which explains why the didactic act not always happens in the same way. A teacher recognizes that the same class with two different groups can have big contrasts even in the achievement of the objective planned, which leads to think that this is not a linear process but a complex one.

Therefore, the context in which learning happens has the fundamental characteristics of complex systems. The elements that compose the system (subsystems) are not independent; this determines the interrelation of the parts; the system is open, another way of saying, it has no rigid border; and it is under relationship with a more extensive reality which interacts through the flows of material, energy, financial resources, and regional and

national policies, among others. The high level of indetermination and improbability of the complex process (Maldonado, 2016) leads to affirm that learning elapses in a complex interaction and is a process highly related to its context. Therefore, after the analysis made until now, learning is a highly subjective process because of the ways of appropriation of knowledge and its objectives. At the same time, for the ways in which the teaching process and the learning process organize the components they have, they acquire the shape of the configurations and can be a part of other configurations. Following these ideas, learning is characterized by these two fundamental qualities: configured and subjective.

Higher education, as one of the subsystems of education, needs to guide the learning of student to the professional training because the subjective configurations should integrate subjective senses linked to the profession. Therefore, the emotions related to the career should be positive to achieve the emergence of favorable subjective senses to their profession. These subjective configurations acquire their structure in the interactions nonlinearly that establish themselves between learning content related to the profession and the teaching institutions. This definition also integrates the subjective processes that happen in the social frameworks that the individuals intertwine when acting in consequence with the most important motives of their personality and their project of life, guided to the exercise of the profession.

The principle of the configurational and complex trait of education

The complexity of the systems has been analyzed from multiple angles, and the consensus of authors is that the total sum of elements is not the system as a whole (Pennings, 2017; Rubio Terrado, 2018). In the analysis of complexity, the interactions among the elements play a fundamental role because they offer the dynamics of the structure of the system and in the way it is configured to relate with other systems.

As it has been previously analyzed, learning is a multifactorial process in which each factor plays a role at a given moment, and not always has the same level of influence in the rest of the factors. Learning is a process with a lot of interactions between various systems and very different actors. An analysis in this sense assumes that the personal elements, as a didactic category, are all the individuals that interact with the student when they are learning. These personal elements interact all the time among them through the systems of communication that they establish. These systems of communication depend on multiple factors: the cultural vision the parents have about learning; the perception of the family; the students and the community about the professionalism of the institution; the personal relations among professor, student, and group; and the tension processes that can happen among themselves. Other interactive processes happen between the educative objectives and the content, the educative objectives and the evaluation, and with the content; nonprofessorial staff also interacts with students and professors during the didactic act: the moment of concretion of the teaching that the professor planned previously. Non-professorial staff was not considered by the didactic theory (Addine Fernández, 2015). This process begins from the educational experience as a moment of the lived experience about teaching, learning, and both; each one of them happens with a high degree of

differentiation. The action of somebody who teaches (a professor, non-professorial staff, and other organizational personnel) is sustained in the relation between experience and the present-day situation, in a nonlinear process that characterizes the complex processes (Deneen et al., 2019). Technologies extend these interaction processes beyond the physical and temporary possibilities, so these interactions can be intercultural and can become established using symbolic and cultural tools completely different among themselves. When the learning process is understood in this way, the systems of interaction among society, school, and community acquire new qualities with new levels of flexibility. This understanding about learning and teaching enables an information flow tolerant to the emergences of social and individual subjective configurations that facilitates the interaction with dynamic and nonlinear systems as the virtual courses, the online learning, among others.

Another analysis of the complex processes that happen in teaching is the tension between the didactic theory and the knowledge that should be learned by the students. Each one of these systems, knowledge, and the didactic theory provides elements and relations to the necessary flows of information that these systems establish to the surging of a new system called didactics of the system of knowledge or, more generally, specific didactics. In specific didactics, the symbiosis of the two originating systems determines the emergence of new methods, and ways of work and thought that express new qualities, different from the qualities of the original systems. Therefore, any change in original systems causes an impact on the specific didactics. Several examples of these processes are the various pedagogic tendencies that come from the interaction of the psychological trends and didactics. This conception about the relations between general and specific didactics allows explaining the surging of the new specific didactic systems that will appear when it is necessary to teach new specialties of human knowledge. For these purposes, a new curriculum design is necessary.

The curriculum design is a complex process in which multiple factors intervene. Elements of permanent tension are between the social necessities that are expressed in multiple ways as social networks, government necessities, and educational polices, among others, and, on the other hand, ambitions and the contradictions of the school itself, students, teachers, and families (Pennings, 2017). Another element which adds complexity to the learning is the relationship between the human knowledge to teach, that has its own contradictions in its historic development, and the conceptions of its teaching. Another issue that argues the complexity of the learning process is the necessities of educational management, the fulfillment of the plans, and the objective of the lesson planned to fulfill; this issue may impose rigidity in educational processes. The presence of these multiple factors and their relationships implies recognizing that education is a complex, multifactorial, and configured process.

The principle of the integration between the society and the university

About the two previous principles, the relation between educational institutions and society is not linear, coherent, nor free of contradictions because learners may participate in the course mediated by technologic resources from different societies or cultures. In this

way, in a world progressively interconnected by computer networks, the interactions between school and society should be flexible, tolerant to the emergences, and, most of all, opened to the interaction with other complex systems as other societies or cultures.

University has to become the epicenter of knowledge of society. In order to achieve this objective, the university should articulate its substantive processes with the society necessities. This diversification must occur in processes of society and the university to satisfy the needs in both directions, which would promote a necessary symbiosis between university and society. This idea should guide the assemblage of the social needs in the substantive processes of the universities, and, at the same time, the social institutions integrate the university in the processes they realize. For this work, social needs are shaped in various ways in which requirements of companies, social organizations, and government levels, among others, are integrated. In the same way, social needs are expressed in university substantive processes: training to professionals, research, and extension of knowledge to society. The conception of social needs exposed in this article surpasses the limitations of other ideas about the social needs which are described in the curriculum to raise the modes of action of the professional that universities have to form (Gallardo-González, Poblete-Letelier, & Díaz-Quezada, 2019).

Considerations raised until now bring forward a challenge to universities for considering the creation of multidisciplinary teams of students and professors to solve social problems jointly with the professionals of other organizations. In order to achieve this challenge, universities need to solve several problems. The first problem is related to the change of the conceptions about teaching organization ways. These organization ways should constitute in learning flexible spaces, focused on learning and not in rigid plans. In order to achieve this purpose, universities should integrate their dynamic of management to the other organization' processes propitiating more flexible structures for student learning. The dialog of universities with other organizations has to achieve a symbiosis that allows the students to obtain titrations while solving other organization's problems, at the same time that they fulfill the objectives foreseen in curriculum. With this aim, the university should promote curricular designs by finding solutions to tension between the problems of the other organizations and objectives of the professional formation. The project-based learning solves these problems, and it is an alternative validated by multiple investigations (Morsy et al., 2015). The projects train the students in many other organization processes and bring them closer to their performance profile. A second problem of universities is the creation of efficient spaces of communication with other organizations. One solution is the creation of learning spaces which function as university unities inside of other organizations. Another solution is creating science and technology parks where several other organizations are integrated with the university to solve complex problems. These science and technology parks allow university to integrate itself into the productions of other organizations through the substantive processes; at the same time, university human capital is incorporated into processes which are not academic but may generate knowledge.

Conclusions

The theory of subjectivity enables the analysis of the learning processes taking into account the integration of the symbolic and emotional processes. This psychological theory enables the study of the past, present, and future of the individual that allows the professor to understand the student as a cultural and historic individual.

The incorporation of these principles modifies the conceptions that analyze the role of the student in the categories of didactics. This way, this research is the point of start of new proposals about the role of the teacher, the school, the knowledge, the teaching methods, and, most of all, the evaluation in relation to learning and its singularity in each student.

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