



Problematic world and the challenges of organizing educational experience in uncertain complex problems

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ABSTRACT. This article aims to present the model for organizing the educational experience according to the pedagogy of the problem by Michel Fabre (1948-), a French philosopher, focusing on the problematization of controversial social issues. Faced with the challenges of a problematic world that questions educational subjects concerning the content, mode, and timing of teaching-learning relationships, it is up to Education to provide the student and develop with him or her two interdependent metaphorical instruments that relate to the compass and cartographic organization of experience. The compass represents the cognitive and methodological functionality that formally structures the problematization process. The cartographic support constitutes the material and cultural substrate of this process, allowing the location, orientation, and discrimination of the limits of the educational itineraries to be followed by the student, with the help of the teacher. In the problematization of controversial social issues, the association of multiple ethical, scientific, political, economic, and cultural coordinates to rational and stable knowledge taught and reproduced in school alters the set of conditions and data mobilized for the construction or resolution of the problem. The treatment of these complex issues faces reductionist obstacles against which a methodological educational strategy is proposed, respectful of the plurality of argued and divergent positions. In a democratic school ethos and averse to normative injunctivities, neither receptive to relativisms that prevent the dialogical opening of the experience founded on intersubjectivity, educating for the problematization of life in society implies the regulatory and prudential dimensioning of the facts and values immersed in it. This exercise, to be carried out jointly by the educational subjects, provides the student with different possibilities of paths and choices leading to ethical self-constitution, an indeclinable task in this problematic world.

Keywords: philosophy of education; pedagogy and education; pedagogical systems; pedagogy of the problems.

El mundo problemático y los desafíos de organizar la experiencia educativa en problemas complejos inciertos

RESUMEN. Este artículo tiene como objetivo presentar el modelo de organización de la experiencia educativa, de acuerdo con la pedagogía del problema de Michel Fabre (1948-), filósofo francés, centrándose en alguna problematización de temas sociales controvertidos. Frente a los desafíos de un mundo problemático que cuestiona a los profesionales de la educación sobre el contenido, la forma, el momento y las relaciones de enseñanza y de aprendizaje, la responsabilidad de la educación es proporcionar al alumno y desarrollar con él dos instrumentos metafóricos interdependientes que abordan la organización de la brújula y cartográfica de la experiencia. La brújula representa la funcionalidad cognitiva y metodológica que estructura formalmente el proceso de problematización. El soporte cartográfico es el sustrato material y cultural de este proceso, permitiendo la ubicación, la orientación y la discriminación de los límites de los itinerarios educativos que el alumno debe seguir, con la ayuda del profesor. En la problematización de cuestiones sociales controvertidas, la asociación de múltiples coordenadas éticas, científicas, políticas, económicas y culturales con el conocimiento racional y estable enseñado y reproducido en la escuela cambia el conjunto de condiciones y datos movilizados para construir o resolver el problema. El tratamiento de estos problemas complejos enfrenta obstáculos reduccionistas contra los cuales se propone una estrategia educativa metodológica respetuosa de la pluralidad de posiciones discutidas y divergentes. En un *ethos* escolar democrático que es contrario a los mandatos normativos, tampoco receptivo a los relativismos que hacen imposible la apertura dialógica de la experiencia fundada en la intersubjetividad, educar para la problematización de la vida en la sociedad supone el dimensionamiento regulatorio y prudencial de los hechos y valores inmersos en ella. Este ejercicio, que se realizará conjuntamente por profesionales de la educación, proporciona al estudiante diferentes posibilidades de caminos y opciones que conducen a una autoconstitución ética, que es indeclinable en este mundo problemático.

Palabras clave: filosofía de la educación; pedagogía y educación; sistemas pedagógicos; pedagogía del problema.

Mundo problemático e os desafios de organização da experiência educativa nos problemas complexos incertos

RESUMO. O presente artigo objetiva apresentar o modelo de organização da experiência educativa segundo a pedagogia do problema de Michel Fabre (1948-), filósofo francês, com foco na problematização das questões sociais polêmicas. Diante dos desafios de um mundo problemático que interroga os sujeitos educativos em relação ao conteúdo, ao modo e ao tempo das relações ensino-aprendizagem, cabe à Educação fornecer ao aluno e desenvolver junto a ele duas instrumentalidades metafóricas interdependentes que atinem à organização bussolar e cartográfica da experiência. A bússola representa a funcionalidade cognitiva e metodológica que estrutura formalmente o processo de problematização. O suporte cartográfico constitui o substrato material e cultural desse processo, a permitir a localização, a orientação e a discriminação de limites dos itinerários educativos a serem percorridos pelo discente, com o auxílio do docente. Na problematização das questões sociais polêmicas, a associação de múltiplas coordenadas éticas, científicas, políticas, econômicas e culturais aos saberes racionais e estáveis ensinados e reproduzidos na escola altera o conjunto das condições e dos dados mobilizados para a construção ou para a resolução do problema. O tratamento dessas questões complexas enfrenta obstáculos reducionistas contra os quais se propõe uma estratégia educativa metodológica respeitosa da pluralidade de posições argumentadas e divergentes. Em um *ethos* escolar democrático e avesso a injuntividades normativas, tampouco receptivo a relativismos que impeçam a abertura dialógica da experiência fundada na intersubjetividade, educar para a problematização da vida em sociedade implica o dimensionamento regulatório e prudencial dos fatos e dos valores nela imersos. Esse exercício, a ser realizado conjuntamente pelos sujeitos educativos, propicia ao discente, diferentes possibilidades de percursos e de escolhas conducentes à autoconstituição ética, mister indeclinável neste mundo problemático.

Palavras-chave: filosofia da educação; pedagogia e educação; sistemas pedagógicos; pedagogia do problema.

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Introduction

‘Undisputed, irrefutable, undeniable, unquestionable, absolute...’ are expressions that are seen less and less in educational academic production concerning teaching authority, curriculum content and practices, school institutions and Education itself, micro-reflections of a problematic world.

The certainties provided by tradition dissolve into provisionality, the promises announced and not carried out by modernity are broken in the waves of immediacy and volatility of the present time, intensely occupied in individual (personal and professional) and collective life. From this liquid contemporaneity flows a disturbance of the axiological references that were once consolidated, whether of an ethical, political, or epistemological nature, entering deeper issues, adding to this the fact that, at first, there is not even a secure order or criterion able to legitimize a given orientation over another (Fabre, 2011b).

Such uncertainties lead Education to renounce an epistemological project based on monolithic axiologies that dispense with the problematization of experience. Education is responsible for providing the student with metaphorical instruments corresponding to the compass and the map, combining, interdependently, the cognitive and methodological functionality of the first with the cultural and material substrate of the second, which at least partially informs the content of the data and the conditions that guide the problematization process.

This article is devoted to presenting the structuring lines of the problematization process of the organization of the educational experience proposed by the French pedagogue and philosopher Michel Fabre (1948-), with emphasis on such an epistemological exercise in the field of uncertain complex problems (*problèmes complexes flous*) and on the controversial social issues related to them.

Such problems gain relevance for Education as the complexity of life is introduced in the context of the problematization of the educational experience, beyond a complete and artificial structuring of data and problem conditions, based on rational and stable knowledge, presented without the ethical, political, economic or cultural implications of the knowledges related to these two cognitive-formal referents.

The elucidation of what is at stake, to highlight the social complexity of the problem and its different aspects, as well as the construction of the problem through the selection of data and conditions that must enter the problematization process, serve to elaborate positions argued, a joint exercise between the student and the teacher to educate educational subjects for problematization (Fabre, 2016b). For such, instrumental supports that serve as maps and compasses are mobilized, in an articulated and interdependent way, in a

dialectical process of doubts and (provisional) certainties that characterize the problematization of the experience.

How to guide oneself in the epistemological horizons of experience, facing the challenges of a problematic world that questions educational subjects on content, mode, and time in teaching-learning relationships? This question is further enriched and complexified by inciting reflection and discussion of controversial social issues in the problematization and organization of the educational experience.

Uncertainties and attempts to organize the educational experience in a problematic world

According to Fabre (2011a), in the postmodern world, rigid and traditional references have been lost, to the point of qualifying it as problematic. The questioning of the cosmos of the ancients, inhabited by myths and gods, brought by philosophy and tragedy, as well as the questioning of the Christian worldview based on faith (both external referents and superior to men), from the Renaissance to the present day brings, on the one hand, a problematization of life and culture, followed by an increase in the repression of certainties in modern science (Fabre, 2011a; 2011b).

In this problematic world, there are no longer absolute axiological systems, whether secular or spiritual in nature. The building and practice of values are always open to discussion, reform, or redefinition, whether smooth or structural. As a result, the eternal self-questioning (Fabre, 2016a) (which does not necessarily imply ethical reflexivity), in various sectors of contemporary society, such as politics, law, education, science, food, leisure, sexuality, spirituality, and art, brings with it the pulverization and flexibilization of the possibilities of ethical models in individual and collective life, bringing uncertainty and turmoil in individual and social life.

Problems arise when things no longer explain themselves, when there is a rupture in experience (Fabre, 2016b), that is, a maladaptation concerning the ordinariness of a given situation that does not have a ready and immediately available solution.

In this context, the 'problematic', which overcomes the subjective or psychological aspect of the person facing the problem, is inscribed in an objectivity that coincides with culture and historicity. The problematic, as Fabre puts it (2009, p. 29, our translation)¹, "[...] defines both the conditions of possibility of the thought or the action of the subjects and which gives the status of problems to a particular set of elements or accidents with which the subjects will be confronted [...]", from which the problems of individual scale are linked and constitute a projection of it.

Said author (2011a; 2011b) delineates two orders of objective, distinct and interrelated issues. In the first, the relational and institutional referents, coming from tradition, constitute the historically constructed solutions, in such a way that the subjects' adaptation problems, such as dissatisfaction in family relationships, do not call into question the solution of the institution of the traditional family to the problem of the alliance, affiliation, education, and heritage. The institutional structure, in this sense, remains solid, supporting relationships and social practices.

In the second-order problematic, which coincides with post-modernity, in which problematic repression is weakened, in Meyerian language, these very social or institutional structures are called into question, bringing identity problems to the subjects: "[...] social roles now appear to be floating: who can now know for sure how to play his or her role as husband, parent, teacher... or simply man or woman? In a problematic world, referential relations are themselves questionable" (Fabre, 2011a, p. 101, our translation)². Thus, issues of identity are highlighted, given the plurality of converging, conflicting, or antagonistic values, without, in contemporary Western societies, a pre-defined hierarchy that serves as a criterion for the best solution (Fabre, 2011b).

In this sense, it is worth mentioning the words of Bauman (2008), denoting the pulverization and temporary nature of ethical models in society, which emerge from fissures of second-order problematicity, leading to specific problems for the subjects who experience these changes:

With no authority that dares and/or is powerful enough to proclaim the universality of the norms which it prefers and wishes to promote, and none capable of ensuring the binding force of the preferred or promoted norms, the guiding rules of human interaction are thrown back into the cultural melting pot as soon as

¹ In the original: "[...] ce qu'on appelle une problématique, c'est précisément cette structure qui définit à la fois les conditions de possibilité de la pensée ou de l'action des sujets et qui donne statut de problèmes à tel ou tel ensemble d'éléments ou d'accidents auxquels les sujets vont se trouver confrontés [...]"

² In the original: "[...] les rôles sociaux s'avèrent désormais fl ottants: qui peut savoir aujourd'hui avec certitude comment jouer son rôle d'époux, de parent, d'enseignant...ou tout simplement d'homme ou de femme? Dans un monde problématique, les relations référentielles sont elles-mêmes sujettes à caution".

suggested. It is now up to the individual, to a large extent, to negotiate for him- or herself admittedly provisional and local solutions to his or her disagreements (Bauman, 2008, p. 182).

In temporal aspects, traditional societies referred to the past. The modern ones, to the future, and the postmodern ones, to the present, to the instantaneity of the here and now (Fabre, 2011b). This axiological hyperbolization of the present, added to the speed of social relations increasingly governed by the logic of instantaneous and distance communication, contributes to the widening of the gap between the long-term temporal projection that characterizes institutions and the volatility and speed with which the representations and social practices manifest themselves.

Added to the multiplicity of paths that the traveler takes, even with ordered references, hesitating where to go, new winds coming from this ethical plurality rewrite and diversify the landscapes of cultural tradition. Furthermore, due to the influx of greater knowledge about the world, the delineation of risks becomes thinner and more accurate, making the level of understanding and analysis of situations considered by the individual and society more complex. Certainty yields to probability, causality yields to multifactoriality, and security is only defined as provisional, the dismantling of a modern society that privileged solidity and constancy in two dimensions: situational, such as marital relationships, friendship, or work relations; and spatial, as in the fixation of an individual or an institution in a given territoriality due to an axiological link with them (Fabre, 2016a).

Learning to live without absolutes, in immanence, without, however, falling into a harmful relativism that dissolves any amalgamation of political, ethical, and self-care intersubjectivity: this is a central issue in the field of education. Fabre (2016a), based on John Dewey's pragmatism, unveils four complementary paths that enable the construction of an education based on a controlled relativism.

In the epistemological scope, a methodology centered on provisional doubts and certainties is suggested, instead of dogmas, whether scientific or social-political. In the societal sphere, thinking of democracy as a primary political organization within the scope of the realization of individual and social experiential potentialities, such as freedom and cooperation.

The third way concerns the ethical aspect, in the sense of working with a prudential education, in which the situational concretion and the contingency inherent to it must be tensioned with principles or systems of thought defined *a priori* so that the solution to a given problem must be exercised through a combination of the general and the abstract with the particular and the concrete. In addition, individual and social moral growth is the guiding ethical line, which is understood as a process and not an end (Fabre, 2016a).

The fourth way, complementary to all the others, seeks to think of quotidian life as aesthetic, where the experience of the beautiful, instead of distancing itself from ordinary existence, is mixed with it. Thus, as Fabre puts it (2016a, p. 44, our translation)³: “[...] instead of making the aesthetic experience something ascetic, one should see in it the incarnation of the idea in the sensitive, but a real feeling made up of desires and emotions [...]”, which enable, through these emotional experiences, an edifying or converting etopoiesis, qualified by the aggrandizement of oneself in the world.

Educating for problematization: exploring and mapping the educational experience

The educational model based on tradition, of a reproductive or mimetic character concerning the past, does not fit contemporaneity, as it comprises a Platonic conception of truth as a single essence, of which virtue, subordinated to the Good, differs from imitations. As seen above, the answer regarding the virtuous man in the Platonic line, concerning, for example, the good husband, the good father, or the good teacher, becomes an open question, a second-order problematic that questions, above all, the institutional referent itself (Fabre, 2011a).

Without a single path, Education is responsible for providing reference elements for the student to follow the paths they choose. The disbelief in the Rousseauian model of educating according to nature and in the historical-teleological model of metanarratives invite, in the Fabrean line, to turn attention to a philosophy of experience that coincides with Dewey's pragmatism, the experience being considered educative if it (i) enables new experiences, (ii) provide lessons for the future experience; (iii) is carried out within a democratic and social context (Fabre, 2011a).

³ In the original: “[...] au lieu de faire de l'expérience esthétique quelque chose d'ascétique, il faut y voir l'incarnation de l'idée dans le sensible, mais un sensible véritable fait de désirs et d'émotions [...]”.

This minimalist conception of educational normativity, which sees experience as “[...] a process of self-regulated transformation [...]” (Fabre, 2011a, p. 107, our translation)⁴, does not build unique directions to be taken by the student, nor does it leave him or her helpless. It only allows them to refer to themselves, providing them with two metaphorical instruments that define the problematization process: the compass and the map. Without a compass or maps, the student can become a wanderer in an uncertain world (Fabre, 2011b), reducing, for lack of guidance, the potential for achievement inherent to human freedom. We now consider what the conceptual and methodological apparatus of the compass and map instrumentalities is made of.

Compass organization of experience

The compass metaphorizes the opening and polarization of the problematization space through four cardinal points, which act as formal referents of this process, organized as follows: positioning or enunciation of the problem, data research, identification of conditions, and enunciation of hypotheses for the solution of this problem.

More analytically, the positioning or fixing of the problem consists in delimiting, demarcating, or establishing the outlines of the issue. In turn, the construction of the problem is based on the tension between the respective data and conditions, while the solution is related to the emission and verification of hypotheses. There is no mandatory sequential order between these three phases. One can, for example, move from the problematization of the problem to the solution, or, in the opposite sense, from the criticism of the latter, through the verification of hypotheses that, after all, do not solve the problem, giving rise to revisiting the conditions (the rules) and/or the data (the facts), in an articulated way (Fabre, 2016b).

It is a model of procedural and dynamic rationality, out of skepticism and dogmatism (Fabre, 2011a). Norms define the conditions of the problem and anticipate the form of solutions, constituting the framework for problematization (Fabre, 2011b). Thus, there is a normativity intrinsic to it, which can be questioned, minimally changed, but not at a certain level, to provide a basis for articulation between the data (Houssaye & Fabre, 2005; Fabre, 2011b; 2016b).

The conditions may already be defined throughout the problematization process or be built along with it, with reality being a composite of several normative systems (political, ethical, pedagogical, cultural, etc.; Fabre, 2009).

The data, which correspond to the other cardinal point of the compass, relate to factual propositions or findings, that is, information selected from the context (Fabre, 2016b). Data are chosen according to relevance to the problem and presented at the beginning or added along the problematization process (Fabre, 2009). In comparative terms, the data are contingent, they change, while the conditions — naturally, there can be a coexistence of conditions in the same problem — concern the needs that must be taken into account in the scope of the problem, since they structure its basis (Fabre, 2005; Fabre, 2011b).

The conditions for solving a problem may, at the beginning of the problematization process, be known or unknown, that is, to be discovered along with it. In this second case, we seek, with fewer instruments, to test hypotheses: moving away from some, approaching others, like a philosophical dissertation in which ideas or phenomena have their theoretical conditions explained (Fabre, 2016b).

To use a simple example, in which all the data and conditions are known, in the problem statement asking how many balls have, together, Paulo, with 13 balls, and Pedro, with 14, the data are the people and the number of balls, with the condition being the relationship of the balls together, which anticipates the summation of the expected result (Fabre, 2016b). Another example, in which logic is enough to solve it, is the problem of knowing whether crop field A produces more than crop field B, mobilizing, as data for the problem, the dimensions of the two rectangles, and, as the main condition, the calculation of the respective areas (Fabre & Musquer, 2009).

A limit of these two examples is that, in them, the teacher only states the problem, and the student is only responsible for solving it, with no co-construction of the problematization process. The second limit to be noted, in both, an isolated problem is proposed, which is not always the case, especially when dealing with complex or controversial problems involving social and ethical aspects.

In any case, the elements of problematization are mobilized and functionalized according to the problem being faced, which leads to the assertion that there is no real problematization without a direct and material treatment of the specific situation. Thus, the definition of what will be taken as data, condition, or solution

⁴ In the original: “[...] processus de transformation auto-régulée [...]”.

is in function of a determined context, such as the construction of a house, in which the conclusion of the plan appears as a solution to the problem for the architect, which makes a condition (norm) for the mason to build the walls. In turn, properly constructed walls (solution of the problem for the mason) constitute data for the painter or electrician, so that a larger problem is subdivided into smaller problems (Fabre, 2016b).

It is a problematic thought, requiring examination or verification without haste, which does not take place in an immediate or directly consequential way, as in apodictic or assertoric thinking, nor is it excessively hesitant or reticent, preventing the problematization process. Furthermore, a dialectic of certainties (support points that may be provisional) and doubts functions in it, a dialectic that seeks to avoid a dogmatic or skeptical orientation in the problematizing organization of the educational experience. In this sense, both cardinal points (data and conditions) are considered as temporary points in the context of the problematization of experience. However, some elements are not questioned, either because they are outside the context of problematization or because, internally, they belong to the assumptions or to the very foundations of the questioning (Fabre, 2016b).

In the passage from the problem to the answer, the problematization plays a heuristic function, as the initial knowledge contained in it allows to regulate this process and evaluate its result. The problematic reveals knowledge that is not yet an answer, but anticipates the respective characteristics (Fabre, 2016b).

In this way, problematizing is the examination of an issue through the articulation of doubts and certainties, distinguishing and relating the data and the conditions of the problem within a specific framework, by self-regulated thinking and in a heuristic and investigative perspective (Fabre, 2016b).

Problematizing the experience implies, therefore, the orientation of thought that opens and polarizes the cognitive space, that is: positioning the problem, searching for data, identifying conditions, and issuing solutions, even if provisional, not necessarily in that order. It is from the map that the data and conditions will be extracted, albeit partially, as the compass has functional importance under the formal and general aspect (Fabre, 2011b).

Synthesizing the above considerations and theoretically developing the problematization process to a greater extent, it is a multidimensional process, involving the position, the construction of the problem with data and conditions, and the emission of solution hypotheses, in a dialectical dissociation of facts and ideas (or theories and realities or experiences) that are tensioned according to the issue (Fabre, 2009). Another dialectic is made between the known and the unknown (certainties and doubts) so that the problematization is based on provisional points, which can be revisited later (Fabre, 2011b). The questioning in this process starts, therefore, from the elaboration or use of support points, without requiring that they be endowed with definitive certainty, nor are further repositioning or disregard of these inhibited.

Moreover, it is about a schematization of the real (resigning to reproduce reality), guided by a self-regulated thought, within the dynamics of the articulation of data, conditions, problems, and hypotheses of this process. In other words, it is not about conceiving a problematization that mirrors reality, but about functionalizing it, schematically, through tools that serve thought and action (Fabre, 2011b).

Finally, lining up the theoretical-formal instruments used in this study, the problematization process can be centered on solving the problem or building the problem, let it be repeated, in the articulation between data and conditions. In the case of this second centrality (problem construction), one can mention, as an example, the evaluative activity of a student on a controversial social issue, in which their answer to the problem, without imperatively coinciding with the teacher's, does not matter as much as the argumentative process woven by them (Fabre, 2016b). In this sense, understanding the conditions from a theoretical or instrumental perspective, as an end or as a means, depending on the purpose of the problematization developed in the educational process, directly interferes in the configuration of this centrality.

Cartographic organization of experience

The other metaphorical tool that is mobilized in the process of problematizing the educational experience is the map, which provides, at least partially, the concepts and data in the context of the problematization, to allow the educational subject to be guided as to the point of location and to the point one wants to reach.

The map translates historicity and tradition as cultural support over time, as well as the experiences of the educator and the student, shaping the landscapes and paths on which the predecessors left their footprints. That is to say, no matter how delimited the path, no matter how much it has been or will be trodden, individually or collectively, the experience of the crossing is inalienable and indeclinable (Fabre, 2011a).

Indeed, a problem can respect the objective of a project or a certain event, denoting the rational or cognitive aspect of the experience. In the challenge (*épreuve*), however, the existential aspect of the problem concerning the person stands out, an experience that encompasses or is equally directed to the field of emotions, which is aggrandized by the joy or suffering when accepting the experience (Fabre, 2002).

In the cartographic model, there is no injunctiveness as to the paths to be followed, gaining autonomy, but not certainty. According to Fabre (2011b, p. 80, our translation)⁵, “[...] if any map can be read as a set of problems, some problems open up multiple solutions, others impose a single path, and, finally, others make it possible to develop new maps”.

The map can serve to represent, discuss past, present, or, projectively, future reality. In this way, culture can think about the world through these three temporal plexuses, but the use of the map (the cultural substrate) may be inadequate in the current world. In this case, it will not be used in its entirety or will be used pointing out the risks and precautions to be taken into account. Thus, it is up to the new generations to elaborate new maps, but there is a material and symbolic support or backing that transcends the historical-cultural specificity of each time or place, entering invariants that concern humanity itself. Neither creation nor revolution take place *ex nihilo*.

It is up to the educator to choose their own maps depending on the problem-situations (enigmas, controversies, diagnoses, for example; Fabre, 2011b), also using the cognitive-formal framework that is the compass. It identifies the directions (north, south, east, or west) without pointing to which one to follow, thence the importance of the map, this historical-cultural construct that serves as a material basis to build and enrich the experiences as one trains on and trails the paths. Hence the importance of the map, so that the compass process is not conducted in a vacuum (Fabre, 2011b).

The same applies to the reverse: the map does not make up for the lack of a compass, under penalty of not knowing the location (Fabre, 2011a). Thus, the compass is the problematization process under the cognitive-formal prism (opening and polarization of the space or problem-situation), while “[...] the map can thus be read as a set of problems on which the general and generic conditions and data are defined [...]” (Fabre, 2011a, p. 111, authors’ translation)⁶, the historical-cultural aspects, therefore, so that, it is worth emphasizing, the initiative to problematize a topic does not dispense with precise knowledge of it. This does not imply, however, procrastinating the problematization on the grounds of not having sufficient knowledge about the topic (Fabre, 2016b), even because this process works through the mobilization of provisional support points, in a dialectic of doubts and certainties.

In fact, in contexts of problematicity, the map does not determine which path to follow, but presents the multiple paths and their respective risks — risk as a constituent part of an etopoiesis that is not forged in heteronormativities — thus providing a more or less precise dimensioning of the places to which the routes lead, being impossible, it is important to highlight, to exhaust and control *in totum* this multifactorial process that is life.

Fabre proposes references in this problematic world, likened by the author to a labyrinth, within which references are needed that imply the functions of location, orientation, and discrimination of limits and borders (Fabre, 2011a). On an educational level, to ‘locate’ implies the level or stage of school progression at which the student is. To ‘guide’ refers to the project or intended objectives, of an endogenous and exogenous matrix, while ‘discrimination of boundaries’ concerns the definition of how far one can go with regard to the attitudes of the student and his/her relationship with the teacher and with others to avoid excesses (Fabre, 2011b).

In the practical field, what should be kept as an answer or as a question, as a certainty or doubt, is a matter for the teaching authority that will calibrate this dialectic. In the problematization activity, everything is not questioned, nor is the entire theme transported to it. The questioning must be modulated, materially and temporally, according to the objectives, in addition to being adapted to the purposes that one wants to achieve in the problematization process, under penalty of losing functionality. In this sense, there are degrees of problematization, more or less complex (Fabre, 2016b).

From this point of view, the educator’s experience is part of an ethically informed educational process, invested with reflexivity and absent the petrification of dogmas that, if settled, will soon be leached by the intensity of contemporary changes (Fabre, 2011b). Furthermore, questioning is dynamic learning, as it is part of the knowledge acquisition process. It is up to the educator to prepare their own maps based on the chosen

⁵ In the original: “[...] si toute carte peut être lue comme une problématique, certaines problématiques ouvrent des solutions multiples, d’autres imposent un chemin unique, d’autres enfin permettent d’élaborer de nouvelles cartes”.

⁶ In the original: “[...] la carte se lit ainsi comme une problématique sur laquelle sont définies les conditions et les données générales et génériques [...]”.

situations (Fabre, 2011b), highlighting, moreover, that the choice of materials for the preparation of these maps influences how reality is represented.

The map builds, graphically and socially, worldviews, in a determined historical and cultural context, as it produces representations that are not a copy of reality, but a language that seeks to know it (Fonseca & Oliva, 2013; Joly, 2013). The intentions cannot be veiled by a supposed investigation of scientific purity, objectivity, and impartiality. Cartographic representation, in this constructivist theoretical perspective, is a visual language, which points to a denaturalization of maps (Fonseca & Oliva, 2013).

A graphic interpretation of spaces, the map is a discourse that is not equivalent to landscape portraits provided by satellite images, which do not have the exploratory potential of the social aspects of maps, such as thematic ones (education, violence, the relational flow of people and goods...), nor the possibility of selecting and generalizing objects (such as representing a river by a line; Fonseca & Oliva, 2013), ranking phenomena.

The map, therefore, produces meanings according to the context in which it is inserted. It should not be conceived as a perfect reduction of reality, unless the one who enunciates the map, rhetorically, obscures or hierarchizes phenomena with the double intention of dogmatizing the orientation by imposing on the reader a single hermeneutical path and subverting the basic rules of precision, reliability, and effectiveness inherent in the making of maps (Joly, 2013).

Indeed, the image of a map, which can be used as a rhetorical technique, is an instantaneous communication, through which information is selected to provide the reader with a quick and multiple apprehension of it, in addition to being an instrument that enables growing power of persuasion and naturalized constructive effect (Fonseca, 2004; Fonseca & Oliva, 2013).

A map can be designed not so much to highlight the phenomenon of territorialities and their respective extensions — a mirror of the modern vision of cartography based on Euclidean space that privileges contiguities and continuities — but to represent and highlight the phenomenon of networks and flows in plexuses of lines, in which the dynamics, multiplicity, and miscibility of interrelationships — typical of a problematic world — prevail over staticity, unity and the merely junctional potentiality of territorialities (Fonseca & Oliva, 2013).

As the complexity of life is introduced in the context of the problematization of experience, beyond a complete and artificial structuring of data and conditions of the problem, presented without the ethical, political, economic, or cultural implications of knowledge related to these two cognitive-formal referents, as this occurs, unravel uncertain complex problems (*problèmes complexes flous*), which find strong resonance in the field of 'socially alive questions'.

Uncertain complex problems and socially alive questions

In school environments, in contrast to the predominance of a teaching conception of rational and stable knowledge, without the prominence or emphasis on ethical, social, political, or economic opinions and values, the aspect of 'education for' (environment, sexuality, consumption...) proliferates, which flows into the epistemological field of imprecise, indeterminate or controversial complex problems, both concerning the data, which we do not have entirely, and to the conditions, which prove to be insufficient, both of which sought out and arranged in the problematization process, for the construction of the problem statement (Fabre, 2014a; 2014b; 2016b).

Another inherent uncertainty of uncertain complex problems concerns the absence of procedural and decision-making criteria (Fabre, 2014a; 2014b; 2016b), not being possible to obtain a high degree of certainty in a solution, nor in multiple solutions, given the absence of hierarchical pre-determined criteria that can be coordinated to solve the problem. Although everything can be problematized, although there are no absolutes, this does not mean that there are no asymmetries of strength regarding the influence of these values in reality, which convey different conceptions of the world that are disputed in society.

The expression 'uncertain complex problems' (*problèmes complexes flous*) derives from the translation, made by Toussaint and Lavergne (2005), of the English expression *ill-structured problems*, a term coined by Herbert A. Simon, in 1973, in the field of artificial intelligence (Xypas, 2014), also having projection in cognitive psychology in the 1960s and 1970s, in relation to the processing of information.

A second context of uncertain complex problems relates to the social, ethical, political, economic, and environmental challenges of technical-scientific development after World War II and the three decades that

followed, brought up as a discussion by society and the scientific community, mirroring, in this sense, the field of socially alive issues (Fabre, 2014b).

These questions mix knowledge of formal sciences with values, breaking epistemological parameters that make the exact sciences, biological sciences, and human sciences immiscible, in addition to extrapolating the theoretical-discursive school orbit to enter the complex domain of action in society (Fabre, 2016b).

Indeed, what determines the controversy regarding conditions and data are the interests at stake, as well as the different perspectives and contexts, as the argumentative construction of the problem defended by each side implies a hierarchy of conditions and data that do not reconcile. Political, ideological, ethical, or economic aspects, for example, overdetermine the problem, bringing various solutions as a result of these choices, which rhetorically mobilize the elements of the problem according to the interest in question (Fabre, 2016b).

It can be seen, from the outset, that the obstacles linked to the treatment of socially alive questions are also related, by distance or proximity, with these axiological implications. The first obstacle, linked to technocracy, occurs when the axiological bias of the problem is removed, and it is treated only from a technical-scientific perspective, objective and restricted to specialists so that these problems are conceived only as ill-structured problems, liable of resolution by science (Fabre, 2016b).

Objectivity is privileged in the treatment of the problem, thus engendering an applicationist perspective that emphasizes scientific rationality rather than prudence. In the school context, values are remitted to personal choices or political choices not considered by the school (Fabre, 2016b).

Contrary to such conception, the scientific argument should not be superimposed, *a priori*, as the main decision criterion or as an insurmountable authoritative argument for the problem, silencing the dimension of the subjectivity of the participants in the discussion, a vital dimension, in fact, for the understanding of the singularity and one's position in the world. This subjectivity also has a strong synergy with the co-construction of the problem by the teacher and the students, the former being responsible for encouraging and stimulating the advancement of arguments and hypotheses on the part of the students, without inhibiting the errors and inconsistencies of the initial arguments (Fabre, 2014a; 2016b).

The other obstacle, linked to relativism, consists, in a diametrically opposite position to the previous one, in hypertrophying the axiological dimension of the problem to the detriment of the technical and scientific aspects that inform it, favoring opinionated positions without the requirement for rational reasoning. The scientific specificities that inform the problem are ignored or reduced, as well as the knowledge produced about them, valuing, without distinction, any position or opinion, whether argued or not, as long as it is individual. At school, the debate tends to be restricted to the field of each student's preferences (Fabre, 2016b).

Now, there is nothing more erroneous and harmful to the process of problematizing the experience than each one claiming the compass and the map for themselves, summarizing all the problematization to be merely based on opinion, perhaps, on the individual experience that communicates to the other as a product and not as a possibility of exchanging experiences, unfinished and potentially generating other experiences.

Falling into a skepticism that dispenses with any argumentative and communicational support in defense of individual and social ideas and practices is to waste the possibilities of thinking in a richer and broader way, in addition to encouraging a harmful and lazy tolerance that is satisfied with the short word and that condones with an arrogant individualism and a false self-sufficiency that does not allow for miscibility of thought or encounters in human experiences, inside and outside educational spaces. This greater breadth of experience derives, in part, from the relationships woven or locked with the other, in consensus or disagreement, especially when dealing with issues common to those involved in the debate.

Finally, the third obstacle to the treatment of imprecise problems, close to the uncriticality of the second model, emphasizes politically correct practices, in an injunctive way and without critical reflexivity. It considers admissible only the assumptions that are following the social standards and behaviors established by heteronormativities, often under the baton of media and market influxes, far from the mesh of problematization, which leads to the risk of infantilizing the student (Fabre, 2016b).

How to address these issues outside of relativism and absolutism? At school, it is up to the teacher to raise arguments, compare them, assess possible consequences and explain the intentions of the points of view, without scaling a single solution, their own, acting, in addition, prudentially. It is a survey in which students also participate. Therefore, it is not up to the teacher to inhibit errors and hypotheses but to privilege the construction of the problem in relation to the solution or solutions (Fabre, 2014a; 2016b).

Fabre proposes a practical methodology in which students, assisted by the teacher, seek the proper treatment of socially controversial issues that should not be left aside by Education. This proposal involves three steps, which do not keep the necessary sequential relationship between them, making it possible, for example, to revisit the data and conditions when criticizing a certain solution to a problem. The first consists in the explanation of the issue and the social aspects circumscribed to it, without excessively stabilizing the knowledge taught and reproduced in school environments. In the second stage, the construction or positioning of the problem is carried out, according to the choices of data and conditions mobilized in the problematization process. In the last stage, argued positions are elaborated, without seeking a single solution, in a democratic school *ethos* in the participatory sense as respectful of alterity and of the divergent positions that may arise from it.

Final considerations

In a problematic world referenced to the immediacy of the present and marked by second-order issues, in which social or institutional structures are questioned, identity issues reach the subjects. This results in the pluralization of the possibilities of ethical models, although the absence of axiologically monolithic solutions to individual and social problems does not imply symmetry of forces regarding the influence of these values on reality. In this sense, the absence of axiological absolutes does not suggest the absence of hegemonic trends that can unequivocally condition the problem and the solutions related to it and can serve to problematize the experience, even as a critique of overcoming such trends.

The educational experience is organized by two metaphorical instruments that enable educational subjects to dispense with absolutism and relativism. The first instrument, the compass, represents the cognitive and methodological functionality of the problematization process, structuring and polarizing the data, conditions, problem, and solution hypotheses. The second instrument, cartographic, marks the material substrate from which data and conditions will be, at least partially, provided for the functioning of the problematization process. It is a dynamic model, dialectically structured, without constraints, and adaptable to the pedagogical objectives intended by the teacher, in addition to being imbued with a prudential technology that enriches the concrete relationships between educational subjects.

In the field of uncertain complex problems, in which the introduction of the complexity of social life in the theoretical-discursive school orbit breaks with the possibility of working with exhaustive data and conditions in an isolated way, without a pre-determined hierarchy between the latter, one must avoid problematizing the educational experience based on technocratic models that exacerbate the dimension of scientificity as the only form of knowledge. Another model to be avoided is of a relativistic nature, which loosens the argumentative rigor necessary for school discussions to make any and all personal opinions legitimate.

Likewise, the model based on uncritical positions dictated by a questionable injunctiveness of politically correct models must be avoided, neutralizing the attempts at reflection and critical and creative arguments arising from the subjectivity of students. After all, in a problematic world, the construction and development of subjectivities, on an ethical and performative level, is an essential task of a School Education aimed at preparing students for the challenges that are and will be presented to them inside and outside school environments.

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