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ON LEARNING AND TEACHING¹

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Summary

In this paper, a reflection on teaching and learning is undertaken considering two opposite perspectives that usually show up when debates about education are triggered: cognitivism and constructivism. The later constitute two frameworks that oppose transmission to guidance, explanation to motivation, memory to understanding, effort to play and so forth. We seek to demonstrate that the referred elements are all as well important and part of the educative equation. Hence we propose that educational issues should be addressed by an antinomical approach in order to avoid and surpass the reductionist mode that drives education to unilateral, lopsided or reductionist perspectives and practices.

Keywords: Education, Philosophy, Learning, Teaching, Antinomical approach

The fish in innumerable tender, drawing from his voice, attentive and suspended by his words, listening with silence and with signs of admiration and assent, (as if they understand) what they could not understand.

Fr. António Vieira¹

INTRODUCTION

In the media and even in some academic writings, learning is sometimes focused from two opposite perspectives: cognitivism and constructivism. Taken in a broader sense – that feeds from a misconception –, both scopes came to cast two pedagogical opposed fashions. However, depending on the viewpoint used, these perspectives could be considered as opposite or not. Actually the approaches are integral as part of the same framework continuum.

If cognitivists, in general, highlight the importance of understanding the inner mental activities occurring throughout the learning process, it is also true that in some way the learner is viewed as an information processor. In such a case we tend to see the subject as a computer, although being a kind of “black box” that should be open in order to explore those activities underlying learning, namely, thinking, memory, knowing and problem-solving. Some cognitivists, like Jean Piaget², have deepened this perspective and came to propose a more, let us say, constructivist approach, by describing how knowledge is constructed accordingly to the subject’s co-

gnitive stages and how he develops in complexity over time.

If cognitivists point to the processes of thinking, constructivists take their analysis further and try to understand the subject’s logical-mathematical structures underlying the reasoning process applied by the learner in a specific stage of his development. This means that constructivism deepens the approach in order to unfold the subject’s development of the cognitive schemas, thus clarifying how knowledge is constructed within each stage. Therefore learning could not be only a matter of transmission and reception; it entails a process of inserting information into the cognitive structures one possesses, thus allowing the personal construction of concepts and reasoning. For assuring that learning is achieved one must attend the subject’s level of development, i.e., the way he thinks by applying a specific cognitive schema.

Concerning the current discussion, we refer to cognitivism as a pedagogical approach that values knowledge in itself, alongside with explanation, transmission, memory and effort. On the contrary, constructivism defenders usually stress the importance of motivation, guidance as well as the learner’s (hopefully) joyful and playful activity, through which knowledge is personally constructed. In this case it is not transmission and memory that should be focused, but the contexts able to propitiate the subject’s personal reasoning and conceptual construction.

In order to explore constructivism’s approach to learning, we take as an analytical paradigm Socrates’ discussion about education in Plato’s *Meno*³ and we draw on *Saint Anthony Sermon to the fish*, from Fr.

¹ Vieira, A. (Fr.). *Sermão de St.º António aos peixes*. Oporto. Porto Editora. 2011, P. 5-6.

² For further insight see: Piaget, J. *La construction du réel chez l’enfant*. Neuchâtel. Delachaux et Niestlé, 1950; J. J. Piaget, Inhelder, B. *De la logique de l’enfant à la logique de l’adolescent: Essai sur la construction des structures opératoires formelles*. Paris. Presses Universitaires de France, 1955.

³ Plato. *Meno* // Ed. Cooper, J. M., *Plato: Complete works Indianapolis*. Hackett Publishing Company. 1997, 82c-86b.

A. Vieira⁴, to give some insight of the importance of eloquence and attention when we want to teach something and further someone's learning. Our choice is mostly due to pedagogical reasons. The referred works have the advantage of setting the questioning process at the issue's core with clarity and elegance. We do not want so much to deepen on Plato's metaphysics or theory of knowledge and learning, but to refer to a problematic he sets so poignantly. Nevertheless, a minimal framing of Plato's education conception shall be given.

As the *object of this study* we took *the core problematic* of teaching and learning as an antinomical dialogical process that arises from considering cognitivist and constructivist viewpoints. We *aim* to give an account of the referred problematic considering education as a whole and in a way that could be applied later on to more specific domains of learning, which is not the case for the moment. As *specific objectives*, we consider clarifying the referred approaches, their tenets and shortcomings, so that the inherent antinomical complementarities become evident. Our *research problem* is to consider whether cognitivism and constructivism are opposed and mutually exclusive approaches. To undertake this endeavour, we will apply *a conceptual analysis*, articulated through a questioning and reasoning discussion.

A DECLARATION FOR LEARNING AND TEACHING

Although it shows up today, insistently, as a fulcrum of concern and controversy, the question of what constitutes the activity of learning is very old. The issue arises in the *Meno*⁵, one of those dialogues in which Socrates throws an *aporia* into the debate in order to "astonish" the spirits dominated by the *doxa*, i.e., the common opinion. Superficial opinion accrues from the persistent and endemic mode of taking for granted certain beliefs although we no longer know where they came from or why they became so popular. The obvious is more a result of forgetfulness than of sagacity. It's more a result of history than of nature. As Barthes⁶ has shown, often it only appears to us as natural because the historical process that produced it has been forgotten or hidden, then shines as true for what is nothing more than a myth produced by the naturalization of history. Belief, unquestioned and unquestionable, whose origin is lost, the *doxa* had time to take root and can blind even the most well intentioned person. From now on we could call this kind of person, dominated

by common opinion or *doxa*, a "filodoxer"⁷.

In the so called aporetic dialogues⁸, Socrates would typically launch an initial question to shake the spirits numbed by uncritical preconceived ideas that, very commonly, dominate humans. Placing his interlocutors before an *aporia* serves to leave them amazed by a given subject, thus restoring their ability to wonder about something that had seemed obvious and had been taken for granted.

Perplexed, those who lived before in a confident and safe frame of mind were then predisposed to at least listen carefully to the friendly bee in their bonnet on which they had stumbled and, in many cases, start to follow the proposed questioning. It turns out that among the vast array of preconceived and entrenched ideas that help us to, at least, not get blocked, we find the one that states that "if you teach it, they will learn". Supposedly it is enough, for this purpose, that the one who knows conveys the known – the knowledge – to the one who does not know – the ignorant. It is as if we believed that even fish can learn a sermon if delivered by a wise and eloquent speaker.

However, as Socrates understood very well, not only is it not easy for humans to assume they are ignorant, but it is much more common that they assume a lot of things as well known. This attitude that hinders them from seeking alternative explanations makes them prone to deduce many ideas from what is not after all sure. Hence, one can well understand that certain ignorance is far wiser and enabling of learning than a certain kind of "wisdom."

In the "astonishing" dialogue, referred to above, Socrates, on his way to the *Agora*, as was his habit, bumps into the "bourgeois" *Meno*, who, conveniently accompanied by his slave, was seeking a way to learn how to succeed in the *Polis*. It is in such a context that the question of the nature and possibility of teaching, in this case virtue, will be laid out. Such an approach appears to be at least surprising. For those who began to study Plato from the *Apology* and the *Phaedrus*, infused with Socrates' enthusiasm for seeking true wisdom, can hardly be prepared for what the *Meno* will bring about: the improbable idea that nothing can be taught. Of course, if you are willing, you can obtain the desired knowledge on your own with a suitable process, but this happens without being taught. Socrates words are the following: "nothing prevents a man, after recalling one thing only – a process men call learning – discovering everything else by himself, if he is brave and does not tire of searching, for searching and learning are, as a hole, recollection"⁹

⁷ Boyum, S. The concept of philosophical education // *Educational Theory*. 2010. 60(5). p. 547.

⁸ Kahn, C. H. *Plato and the socratic dialogue: The philosophical use of a literary form*. Cambridge. Cambridge University Press. 1996, P. 178-180.

⁹ Plato. *Meno* // Ed. Cooper, J. M., *Plato: Complete works*. Indianapolis. Hackett Publishing Company. 1997, P. 870-897, 81d.

⁴ Vieira A. (Fr.). *Sermão de St.º António aos peixes*. Oporto. Porto Editora. 2011.

⁵ See Plato. *Meno*, 81d.

⁶ Barthes, R. *Mythologies*. New York. The Noonday Press. 1972, p. 10.



Figure 1: Socrates and his Pupils by Johan Friedrich Greuter.

To support this approach, Plato developed an explanation - that just sets the tone for the subsequent history of Western metaphysics: the soul coming out from its spiritual element, where it has had the opportunity to contemplate perfect ideas, through the process of becoming embodied and suffering a kind of amnesia and, hence, all teaching is not more than a process of helping one to be reminded of what one already has in himself. All learning is nothing more than a personal activity of remembering.

However the process of remembering does not occur as easily as one might think. One has to have lived and survived the aporetic shakeup from having been able to follow the master on his effort of inquiry; one must assume it personally to effectively motivate the effect that produces the astonishment. From the allegory of the cave that Plato uses in the *Republic*¹⁰ to address the issue, one must conclude that the process of acquiring wisdom is not to be taken lightly. In fact it resembles the transformation experienced by getting to be able to use one's eyes in broad daylight after spending a lifetime confined to the darkness of a cave. The aporetic shakeup followed by the inquisitive journey is the equivalent of the conversion effort by which one recovers the ability to visually discern under the strong light of the sun after living in darkness. Therefore, we see that teaching becomes a kind of driving force by which the learner is motivated to learn through a kind of inner and personal discovery.

Plato's theory of learning as recollection - stemming from his metaphysics of the immortality of the soul - entails that some knowledge must be innate and that we just have to make an effort of recollection to get it clear. Learning itself is also nothing more than the result of the same process. In such a framework learning could never be a simple ques-

¹⁰ Plato. *Republic* // Ed. Cooper, J. M., Plato: Complete works. Indianapolis. Hackett Publishing Company. 1997, P. 514-541b.

tion of transmission, but resembles more to a personal quest of inquiring. All the teacher can do is to arouse and further such a process. Plato's recollection theory¹¹ could thus serve as a metaphor for what in modern psychology is known as the constructivist perspective about learning.

TRANSMISSION OR CONSTRUCTION, IS THIS THE QUESTION?

Constructivism assumes that all knowledge is the result of a construction made by the subject. Apparently this would mean that all knowledge is relative and subjective, which may not be the case because, if the construction process is subjective and knowledge is relative to the context in which it is produced, this does not mean that there are not invariant elements to be taken into consideration, both from the point of view of the subject's cognitive structures and from the knowledge in itself. Even if to some extent knowledge receives its meaning in terms of the theory in which it was generated or the paradigm it falls under, it is always given as true, though limited to a certain conceptual stage. The fact that the construction process is subjective, i.e., intrinsic to a subject, does not imply that it cannot be objective for all subjects that have experienced the same process, much less is it the case that the result cannot be taken for true within the framework of thinking that makes it possible and necessary.

The abovementioned brings us to the issue of the substantive value of knowledge that, at the opposite extremity of the constructivism scope, has been claimed by traditionalists who also assert the need for someone to be in possession of some knowledge

¹¹ Consisting of two theses: an *epistemological* thesis stating that knowledge is innate to the soul and can be achieved by its own means; and an *ontological* thesis stating that the soul is a persistent entity that exists prior to embodiment and will exist after leaving the body.

in order to be able to teach it, as well as someone with the disposal to learn, so that learning can occur. From the "cognitivist's" point of view, universal knowledge that can and should be taught really exists. It requires, however, someone who masters it and knows how to teach it and someone with the ability and willingness to learn. The knowledge is not obtained by an individual spontaneous process of construction of one who does not know, without the intervention of someone who knows. It results from the transmission of what is known by the one that knows to the one that should learn.

But the real question is whether one can really convey an idea to someone ignorant, or whether the idea must somehow be constructed by the learner through the communication process with the one that teaches. In other words, we need to know whether teaching can be reduced to transmission and learning to receiving. Moreover, we further need to know if it also requires someone that triggers the cognitive construction and someone who is able to build ideas that, through such a process, should be learned.

In pedagogical terms, constructivism is often associated with a relatively playful process that creates the conditions for the spontaneous activity of the learners, who themselves produce knowledge. Thus, teachers are no longer seen as trustees of some knowledge to be transmitted that claims the effort of reception and memorization but as guides, motivating and stimulating the interests of constructive learning processes on the part of creators learners.

It almost seems that one could dispense with the knowledge, the knowing and the teaching in benefit of some activating contexts that allow for knowledge construction by considering the parameters and interests of the fellow learner. On one hand, we have the preponderance of knowledge, discipline, and teaching and teacher activity and, on the other; we have the preponderance of independent student activity, motivation and context of the personal process of knowledge construction. One insists on the need for silence, concentration and individual work, the other points to communication, interaction and group cooperation.

This seems to be one of those cases where education is fertile: a disjunctive and reductionist approach to a problem inherently antinomical. As Cabanas has shown, education requires, pivotally, in the appropriate dosage, the consideration of several opposite principles that refer inseparably to each other¹².

Plato identified philosophy with education, since by defining philosophy as the love of learning, education appears as the process of turning the soul to the eternal forms. This inherently opposes education and philosophy to the mere collection of knowledge. The prisoners of the cave are, by definition of their

condition, people not educated and therefore not yet philosophers. The journey out of the cave into the light corresponds to education, broadly speaking, and to philosophical education, in particular, carried out through several stages. In the first one, the prisoners only contemplate the shadows of the things but take them for reality, the spirit considers only the particular and everything is ambiguous. The most they can say is that things "look like this and that". This features a stage of naivety where it may appear some people able to see the relativity of everything, but they are not yet wise enough to steer their faces to the light, they can only despair or revel in the impossibility of true knowledge – a condition very similar to our postmodern mentality.

(Philosophical) education corresponds to the stage where someone decides to move up towards the light. We do not know how this happens, how one decides to go for it, or what triggers the change, but we know that the philosophical spirit was ignited¹³. Once reached the mouth of the cave, the learner faces the strong glare of light and cannot see clearly enough, so he begins to desire the return to his life in the cavern, given the inclination for considering particular things, that he was accustomed to, as something more stable. The apprentice faces here the danger of becoming a "misologue": someone that once disillusioned abhors the possibility of attaining true knowledge¹⁴. A condition very similar to those postmodern philosophers, that despairs about the possibility of achieving solid knowledge or reliable arguments. The fate of "isologues" seems to be a life of hate and slander regarding the possibility of having any reasonable discussion at all. If a "filodoxer" corresponds to a dogmatic type of person, strictly based on fixed ideas and completely abstracted from philosophy, the "misologue" would correspond to someone that after being attracted by learning and truth was left so disappointed that he becomes to abhor them.

As for the novice, he needs help from someone that drag him out of the cave and force him to face the light until his eyes adjust to it. After the adjustment period, the student reaches the philosophical acumen of education and can look directly at the sun. At a later stage he can decide to return to the cave and help the others who remain imprisoned. However this would only happen at the expense of suffering a new process of vision readjustment. Besides, he will appear in the eyes of others as someone unsuitable that should be avoid, so he may then be

¹³ Boyun, S. The concept of philosophical education // *Educational Theory*. 2010. 60(5), P. 546.

¹⁴ See Plato. Phaedo // Ed. Cooper, J. M., *Plato: Complete works*. Indianapolis. Hackett Publishing Company. 1997, 1986, 89d-90c; Plato. Laches // Ed. Cooper, J. M., *Plato: Complete works*. Indianapolis. Hackett Publishing Company. 1997, 188c; Plato. Republic // Ed. Cooper, J. M., *Plato: Complete works*. Indianapolis. Hackett Publishing Company. 1997, 411d.

¹² Cabanas, J. M. Q. *Teoria da educação*. Oporto. Edições Asa. 2002, P. 222-270

tempted to withdraw and start nurture dull disdain for them. This is not the condition of the true philosopher (learner), so it may not be the end of (philosophical) education.

For Plato the philosopher should attain the discriminative sense of what is good, right and beautiful, but (philosophical) education is not about filling the minds with knowledge. Above all it represents a change in attitude or a conversion where one gets willing to accept the call to philosophy. It is a slow conversion, requiring years of adjustment; most of this education will involve preparation to hear the call for philosophy, but also for arithmetic, geometry, astronomy, poetry, music, dance, etc... All these subjects could serve as "summoners" of the soul, "summoners" able to ignite its quest. Any activity, even if sensorial, can serve as a convener of this process; any activity sufficiently striking to cause soul's perplexity can awaken the philosophical quest. Such a (philosophical) education would, of course, propitiate a certain kind of knowledge, like the meaning of the words we use, but much more than this it would give way to talk with one's own voice.

Education, specially a philosophical one, should exalt the soul above the common level, opening up the initiated to the intuition of the "unconditioned", but above all implying to lead a life of searching. To the philosopher would also fit the questioning of the roles of the characters that compose the tragicomedy of the world of the shades that generally he inhabits: the "filodoxers", the "misologues", the "jugglers".¹⁵

THE ANTINOMICAL NATURE OF EDUCATION

The antinomy between traditionalists and constructivists has led to certain extremist radicalisms. We could say that, for some, with simple transmission, but with persistence, even fish can learn something from a sermon and succeed in reproducing it perfectly. The task would only require some silence and attention from the receivers when something is transmitted and thereby learn it, for example, the description of some types of fish that very much correspond to some kind of men: the snorer fish, the sucker fish, the flying fish and the octopuses¹⁶. In this case, as Fr. António Vieira relates in his sermon, they would not have fewer virtues than the fish that listened to St. Anthony.

However, for others it is crucial that the learners become implicated, on their own, in the producing of what reason is capable of and thus, simultaneously, attain the knowledge and develop the function that generates it. So it would not be less true that, if we propitiate the activating motivation of the (re)

¹⁵ Boyum, S. The concept of philosophical education // *Educational Theory*. 2010. 60(5), P. 547.

¹⁶ Vieira, A. (Fr.). *Sermão de St.º António aos peixes*. Oporto. Porto Editora. 2011, P. 20-27



Figure 2: Tile representing Saint Anthony's Sermon to the Fish – Museu Antoniano, Lisbon.

constructive capacity, even the fish can finally learn some morality from a sermon: the ambiguous nature of human beings who, being endowed with virtues, are also prone to various vices¹⁷.

The constructivist paradigm demands learner activity, which further requires the motivation required for its activation. In fact, what learning requires is the intervention of the student's will. Joseph Jacotot insisted radically on the importance of the will for learning¹⁸, wherein the most distinctive characteristic of human beings would not be intelligence - supposedly distributed in an equitable manner - but the will whose absence would undermine learning.

According to Jacotot, there are no differences regarding some abilities - like memory, comprehension or judgment - but only differences in paying attention to what one sees and says. Intelligence remains the same even if it varies according to the power of will that one puts into one's endeavour. Differences in reasoning arise from variations of use, like when attention is more or less exerted. The quality of the use of intelligence is gained from the anxiety of being, brought about by the needs and circumstances that afflict the learner. Hence, learning should be seen as sprouting from individual will power, which when lacking compromises the quality of the attention we give to things.

The variation of the results in reasoning derives,

¹⁷ Vieira, A. (Fr.). *Sermão de St.º António aos peixes*. Oporto. Porto Editora. 2011, P. 20-27

¹⁸ Rancière, J. *El maestro ignorante*. Barcelona. Editorial Laertes. 2003, P. 69-77

therefore, not from variations among intelligences, but from the dissemblance among wills, since it is from them that we also obtain uneven attention. The spirit fails and the error arises only when intelligence is affected by distraction. Mistakes emerge from laziness, the disregard for personal competence, the fear of daring intellectual autonomy or because of thinking under the shadow of inequality. It is the ravings and retreats of will that motivate the fundamental distraction which suspends the search that could fuel learning. A lack of attention, as a shortage, perversion and betrayal of the will, corresponds therefore to an infidelity to oneself, much like lying to oneself.

Depending on the movements of the will, as conditioners of the intensity of application of intelligence, so does intelligence activate or lock up; the spirit expands or atrophies and every word is filled or emptied. Of course, when the will is involved, effort is also implied, relying less on pleasure than on wanting; pleasure will come later, as a result of having learned. The initial moment of activating one's will does not exempt the learner from the effort to learn.

To understand that the student should be progressively involved in his own learning avoids misunderstandings. It avoids, for example, the confusion of taking transmission for teaching, attention for understanding, learning for repeating or, if you like, what are men for and what are fish, as in "[t]o men gave God the use of reason, and not to fish, but in some cases men seem to have reason without the use, and fish the use without the reason"¹⁹.

None of this implies, however, that we do not need to consider both dimensions: transmission and teaching, attention and understanding, motivation and will, pleasure and effort, repetition and learning. Addressing the issue of teaching and learning while respecting education's inherent antinomical structure will avoid falling into the reductionism that leads us down the paths of partiality²⁰, it will avoid not knowing how to recognize the strengths and limitations of competing principles and it will avoid not noticing the virtues and limitations of fish and men.

CONCLUSIONS

The pedocentric pedagogical revolution, aroused by the New School Movement induced the focus on the learner's interests, motivation and autonomous reasoning that somehow was taken to a radical stance by the devaluation of transmission, attention, memory and effort. In fact the traditional magistrocentric educational paradigm became also very much

¹⁹ Vieira, A. (Fr.) *Sermão de St.º António aos peixes*. Oporto. Porto Editora. 2011, P. 6.

²⁰ Cabanas, J. M. Q. *Teoria da educação*. Oporto. Edições Asa. 2002, P. 222-226

radical considering the substantive importance of knowledge in itself, as well as the role of attention, memory and repetition²¹. Theorists and professionals took some time to conciliate these apparently exclusionary approaches. However, to correspond to education complexity, we must adopt a more dialogical²² perspective that could attune to education polydilemmatic and antinomical nature. Education domain is criss-crossed by a truss of opposite factors or principles that must be articulated for attaining the fitted equilibrium in order to serve the learner's best interest, which is, from the teleological educational point of view his own unending and unfinished perfecting. Indeed, if we refer education to the ontology of perfectibility, it cannot fail to create a tension to be better²³.

Cognitivism and constructivism could be taken for oppose and mutually exclusive approaches, however we should look at them more profitably as integral parts of the same framework continuum. Indeed we should also look at both insights as articulable complementary principles that must be addressed together by an antinomical approach in order to avoid and surpass the reductionist mode that creates a dangerous misunderstanding, very prone to drive education towards unilateral, lopsided or reductionist perspectives and practices. In fact, a dialogical approach can help us to better ideate how transmission, attention and effort are an important part of a complex process for which motivation, personal commitment and meaningful activity must also be considered. If one cannot expect that simple transmission will assure learning, it is also true that one cannot expect people can learn everything on their own; if attention and effort are main assets for someone to get to learn something, they serve for little without proper motivation and personal commitment, but above all without the kind of activity where one takes the role of being the personal agent of one's own learning construction process.

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²¹ Rocha, F. *Correntes pedagógicas contemporâneas*. Aveiro. Editora Estante. 1988, P. 15-17, 57-59.

²² As Barbosa says "dialogical thinking conceives to connect/articulate opposing polarities, thus rejecting Manichaeism, and to safeguard the separation / disjunction of these polarities within a unit, thus rejecting the temptation of a surpassing/pacifying synthesis" (Barbosa, M. *Antropologia complexa do processo educativo: Quadro de referências e leque de vectores fundamentais*. Braga. Universidade do Minho. 1997, P. 270).

²³ Maia, C. *Mitos e educação // Revista Portuguesa de Pedagogia*. 2006. 40(1), P. 134. For more insight on this subject see also Pring, R. *La educación como "práctica educativa"* // Ed. M. Amilburu, *Claves de la filosofía de la educación*. Madrid. Dykinson. 2003. P. 29-48.

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APIE MOKYMĄSI IR MOKYMĄ

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Anotacija

Šiame straipsnyje reflektuojami mokymo ir mokymosi klausimai, remiantis dviem antinomiais - kognityviuoju ir konstruktyviuoju - požiūriais į mokymą, kurie išryškėja ir atsiskleidžia kylančiose diskusijose apie ugdymą. Šie du prieštaringi požiūriai skatina atsirasti priešpriešoms tarp žinių perteikimo ir mokymo nurodymų, aiškinimo ir motyvacijos, žinių įsiminimo ir supratimo, pastangų ir žaismo ir t.t. Straipsnyje siekiama parodyti, kad išvardyti elementai yra labai svarbūs ir yra mokymo formulės dalys. Sprendžiant su mokymu susijusius klausimus, siekiant išvengti šališkos, vienpusės ar redukcionistinės praktikos, siūloma taikyti antinominius požiūrius.

Raktiniai žodžiai: ugdymas, filosofija, mokymasis, mokymas, antinominis požiūris.