# WHAT IS A PHILOSOPHICAL PROBLEM? A PLEA FOR AN ANALYTICAL, CROSS-CURRICULAR APPROACH

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**Abstract**

This article sketches out a picture of philosophy that indicates the relevance of exploring not only what we think but especially how we think. From the perspective of analytic philosophy – as an approach to philosophical problems – the way we think and talk should be given more attention in secondary school to resolve ambiguity, inconsistency and incoherency in our understanding in any subject. Attention should be paid to (1) the application of philosophical competencies and (2) philosophy as a cross-curricular activity. Analytical activities, not as being the only viable philosophical activities but as being major and reputable activities in philosophy, contribute distinctively and substantially to the development of students' reflective and critical thinking which is a necessary condition for doing philosophy. Consequently, issues of meaning and justification take priority over "big philosophical questions" and they should be discussed in any (school) subject.

## 1. Introduction

"Are there philosophical problems?" is the title of a lecture Popper held 1946 at the Moral Sciences Club in King's College. This lecture was leading to a poker-involving confrontation between Popper and Wittgenstein, which has become part of philosophical legend ever since. However, opinion is divided over the match-up.[1] Popper follows up his question later on in his Chairman's Address, delivered 1952 to the Philosophy of Science Group of the British Society for the History of Science (Popper 1952). He also mentions Wittgenstein's reaction at this "stormy meeting" (p. 128, fn. 1) and criticizes Wittgenstein's point of view. In contrast to Wittgenstein, Popper puts emphasis on the significance of genuine philosophical problems such as the relation between body and mind, the truth of moral norms, the existence of causal relations or questions concerning infinity. The understanding of what a philosophical problem is has been varied and conflicting. It is directed by the particular conception of philosophy. Contrary to Popper, Wittgenstein does not characterize philosophy in terms of any subject-

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[1] Cf. Edmonds/Eidinow (2001) who offer an account of evidence from witnesses.

matter. "A philosophical problem has the form: I don't know my way about" (Wittgenstein 1958, I §123).

According to Wittgenstein, the major source of philosophical problems lies in misleading features of language. These problems are to be solved, or even dissolved, by conceptual clarification. Thus, the purpose of philosophy was to unmask and dissolve puzzles. Wittgenstein holds that philosophical problems "are not empirical problems, they are solved, rather, by looking into the working of our language […]. The problems are solved not by giving new information, but by arranging what we always have known. Philosophy is a battle against the bewitchment of our intelligence by means of language" (Wittgenstein 1958, I §109). Philosophy, then, is an elucidatory and critical activity of finding, solving and resolving problems in sciences and in public life.[2] It has no subject matter of its own in the way empirical sciences do. According to the analytical approach, "Philosophy is a contribution not to human knowledge, but to human understanding" (Hacker 2015: 45).

Analyzing language to dissolve philosophical problems does not mean to question the importance of common or scientific knowledge for our understanding of problems, claims, decisions or actions. Domain-specific knowledge is needed to recognize conceptual linkages, to evaluate the plausibility of various positions and to take a well-justified stand one is able to defend. The use of knowledge goes hand in hand with analytical activities that clarify the understanding of what is at issue. We have to attain knowledge of what is relevant to decision and action. This knowledge stems from science or reflects our common sense view of the world and the way we talk about in ordinary language. However, philosophical knowledge is not genuinely knowledge of certain facts, i.e. the knowledge that certain propositions are true, but, rather, deals with inferences from general propositions or observations and perceptions and with naming, defining and classifying. Philosophical knowledge is characterized as knowledge how to do philosophy by paying explicit attention to concepts and forms of reasoning in any discipline so that fallacies and circular explanations can be revealed. Philosophy's domain in this sense is not so much about what to think, but, rather, how to think.

## 2. "Big philosophical questions"

According to this view, philosophy is not answering questions like: "What is the meaning of life?", "Should I be afraid of death?", "How do I know that God exists?" "What is there?" These questions presume that their underlying concepts are clear and that there is a clear answer referring to reality. Even given these presumptions, philosophers do not know more about life, death, god and existing things than any other. Philosophers, however, can clarify these questions. Instead of asking: "What is there?" philosophers should rather ask: "What are the objects of our assertions?", "What do we quantify over?", "Is existence a property of individuals?", "Are there individuals that lack of it?" or "What is the logical form of sentences that state the existence of some individual?" Only these questions aim at a careful scrutiny of

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[2] Cf. Hacker (2015: 51): "Not only do philosophical problems arise when language is hard at work. They arise ubiquitously in science, and in public life – in economics, politics, law, and in moral debate. It is one of the great tasks of philosophy to struggle against the corruption of science, law, politics, economics, art and moral discourse by conceptual confusion."

underlying assumptions and concepts. This is a necessary condition for a rational debate. Natural language often is misleading and this is why analytic philosophy challenges us to reflect on what we are asking about. Before looking for answers, it is useful to clarify what we are asking about, whether the question can be answered and if so how. This holds for academic philosophy as well as for doing philosophy at school – asking questions presupposes an understanding of them.

There might be sentences in which the word "exists", although grammatically a predicate, is not logically a predicate, so we have to ask: "Is there any difference of a grammatical sense and a logical one, and if so what is it?" One might say in order to predicate something of x its existence must be presupposed. Therefore, sentences which state the existence of some individual object x are tautologous/nonsensical and those which deny it self-contradictory. Kant discusses the issue of existence this way in the Critique of Pure Reason (A596/B624 – A602/B630) and rejects the claim that existence is a real predicate. Part of his argument can be traced back to Hume and has been endorsed by a long line of philosophers, including Moore, Russell, Frege and Strawson.

Some questions take the form of questions about essence or existence of things. However, they are to be answered by conceptual clarification. We may find some sort of logical trick ensuring that the question is unanswerable. Philosophical questions, then, are not big questions of humankind that cannot be answered, but philosophy rather poses questions about these questions.

Doing philosophy this way is inspired by "big fundamental questions" that lead us to ambiguity, equivocation and contradiction. It starts off with putting underlying philosophical questions on these questions for which the answers variously proposed to them are arguably without any hope of non-controversial agreement. It reveals a network of concepts, beliefs and doctrines which have not been articulated. Once these "fundamental questions" are clarified – not prematurely answered – and once our concepts are ordered so that more particular questions are identified and distinguished, many further questions belonging to the domain of empirical sciences and involving an explanation of phenomena can be asked.

## 3. Priority to analytic enquiry

A wide range of philosophical questions cannot be answered by gathering more knowledge of facts. Philosophy strives to attain some elucidation of questions drawn from aspects of our experience in ordinary life and science and it always did. Concepts and their analysis mattered to philosophy ever since Plato and must continue to do so. Philosophical questions

> are not questions in search of an answer, but questions in search of a sense. For the task of arguments in many domains of philosophy is not to answer questions, but to show that they lack sense. Commonly the first mistake we make in a philosophical investigation lies in the philosophical question itself (Ms. 124, 278). (Backer/Hacker 1988: 280)

Many problems discussed in philosophy and everyday life can be resolved by providing clarity of words and grammar because some questions may have traps in them and lead to

insoluble puzzles. We may find that a conceptual framework is too narrow to contain the content we want to express in. Contradictions, inconsistencies or cognitive dissonances can be removed within a new framework. If so, analysis is a necessary condition for looking for answers and for any inquiry into values and matters of fact.

An approach to this idea is offered by Hardy and Schamberger (2017). They state that philosophical questions aim at the specification of the general conditions of the specific use of words in sentences. Hardy and Schamberger convey three features of philosophical questions (p. 18-19):

1. "What is X"-questions as they were asked by Socrates asking for what is the same to all X's. They ask for an explanation or definition.

2. We come to philosophical questions by having the greatest possible distance to our familiar practice to act. Philosophical questions are not related to some specific experience, but to general conditions under which we gain experience.

3. Philosophical questions are not to be answered by experience alone. The focus is on the way we speak and think about phenomena.

The study of philosophy is not to be reduced to proficiency in the identification of fallacies or the clarification and evaluation of arguments. Analytical enquiry encompasses a wide range of approaches mainly understood in procedural terms rather than in products of philosophy. By "analytic philosophy", I here understand primarily the practice of conceptual analysis using historical and cultural background knowledge with strong ties to other sciences and to history and philosophy of science. It is opposed to proposing grand systems and discussing unanswerable questions. Analytical enquiry should be given priority in the sense that philosophical work starts off with it since there is no sense in debating questions without considering "rules for forming statements and for testing, accepting, or rejecting them" (Carnap 1956: 208). So, competencies to do so are to be developed in school as well as in university.

## 4. Teaching philosophy – an analytical approach

The connection between academic philosophy and didactics of philosophy has been taken into question (cf. Tiedemann 2011: 17-18). However, a "complex and productive interchange" between philosophy and its didactics is perceived (cf. Nida-Rümelin et al. 2017, introduction by Spiegel, p. 11). Philosophy education is supposed to be part of academic philosophy. Notwithstanding, a connection between analytic philosophy in its tendency to bridge sciences, to analyze concepts and grammar and to apply logic on the one hand and didactics of philosophy on the other does not seem to be very popular in Germany, neither in school practice nor in the didactic literature. One reason for this might be a "practical turn of philosophy" (cf. Nida-Rümelin et al. 2017: 10). (School) Philosophy has become more and more practical, i.e. discussing society, culture and politics. However, it is seldom asked how to do so best.[3] Another reason for neglecting an analytical approach in didactics of philosophy might be the view that the acquisition of skills that enable us to think and articulate clearly were not considered to be the primary aim of a philosopher (cf. Meyer et al. 2016: "[…] one learns there [in philosophy

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[3] A commendable exception is the introduction to analysis and argumentation in secondary school by Pfister (2013).

class] to speak and to think clearly, and this pays off in many respects. But the acquisition of these skills is not the aim of those who are doing philosophy. Instead, it is about finding answers to philosophical questions"[4]). Teachers as well as students should be concerned with philosophical insight ("philosophische Einsicht"), Meyer rightly claims. However, it is notoriously unclear what this insight is about. It depends on the view on what a philosophical problem is.

From an analytical point of view, a typical philosophical problem is characterized by underlying unclear or contradictory assumptions and the desired insight is reached by analysis. It is some sort of "preliminary conflict resolution" ("Konfliktloesungsvorbereitung").[5] Thus, the particular idea of philosophy in the classroom is to encourage students to pay attention to what they learn and to their own thoughts in any subject.

Teaching in the tradition of analytic philosophy does not mean to be anti-historic or not to be affected with moral questions nor does it primarily mean to study analytic philosophers. Teaching philosophy in the logical-analytical tradition involves the systematic and rigorous investigation into fundamental questions across a wide array of disciplines. However, teaching and doing philosophy does not primarily aim at reaching knowledge of the world we live in – this is to be achieved by the natural sciences and humanities – but at a distinct form of understanding the knowledge students get acquainted with in school and elsewhere. It is particularly to be concerned with questions or statements which look as if they are about the nature of things, but actually are conceptually unclear.

Students should develop and apply their philosophical skills in all areas. They should reconnect their activities and knowledge in other subjects to philosophical activities. Philosophy, then, is aiming at exploring concepts and methods of enquiry used in everyday life as well as in disciplines students learn in secondary school. By doing philosophy this way, the classical philosophical themes such as norms, values, principles, knowledge, justification, testimony or causality will turn up by themselves. Philosophy in this sense strives for attaining an overview of the field of interlocking concepts students already use or are supposed to use. According to this, to say that analytic philosophy has a rather narrow subject-matter is off the point.

Philosophy in secondary school should be a method to develop more interchange among subjects – contrary to the fragmentation in the field of what students learn in secondary school. Science education, along with philosophy classes, can act as a counter-balance to a narrow form of learning. Priorities in education can be shifted from learning to thinking and understanding if lessons in any subject are accompanied by doing philosophy. Analytical enquiry gives the opportunity to develop skills not frequently offered in school subjects but to be used there. It helps students to understand disagreement on a more fundamental level by providing a kind of understanding, particularly of presuppositions, standards of evidence, and modes of

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[4] On the other hand, cf. Mayer (2015: 104): "Competence-oriented lessons aim at the promotion of competencies which are important for working on philosophical questions and problems. This is not just a matter of solving these problems. Rather, the ability to develop a deep understanding of these problems and to discuss them in an adequate way is already a subject-specific competence."

[5] Hardy/Schamberger (2017: 25f.). Hardy and Schamberger explain how theoretical conflicts, e.g. about the free will, can be solved by conceptual analysis.

explanation. Eventually, it enhances students' abilities to build consistent systems of statements, to navigate successfully through a diversity of information and misinformation and it extends their understanding of interdisciplinary questions. This will be useful not only in any career but also in personal life. It helps to meet current academic standards, too.

Practical philosophy is concerned with more than conceptual elucidation, to be sure. However, Moore's *Principia Ethica*, e.g., gives an example for the moral philosophy's important task of clarification of ethical concepts (e.g. "good") in order to avoid troubles in our thought, e.g. the naturalistic fallacy.[6] Hare even states in his classic of analytic metaethics: "Ethics, as I conceive it, is the logical study of the language of moral" (Hare 1952, preface). Analytic activities should go along with investigations in ethics as in any subject. "For confusion about our moral language leads, not merely to theoretical muddles, but to needless practical perplexities" (Hare 1952: 1-2). Examination of the grounds of claims is needed. Language is evidently one of the principal instruments of thought and understanding is the primary aim of philosophy. Mill already crystallized this view by the title of chapter one of his System of Logic, "Of the Necessity of Commencing with an Analysis of Language". In §1 of this chapter he states:

> But before inquiring into the mode of resolving questions, it is necessary to inquire, what are the questions which present themselves? what questions are conceivable? what inquiries are there, to which man have either obtained, or been able to imagine it possible that they should obtain, an answer? This point is best ascertained by a survey and analysis of Propositions. (Mill 1846: 12)

## 5. Competence orientation, problem orientation, *Bildung*

Analytical enquiry has to take place in any school subject. Anglophone philosophy and didactics always had a tendency to underline this. In the English-speaking world many teachers struggle to engage students in critical thinking activities – not only in philosophy class. The focus is on students' equipment with skills that can be identified and practiced. Students learn to express themselves, to formulate good arguments, to evaluate whether they should be convinced that some claim is true, and to defend against some unfair and tricky attempts to convince. This requires some background knowledge depending on the question, e.g. knowledge about historical and cultural context or scientific methods. Competencies involve certain activities using knowledge and skills which are mutually interactive. The concept of competence, including knowledge, skills and dispositions, focuses not only on possessing knowledge and skills but on being able to use them according to questions that deal with some content that has to be clarified.

However, in Germany the skills approach in education science was greeted with deep reservations.[7] Competence orientation in education is notoriously discussed in Germany since

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[6] Cf., e.g., Moore (2004, preface): "It appears to me that in Ethics, as in all other philosophical studies, the difficulties and disagreements, of which its history is full, are mainly due to a very simple cause: namely to the attempt to answer questions, without first discovering precisely *what* question it is which you desire to answer."

[7] For general reservations see contributions of the *Gesellschaft für Bildung und Wissen* that vehemently oppose

educational research has begun to render educational productivity (the "output" and "outcome") measurable. The basic task of education in the German tradition is encompassed by *Bildung*. The concept of *Bildung* has been used to combat the demand for measurability in education. This concept refers to Wilhelm von Humboldt's idea of *Bildung* as an interplay between an individual's receptivity and self-activity. Even school laws – as a guideline to what should be taught generally – in this tradition describe quite concretely the expected outcome of ideas. This shows the highly normative program of schooling in all federal states in Germany. School laws of many federal states refer to *Bildung* and contain the educational task ("Bildungs- und Erziehungsauftrag", mostly found in §1 or §2) in general to transport general fundamental ideas. In some federal states these ideas are strongly related to ideas of Christianity as Christian charity and reverence for god or love to the homeland ("Ehrfurcht vor Gott"/"Verantwortung vor Gott", "Liebe zu Volk und Heimat"; e.g., in Baden-Wuerttemberg, Nordrhein-Westfalen, and Bayern), in others there is reference to ideas as freedom, justice, responsibility, democracy, and human dignity (cf. *Schulgesetze der Länder in der Bundesrepublik*), All students in Germany are to be educated (cultivated) in any subject in the set spirit, apart from basic knowledge and skills. This is why "Bildung" ("culture") sometimes is explained as being used in the sense of moral training (cf., e.g., the English translation of Kant's *Über Pädagogik*, Kant 1960: 1, footnote). From a philosophical perspective, the core concepts that are interwoven with the concept of *Bildung*, e.g. god, love, responsibility and freedom, have to be clarified, and this requires the use of competencies. So, competencies have to be developed anyway in a reflective and philosophical learning context.

Applying philosophical competencies specifically means to deal with these ideas that are to be transported in German schools in any subject, as it is prescribed in the school laws (*Schulgesetze*) of the federal states. Philosophers do not have any privileged knowledge about these ideas. However, their specific competencies to analyze them are required.

The concept of *Bildung* is particularly prominent in the German-speaking pedagogical literature and relatively unknown in the English-speaking world. In Germany, it is regarded as a fundamental concept of education science, loaded with cultural demands of the eighteenth century. As a national construct it focusses on the development and formation of personality (formation of the self, self-cultivation, self-determination) and has become an "educational slogan" as well as a "political fighting word" in education policy debates (cf. Horlacher 2012 and 2015). Debates in the United Kingdom and North America went in entirely different direction.

Whether the strong opposition of *Bildung* and competencies is rational and whether it can be brought into agreement still has to be figured out precisely. Apparently, the idea of personal and cultural maturation of a rational subject includes the individual's cultivation of competencies as individual abilities in terms of dispositions to think, act and judge from which students would benefit long after graduation. Heinrich Roth suggests in his Pedagogical

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"competence orientation" (Kompetenzorientierung) und formulate fears of loss of *Bildung*. For these reservations concerning education in general cf., e.g., Ladenthin (2011), describing "competence orientation as an indication of pedagogical disorientation" or Liessmann stating that competence orientation reveals "the practice of illiteracy" (Liessmann 2014). For reservations within didactics of philosophy see, e.g., Roeger (2016) who states: "competence orientation prevents doing philosophy" (p. 8); cf., e.g., Tichy (2016).

Anthropology (*Pädagogische Anthropologie*) how to find a compromise between *Bildung* and competencies. He views competencies as individual abilities that lead to maturity (*Mündigkeit*). He interprets a competence in a threefold sense: a) as self-competence – the ability to be responsible for your own action, b) professional competence – the ability to act and judge in a particular profession, and hold responsible, c) social competence – the ability to act and judge, and hold responsible, in professional or social areas that are relevant in social, societal or political terms. (Roth, cited and translated by Hartig et al. 2008: 6)

By teaching philosophy within the analytical approach we can focus on the connection of *Bildung* and competencies, rather than on the contrast of these ideas. Doing philosophy requires reflective thinking leading to the competence of autonomous and responsible action. This involves competencies which lead to

> (1) a state of doubt, hesitation, perplexity, mental difficulty, in which thinking originates, and (2) an act of searching, hunting inquiring, to find material that will resolve the doubt, settle and dispose of the perplexity. (Dewey 1933: 12)

The educational aim is to reveal important relationships between knowledge, language and judgement and to break the boundaries of disciplines which prevent trans-disciplinary learning.

Given this, there is no need for a strict differentiation of competence orientation and problem orientation (*Kompetenzorientierung vs. Problemorientierung*; cf. Tiedemann 2015), since philosophical competencies are applied in order to solve philosophical problems of meaning, understanding and reasoning. Philosophy (in the classroom and elsewhere) aims at solving problems (problem orientation) by applying philosophical competencies (competence orientation) and this is not so much revealed in students' judgements as in the characteristic way in which judgements are reached.

## 6. Against fragmentation

These thoughts lead to the idea of contextualization and trans-disciplinarity in the teaching-learning process apart from postulated normative ideas philosophy often is supposed to convey. Knowledge and skills are currently separated and organized in disciplines. Science education is largely separated from the discipline of philosophy and, e.g., philosophical questions about the relationship between evidence and models and between models and reality rarely turn up in natural sciences and humanities as taught in secondary schools in Germany. This culminates in a fragmented learning process that fails to stimulate curiosity, philosophical questions and critical thinking about content knowledge: Why is it worth knowing?, Why is it deemed warranted?, How is it related to other ideas? Philosophy as a principle of teaching can make classrooms more challenging. It can provide the foundation for a trans-disciplinary approach that overcomes fragmentation (cf. Lampert 2009: 150f.).

Thus, communication between disciplines has to be promoted. This is especially relevant to the teacher education process. On the basis of an analytical approach of philosophy, a collaborative concept of teaching and learning on the basis of doing philosophy can be developed. This contextual tradition of education has been contributed by educators and

scientists such as Ernst Mach, Pierre Duhem, Alfred North Whitehead, John Dewey and Martin Wagenschein. Whitehead writes in his essay called *The Aims of Education*, delivered as his Presidential Address to the Mathematical Association of England 1916:

> [...] we must beware of what I call 'inert ideas' — that is to say, ideas that are merely received into the mind without being utilized, or tested, or thrown into fresh combinations. [...] The result of teaching small parts of a large number of subjects is a passive reception of disconnected ideas, not illumined with any spark of vitality. [...] The solution which I am urging, is to eradicate the fatal disconnection of subjects which kills the vitality of our modern curriculum. (Whitehead 1967: 1-3)

Though written more than hundred years ago, it still pinpoints the education problems of our days in which a serious challenge is to cope with pseudoscience, fake news and some sort of uncritical or dogmatic common sense. Ideas remain inert and isolated from one another when they are simplistically presented to be learned and not analyzed. Whitehead's educational commandment "What you teach, teach thoroughly" can be followed by doing philosophy in any subject against "the fatal disconnection of subjects" (Whitehead 1967: 6).

Analytic philosophy contributes to students' ability to understand the concepts, characteristics and the significance of science as well. It also contributes to science progress skills (e.g. observing, inferring, and hypothesizing). It promotes the idea of the educational goal of scientific literacy, which has a long tradition in the English-speaking world and has been reemphasized by the PISA-Konsortium (2001) and in major reform efforts in science education.

> Scientific literacy is an evolving combination of the science related attitudes, skills, and knowledge that students need to develop inquiry, problem-solving, and decision-making abilities, to become lifelong learners, and to maintain a sense of wonder about the world around them. (New Brunswick Department of Education Curriculum Development Branch 1998: V)

Doing philosophy can create linkages among disciplines. It can contribute to scientific literacy in so far philosophers have a "sense of wonder" and basic skills for "asking and answering meaningful questions":

> A science education which strives for scientific literacy must engage students in asking and answering meaningful questions. Some of these questions will be posed by the teacher, while others will be generated by the students. These questions are of three basic types: "Why ...?" "How ...?" and "Should ...?" There are three processes used to answer these questions. Scientific inquiry addresses "why" questions. "How" questions are answered by engaging in the problem solving process, and "should" questions are answered by engaging in decision making (New Brunswick Department of Education Curriculum Development Branch 1998, introduction: 3).

A cross-curricular (inter-disciplinary) approach in teaching and learning means to cross disciplinary boundaries and to integrate other subjects in order to transfer knowledge and competencies from one field onto another. This supports skill development, effective and lasting

knowledge as well as critical engagement in school and high-school. To achieve that, collaborative teaching is required. Cross-curricular teaching is sensitive towards knowledge, skills and understandings from various disciplines and offers a more holistic perspective.[8] Hence, philosophy teachers need sound knowledge about the history and philosophy of science. Similarly, science teachers have to be open for questions about the history and philosophy of their domain and for a deeper scrutiny of student's preconceptions as well as of core concepts of the domain. Philosophy can be understood as an enrichment that provides rigor and clarity and an understanding of science as being in progress and contentious. It can be seen as being in auxiliary relationship to other disciplines as these are to philosophy. A philosophical reflective practice of teaching and learning takes into account that the learning of science needs to be accompanied by asking and learning about science. Its value lies in the development of deeper understanding of the nature and methods of science in the context of history, society and technology. This involves philosophical questions about how knowledge is generated, tested and justified. Hence, an incorporation of historical and philosophical dimensions in the teaching of school science as well as in the training of teachers is required. Teaching philosophy means to encourage students to clarify what they are supposed to learn in a variety of contexts. They have to be encouraged to challenge beliefs and to ask how the knowledge they are supposed to acquire is reached, how it is justified and how it is used. These questions are to be asked not only once a week in philosophy class but in all subjects and real life contexts all time.

As teachers of any subject, from time to time, we wish students to speak out words like those Berkeley put into the mouth of Philonous:

> I am not for imposing any sense on your words: you are at liberty to explain them as you please. Only, I beseech you, make me understand something by them. (Berkeley 2016: 83)[9]

Students are to be encouraged to analyze problems so that it will be apparent whether some disagreement concerns matters of fact, the use of words, or is, as is frequently the case, a purely emotive one. Students should be encouraged to ask on what presuppositions knowledge they are supposed to learn is based on and whether there are other methods to acquire knowledge about the subject in the history of science.

Given this, the fundamental question all teachers should ask themselves is: "Are we willing to face these questions and are we willing to answer now and then: 'I don't know yet, it might be some nonsense'?" If so, we start a closer scrutiny to all we learn and teach and we begin, in fact, doing philosophy.

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[8] Interdisciplinary research in science is generally acknowledged as being rewarding. Research across disciplinary boundaries is stimulated by science policy. Programs such as Horizon 2020 promote the collaboration of philosophers and scientists (cf., e. g., Massimi 2018 and the project *Perspectival Realism* which combines the philosophy of science with scientific practice, the history of science and the history of philosophy. It has received funding from the European Research Council under the European's Union's Horizon 2020 research and innovation program).

[9] Whitehead has had quoted this passage from Berkeley's *The First Dialogue between Hylas and Philonous* on the title page of his *Enquiry Concerning the Principles of Natural Knowledge*.

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**How to cite this article**