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# Argumentation methods in educational contexts: Introduction to the special issue

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#### ABSTRACT

The relation between argumentation and education is currently attracting researchers' attention from both argumentation theory and educational practice fields. Although much work has been done in the intersection between methods of analyzing and assessing arguments and their emergence in educational contexts, there is still a lack of clarity regarding how the philosophical and logical tradition can feed educational practice and vice versa. This introduction of the special issue on "Argumentation methods in educational contexts" is aimed at explaining the need for more systematic discussions between the two sub-fields. The paper concludes with an overview of the five articles that form part of this special issue, which separately represent directions for future research in the field of argument in education.

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#### 1. Introduction

Arguing in education has been defined in many ways: as a way of thinking (Kuhn, 1992, 2010), as a way of teaching (Driver, Newton, & Osborne, 2000; Kuhn, 1993), as a way of learning (Andriessen, Baker, & Suthers, 2003; Asterhan & Schwarz, 2009), or even as a way of collaborating (Baker, 2003; Felton, Garcia-Mila, Villarroel, & Gilabert, 2015; Nussbaum, 2008). However perceived, its crucial importance for the development of the critical and democratic thinking of citizens has been widely underlined in the literature (Muller-Mirza & Perret-Clermont, 2009; Kuhn, 2010). Especially in education, a growing number of scholars is focusing on the strategies for implementing argumentative tasks in classroom and analyzing and/or assessing their effects. In particular, argumentation – and more precisely classroom arguing activities – has been found to affect two fundamental dimensions of learning: the students' capacity to argue in different learning contexts, and the students' capacity to learn different curricular contents.

Argumentation is usually conceived as a twofold notion, referring to either a product of discourse – namely the arguments (claims supported by one or more reasons) developed in written or oral tasks – or the process of dialogically presenting different opinions supported by reasons on an issue with the goal of convincing the interlocutor. As such, the traditional goal of argumentation has been that of persuading an audience on the acceptability of an opinion. However, the goals of argumentative dialogues are much more than mere persuasion. In the literature on the dialogue types (Walton & Krabbe, 1995) decision-making, negotiation, information seeking, inquiry, and eristic dialogues have been investigated as having an argumentative dimension.

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In the studies in the field of education, several methods analyzing and assessing argumentation – either as a product or as a process – have been proposed in the literature so far, making thus the concept even more heterogeneous and complex (Rapanta, Garcia-Mila, & Gilabert, 2013). The risk that the developments of these two fields are encountering is to grow separately. The high number of models and theories makes comparisons and all-encompassing reviews extremely complex. However, a tentative to encourage the theoretical field and the applicative one to meet, discuss, and address some common problems can be highly beneficial to both areas of research.

The reason why this special issue was conceived derives from the need to bridge these two areas of research, namely argumentation theory and educational practice, in order to promote the discussion between researchers from the two fields. Our goal is to show how recent philosophical and logical theories can be used for developing empirical research in argumentation and education. By testing new theoretical proposals in practice and facing them with the constraints of their applications to the field of education, it is possible to encourage a twofold effort. On the one hand, practical applications can lead to more practice-oriented developments of philosophical theories; on the other hand, new philosophical approaches to dialogue and argumentation can be used as new instruments for improving and refining empirical research.

#### 2. Overview

This special issue addresses the possibility of deepening the dialogue between theoretical advances in argumentation theory and education studies. In order to understand where these two fields can meet, it is necessary to bring to light the need for such a dialogue, the commonalities between these two areas, and the efforts and developments that have been already made in this direction.

Argumentation is a dialogical activity grounded on two crucial principles, namely common beliefs and defeasibility (van Eemeren & Grootendorst, 2004; Walton, 1990, 2013). Arguments are based on premises that are not necessary, but only commonly shared, such as values, presumptive causal relations, and commonly accepted definitions. Given the endoxical nature of the premises, arguments are inherently defeasible, namely they are subject to default should one of the premises be challenged or refuted (Nussbaum & Edwards, 2011: 444). For this reason, argumentation is essentially bound to the dialogical and dialectical practice of addressing a problematic issue, giving reasons to support and attack a viewpoint (Plantin, 2005). The dialogical analysis assessment of a viewpoint or a claim leads the interlocutors to reconstruct the implicit dimension of discourse (Anscombre & Ducrot, 1983; Ducrot, 1972), detecting possible weak points and defending them by resorting to various types of support (Walton, 2006). Such an analytical and dialectical activity can thus reveal background beliefs and correct them, or develop the interlocutors' reasoning skills or their ability to use available pieces of evidence or knowledge, including the scientific one (Baker, 2009). The essential relationship between background beliefs (or implicit premises) and arguments, and the defeasible nature of argumentative reasoning make argumentation an activity of fundamental importance for unveiling and addressing background knowledge and misconceptions.

Argumentation can be considered one of the fundamental instruments for the "social constitution of knowledge," (Resnick, Säljö, Pontecorvo, & Burge, 1997, sec. 4). The crucial role of argumentation in teaching and learning, especially in the field of science education, has been underscored in many studies (Erduran, Simon, & Osborne, 2004; Koballa, 1992; Pera & Shea, 1991; Sandoval & Millwood, 2005). Teaching can be considered as an argumentative dialogue, as it is aimed at modifying and developing the students' "private understanding," showing its limits and building on it in order to account for new phenomena (Chi & Roscoe, 2002; Simons, Morreale, & Gronbeck, 2011). One of the crucial instruments used for achieving such a purpose is the use of arguments. Students' arguments can be encouraged in order to bring to light the background beliefs on which they are based. Such prior beliefs and background knowledge can become the issue of further argumentative exchanges, aimed at providing reasons showing their incompleteness and supporting the scientific viewpoint. For this reason, argumentation tools are fundamental for both enhancing the students' critical thinking skills, and improving classroom interactions, so that students' prior knowledge can be better made explicit, addressed, and developed into more elaborated theories (Carey, 2000; Osborne, Erduran, & Simon, 2004). The advances in argumentation theory can provide useful resources for improving argumentation in classroom interactions, both as argumentative dialogical models (van Eemeren & Grootendorst, 1984, 1992, 2004; Walton & Krabbe, 1995) and as logical argument structures (Hastings, 1963; Kienpointner, 1992a, 1992b; Perelman & Olbrechts-Tyteca, 1969; Walton, Reed, & Macagno, 2008; Walton, 2013).

In recent years, several studies have addressed the crucial issue of introducing argumentation theory in educational contexts (Sampson and Clark, 2008; Schwarz & De Groot, 2007). In particular, the practice of argumentation has been addressed from two distinct but interrelated perspectives: the dialogical one, focused on the activity of supporting claims by means of reasons, and the more structural one, centered on the construction of arguments. On the one hand, the nature of classroom conversations has been investigated considering argumentative practices such as providing evidence to support a viewpoint, or rebutting and questioning other positions (Driver et al., 2000; Duschl, Ellenbogen, & Erduran, 1999; Jimenez-Aleixandre, Rodriguez, & Duschl, 2000; Schwarz & De Groot, 2007). Under this view, dialogical argumentative activities can be seen as instruments for promoting critical reasoning (Erduran et al., 2004; Koballa, 1992; Osborne, 2010; Pera & Shea, 1991). On the other hand, other studies have taken into account a more specific dimension of argumentation, i.e. the construction of arguments. Theories of argument structure have been applied to science education in order to help students better elaborate their written arguments. Analytic models have been developed to improve the articulation of the field-independent relationships, such as between premises and conclusion (Kelly & Takao, 2002), or the field-dependent ones, namely between specific evidence, warrants and claims (Sandoval & Millwood, 2005). In this framework, the Toulmin's

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