Learning, Culture and Social Interaction 7 (2015) 97–108

Contents lists available at ScienceDirect

Learning, Culture and Social Interaction

journal homepage: www.elsevier.com/locate/lcsi

Full length article

Favoring argumentative disciplinary discussions in the classroom. A study of teacher's questions at undergraduate and graduate levels

Antonio Bova

Department of Psychology, Utrecht University, Heidelberglaan 1, 3584 CS Utrecht, Netherlands

ARTICLE INFO

Article history:
Received 1 September 2014
Received in revised form 4 September 2015
Accepted 5 September 2015
Available online 14 September 2015

Keywords:
Argumentation
Higher education
Qualitative research
Student–teacher interaction
Teaching strategies

ABSTRACT

This study sets out to examine the teacher's questions to their students during argumentative disciplinary discussions in the classroom, i.e., task-related argumentative discussions concerning the discipline taught in the course, with the aim to compare the types of questions used at undergraduate and graduate levels. The data corpus is constituted by 16 video-recorded lessons (about 24 h of video) of two courses – one at the undergraduate level and one at the graduate level – in Developmental Psychology. The two courses were selected according to the following criteria: i) similar number of students, ii) similar disciplinary domain, and iii) both courses are taught by the same teacher in English language. The findings of this study show that at the undergraduate level, the teacher asks broad questions to her students with the aim to favor a large discussion with and among students around general topics relating to Developmental Psychology. At the graduate level the teacher asks specific questions that refer to scientific theories or to certain aspects of a theory in the field of Developmental Psychology. Moreover, at the graduate level both types of teacher's questions are often followed by a further why-questions asked to the students.

1. Introduction

The research on argumentation in science education has been intensified considerably, attracting growing attention "as a linguistic, logical, dialogical, and psychological process that sustains or provokes reasoning and learning" (Muller Mirza & Perret-Clermont, 2009, p.1). Not by chance, an explicit goal of the current reform movement in science education in EU is to promote the development of the argumentative skills of students through teaching practices that encourage and facilitate argumentative debates in the classroom.

> Since argumentation and discourse are central to the work of scientists, their role in science teacher education is relevant since teachers need to emulate and facilitate both in their classrooms. In addition, both contribute to a pedagogically relevant socio-cultural framework for learning and can precipitate the active constructivism which can help students take ownership over their learning (Eurydice, 2011, p.105)[1].

E-mail address: A.Bova@uu.nl.

[1] The Eurydice Network provides information on and analyses of European education systems and policies. As from 2013 it consists of 40 national units based in all 36 countries participating in the EU's Lifelong Learning program. It is co-ordinated and managed by the EU Education, Audiovisual and Culture Executive Agency (EACEA) in Brussels, which drafts its studies and provides a range of online resources. For more information, see http://eacea.ec.europa.eu/education/eurydice/index_en.php.

http://dx.doi.org/10.1016/j.lcsi.2015.09.001
2210-6561/

However, while other theoretical frameworks aimed at favoring the dialogic interaction in the classroom have already demonstrated their effectiveness in order to improve the quality of teaching in classroom and the learning of students, e.g., the dialogic teaching (Mortimer & Scott, 2003), hitherto the practice of argumentation rather than a precise teaching strategy has been mostly used as a framework for discourse analysis to assess, for example, cognitive and learning competencies of students. In the learning contexts, argumentation is neither a heated exchange between rivals that results in winners and losers nor it can be merely used as a framework for discourse analysis of the verbal interactions occurring in the classroom (Duschl, Schweingruber, & Shouse, 2007; Kelly & Chen, 1999; Sandoval & Reiser, 2004). Rather, the practice of argumentation should be intended as an instrument enabling students to engage in knowledge construction.

From primary school to the academic context students encounter issues and positions that need to be developed, defended or evaluated (Buty & Plantin, 2008; Driver, Asoko, Leach, Mortimer, & Scott, 1994; Erduran & Jiménez-Aleixandre, 2007; Kuhn, 1993; Newton, Driver, & Osborne, 1999; Schwarz, 2009). Shifting the focus from the rote memorization of notions and theories to practices in which students construct and justify scientific claims should be, therefore, one of the main goals underlying the teaching strategies of every learning institution. Accordingly, empirical research that examines whether and how the practice of argumentation is promoted in the classroom has to become the area of major concern for science education research.

The present study intends to provide a contribution to the line of research on argumentation in the learning contexts. It specifically centers on the learning context of higher education and sets out to examine the teacher's questions to their students to favor the beginning of argumentative disciplinary discussions in the classroom, i.e., task-related discussions concerning the discipline taught in the course. In line with other scholars (Kuhn, 1991; Voss & Van Dyke, 2001), I refer to an individual argument as a product and to the argumentative discussion as a process, the latter being implicit in the former. That being said, it is not a goal of the present study to make an assessment of the arguments advanced by students in response to the teacher's questions, i.e. deciding whether or not a certain argument respects logical criteria. Rather, the goal is to compare the types of questions asked by the teacher to undergraduate and graduate students during argumentative disciplinary discussions in the classroom.

The data corpus on which the present study is based is composed of sixteen video-recorded separate lessons of one Bachelor's degree and one Master's degree course. In order to focus on the teacher's questions, the object of investigation will be the argumentative discussions between students and teacher, as well as among students, occurring during their ordinary lessons, rather than an ad hoc setting created to favor the beginning of argumentative discussions. The analytical approach for the identification of the argumentative discussions is the pragma-dialectical ideal model of a critical discussion (van Eemeren & Grootendorst, 2004). This model proposes an ideal definition of argumentation developed according to the standard of reasonableness: an argumentative discussion starts when the speaker advances his/her standpoint, and the listener casts doubts upon it, or directly attacks the standpoint. Accordingly, confrontation, in which disagreement regarding a certain standpoint is externalized in a discursive exchange or anticipated by the speaker, is a necessary condition for an argumentative discussion to occur. This model particularly fits this study, and more generally, the study of argumentative interactions occurring in ordinary contexts, because it provides specific criteria in order to select and identify the argumentative discussions.

The present paper is structured as follows: in Section 2, a concise review of the most relevant literature on argumentation in learning contexts of higher education will be presented. In Section 3, the methodology on which the present study is based will be described. The results of the analysis are discussed in Section 4, followed by the Section 5, which summarizes the main findings and comments on their limitations and strengths.

2. Argumentation studies in learning contexts of higher education

Over the past two decades, the studies devoted to investigating the argumentative practices in the learning contexts have been in large part focused on primary and middle school level (Baker, 2002; Duschl & Osborne, 2002; Jackson, 2002; Jiménez-Aleixandre, 2007; Nestlog, 2009; Osborne, Erduran, Simon, & Monk, 2001; Sadler, 2006; Schwarz & Glassner, 2003). The attention of many scholars has been particularly directed to establish which criteria must be included in assessing the argumentative skills of pupils and students (Anderson, Chinn, Chang, Waggoner, & Yi, 1997; Garcia-Mila & Andersen, 2007; Muller Mirza, Perret-Clermont, Tartas, & Iannaccone, 2009; Pontecorvo & Girardet, 1993) and how to further improve these skills (Dolz, 1996; Kuhn & Udell, 2003; Nussbaum & Schraw, 2007; Schwarz & Linchevski, 2007; Stein & Miller, 1993; Zohar & Nemet, 2002). Although they are fewer in number, the studies focusing on the argumentative practices in the learning contexts of higher education too have brought to light relevant insights from an educational and argumentative perspective. In particular, two main lines of research have to be distinguished within these studies.

The first line of research aims to examine how the argumentative practices might promote students' learning in the classroom. For instance, Chin and Osborne (2010) showed that favoring argument discussions in the classroom might enhances students' motivation, while Schwarz, Neuman, and Biezuner (2000) showed that the practice of argumentation among students helps them to detect and resolve errors. A series of studies have also indicated that argumentative interaction in the classroom is important since it involves extra thinking, the need to “dig deeper” into the question being addressed (Baker, 2009; Hatano & Inagaki, 2003; McNeill & Krajcik, 2009; Schwarz, Neuman, Gil, & Ilya, 2003). In the same vein, other studies have also shown that engagement in argumentative interactions in the classroom enhances students' knowledge by promoting conceptual change (Nussbaum & Sinatra, 2003; Wiley & Voss, 1999), and that the engagement in argumentative small- or large-group discussions improves conceptual understanding (Alexopoulou & Driver, 1996; Andrews, 2009; Mason, 1996, 2001). Argumentative debates have been also the core of a previous research project centered on the learning context of higher education: the SCOPE (Science Controversies Online: Partnerships and Education) project (for more information, see Bell & Linn, 2000).