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Better learning through argumentation : editorial

EDITORIAL

BETTER LEARNING THROUGH ARGUMENTATION

"Before mass leaders seize the power to fit reality to their lies, their propaganda is marked by its extreme contempt for facts as such, for in their opinion fact depends entirely on the power of the man who can fabricate it."

Hannah Arendt, The Origins of Totalitarianism (1951, p. 350)

Fake news, alternative facts, post-truth — we live at a time when the very idea of reaching a reasonable conclusion is being challenged and contested. Whether in Russia, in the Philippines, or in the United States, the proliferation of unjustified claims and the dismissal of relevant truth-seeking processes work to dissolve the entire concept of truth, creating the world where "nothing is true and everything is possible" (Pomerantsev, 2014). In such a disorienting, 'post-truth' world, it becomes imperative for educators to help their students develop the commitment and the skills to search for better, more reasonable judgments.

Fortunately, today there is little disagreement about the importance of teaching students how to think through complex problems in a deliberate, informed, and rational manner (Asterhan & Schwarz, 2016; Kuhn, Wang, & Li, 2011; Partnership for 21st Century Skills, 2012). Argumentation is largely seen as a fundamental academic and life skill, essential to our efforts to develop an educated citizenry. Based on contemporary theories of learning and development, educators also suggest that competency in argumentation can be improved by engaging students in a productive dialogue, during which they justify their own thinking and react to the ideas of others (Chin & Osborne, 2010; Resnick, Asterhan, & Clarke, 2015).

At the same time, studies consistently document deficiencies in students' argumentation across different school subjects and grade levels. For example, the latest PISA results revealed that only 9% of 15-year-olds could tell the difference between fact and opinion (OECD, 2019). Other studies show that students have difficulties supporting positions with reasons and evidence and generating alternative theories, counterarguments, and rebuttals, and explaining why some judgments are more reasonable than others (Driver, Newton, & Osborne, 2000; Fischer et al., 2014; Kuhn, 1991; Sadler, 2004). Moreover, despite the agreed-upon importance of argumentation, students in a typical classroom have few opportunities to engage deeply with controversial issues, formulate and defend their positions, and challenge the ideas of others (Driver et al., 2000; McNeill, 2011).

And while today the study of argumentation is a thriving academic field, many important questions about this complex construct remain largely unanswered. In this special issue, we aim to further contribute to our understanding of argumentation. As we consider schools to be ideal places for promoting argumentation development, this issue is about learning through argumentation and teaching as argumentation.

The issue opens with a theoretical paper that outlines a new framework for conceptualizing the quality of argumentative texts. The authors, Macagno and Rapanta, start with a useful analysis of three assessment models most commonly used in the fields of argumentation and education, pointing out how each of these models has failed to address one or more important dimensions of quality. In their new framework, the authors reframe the construct of quality of argumentative texts and break it down into four dimensions: Dialogicity, Accountability, Relevance, and Textuality (DART). Together, these dimensions promise to bring about a more comprehensive and nuanced assessment, revealing new aspects of student performance that were largely overlooked by previous models. The DART is a welcome development for educational research and practice, and we hope that future studies not only examine the potential of this framework to provide valid and reliable measurement, but also investigate its value for helping teachers and students learn about the criteria for evaluating the quality of argumentative texts.

The next paper, called "*Bewilderment as a Pragmatic Ingredient of Teacher-Student Dialogic Interactions*," also offers a novel conceptualization of quality, but this time, the focus is on the quality of a dialogue. While dialogue is now widely recognized as a discourse form that supports the development of argumentation, Rapanta argues that there is an important, but rarely discussed, feature of a "genuine dialogue" – a state of bewilderment that both teachers and students need to experience. The article explains the role of bewilderment in supporting different learning goals of sense-making during dialogue, and it provides

examples of classroom discussions to show how bewilderment could be activated to serve these goals. This paper offers a valuable theoretical framing for future studies of bewilderment. Such research, which could be conducted in a variety of educational contexts, from elementary school classrooms to professional development programs for teachers, is needed to develop a data-based understanding of how the construct of bewilderment can contribute to the quality of learning experience during dialogue.

The article by Reznitskaya and Wilkinson is about measuring the quality of students' performance when writing and reading arguments. The authors describe a systematic process of developing and validating the measures for elementary school students and offer another framework for assessing the quality of argumentative texts. Importantly, the authors are not simply concerned with demonstrating evidence for the reliability and validity of their measures; they also aim for them to be practical and have an instructional value for teachers and students. In their study, Reznitskaya and Wilkinson sought to improve on previous assessment models of argumentative texts, and the paper raises concerns with existing assessment models that are similar to those discussed by Macagno and Rapanta.

In another theoretical paper, Dorothee Gronostay explores the potential of controversial political issues in the classroom for cognitive activation. This paper examines three perspectives within the concept of controversial discussions with assigned positions: 1) theory of constructive controversy, 2) task configurations, and 3) cognitive engagement according to the interactive, constructive, active, and passive ICAP framework. The study offers some interesting insights into the benefits and drawbacks of controversial discussion, thus stimulating ideas for further research. The paper also highlights important distinctions between different types argumentative discussions and invites researchers to consider the consequences of various configurations for student learning.

In the next paper, entitled "*Analysis of Different Categories of Epistemic and Metacognitive Discourse in Argumentation,*" a team of researchers builds on their prior work on epistemic cognition to further analyse cognitive and metacognitive dimensions of argumentative discourse. The authors propose a useful categorization of discourse forms that appear during inquiry activities in science classrooms. The four categories of their proposed model help to 1) distinguish between metacognitive and cognitive statements, 2) identify different levels of metacognitive statements (e.g., self vs. other), 3) show variations in specificity in metacognitive discourse (e.g., particular vs. highly general) and 4) determine whether a statement was used to address one of the components of epistemic cognition (e.g., aims vs. processes). The authors illustrate each category with specific examples from their prior studies.

The result is a set of analytic tools that can assist in describing features of argumentative discourse and identifying those that can lead to a more productive engagement in scientific inquiry.

Turning now to empirical papers, the study, "*Critical Perspective Taking: Promoting and Assessing Online Written Argumentation for Dialogic Focus,*" examined the effectiveness of an online instructional intervention. In this study, Mcnaughton and colleagues used an innovative online technology, called the Argumentation Tool, to engage students in thinking about and discussing controversial topics together. This tool helped to structure student experience and provided multiple supports to help students to practice and learn argumentation. Using previously established analytic framework developed by Kuhn and Crowell (2011), the authors assessed changes in students' ability to support their own position and to engage with opposing perspectives. The authors reported increase in instructional focus on argumentation and improvements in students' argumentative writing over time. At the same time, they noted that the more advanced argumentation skills, such as integrating others' perspectives and finding flaws in one's own thinking, remained difficult for the students, with many showing low or no gains. Further, the results did not clearly support a stage-like developmental progression assumed by the authors. These findings invite us to continue searching for new ways in which we design, implement, and evaluate instructional interventions within a larger context of regular classroom instruction. They also point out to unique affordances and limitations of teaching argumentation online.

The article by Roman Švaříček is about the role of a teacher in supporting students' epistemic thinking in dialogic argumentation. He analyzed video recordings of an expert teacher who undertook a developmental program on dialogic teaching three years prior to this study. The findings showed that the teacher aimed to depersonalize or collectivize students' arguments and sought to make the argument jointly owned by everybody in the classroom so that it was possible to discuss the nature of the argument and not the students' personal opinions. The aim of this collectivization process was to teach students to take part in dialogue at the highest epistemic level (Kuhn, 1999) without attacking each other. The findings reveal that collectivization is a unique procedure that could increase students' participation in dialogic argumentation while preserving a respectful stance towards their personal opinions. This collective framing is seen as a key factor that influenced students' motivation to engage in argumentation.

In another study of class discussion "*Exploring Teacher Contributions to Student Argumentation Quality*", Joe Oyler explores how teachers can support the quality of group argumentation. The study focuses on three experienced teachers, who are trained in "Philosophy for Children," an established

pedagogical approach aimed at engaging students in argumentation during inquiry dialogue. Transcripts of video-recorded classroom discussions and interviews with the teachers become the sources of a carefully-conducted qualitative analysis. The study reveals seven effective talk moves used by experienced teachers. They include distilling, identifying or completing a warrant, locating, naming moves, paraphrasing, probing reasoning, and redirecting. For example, when using a distilling move, a teacher does not work with the entire argument articulated by a student, but extracts one important or problematic statement to make it more visible to the group. A set of carefully described moves used by experienced facilitators is very useful for future research and professional development designed to promote high quality argumentation in a classroom.

They study by Hähkiöniemi and colleagues also focuses on the quality of dialogue and has implications for teachers. It is conducted in seventh-grade classrooms, and the authors frame their research in terms of the concept of dialogicity. They explain that there were three dimensions of dialogicity, "dialogic teacher talk, students' dialogic moves, and organising for dialogic teaching," and they examine these dimensions using a code-based analysis of whole-class discussions during three lessons. Because in this study argumentation was used to support deeper learning of math and physics, the authors propose adding another dimension, called "students' justifying moves." They also analyze the relationship between the four dimensions, develop a revised model, and discuss implications of the new model for teacher learning how to best orchestrate whole-class discussion aimed at supporting argumentation in the content areas of math and physics.

The Emerging Researchers section includes one paper. Sinem Sozen Ozdogan from TED University in Ankara and two colleagues present their research on problem-solving behaviors of 6-8th grade students and a mathematics teacher. The results indicate that the successful problem solvers showed more metacognitive behaviors than other students. Furthermore, students with low academic achievement did not display any metacognitive behavior, while students with high academic achievement exhibited most metacognitive behaviors.

The cover of this special issue on argumentation has an image of a matchbox suggesting that arguments could bring more light to our understanding of complex problems. The ten papers published here could be such ten matches, each illuminating more ideas and igniting more discussions about the critical role of argumentation in education. So, let the matches strike and light up discussions!

Alina Reznitskaya, Roman Švaříček, editors of the issue

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