Exploring New Directions in Teachers' Professional Development: Monitoring Teachers' Fidelity of Implementation of (Argumentative) Dialogue

Reuma De-Groot, The Hebrew University of Jerusalem, Jerusalem, Israel - msruma@mscc.huji.ac.il

Abstract: Studies of teachers' fidelity of implementation focus mainly on implementation of well-designed curricular units. Recent work stresses the need to address also teachers' change as a means to achieve better results. After a year-long training in learning-oriented argumentation, teachers barely used it despite their access to dedicated technology. Findings reveal the need to promote discussion and reflection among teachers in the training course to make them more favorable to use argumentation in the classroom.

Introduction

Studies of teachers' fidelity of implementation focus mainly on implementation of well-designed curricular units and specific instructions for teachers (e.g., Penuel 2004, O'Donnel, 2008). Although teachers' fidelity of implementation is linked to teachers' capacity to become learners while training, and teachers tend to develop new pedagogies in complex situations (Edwards, 2001; Edwards et al., 2002), studies that focus on the changes undergone by the teachers in this process are scarce (O'Donnel, 2008). Recent studies in teachers' pedagogical change in the knowledge era point to the need of teachers and students to assume new roles in the classroom (Edwards, 2004). The identification and assessment of this change depends also on the extent to which teachers' professional development addressed their teaching practices in particular (Ball & Cohen, 1999) and teaching practices in general (Grossman et al., 2008).

In the present poster I will describe how five teachers – who participated in a year-long training for implementing argumentative dialogue using the Argunaut system (http://www.argunaut.org, De Groot et al., 2007) - used argumentative dialogue with their students in the classroom. The design of argumentative dialogue activities with the use of the Arguanut system was based on the following pedagogical findings and assumptions:

1. The development of critical thinking skills through active engagement in critical and argumentative discourse is an increasingly important objective in education.
2. Argumentative or other form of critical discourse do not occur simply by putting a group of students together, and there is a need to mediate and moderate such discourse to attain the expected results.
3. Using special prompts by teachers in moderating face-to-face classroom discussions through exploratory talk proved to be effective (Mercer, 1995)
4. Using different scripts to manipulate the group work with argumentation- and problem-based learning may facilitate collective peer argumentation. (Weinberger, Ertl, Fischer, & Mandl, 2005; Weinberger, Stegmann, & Fischer, 2005)

The Training Model

Ten teachers participated in a one-year training at the Ziv School in Jerusalem, dealing with the implementation of technology and argumentative dialogue in their current curriculum (De-Groot, 2008, Eizenman and De-Groot, 2008 and De-Groot, in press). During the training the teachers designed teaching units that focused on fostering critical discourse and argumentation using the Digalo (1) tool in their teaching domain. These teaching units were then taught by the teachers to their students (aged 15-16) in their regular classrooms. The training team, consisting of an experienced trainer, a researcher and a coordinator, accompanied the teachers in their classrooms, supporting and identifying critical pedagogical instances for further discussion in the training course. After carrying out at least one session with the Digalo tool in the classroom, we introduced the Argunaut tool to five teachers of the original group in order to enable them to moderate synchronous e-discussions with Digalo (2-5 different discussions simultaneously).

Data Collection

Teachers' face-to-face discussions were videotaped, and their teaching units, as well as written and oral presentations of these units, were content-analyzed to trace critical thinking and argumentative discourse. Teachers' work through the "Moderator's Interface" (the "MI") in Argunaut was videotaped as well, and the teachers were interviewed about their experience.

Findings and Discussion

Preliminary data show that teachers used the Argunaut tool for moderating the Digalo discussions for different purposes than those originally set by the designers and discussed during the training. In fact, teachers used the Argunut tool as an advanced communication means with their students and as an aid to facilitate their control over their students' work. The fact that the tool actually promotes critical thinking and argumentative dialogue within the group work was barely paid attention by the teachers. We assume that they did not sufficiently value their students' argumentative discourse as a source for learning, apparently because they still felt responsible for their students' work – both on the social (students' participation) and the domain knowledge levels. During the interviews, teachers expressed their pedagogical beliefs regarding their roles as teachers within the learning processes of their students. Our preliminary insights point to a low level of teachers' fidelity of implementation of argumentative dialogue with their students. These findings illustrate the need to monitor and enhance teachers' pedagogical performance during the training as well as to proactively initiate individual and group reflections on the execution of pedagogical design in classroom teaching. In the poster I will identify and highlight the importance of these needs and give some suggestions on possible ways to broaden the use of argumentative dialogue with the support of the Argunaut system in teachers' real work in the classroom.

Endnotes

(1) The Digalo tool enables the participants in a synchronous written discussion (e.g., of 4 or 5 students) to jointly create a discussion map. Digalo was developed in the DUNES European project (FP5) - http://www.dunes.gr/, being later upgraded and integrated in other environments, like the Argunaut system, downloadable from http://argunaut.collide.info/.

References

Ball, D. L. & Cohen, D. K. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In G. Sykes and L. Darling-Hammond (Eds.), Teaching as the learning profession: Handbook of policy and practice (pp. 3-32). San Francisco: Jossey Bass.

Carol L O'Donnell (2008) Defining, Conceptualizing, and Measuring Fidelity of Implementation and Its Relationships and outcomes in K-12 curriculum intervention research. In Review of Educational Research Mar., pp. 33-78 Research Library Core.

De-Groot, R. (to appear 2010) Teachers use th eArgunaut tool To appear in N. Pinkwart, & B. M. McLaren (Eds.), *Educational Technologies for Teaching Argumentation Skills*, Bentham Science Publishers

De Groot, R., Haim, Y., Riskin, L. and Eisenmann, T. (2008). The Teacher and the Student in an Online Learning Environment: A Model for Professional Development Training. In: Y. Eshet-Alkalai, A. Caspi, & N. Geri (Eds), *Proceedings of* the *2008 Chais Conference on* Instructional Technologies Research: Learning in the *technological era*. Raanana: Open University Press.

De Groot, R., Drachman, R., Hever, R., Schwartz, B., Hoppe, U., Harrer, A., De Laat, M., Wegerif, R., McLaren, B. M., & Baurens, B. (2007). Computer Supported Moderation of E-Discussions: the ARGUNAUT Approach. In the Proceedings of the Conference on Computer-Supported Collaborative Learning (CSCL).

Edwards, A. (2001). Researching Pedagogy: a sociocultural agenda. Pedagogy, Culture and Soc., 9(2), 161-186.

Edwards, A. (2002). Developing Understandings of Agency and Disposition in Sociocultural Accounts of Learning to Teach. Paper presented at the AERA Annual Conference, New Orleans.

Edwards, A. & D'arcy, C. (2004). Relational agency and disposition in sociocultural accounts of learning to teach. Educational Review, 56(2), 147- 155.

Eisenmann T, Schwarz, B. De-Groot, R. (2008) Integration of technological tools into teachers daily work, presented in ECER, Goteborg, Sweden, 8-12 September, 2008.

Grossman, P, Compton, C., Igra, D., Ronfeldt, M., Shanan, E. & Williamnson, P. (2008). Teaching Practice: A Cross-Professional Perspective. Manuscript submitted for publication, Stanford University.

Mercer, N. (1995). The guided construction of knowledge. Talk amongst teachers and learners. Clevedon, UK: Multilingual matters.

Penuel W.R, Means, B (2004) Implementation variation and fidelity in an inquiry science program: Analysis of GLOBE data - Journal of Research in Science Teaching p.1-24 - interscience.wiley.com .

Weinberger, A., Ertl, B., Fischer, F., & Mandl, H. (2005). Epistemic and social scripts in computer-supported collaborative learning. *Instructional Science, 33*(1), 1-30.

Weinberger, A., Stegmann, K., & Fischer, F. (2005). Computer-supported collaborative learning in higher education: Scripts for argumentative knowledge construction in distributed groups. In T. Koschmann, D. Suthers, & T. W. Chan (Eds.), *Computer Supported Collaborative Learning 2005: The Next 10 Years!* (pp. 717-726). Mahwah, NJ: Lawrence Erlbaum Associates.