'Is it mine, is it yours? It is ours.'
Shared epistemic agency in collaborative research activities

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Abstract: Knowledge creation entails collaborative learning processes, involving groups of students that act collaboratively in order to create new knowledge. In this study, we discuss shared epistemic agency as one of the main concepts capturing the process and evolution of collaboratively creating knowledge. A multiple-method approach was employed when analyzing the data collected from a research module in higher education. Central in these analyses was the manner in which shared epistemic agency was instantiated during collaborative students' work on their shared knowledge objects, the research reports. A number of activities characterizing shared epistemic agency during collaborative work on shared knowledge objects are identified and described. These results feed back into new insights on how shared epistemic agency is enacted in this specific context, and into a fine-tuning of our description of the concept itself.

Introduction

The knowledge creation approach to learning (Paavola & Hakkarainen, 2005) reconceptualises the way learners and institutions organize knowledge-work. The approach rises above the idea of learning as the acquisition of predefined knowledge, or as the result of constructive interaction between learners, but depicts learning as a collaborative activity aimed at creating *new* knowledge. In this context, students are confronted with a large shift in their learning practices. To be able to actively participate in knowledge production, they are expected to take control of the strategic activities involved in learning (Scardamalia, 2002), to go beyond individual efforts, and to collaborate with their peers (Bereiter, 2002). We believe that these activities involve a gradual process characterised by qualitative changes in *agency* - the capacity of students to deliberately act in collaboration - with the purpose of advancing shared knowledge. We study the ways that students deal with their collaborative learning during knowledge creation by putting forward the concept of *shared epistemic agency*.

We argue that shared epistemic agency is a characteristic of groups, which occurs during collaborative learning activities on shared knowledge objects. We define it as the capacity to perform deliberate object-oriented activities. The shared object of activity implies that the group acts in the direction of creating and developing this object. Stahl (2007) emphasises the role of the object of activity within groups, as a motive for interacting, as goal of work, or as outcome to reach. In our inquiry we maintain that efforts of learning are directed at collaboratively advancing shared objects, rather than just individually carrying out tasks or dialogic interaction. Therefore, we assume that shared epistemic agency is not expressed in individual members' activities, but in a group's activities and undertakings; it is not the individual pursuit that discloses the essence of this capacity, but the joint efforts and activities at group level, aimed at the development of the shared object.

Aim of this study

In this study we attempted to gain more insight in how shared epistemic agency is instantiated in groups' object-oriented activities. We aimed at investigating how shared epistemic agency is enacted in collaborative research activities and at describing how these activities serve the process of creating shared knowledge objects.

Methodology

An existing higher education research module, with a duration of twenty weeks, provided the context for this study. In this course, 13 undergraduate students in the Educational Sciences programme were required to collaboratively, in groups of two to four, set-up and conduct a research project, and report on these research activities. In addition to the research and the writing of a common research report, students were also required to write individual reflection reports, in which they analysed and reflected upon their individual and collaborative learning experiences. The students formed five project-groups, each of which had the possibility to sign up for research topics brought in by external clients. During a congress day, students were to present their results in the form of a research report, to the clients, the other students, teachers, and researchers. Technological support was provided by Blackboard®.

The researcher intensively followed the collaborative activities of all groups, with as result a large set of qualitative data: observations and recordings of the project meetings, groups' work sessions, tutoring sessions

and discussions with the clients; end-interviews; written documents, and the reflective reports. An ethnographic analytic approach was followed, focusing on the intersection of where individuals' efforts and group processes meet. The data analysis in this ethnographic approach roughly consisted of three steps which contributed to understanding the object-oriented collaborative activities. Firstly, the gathered data was chronologically ordered and transcripts of the conversations were made. The result of this analysis was a process description, in which the groups' activities, aimed at creating particular knowledge objects, were described. Secondly, the activities performed by the groups that had as result the advancement of the object were identified and labelled. Finally, these selected segments of data were used to identify critical points in the process, which were studied to understand reasons for the patterns of actions. Central in this analysis was the manner in which shared epistemic agency was instantiated during collaborative work of students on common-knowledge objects. To understand how epistemic agency was shaped, segments of data that included expressed intentions and actions regarding the developing knowledge objects were interpreted. This was done by using an analysis framework developed in a previous study, which distinguished between predominance of conceptual and regulative actions.

Results

Analyses of the data indicated that group activities were guided by work on the shared objects of activity, represented by the groups' research reports. Observations revealed that the process of conducting a collaborative research project and writing a scientific report was an iterative process, which resulted in a gradually evolving knowledge product. This process involved ideas that were developed, redeveloped, revised, re-written, and revised again. Any step made in the direction of the final product turned out to be determining for the shape, content and quality of this product and sometimes students must go back to previous steps and products, adjust them and restart the process. Collaborative strategies at conceptual and regulative level, which were considered as characterising the type of shared epistemic agency possessed by groups, were identified. On the conceptual level, students applied strategies such as intensive discussions of research literature and methodology or statistical analyses approaches, in order to develop shared understanding of the concepts they were operating with. Further, they used different writing strategies, such as writing report sections separately and discussing them afterwards, but also synchronous collaborative writing, which involved discussing and typing at the same time. Redrafting, which involved repeated restructuring and improvements of the report versions, was done based on feedback by the other group members on sections produced individually and on evaluative discussion. Also distributing (knowledge) resources occurred, which involved sending articles or other informative texts through e-mail of uploading them on the shared group space. On the regulative level, project management strategies were employed, such as: joint planning, coordination and monitoring of object-oriented activities and of group activities, regular communication (face-to-face or using technological support), or moments of individual and group reflection. Differences in terms of the type of strategies that instantiated agency were registered between groups.

Conclusion

This study examined the occurrence of activities that characterise shared epistemic agency in the context of a group's research activities, during work on share knowledge-objects. The concept of shared epistemic agency was addressed in the context of object-oriented collaborative research activities. Shared epistemic agency is considered an essential quality of groups engaged in this process. In this study a number of activities characterising shared epistemic agency were identified and described, based on qualitative analysis of empirical data. The results show that the groups developed work strategies (or adapted old ones) that could be categorised, according to a distinction provided by the literature review and a previous study, into conceptual strategies and regulative strategies. These strategies are characteristic for shared epistemic agency, since they represent different ways of collaborative work towards achieving the shared knowledge-object.

Further research should indicate how qualitative changes in shared epistemic agency influence the quality of collaborative research work and the quality of the products, and this qualitative development can be supported by pedagogical means.

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