

Motivational Processes in CSILE-Based Learning

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Abstract: The purpose of the present study was to describe motivational processes in a situation of computer supported collaborative learning (CSCL). The study focused on examining whether students representing different motivational orientations would be able to productively function in a CSCL environment in which self-regulation and collaborative inquiry were encouraged. Coping with the new learning environments may be very demanding for a student because he or she has a new cognitive relationship with tasks as well as with the teacher. Two case studies are described and analyzed in order to demonstrate students' motivational interpretations in a CSILE-based progressive inquiry project. The results of these case studies indicate that there were no considerable changes in students' motivational orientations, but students self-reported orientations corresponded to their actual engagement.

Keywords: motivation, distributed learning environments, computer-mediated communication

Introduction

The purpose of the present study was to describe motivational processes in situation of computer supported collaborative learning (CSCL). Many promises have been made for optimizing student motivation and interest in learning in novel environments being proposed. However, there are not many studies reporting what it really means to engage in computer supported collaborative activities which do not follow the traditional teacher-centred schema of goal setting and classroom activities (Järvelä, Niemivirta & Hakkarainen, 1999). Further, several recent research projects indicate that in order to facilitate purposeful and in-depth learning, it is important to foster research-like processes of inquiry in education (Scardamalia & Bereiter, 1993; Brown & Campione, 1996). Characteristic of this kind of learning is that new knowledge is not assimilated as such, but constructed through solving problems of understanding (Scardamalia & Bereiter, 1993, Hakkarainen & Lipponen, 1998). Engagement in progressive inquiry presupposes very strong self-regulative efforts and provides a significant motivational challenges for students.

The Systemic Approach on Learning and Motivation

On the basis of goal theories (Ames, 1992; Dweck & Leggett, 1988) this study broadens existing perspectives and moves toward to a systemic approach (Lehtinen et al., 1995). A systemic approach sees an individual student's learning situation as a phenomenon where not only goals, but also learner's prior learning experiences and teacher-student-interaction affect the long-term development of learning activities. A model of students' adaptation and motivational orientation to learning and performance situation has been constructed in order to analyze parallel motivational, affective and cognitive aspects of students' adaptation in instructional settings. The different orientations describe those universal motivational tendencies, which dominate what kind of goals a student tries to reach at in a learning situation as well as what kind of situation specific coping strategies he or she will use to accomplish those goals. (Lehtinen et al., 1995).

Process-Oriented Methods for Motivation Research

Earlier studies have shown how motivation can be improved by classroom changes, such as using meaningful and differentiated tasks, building on students' interests, and using collaborative learning activities (e.g., Ames, 1992). However, these studies were based on a very conventional model of instruction, and as such the embedded principles may not work in new, constructivist learning environments. It is important to clarify what kind of motivational presuppositions and optimal conditions the new learning environments have. Innovative learning environments provide not only challenges but new possibilities for sociocognitive and socioemotional goal reconstructing (Järvelä, Niemivirta, & Hakkarainen, 1999). Thus research methods are needed that focus on how goals are transformed into action -- that is, which gather interpret data on the dynamic interplay of personal beliefs, situational interpretations and subsequent actions.

Participants and Methods

The aim of this study was to describe motivational processes of groups of students in CSCL. This poster describes two, case studies of a three-year follow-up series of investigations concerning primary and secondary school students' motivational orientations in CSCL in which they were conducting a progressive inquiry project. In the first case study 18, seventh grade secondary school students (mostly aged 12) used CSILE (Computer-Supported Intentional Learning Environments; see Scardamalia & Bereiter, 1993) to study the theme of "racism". The project lasted for six weeks and the students had project lessons (each lasting for 75 minutes) three times a week. The participants of the second study were 21 primary school students (mostly aged 10), who conducted a four-week progressive inquiry project (total 24 hours) supported by CSILE. The domain of the project was biology ("How a mammal adapts to its environment").

In the both studies the students were administered self-report questionnaires to identify their motivational tendencies and learning strategies at the beginning of the learning project (Niemivirta, 1998). In order to compare the students' general motivational tendencies with their actual engagement, the lessons were videotaped in Study 2, to collect data on the students' learning and social interaction processes. In Study 1, process interviews were conducted in order to identify the students' interpretations of the learning processes. For detailed descriptions of the methods and analysis see Järvelä, Rahikainen, Salovaara, Lipponen and Niemivirta, 2000.

Outcomes

The results of these case studies indicated that there were not considerable changes in students' motivational orientations, but students' self-reported orientations corresponded to their actual engagement. Qualitative data, especially interviews, showed how individual and contextual information is necessary to understand how to support students' engagement in challenging academic work. The process-oriented methods used in these studies made it possible for investigators to get a holistic picture of the motivational processes. Further, the studies revealed that the students with non-learning orientation had difficulties coping with the new learning situation. These non-learning-oriented students adapted quite slowly the working procedure of progressive inquiry. One possible reason could be the unstructured nature of the learning situation and lack of obvious goals posed by the teacher. The results support the assumption that important information for developing new learning environments and pedagogical solutions is obtained if research goes beyond survey results to use observational data to examine specifically and directly how students' interpret situations that affect learning.

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