

Proactive Behaviour May Lead to Failure in Virtual Project-Based Collaborative Learning

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ABSTRACT

This paper argues that proactive behaviour, caused by high engagement and motivation of the learners, may lead to failure of collaborative learning. By examining empirical data from real-world text-only virtual negotiations between dispersed participants engaged in project-based collaborative learning, we discover that volunteering self-initiated activities promotes the participants' individualistic behaviour. Also, the technology made it easy for participants to include their own statements in new contributions and deconstruct the statements of others, permitting few opportunities for others to influence proposals.

Categories and Subject Descriptors

K.3.1 [Computers and Education]: - Computer Uses in education – collaborative learning, distance learning.

General Terms

Documentation, Experimentation, Human Factors.

Keywords

Virtual teams, negotiation, project work, collaborative learning.

1. INTRODUCTION

Collaborative learning in terms of problem-oriented project work in groups facilitated by an academic supervisor is becoming increasingly common in various learning settings. In distributed learning settings where participants are physically located at different places technology becomes a crucial mediating factor for the collaboration. Additionally, some types of cooperative tasks have proven detrimental to virtual cooperation – distance matters [1,2]. Investigating one such task, namely the negotiations that enter into identifying and formulating a shared focus for a common project, we conduct a quantitative and qualitative analysis of the complete online communication of three virtual teams during one semester of project work. While the analysis covers several topics, this paper focuses on the potentially negative consequences of highly engaged and motivated learners' proactive and individualistic behaviour. Such self-initiated activities may lead to collaboration failure and are difficult to restrict or even monitor in technology-mediated distributed settings.

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2. RESEARCH METHOD

The data analysed in this paper are the complete written online communications of three project groups during their second semester of a two-year, part-time master education in ICT and learning. This communication consisted of 1833 messages exchanged by the participants of the three groups through the groupware system Virtual University (VU). The analysis of the messages was supplemented with observation at two weekend seminars, an interview with each group, and four interviews with the groups' supervisor. The analysis involved coding the messages according to Searle's [4] taxonomy of the illocutionary acts: assertives, directives, commissives, expressives, and declarations. To capture a specific aspect of commissives we distinguish between commissives to future actions and post-hoc commissives. Where *commissives to future actions* are messages in which the sender commits, in varying degrees, to some future course of action, *post-hoc commissives* are messages where the commitment is expressed post hoc through the sender's provision of the outcome of a self-initiated course of action. An example of a commissive to future action is 'I will do the review for tomorrow' and an example of a post-hoc commissive is 'I have read this book and here is a summary'. A subset of 198 messages (11% of the data) was coded by both authors. Inter-coder agreement was assessed by Cohen's kappa. Kappa yielded a value of 0.67 (substantial agreement) for the coding of illocutionary acts. Disagreements among the coders were discussed and a consensus reached. Then the remaining messages were coded by the first author.

3. ANALYSIS

The following analysis focuses on Group 1, which consisted of five motivated and self-reliant members. During and immediately after the first weekend seminar they created 13 conferences in VU to structure their virtual negotiations. The intensity of these negotiations is evident in the explosive number of messages written by the five group members from the first week onward, see Figure 1. During the first month the group members wrote more messages than Groups 2 and 3 did during the entire semester. However, while Group 1 started out enthusiastically they dissolved into three subgroups after about a month. These three subgroups – Groups 1A, 1B, and 1C – all completed their projects with above-average grades.

The high message frequency is an indication of the engagement and motivation of the group members but the group does not succeed and splits up. Examining this unusual failure in more detail we turn to the illocutionary acts especially the balance between post-hoc commissives, indicating proactive behaviour, and commissives to

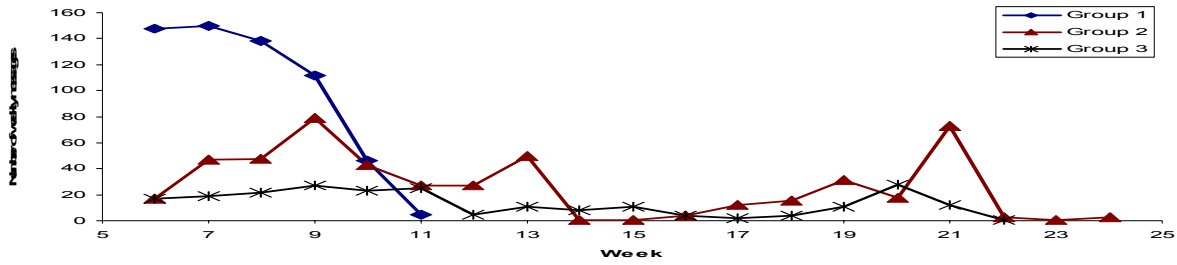


Figure 1. Number of messages produced by the groups during each week of the project period.

future actions, which tended to occur in reply to directives from other group members. For Group 1, 40% of the messages were post-hoc commissives through which the members volunteered the outcome of self-initiated activities, whereas only 11% of the messages were commissives toward future actions. Furthermore, all members of Group 1 displayed this pattern (post-hoc commissives were in the range of 28-51%, commissives to future action in the range of 8-15%). For Groups 2 and 3 the two types of commissives were more evenly balanced and at least some group members displayed the opposite pattern; that is, they committed to future actions more often than they engaged in proactive behaviour. Whereas previous work on virtual groups has emphasized proactive behaviour and individual initiative as indicators of success [e.g. 1]. Group 1 exemplifies that proactive behaviour may also be an indication of group members with strong individual views and a limited disposition to accept a compromise. The members of Group 1 do not converge toward a shared understanding and agreement about what they want their project to be about. Rather the group members pursue their individual ideas and interests, and their negotiations consist to a large extent of reporting the possibilities and inspiration inherent in these ideas and interests back to the group. The individualistic attitude toward the negotiation process impacts the process negatively. Underneath the socially supportive tone indicated by expressions such as “*that looks interesting – I will read it more closely soon*” more manipulative practices emerge, in which the members of Group 1 use strategies such as rephrasing other group members’ ideas to make them fit their own interests:

“Hi all, Inspired by Mary’s hypotheses here is an alternative perspective (...)” [Ellen, #22, 17th of February, 23:21, Problem statement conference]

It is evident that the different suggestions are closely related to the texts they are reading such as “*in this text they make use of hypotheses; maybe we can do the same*”, but each message refers to a different text. Experiencing difficulties in agreeing, they turn to new texts, resulting in new messages each building on new

‘underlying texts’ and the process continues. After about a month the situation becomes too frustrating, and the group split up.

In virtual negotiation the process of agreeing on a common focus is complex [3] and constrained by the technology forcing people to state their opinions explicitly. This makes it easier for others to deconstruct opinions and arguments in support of their own views. Openness toward negotiation is dependent on how group members engage with each others’ contributions. Taking other group members’ arguments seriously is crucial and incompatible with the deconstruction characterizing Group 1. Without openness, individual perspectives influence the negotiation negatively and it becomes difficult to reach agreement.

In Group 1 the members set individual interests above common consensus, and the technology made it easy for them to include or refer to their previous statements in new messages. So advocating an idea meant referring to former messages, deconstructing others’ suggestions. Further, their proactive behaviour permitted few opportunities for others to influence proposals. The mediated negotiation made it possible for Group 1 to attempt to collaborate by means of proactive behaviour and post-hoc commissives but this strategy turned out to have unintended and negative consequences.

4. CONCLUSION

Proactive behaviour caused by learners’ high engagement and motivation may lead to collaboration failure. A main reason for such failures is a lack of group influence on individual group members’ self-initiated activities. Consequently, collective agreement and grounding of decisions become absent or partial. The technology that enabled the groups to communicate by means of textual messages also provided the opportunities for participants to refrain from engaging in each others’ views and, instead, persist with individualistic proactive behaviour.

5. REFERENCES

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Table 1: Distribution of messages with respect to the two sub-categories of commissives

Group	Commissives future action	Commissives post hoc
1	67 (22%)	241 (78%)
1A	26 (29%)	63 (71%)
1B	91 (40%)	138 (60%)
1C	4 (19%)	17 (81%)
2	82 (46%)	97 (54%)
3	43 (38%)	70 (62%)