

# Efficiency and Performance of Work Teams in Collaborative Online Learning

Éliane M.-F. Moreau

*Université du Québec à Trois Rivières, Canada*

## INTRODUCTION

Online learning, or e-learning, can be an interesting way of encouraging employees to collaborate in performing their work (Fichter, 2002). For example, it can help employees to learn quickly and efficiently, without the inconvenience of absence from the workplace. It can take place at the location desired by the employee, for example, at the office or at home, when the employee wants and needs it, and at a suitable pace (Mingasson, 2002). Employees can, therefore, control their learning progress without having to travel to a classroom. Some find online learning less intimidating and less risky than classroom-based courses given by trainers (Fichter, 2002). If online learning is to be effective, however, employees need a high local network capacity, an Internet connection, and a computer support system to ensure that both hardware and software function properly (Muianga, 2005).

The purpose of the research described in this article is to examine the impact of interaction efficiency on the ability of teams to work together and on their learning performance. The article begins by examining the main variables of e-learning use, and goes on to propose a model of work team efficiency and performance in collaborative online learning. It also presents the study's methodological considerations. Pilot projects were carried out in two universities in Québec, Canada. Virtual teams of five students were formed, and an academic task was handed in to the professors in charge of the projects. The students then completed a questionnaire. The article analyses the benefits of using new technology in university-level courses, and proposes avenues for future research.

## THE CHARACTERISTICS OF ONLINE LEARNING

Online learning is an innovative educational approach and, to be effective, it requires appropriate material and

social provisions (Henri & Lundgren-Cayrol, 1998). Among other things, the learning process must be designed in a specific and original way, with the learner as the core element in the process (Mingasson, 2002) – hence the importance of emphasizing certain key factors, namely participation, the role of trust, collaboration, and cooperation, and perceived performance (Bower, Garber, & Watson, 1996; Brunetto & Farr-Wharton, 2007; Buskers, 2002; Sherer, 2003). These factors have mostly been studied as part of traditional learning methods, or in isolated cases. We propose a model based specifically on online learning.

## Participation

Given the need for interaction and communication, individual participation appears to be an important factor in the effectiveness of online learning. For example, in an analysis of online discussions involving a group of students, Giannini-Gachago and Seleka (2005) observed that women participated more than men, and that the discussion was dominated by a handful of students, to the detriment of the others (Hodgekinson-Williams & Mostert, 2005). In addition, the way in which the discussion was incorporated into the course had a significant impact on student participation (Giannini-Gachago & Seleka, 2005).

Accordingly, if participation is to be effective, it should be regarded as an integral part of the e-learning experience, and not as an additional burden. An approach such as this would help achieve more inclusive participation and avoid discussions dominated by a handful of individuals. The trainer could also act as moderator, helping to balance inequities in participation and allowing more time for the students to socialize (Giannini-Gachago & Seleka 2005). Some authors, including Hodgekinson-Williams and Mostert (2005), have also suggested rotating leadership during the course, giving every student an opportunity to take responsibility as the group's leader. These same authors also felt it was important to provide an explicit procedure for student participation.

Participants must also have a sense of self-discipline to be successful at e-learning (Houzé & Meissonier, 2005), since they do not have the set timetable and direct supervision that they would have in classroom learning. In addition, students need to develop a sense of belonging, so that they do not drop out or abandon their studies (Fraser, 2005).

### **The Role of Trust**

Trust plays a key role in effective collaboration, and is an important element in establishing the efficiency of many interpersonal relationships (Paul & McDaniel, 2004). It is, therefore, essential to create a high level of trust between the learners themselves on the one hand, and the learners and their trainer on the other. In addition, good communication and sharing of information and knowledge must be established between the individuals concerned. Paul and McDaniel (2004) identified four types of interpersonal trust in virtual collaborative relationships, namely calculated trust, competence trust, relational trust, and integrated trust.

Calculated trust is rather like an economic exchange, in that it is based on a form of cost-benefit analysis. Competence trust means that individuals trust someone else because they believe he or she will be able to accomplish what has been promised. This type of trust is important in a knowledge-based economy, where the person's actions become indicators of his or her capacity to perform a given task. Relational trust exists when a group member feels a personal attachment to other members, and wants to treat them well with no thought of personal profit. Integrated trust is a combination of the first three types.

The four types of trust are therefore linked, although they may also be separate and used interchangeably. Rational trust, competence trust, and relational trust are all positively linked to performance in virtual collaborative relationships. Because they are connected in this way, all three types of trust must be positively evaluated if the collaborative relationship is to be effective. If just one type is negative, the chances are that the performance itself will not be positive.

In a study of the vertical links between an insurance company and its independent agents, Zaheer and Venkatraman (1994) found that trust was a key determinant of the degree of electronic integration. A network team may also use "swift trust" even though it appears to be fragile and temporary. Jarvenpaa and Leidner (1999)

proposed that group members must approach their collaborative relationship in a trusting and optimistic way, even though there is nothing to suggest that their fellow members are honest. Once integrated, the group must explicitly state its commitment, enthusiasm, and optimism. Trust can be created and encouraged through the communication behaviour established at the first meeting. Task-related and project-related communication appears to be essential in maintaining trust, and social communication can also strengthen trust if it is used as a complement to, but not a replacement of, task-related communication.

### **Collaboration and Cooperation between Participants**

Collaboration is another important, if not the most important, ingredient in collaborative learning. Online learning must be a core element of the human relations strategy, since collaboration is simply a lever to help the firm attain efficiency, rather than a legal or moral obligation (Mingasson, 2002). Henri and Lundgren-Cayrol (2003) drew a distinction between collaborative and cooperative approaches to online learning.

They pointed out that collaboration requires a certain level of autonomy, maturity, and responsibility on the part of learners towards their own learning. Collaborative learning is a flexible process that gives learners more latitude. In other words, learners seek to achieve the group's objective individually, by interacting with other group members. Collaborative learning is, therefore, the result of the learner's individual effort, supported by the activities of the group or team. The group members share resources with one another, and use the work accomplished as a group in order to learn.

Cooperative learning, on the other hand, is a shared learning process where each learner is responsible for a specific task that is then collated with the tasks of other group members for the purpose of achieving a shared goal (Henri & Lundgren-Cayrol, 2003). Unlike the collaborative learning approach, the trainer controls the learning. The authors pointed out that the trainer could also control learners in the collaborative process, but in that case control had to be balanced with the learner's own autonomy.

For collaboration to be effective, it is important to use communication methods suited to the group. Some key factors in selecting the electronic media to be used by participants include the proximity of members, social

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