

E-Tutorial Support for Collaborative Online Learning: Differences between Experienced and Non-experienced E-tutors

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Abstract: This study investigated differences between experienced and non-experienced European e-tutors in their support of online collaboration. We developed a questionnaire e-tutors had to fill in to evaluate specific collaborative activities and to answer yes/no-questions regarding their intervention to support these collaborative activities. 78 e-learning experiences from 17 different European countries were included. Cluster analysis was conducted to cluster e-tutors into sub-groups that have similar response patterns. Results indicated two clusters, namely cluster 1 with experienced e-tutors and cluster 2 with less experienced e-tutors. E-tutors of cluster 1 evaluated collaborative activities more important than e-tutors of cluster 2 and they reported to intervene more often to foster such activities. These findings show the importance of expertise in e-tutoring: E-tutors with experience consider more deeply the importance of specific cognitive activities for effective online collaboration, they are more familiar in detecting dysfunctional social phenomena and in adequately intervening to avoid such phenomena.

Theoretical Background

Virtual collaborative learning is being used increasingly in different learning contexts. This is due to the fact that collaborative learning has several benefits, e.g. supporting knowledge application (De Corte, 2003). But collaborative learning is not successful when used in isolation (Salomon & Globerson, 1989). There are many pitfalls in collaborative learning such as social loafing (Latané, Williams & Harkins, 1979), free riding (Kerr & Bruun, 1983) or the lack of clear responsibilities in collaborative task solving. Therefore, support is necessary.

Support for virtual collaboration and collaborative learning is often realized by the e-tutor. E-tutors are defined according to their main function, which is to supervise learners. According to this perspective, e-tutoring comprises all the activities of a teacher that support a learner in constructively and actively handling the learning environment (Kopp, Germ, & Mandl, 2010).

Main collaborative activities in virtual learning environments which should be supported by e-tutors are especially content-specific cognitive, social activities (Kopp, & Mandl, 2011), and meta-cognitive activities. *Cognitive activities* include knowledge exchange (dissemination of shared and unshared knowledge between group members), online discussion (deeply discussion different points of view), argumentation (justifying different points of view), collaborative problem solving, and considering different perspectives. Regarding *social activities*, the focus is on the motivation of the group members (Elliot & McGregor, 2001), interpersonal interaction (Nemeth, 1986), social influence processes (e.g., ignoring minorities, imposing conformity upon group members), and information processing (e.g., superficial discussion, addressing the e-tutors rather than group members). *Meta-cognitive activities* are essential for self-guided collaborative learning. In this context, planning/organizing, monitoring and regulating collaborative learning are main strategies. While the planning and organizing of collaborative activities takes often place before collaborative learning and includes the choice of specific strategies, monitoring and regulating collaborative activities are essential during the collaboration process. With help of an actual-theoretical-comparison, the learning success is evaluated (Schreblowski, & Hasselhorn, 2006). Based on the results of this evaluation process, regulation takes place when it is necessary.

Even though specific cognitive, social, and meta-cognitive activities are essential for effective learning, the question is how e-tutors support such collaborative activities in practice. On a theoretical basis, there are especially two possibilities of supporting online collaboration: providing specific structures in the virtual learning environment like scripts or directly intervening during the collaborative learning process (Kopp, & Mandl, 2011). In e-tutoring, direct intervention using feedback is of main importance. Providing feedback which “is conceptualized as information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one’s performance or understanding” (Hattie, & Timperley, p. 81), is very helpful to prevent the student’s sense of being totally alone and unguided (Schweizer, Paechter, & Weidenmann, 2001)

and to specifically react on problems of the learners. The objective of giving feedback is to reduce the discrepancies between the student's current understanding and a desired goal.

E-tutors themselves who are main agents responsible for the delivery of the courses and the support of the learners, must be equipped with an appropriate set of skills in addition to subject matter expertise (McPherson, & Nunes, 2004). As e-tutoring differs in number of ways since e.g. it places greater emphasis on written skills, produces a more formal tone, promotes multiple conversations, or requires teachers to assess the worth of online contributions (McPherson, & Nunes, 2004), it seems necessary that e-tutors are experienced in fostering online learning. Research on the experience of e-tutors show that more experienced e-tutors post more contributions in their courses (Goold, Coldwell, & Craig, 2010), give more direct instructions and feedback, and deal more often with pedagogical knowledge than novice tutors (Maor, 2008). But there is no literature on the way how experienced e-tutors differ from non-experienced e-tutors in their practical support behavior when fostering online collaboration. Therefore, in this study we had a closer look at differences regarding e-tutorial support and particularly at the role of e-tutors' experience.

Research Question: Do Experienced and Non-experienced e-tutors Differ in Supporting Online Collaboration?

As experienced e-tutors already know how collaboration in virtual learning environments functions, the assumption is that experienced e-tutors differ in their support from non-experienced e-tutors in that way that experienced e-tutors support collaborative online learning to a greater extent than non-experienced e-tutors.

Method

Sample

The sample comprised a total of 78 online courses from 17 different European countries described by e-tutors. 74.4% were experiences within higher education/university courses, 19.2% were lifelong learning experiences. Inclusion criteria were as follow: (a) the respondent is a teacher, an instructor, or a tutor of an e-learning course (or, otherwise, he/she knows the experience sufficiently to give details about it); (b) the course is ongoing or it has been delivered in recent past; (c) the course is/has been delivered in blended or full-distance modality; (d) the course include online social interaction activities/collaborative learning activities (such as cooperation, etc.).

Procedure of the Study

A research team including researchers from five European countries (Italy, Germany, Finland, Switzerland, and France) contacted colleagues who were involved in e-learning experiences and invited them to complete a questionnaire on their e-learning experiences. In July 2007, all e-tutors received access to an online questionnaire in their language and were asked to answer this questionnaire for every e-learning experience they offered.

Instrument

An online questionnaire was created in order to get further insights into the way, e-tutors support online collaboration. In the questionnaire, collaborative activities were asked for, especially content-specific cognitive aspects, social aspects, and meta-cognitive aspects of collaboration as well as giving feedback. Regarding the *content-specific cognitive* aspects of collaboration, the questionnaire included five main activities: knowledge exchange, online discussion, argumentation, collaborative problem solving, and considering different perspectives. Each e-tutor was firstly asked on a six-point Likert scale (from 1, *not important*, to 6, *very important*) how important he or she evaluates these dimensions for collaborative online learning. In the second step, e-tutors were asked whether they intervened to foster the specific collaborative activity. In a third step, they were asked if yes, how they intervened and if no, why they did not intervene in an open format.

The questionnaire also asked e-tutors to evaluate *social activities*, namely motivation of the group members, interpersonal interaction, social influence processes and information processing. Regarding motivational aspects, two dimensions were investigated, namely different group goals (2 items) and dysfunctional competition. Interpersonal interaction included phenomena such as dysfunctional interpersonal conflicts, balanced participation, and diffusion/lack of responsibility. Social influencing factors were ignoring minorities and putting pressure on group members. Information processing included the sub-dimensions superficial discussion to avoid conflicts and addressing the e-tutor rather than group members (2 items). In the questionnaire, e-tutors were first asked whether they intervened to avoid such a dysfunctional phenomenon. If they answered yes, they were asked how they intervened, and if no, they were asked why they did not intervene.

Meta-cognitive activities included the planning and organization of group work. In this context, e-tutors were firstly asked how important they rate these activities for collaboration and secondly, whether they intervened to support these activities or not. If they answered yes, they were asked how they intervened, and if no, they were asked why they did not intervene.

Feedback was distinguished in feedback on the task and on the process level. *Feedback on the task level* included the final product of the collaborative work, while *feedback on the process* included two questions on content-related feedback and on feedback on group activities. Again e-tutors were asked how they evaluate the respective feedback and whether they gave such kind of feedback in their respective e-learning course. Furthermore, regarding the final product, e-tutors were asked how they evaluated the final product, using seven criteria, namely knowledge gain, knowledge application, understanding of the content, creativity, ability to collaborate, mastery/skillfulness, and effort, and which procedure they used for evaluation, namely tests, essays, collection of documents, quality of online participation, and observation of collaboration.

Data Analyses

We used the TwoStep cluster methodology to explore the data. The algorithm selected the optimal number of clusters based on either the Schwarz Bayesian Information Criterion (BIC) or the Akaike Information Criterion (AIC). We used separate t-tests and chi-square tests on variable(s) not used to form the clusters to test the validity of the cluster solution. We compared the clusters based on their response type across the various categories of support activities in terms of past experience of e-tutors, feedback practices and intervention rate.

Results

The cluster analysis identified two clusters whose stability was ascertained until 75 % of the sample size. Cluster 1 ($n=51$; 65.4%) comprised e-tutors who evaluated cognitive activities more important than e-tutors included in cluster 2 ($n=24$; 30.8%) (see table 1). Furthermore, e-tutors of cluster 1 reported to intervene more often to foster cognitive activities in online collaboration than e-tutors of cluster 2 (see table 2). Regarding social activities, e-tutors of cluster 1 reported to intervene more often than e-tutors of cluster 2 (see table 3). Furthermore, regarding meta-cognitive activities, e-tutors included in cluster 1 affirmed to promote more often long-term planning than e-tutors included in cluster 2 (see table 4).

Table 1: Results of e-tutor's evaluation of cognitive activities.

Clustering Items	Cluster 1 (n=51)			Cluster 2 (n=24)		
	<i>M</i>	<i>SD</i>	<i>z</i>	<i>M</i>	<i>SD</i>	<i>z</i>
How important was it for you...						
... to have participants exchange their knowledge?	5.41	(.90)	.14	4.83	(1.76)	-.29
... to have participants involved in content-related online discussion?*	5.47	(.09)	.20	4.58	(1.95)	-.44
... to have participants involved in argumentation?**	5.33	(1.07)	.26	4.08	(2.00)	-.54
... to have participants work together online on problems and cases?	4.90	(1.58)	.10	4.13	(2.27)	-.31
... to have participants integrate their different perspectives?	5.25	(1.00)	.13	4.63	(2.28)	-.27

* $t(73) = 2.70, p = .009$; ** $t(73) = 3.53, p = .001$

Table 2: Results of e-tutor's evaluation of intervention rate for cognitive activities.

Clustering Items	Cluster 1 (n=51)		Cluster 2 (n=24)	
	<i>yes</i>	<i>no</i>	<i>yes</i>	<i>no</i>
Did you intervene to promote...				
... the exchange of knowledge/information?	46	5	10	14
... content-related online discussion?*	48	3	14	10
... argumentation?*	46	5	13	11
... collaboration in problem solving?*	48	3	14	10
... the integration of different perspectives?*	40	11	8	16

* $p < .05$ according to Chi-Square Test

Table 3: Results of e-tutor's evaluation of intervention rate for social activities.

Clustering Items	Cluster 1 (n=51)		Cluster 2 (n=24)	
	<i>yes</i>	<i>no</i>	<i>yes</i>	<i>no</i>
Did you intervene to avoid such a phenomenon				
... individual goals (different group goals I)*	21	30	1	23
... outcome than process (different group goals II)*	23	28	0	24
... dysfunctional competition*	16	35	2	22
... dysfunctional conflicts	21	30	5	19

... balanced participation*	30	21	7	17
... lack of responsibility*	27	24	2	21
... ignoring minorities	20	31	6	18
... putting pressure on group members*	21	30	1	23
... superficial discussion (in order to preserve positive relationships)*	24	27	5	19
... content-related questions to get a response (addressing to the e-tutor I)*	35	16	3	21
... turning to e-tutor (addressing to the e-tutor II)*	38	13	4	20

* $p < .05$ according to Chi-Square Test

Table 4: Results of e-tutor's evaluation of intervention rate for meta-cognitive activities.

Clustering Items	Cluster 1 (n=51)		Cluster 2 (n=24)	
	yes	no	yes	no
Did you intervene to promote long-term planning?*	35	16	3	21
Did you intervene to support participants in the organization of group work?	34	17	11	13

* $p < .05$ according to Chi-Square Test

Validity of the two cluster solutions was evaluated by testing group differences on variables that were theoretically or empirically related to each cluster. We used as cluster validation items concerning the past experience of e-tutors in designing and realizing online courses. We expected e-tutors with experience to be over-represented in cluster 1, which was confirmed by a chi-square analysis. The great majority of e-tutors with past experience in designing and realizing e-learning courses belonged to cluster 1, ($\chi^2(1, n = 75) = 11.75, p < 0.01$).

Furthermore, we examined the e-tutor's feedback looking at the feedback rate (see table 5) and at the final product used to evaluate the collaborative work of the participants and at the procedure used for evaluation using t-test analyses. E-tutors classified in cluster 1 significantly affirmed to use more feedback on the process and on the task solution than e-tutors without experience.

Table 5: Results of e-tutor's evaluation of intervention rate for feedback activities.

Clustering Items	Cluster 1 (n=51)		Cluster 2 (n=24)	
	yes	no	yes	no
Did you evaluate or rate the on-going activities of the collaborative work?*	35	16	2	22
Did you give feedback related to group activities?*	40	11	8	16
Did you evaluate or rate the final product of the collaborative work?*	42	9	13	11
Did you give content-related feedback to your participants?*	48	3	19	5

* $p < .05$ according to Chi-Square Test

Regarding the criteria and procedure of giving feedback, there were significant differences between six out of twelve dependent variables (as for criteria "understanding of the content", $t(53)=2.67, p=.01$; "creativity", $t(53)=2.38, p=.02$; "mastery/skilfulness", $t(53)=2.23, p=.03$; and "effort", $t(53)=2.23, p=.002$; as for procedures: "quality of online participation", $t(53)=2.11, p=.04$; and "observation of collaboration", $t(53)=3.09, p=.003$). As expected, e-tutors of Cluster 1 agreed significantly more often than e-tutors of Cluster 2 to the respective evaluation criteria for the final product of collaborative learning.

Discussion

On the basis of a cluster analysis, it was possible to build two clusters with experienced and less experienced e-tutors. These two groups differ in various dimensions, when they were asked with a questionnaire concerning their daily practice. Experienced e-tutors evaluate specific collaborative activities and feedback in online learning as more important than non-experienced e-tutors, they reported to intervene more often to promote specific activities respectively to avoid dysfunctional phenomena and they affirmed to give more feedback on the collaborative process and on the task solutions. According to these data analyses, it seems that experienced e-tutors are more sensitized to the problems and pitfalls of virtual collaboration than e-tutors without experience, e.g. in detecting dysfunctional social phenomena.

Overall, e-tutors with experience seem to have more knowledge about collaboration processes, problems and pitfalls. Therefore, e-tutors evaluate the importance of specific collaboration activities higher and intervene more frequently in order to foster desired activities and outcomes and in order to avoid unwanted difficulties. To guarantee adequate support and supervision in online collaboration it seems to be necessary that all e-tutors are trained regarding their specific competencies, skills and roles as e-tutor. What we do not know according to our study is, whether experienced e-tutors just intuitively support online collaboration in their daily practice or whether they have the theoretical and empirical knowledge as basis on which they act in a reflected and profound way.

Importance of the Study

This study shows that experience in supporting e-learning groups is an essential precondition for evaluating relevant collaborative activities higher and in adequately intervening for fostering the interaction between group members. Furthermore, feedback as a key antecedent for learners to effectively deal with difficult problems in online collaboration is also more frequently used by experienced e-tutors in their daily practice. Even though, the analyses are based on subjective evaluation data of the e-tutors and on reported self-descriptions of past experiences on e-tutoring, this study gives a first indication that experience has an impact on the way to support online collaboration. To gain such experience, trainings of e-tutors seem to be essential – in adequately evaluating specific collaborative activities as well as in detecting dysfunctional group phenomena which may otherwise inhibit effective group work.

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