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Cross-age peer tutors in asynchronous discussion groups: Exploring the impact of three types of tutor training on patterns in tutor support and on tutor characteristics

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ABSTRACT

This study was conducted in an authentic university setting with fourth-year Educational Sciences' students operating as online peer tutors to facilitate freshman tutees' online collaboration and knowledge construction in a blended "Instructional Sciences" course. Taking into account prior research uncovering weaknesses in online peer tutor behaviour, the aim of the study was to explore the possibility to optimise the quality and the nature of online peer support. In this respect, the study examined the impact of three tutor training conditions (multidimensional support, model/coach, and control condition) on peer tutors' actual tutor behaviour in asynchronous discussion groups and on tutors' self-efficacy beliefs, perceived collective efficacy, and training evaluation. Quantitative content analysis was applied to study online peer tutor behaviour. More specifically, two coding schemes were used focusing respectively on the occurrence of different e-moderating activities and on the evolution from modeling to coaching behaviour. Tutors' self-efficacy beliefs, perceived collective efficacy, and training evaluation were assessed by means of questionnaires.

The results indicated that, compared to the control condition, in both the multidimensional support and the model/coach training the occurrence of social postings decreased whereas the presence of support stimulating tutees' personal development increased. Regarding the evolution from modeling to coaching behaviour, tutors started as a model in both experimental training conditions. Further, it appears that the experimental training conditions differ significantly with regard to peer tutors' self-efficacy beliefs on fostering knowledge construction and with regard to the tutors' personal training evaluation. Overall, it can be concluded that an explicit tutor training appears to determine the adoption of the expected types of tutoring activities. In this respect, providing novice peer tutors with guidelines by means of a specific training is fruitful for realising more adequate online tutoring behaviour and optimising self-efficacy beliefs regarding tutoring competences.

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1. Introduction

The present study focuses on blending cross-age peer tutoring with asynchronous discussion groups in higher education in order to answer the need for guidance and structure in computer-supported collaborative learning (CSCL) environments as suggested by numerous researchers (e.g., Falchikov, 2001; Rickard, 2004; Salmon, 2000). Peer tutoring can be defined as "people from similar social groupings who are not professional teachers, helping each other to learn, and learning themselves by teaching" (Topping, 1996, p. 322). A more capable, knowledgeable, and experienced peer with a supportive role is called the 'tutor', while less experienced students receiving help from a tutor are called 'tutees' (Topping, 1998). Cross-age peer tutoring refers to older or more knowledgeable students tutoring younger students (Gautrey, 1990; Gumpel & Frank, 1999).

Peer tutoring as a certain type of collaborative learning was initially studied within face-to-face learning environments in compulsory education (Höysniemi, Hämäläinen, & Turkki, 2003; Verba, 1998; Wright & Cleary, 2006). It is only since the turn of the century that the research field of CSCL has been discovered as a powerful learning environment for introducing peer tutoring on an organised educational basis. Thus far, research about online peer tutoring remains rather scarce (Cheng & Ku, 2009; de Vries et al., 2005; Höysniemi et al., 2003; Jones, Garralda, Li, & Lock, 2006; McLuckie & Topping, 2004). It is, however, expected that in the near future the current technological and

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societal changes that require more distance and continuous learning will increase the chance that educators – at any level of education – integrate online peer tutoring in their curricula. Hence, further research into the implications of introducing online peer tutoring at different educational levels is needed. An additional challenge in the area of peer tutoring is related to the rather one-sided focus on effect studies (e.g., Cheng & Ku, 2009; Griffin & Griffin, 1998; Gyanani & Pahuja, 1995; Kassab, Abu-Hijleh, Al-Shboul, & Hamdy, 2005; Kibble, 2009; Nikendei, Andreesen, Hoffmann, & Junger, 2009). So far, too little attention has been paid to processes underlying the positive outcome effects of introducing peer tutoring in a particular educational context. Many studies have examined the effects of peer tutoring without examining the nature of the collaboration that occurs. Only a few studies specifically focus on the quality of the helping task and the specific role of a peer tutor (Colvin, 2007; King, 1997). As to online peer tutoring, there is some descriptive literature about the different roles, tasks, and responsibilities of online peer tutors (McLuckie & Topping, 2004), but there are hardly studies examining the nature of online peer tutoring behaviour (Gyanani & Pahuja, 1995; Höysniemi et al., 2003; Kassab et al., 2005; Sobral, 2002).

Finally, there is widespread agreement that peer tutoring activities – whether online or not – are less effective without prior tutor training (Falchikov, 2001; Jenkins & Jenkins, 1987; Kassab et al., 2005; Parr & Townsend, 2002; Rossi & Steiger, 1997). Nevertheless, many studies have examined the effects of peer tutoring without preparing the tutors. In addition, studies illustrating a practical and comprehensive model for a peer tutoring skills training are only investigated to a limited extent (Blankenburg & Kariotis, 2000; Chappell, 1995; Nath & Ross, 2001).

The limitations in the current research, namely the need for studies focusing on *online* peer tutoring, the lack of process studies exploring the quality and nature of peer tutor behaviour, and the need for studies evaluating the differential impact of peer tutor trainings on actual tutor behaviour, are taken into account in the present study. The study addresses determinants of the supportive tutor role and the actual tutoring behaviour of fourth-year Educational Sciences students introduced within asynchronous discussion groups. More specifically, the impact of specific tutor training on patterns in tutor support and on tutor characteristics (self-efficacy beliefs, perceived collective efficacy, and training evaluation) is studied.

2. Theoretical framework

2.1. Tutor training

In line with Topping (1996), we argue that a preliminary tutor training requires time and tutor reflection on the tutorials together with colleagues, and that a training can be specific, generic, or both. As tutor training usually aims at transferring newly acquired tutoring behaviour to the actual tutoring setting, we particularly assume that tutor preparation should focus on helping tutors to deliver the type of support that is most relevant at a certain time. In the present study, tutor training centred on remedying weaknesses identified in earlier research involving cross-age peer tutors in a CSCL-setting (De Smet, Van Keer, & Valcke, 2008, 2009). Prior research revealed that tutors are predominantly engaged in social support at the expense of stimulating tutees' 'personal development' (De Smet et al., 2008). This implies that tutors generally tend to agree with the contents of the discussion without paying much attention to challenging learners' thoughts, for example by playing the devil's advocate and by encouraging reflection. Bonk, Wisner, and Lee (2004) refer in this respect to the problem that students are 'too friendly to one another' in e-learning settings. Subsequently, prior research illustrated that peer tutors' supportive contributions do not evolve automatically from supplying explicit to indirect prompts (De Smet et al., 2009). This finding does not fit in with Moust and Schmidt's (1994) recommendation that tutors should evolve from a 'model' to a 'coach'. Moust and Schmidt argue that tutors should be 'models' when students' contributions are still insufficient to support the social construction of knowledge. At this stage the tutor clearly exemplifies how the learning activities within the discussion group can be facilitated, for example by summarising dialogues, by concretising theoretical concepts, by rephrasing, and by pointing to discrepancies and similarities. A tutor acting as a 'coach' no longer models. Instead, s/he fades out assistance, elicits response, and makes suggestions to improve the discourse while students themselves take the lead in the discussion. The coach should only intervene in cases of misunderstanding.

Taking into account the findings of earlier studies and acknowledging a large body of research endorsing and describing various training programs developed to improve particular skills of trainees (Huberty & Davis, 1998; McDermott et al., 2001), in the present study two experimental tutor trainings were introduced and contrasted with a control condition. The experimental tutor training approaches were implemented to affect and improve patterns in tutoring behaviour that are consistent with Vygotsky's (1978) social-constructivist idea of learning and instruction. More specifically, Vygotsky emphasises that knowledge is interpersonal before it becomes intrapersonal, and in order to foster the construction of the former, social interaction and support connected with 'the zone of proximal development' is crucial. In our study tutors were stimulated to vary between e-moderating activities during tutoring, going from fostering access and motivation, over encouraging socialisation, information-exchange, and knowledge construction, to fostering personal development (Salmon, 2000). In addition, the importance of evolving from modeling to coaching over time was stressed. As defined by Mason (2000), the purpose of fading out assistance is to encourage students to integrate useful ways of thinking into their own functioning.

2.2. Tutor characteristics

Inspired by the work of Nijman (2004) regarding determinants supporting transfer of training, and acknowledging that efficacy beliefs are standing at the very core of the Social Cognitive Theory (Bandura, 1993, 1997), next to patterns in tutor support we expected that also tutor characteristics related to student's motivation to act in the tutor role are influenced by specific tutor training.

We first focused on tutors' self-efficacy beliefs since they positively contribute to self-regulatory cognitive functioning (Bandura, 1993) and transfer of trained skills (Nijman, 2004; Orpen, 1999; Saks, 1995). Self-efficacy refers to a belief in the ability to execute courses of action to achieve desired outcomes. In their empirical work, Bandura (1993) and Pajares (2004) show a particular interest in whether self-efficacy is proportional to its effect on behaviour. With regard to teachers' sense of self-efficacy, for instance, Bandura (1993) revealed that "teachers who believe strongly in their instructional efficacy create mastery experiences for their students" (p. 140). In contrast, "teachers that have doubts about their efficacy, construct classroom environments that are more likely to undermine students' sense of efficacy and cognitive development" (p. 140).

Secondly, since learning in a peer tutoring setting is to be considered as a specific type of collaborative learning (Griffin & Griffin, 1998; Slavin, 1996; Topping, 1996), tutors' perceived collective efficacy of their discussion group as a whole is included in the present study as

well. As described by Bandura (1997), collective efficacy is based on research into group dynamics and refers to the self-efficacy of a group, team, or larger social system or entity. Bandura (2000) suggested that perceived collective efficacy is very likely affected by the group interaction, how the group is structured, and how well the group is led. He further reported that one's appraisal of the groups' capability and functioning operates as an important contributor to human agency. More specifically, Bandura (2000) found that "the higher the perceived collective efficacy, the higher the group's motivational investment in their undertakings, the stronger their strength in the face of impediments and setbacks, and the better their accomplishments" (p. 78). The expected impact of collective efficacy beliefs can also be compared to the findings of Fresko (1996). She observed that if university tutors and tutees were pleased with their participation, they were more inclined to continue in their respective roles and accrue to the benefits that peer tutoring has to offer.

Thirdly, inspired by studies in educational evaluation (Barnard, Veldhuis, & van Rooij, 2001; Huberty & Davis, 1998; Kirkpatrick, 1994) also one's personal training evaluation is taken into account. According to Cousins and MacDonald (1998), with regard to training evaluation the trainee should be the primary unit of analysis since "most evaluations determine only if participants liked the materials, format, facilitators, and whether they learned the concepts and skills taught in the program" (p. 334).

The present study considered the impact of different training conditions on tutor-dependent characteristics. As we assumed that tutor characteristics will be influenced by the tutor training, the central question was whether different training approaches make a difference regarding the expected impact of different training approaches on self-efficacy, perceived collective efficacy, and personal training evaluation. This idea is associated with the research of Nijman (2004) on the interaction between specific training approaches and resulting trainee characteristics in organisations. It also follows the empirical work of Brown and Morrissey (2004) exploring the effects of different training conditions on undergraduate students' self-efficacy beliefs with regard to presentation performance.

3. Aim of the study and research questions

The present study aimed to explore the impact of different tutor training conditions on online tutoring behaviour and on tutor characteristics. More specifically, the following research questions were put forward:

1. Do contributions of peer tutors assigned to one of the three training conditions (i.e., multidimensional support, model/coach, control condition) differ with regard to patterns in e-moderating?
2. Do contributions of peer tutors assigned to one of the three training conditions differ over time with regard to the adoption of modeling and coaching behaviour?
3. Do peer tutors in the multidimensional support training condition differ from peer tutors in the model/coach training condition with regard to their self-efficacy beliefs, perceived collective efficacy, and personal training evaluation over time?

Fig. 1 presents a schematic representation of the variables under study and the hypothetical relation between them. Two independent variables are presented, namely the 'tutor training' students received (i.e., multidimensional support, model/coach, control condition) and 'the point in time' the discussion groups are organised (starting versus closing tutor phase). Further, students' 'online peer tutoring behaviour' (patterns in e-moderating and prominent modeling versus coaching behaviour) and their 'tutor characteristics' (self-efficacy beliefs, perceived collective efficacy, and evaluation of the received training) are the dependent variables under study.

4. Method

4.1. Participants and setting

The study was conducted in an authentic university setting in which participation in asynchronous discussion groups is a formal component of the blended course 'Instructional Sciences', part of the first-year Educational Sciences' curriculum. These online discussion groups are organised to stimulate first-year students' exchange of ideas and knowledge construction by social interaction and debate on the

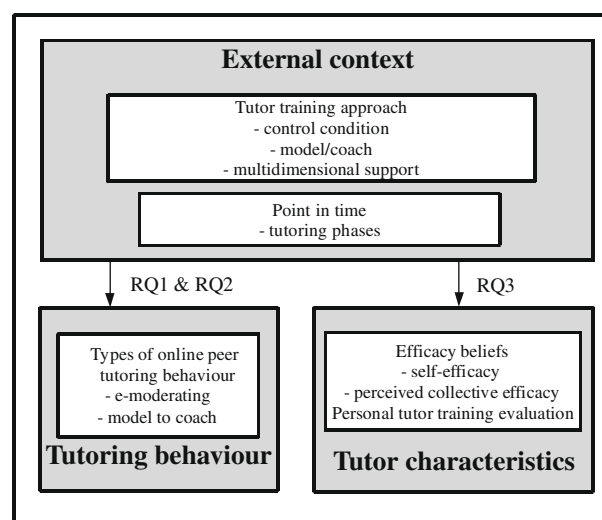


Fig. 1. Variables and research questions studied.

theoretical concepts dealt with during the weekly face-to-face sessions and in the course manual. According to Macdonald (2006), “blended learning is associated with the introduction of online media into a course, while at the same time recognising that there is merit in retaining face-to-face contact” (p. 2).

The discussion groups were designed with Web Crossing (<http://webcrossing.com/>). This environment allows users to receive an outline of the discussion thread and to track individual students' input. Sample pages of the asynchronous discussion environment are included in the Appendix.

Tutors ($N = 96$) were fourth-year Educational Sciences' students, performing the tutoring activities as the core of their educational internship. Both tutors and tutees represented the entire population of respectively fourth- and first-year students ($N = 723$). Since in the present study cross-age peer tutoring was opted for, the dividing line between tutees and tutors is apparent. Cross-age peer tutoring refers specifically to older and more knowledgeable students tutoring younger students (Gautrey, 1990; Gumpel & Frank, 1999). In this respect, all students participating in the study are Educational Sciences students, however *fourth-year students* were engaged as tutors of *freshman* tutees. Since these students are master students (all of them reached the bachelor degree, they passed among others the exam of the course “Instructional Sciences”, and took already 180 ECTS credits), they can be considered as more capable and knowledgeable than the freshmen they tutor. In addition, since all tutors are three years ahead in their education, they are more experience as well. Moreover, since the freshman course “Instructional Science” is organised in the first semester, tutees can be considered as complete novices in the field of educational science, especially since the large majority are generation students.

4.2. Procedure

4.2.1. Group assignments

During the first semester, fourth-year tutors supported freshmen while working on successive group assignments. For all training conditions, these assignments were of equal complexity, as evaluated by content area experts of the department, and related to distinct themes in the course. Completing each assignment lasted two weeks. Afterwards, the discussion was accessible on a read-only base and a new assignment was presented. The group assignments were identical for all discussion groups and can be characterised as open-ended tasks, implying no standard approach, nor resulting in single right answers. Furthermore, the assignments were quite complex and extensive in order to force group members to join efforts instead of solving tasks on their own. In view of studying the second research question, the assignments were clustered in two separate tutoring phases. In this respect, tutoring activities were studied at the start and at the end of the peer tutoring period.

4.2.2. Tutor training conditions

Two weeks before the onset of the CSCL-activities, a 3-h face-to-face tutor training session was set up. Notwithstanding the content-focused differences in the three training conditions as described underneath, all tutor training approaches ended with an in-depth demonstration and try out of the technical CSCL-environment. Additionally, a tutor website was made available summarising practical information next to a specific guidebook with background information about the respective tutor training approach. As presented in Table 1, cross-age peer tutors were randomly assigned to one of the three training conditions: (a) the multidimensional support condition ($N = 29$), characterised by aiming at variation into tutors contributions; (b) the model/coach condition ($N = 28$), stimulating tutors' to evolve from model to coach; and (c) a control condition ($N = 39$), typified by all-round information on online facilitation. Inspired by the empirical work of Huberty and Davis (1998) and McDermott et al. (2001), a distinction was made between pre-service and in-service training components. Table 1 gives an overview of the conditions and describes the specific point of interest the training focuses on. Moreover, the training students received prior to the actual peer tutor assignment, the support tutors received during weeks they were as tutor responsible for a discussion group, and the presence of a tutor website and training manual are also presented.

In all three conditions, the training was given by the researchers. At the onset of the training, the objectives of the training were communicated and discussed with the students. At the start, all tutors – regardless of the condition they are in – received information on communication and on the differences between face-to-face versus online interaction. In this respect, also a distinction was made between synchronous and asynchronous online interaction. Taken into account the asynchronous nature of the present study, the advantages of asynchronous discussions in terms of independency of time and location and increased time to reflect, think, and search for additional information before contributing to the discussion, were discussed. Further, all tutors were introduced into important tutor skills, namely

Table 1
Overview of the training characteristics of the three distinct tutor training conditions.

Experimental tutor training conditions	Model/coach condition ($N = 28$)
Multidimensional support condition ($N = 29$)	
<i>Content focus:</i> Tutors were stimulated to adopt a broad range of supportive contributions that build on the taxonomical e-moderating model of Salmon (2000)	<i>Content focus:</i> Tutors were stimulated to evolve in their contributions: a decline in the number of messages and an evolution from supplying information to inviting for input (Mason, 2000; Moust & Schmidt, 1994)
<i>Pre-service training:</i> Theoretical introduction on e-moderating; examples of good practice; writing exercises on transcripts; discussions in dyads of tutors; demonstration of the CSCL-environment	<i>Pre-service training:</i> Theoretical introduction on model to coach evolution; examples of good practice; writing exercises on transcripts; discussions in dyads of tutors; demonstration of the CSCL-environment
<i>In-service training:</i> Focus groups	<i>In-service training:</i> Focus groups
<i>Tools:</i> Tutor website; training manual	<i>Tools:</i> Tutor website; training manual
Control condition ($N = 39$)	
<i>Content focus:</i> Tutors received all-round instructions about their future online tutoring task and role so that they could master a relevant mix of organisational, (meta)cognitive, and social tutoring skills (Backroad Connections Pty. Ltd., 2002; Rickard, 2004)	
<i>Pre-service training:</i> Theoretical introduction on functional online facilitation skills; examples of good practice; demonstration of the CSCL-environment	
<i>In-service training:</i> Focus groups	
<i>Tools:</i> Tutor website; training manual	

asking questions and providing feedback. As to the skill of asking questions, students were initiated in different types of questions, aiming at motivating the participants to engage in the discussion, eliciting reactions, activating prior knowledge, testing comprehension, encouraging in-depth discussions, evaluation, . . . As to the skill of providing feedback, specific guidelines were discussed with the students (e.g., linking feedback to the aim of the online discussion assignments, providing specific feedback, providing directions for improvement, giving positive or constructive feedback).

In the first experimental condition, labelled as the multidimensional support condition, tutors were particularly stimulated to consider and adopt a broad range of supportive contributions that build on the taxonomical e-moderating model of Salmon (2000). The taxonomical structure of the model, implying the development of consecutively more complex e-moderating skills, was explained. This implies that peer tutors were expected to consider a variation of support activities over time fostering: (1) access and motivation, (2) socialisation, (3) information-exchange, (4) knowledge construction, and (5) personal development. Further, the series of stages that e-moderating consists of were discussed separately and linked to the corresponding points of interest that tutors should take into account and the different responsibilities they should take up. More specifically, the peer tutors received training in how to stimulate the collaboration in view of reaching the fifth level of personal development. More specifically, in order to become confident in eliciting tutees' personal development they received an introduction to theoretical conceptions about developing critical thinking skills (Halpern, 1998; Huberty & Davis, 1998) and reflection skills (Kelchtermans, 2000; McGrath & Higgins, 2006; Schön, 1983).

In a next step, examples of good practice, based on a large set of tutor contribution samples from previous research, were discussed aiming to promote transfer of the demonstrated skills. Since mastering new skills requires exercise (Halpern, 1998), tutors were engaged in a 1-h practice session on how to facilitate tutees' personal development by means of text-based communication. Recently, Crippen and Earl (2007) pointed out that the inclusion of worked examples helps to reduce cognitive load and to increase self-efficacy.

In the second experimental training condition, labelled as the model/coach condition, tutors were particularly expected to evolve in their contributions: a decline in the number of contributions and an evolution from supplying information to inviting for input. Next to an introduction to the theoretical conceptions of modeling and coaching behaviour (Moust & Schmidt, 1994), fading out tutor presence in the discussions was recommended in order to reorient tutor assistance depending on the cognitive and social capacities of the group (Mason, 2000). In addition, many examples of adequate modeling and coaching behaviour were presented and the appropriateness of such tutor contributions was discussed depending on the phase in group discussions. This pre-service exercise was enriched by writing practices on transcripts and by discussions in dyads of tutors.

The contents of the two experimental training approaches differed from the largely theoretical tutor training as introduced in the control condition (De Smet et al., 2008, 2009). In contrast with the more specific content-focused instructions in the experimental training conditions, in the control condition tutors received all-round instructions about their future online tutoring task and role so that they could master a relevant mix of organisational, (meta)cognitive, and social tutoring skills (Backroad Connections Pty. Ltd., 2002; Rickard, 2004). As mentioned above, peer tutors were more particularly informed about functional skills such as community building, asking questions, triggering reflection, and providing feedback. Although some examples of good practice were provided, tutors in the control condition did not exercise tutoring interventions and no trial discussions were organised.

4.2.3. Focus groups

Every two weeks, focus groups were organised on campus to discuss tutors' performance, to improve their online peer tutoring activities, and to meet peer tutors' need for continuous supervision and support. These in-service face-to-face meetings were set up in small groups of about 10 tutors and were built into take into account Topping's (1996) guideline that a peer tutor training demands reflection on tutorials with other peer tutors. The focus groups were organised per condition, but ran completely parallel. More specifically, the focus groups were structured as an occasion for tutors to share their experiences, to discuss authentic cases from their own discussion group, and to learn from each others' approach. The researchers moderated the focus groups, but dialogue between tutors was at the forefront.

4.3. Content analysis

Quantitative content analysis was applied to analyse the complete dataset of transcripts generated during the asynchronous discussions. In the last decade, online asynchronous discussion groups have become a primary focus of educational research (Pena-Shaff & Nicholls, 2004). The interaction confined in the transcripts of the discussion, is thus the object of a large body of recent educational research. At a first stage, research based on the discussion transcripts was mainly restricted to gathering quantitative data about levels of participation (Henri, 1992). However, these quantitative indices about numbers of student contributions hardly helped to judge the quality and nature of the interaction (Meyer, 2004). At a later stage, content analysis was adopted as a technique to unlock the information captured in transcripts of asynchronous discussion groups. In general, the aim of content analysis is to reveal information that is not situated at the surface of the transcripts. The present study focuses on transcript analysis. This content analysis technique can be defined as "a research methodology that builds on procedures to make valid inferences from text" (Anderson, Rourke, Garrison, & Archer, 2001). In the present study two different coding schemes were used to analyse the expression of tutor behaviour in the online discussion groups.

4.3.1. Unit of analysis

The 'unit of meaning' in a tutor message was chosen as the unit of analysis. Following Chi (1997) a unit of meaning is defined as a unit that represents a consistent idea, argument chain, or discussion topic. Since online tutoring is to be considered as a multidimensional activity, it is clear that tutors' contributions can reflect a variety of units within a single message. Therefore, tutor messages were split up into units of meaning.

4.3.2. Coding scheme

Tutor contributions were analysed by means of a content analysis scheme based on Salmon's (2000) five-step model for e-moderating. Table 2 presents the seventeen categories distinguished in the taxonomical e-moderating model. Each category is assigned to one of the five steps Salmon (2000) distinguishes in e-moderating and supplied with an example message.

Table 2
Coding scheme based on the five-step model for e-moderating (Salmon, 2000).

E-moderating	Indicators of tutor behaviour	Examples
Access and motivation	Elucidating the digital learning environment as well as conceptions about the tutor role	<i>Please, use the reply button</i>
	Being accessible to computer-related problems	<i>I have to challenge all of your thoughts Maybe, you can use the quick edit help link I send the text in an attachment to your personal inbox Please, do not hesitate to login. Good luck!</i>
	Encouraging participating and wishing good luck	<i>I would like to wish you a nice New Year's Eve Interesting discussion! Well done! Very good! Thanks for the explanation! Kind regards. Indeed, this is a difficult learning task</i>
Socialisation	Informal talk	<i>I would like to wish you a nice New Year's Eve</i>
	Appreciating and confirming contributions Showing commitment	<i>Interesting discussion! Well done! Very good! Thanks for the explanation! Kind regards. Indeed, this is a difficult learning task</i>
Information exchange	Modeling and illustrating the contents with examples, personal views, and concepts	<i>The theory of PDP describes the following idea ...</i>
	Bringing in other content information	<i>You can draw inspiration from the media mentioned in the course book and on the Internet I would like to advise this website: ... We are reaching the end of the discussion theme, so it is time for finishing contributions From Tuesday until Monday, we can make the comparison between behaviourism and cognitivism Tutors repeat or divide the assignments in parts I think that they mean to point out some arguments</i>
	Organisational arrangements and planning	<i>We are reaching the end of the discussion theme, so it is time for finishing contributions From Tuesday until Monday, we can make the comparison between behaviourism and cognitivism Tutors repeat or divide the assignments in parts I think that they mean to point out some arguments</i>
Knowledge construction	Unravelling the learning task Explaining the learning task	<i>Please, can you give an example? So, the point is that ..., can you rephrase ... It would be nice that someone makes a scheme of the given arguments During this discussion theme you all have done the best to motivate each other, to cooperate, to answer my questions, to add extra information, and to present personal experiences</i>
	Asking for content explanations and clarification	<i>Please, can you give an example? So, the point is that ..., can you rephrase ... It would be nice that someone makes a scheme of the given arguments During this discussion theme you all have done the best to motivate each other, to cooperate, to answer my questions, to add extra information, and to present personal experiences</i>
	Asking to summarise Giving feedback about learning and social processes, giving suggestions to both the individuals and the group	<i>It would be nice that someone makes a scheme of the given arguments During this discussion theme you all have done the best to motivate each other, to cooperate, to answer my questions, to add extra information, and to present personal experiences</i>
Development	Call for further reflection	<i>Well, if you try to work with advance organisers, what might happen then with the declarative, procedural, and/or metacognitive knowledge? Pictures make propositions less complex. Can someone draw the link between this assumption and the information processing model? Imagine that you are a teacher, how should you react now? Going back to your own school context, does the model stay attractive?</i>
	Elaboration. This is a type of communication that invites students to put earlier ideas in another or new context Playing devil's advocate. This is a type of communication that creates doubts during contributing. For example, tutors prompt counterarguments, reverse the reasoning, and/or posit 'what if' questions	<i>Well, if you try to work with advance organisers, what might happen then with the declarative, procedural, and/or metacognitive knowledge? Pictures make propositions less complex. Can someone draw the link between this assumption and the information processing model? Imagine that you are a teacher, how should you react now? Going back to your own school context, does the model stay attractive?</i>

In order to explore the impact of the different training conditions, an additional content analysis scheme was applied. Operational definitions of the distinct coding categories and examples were introduced in De Smet et al. (2009). The instrument focuses on four process dimensions, namely tutors' (1) social and organisational support in the learning community, (2) domain-specific support with regard to the learning contents and group assignments, (3) modeling or inviting (coaching) for knowledge construction, and (4) off-task behaviour. Following Moust and Schmidt (1994), explicit prompts, such as providing examples, were categorised as modeling behaviour while indirect prompts or invitations to contribute to the discussion were categorised as coaching behaviour.

4.3.3. Coding strategy and reliability

The segmentation and coding procedure was performed by trained coders. At first, two independent coders received a training to carry out the segmentation procedure. As suggested by Srijbos, Martens, Prins, and Jochems (2006), a procedural distinction was made between the segmentation process into units of analysis and the content analysis and coding process. Next, the researchers compared and discussed the segmented units of meaning in order to reach consensus. Finally, the coders received a training to apply the subcategories in the two coding schemes. The training was based on a sample of 178 tutor contributions. After the training exercises and in view of determining coding reliability, a sample of 436 units of meaning or 12% of the full sample of units was coded by both coders. A moderate Cohen's Kappa (.73) was calculated indicating the level of agreement between the two coders beyond chance. With regard to the second coding scheme, an acceptable Cohen's Kappa (.72) was observed as well. When Cohen's Kappa is used, values between .40 and .75 represent fair to good agreement beyond chance (Neuendorf, 2002).

When ascribing a code to the different units of analysis in tutors' contributions, tutor messages were not studied in isolation of the rest of the asynchronous discussion. In the coding procedure applying both content analysis schemes, the complete discussion between tutees on the one hand and between tutor and tutees on the other hand was read and taken into account before assigning a specific code to the different units of analysis in tutors' messages. In this respect, the complete ongoing interaction was the context wherein tutor behaviour was studied.

4.4. Research instruments

In both experimental training approaches, tutors' self-efficacy beliefs, perceived collective efficacy, and personal training evaluation were assessed. The tutor characteristics investigated in this study referred to seven distinct variables. The first cluster consisting of four variables reflected tutors' self-efficacy beliefs with regard to fostering a sense of community or knowledge construction shortly before the onset of the tutoring period (starting phase) and during the closing phase. A second cluster consisting of two variables reflected tutors' perceived collective efficacy during both the starting and closing tutoring phase. One single variable referred to tutors' personal training evaluation that was tested immediately after their training.

4.4.1. Tutors' self-efficacy beliefs

The questionnaire measuring self-efficacy beliefs related to the tutor role was based on the Teachers' Sense of Efficacy Scale (12-item form) (Tschannen-Moran & Woolfolk Hoy, 2001), that builds on the Ohio State Teacher Efficacy Scale (OSTES), and on the Teacher Self-Efficacy Scale (Bandura, 2001). Ten items were selected from both instruments on theoretical and context-specific grounds. This implies that we selected only those items that were appropriate for assessing self-efficacy beliefs of peer tutors toward being a facilitator within a CSCL-environment. More specifically, items regarding peer tutors' self-efficacy in asking questions, enhancing text-based collaboration, and giving feedback were included. For example, 'To what extent can you craft good questions for your students?' (Tschannen-Moran & Woolfolk Hoy, 2001) and 'How much can you do to get students to work together?' (Bandura, 2001). Two 5-point Likert scales were distinguished (0 = to no extent; 4 = to a great extent). The first scale (Cronbach $\alpha_{\text{start}} = .64$; Cronbach $\alpha_{\text{end}} = .82$) contained seven items and represented tutors' self-efficacy beliefs with regard to fostering a sense of community. The second scale (Cronbach $\alpha_{\text{start}} = .65$; Cronbach $\alpha_{\text{end}} = .65$) was composed of three items referring to tutors' self-efficacy beliefs with regard to stimulating knowledge construction in CSCL.

4.4.2. Tutors' perceived collective efficacy

In order to measure tutors' perceived collective efficacy over time, the group potency scale of Guzzo, Yost, Campbell, and Shea (1993) was used. The original version was developed for use in professional face-to-face settings, containing items such as 'My group has confidence in itself' and 'No task is too tough for my group'. Considering the present educational online peer tutoring context, one item was removed from the original set. Participants rated the seven items using a 5-point response format (0 = to no extent; 4 = to a great extent). A high internal consistency (Cronbach $\alpha = .74$) was found. Perceived collective efficacy in this study represented an individual belief of the peer tutor in the efficacy of the asynchronous discussion group s/he was responsible for.

4.4.3. Tutors' training evaluation

Based on the literature on evaluating training in organisations (Cousins & MacDonald, 1998; Kirkpatrick, 1994; Michalski & Cousins, 2000), a seven-item scale was developed to investigate tutors' personal evaluation of training contents ('Training contents were relevant to me') and training strategies ('Training was presented nicely'). Immediately after training, tutors were asked to indicate to which extent they agreed with the statements on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The overall instrument reflected an internal consistency of .74.

5. Results

5.1. Descriptive results

In total, *fourth-year students* acting in the role of tutor posted 3482 messages in which the coders identified 9064 units of meaning: 1891 (21%) units resulting from tutors receiving the model/coach training approach, 1616 (18%) units from tutors that received the multidimensional support training, and 5557 (61%) units from tutors in the control condition. As can be derived from Table 3, the highest number of messages per tutor was posted during the starting tutoring phase (respectively on average 19.70, 17.58, and 21.35 tutor contributions at the start). In each training condition, there is a decrease in the average number of tutor contributions over time, leading to on average 13.64, 11.31, and 12.95 tutor messages at the closing tutoring phase.

5.2. Research question 1: impact of training conditions on tutors' patterns of e-moderating

To answer the first research question, peer tutor contributions were classified according to the five levels of e-moderating of Salmon (2000). Fig. 2 gives a schematic overview of the occurrence of the five steps of e-moderating behaviour per tutor training condition. As can be seen, the overall pattern in e-moderating is rather similar between the tutors in the different conditions.

Underneath, we present some extracts from the discussion groups illustrating the variety of the contributions of the peer tutors.

Mieke – 02:20pm Oct19, 2006

A word of welcome

Hi everyone,

I am Mieke, your tutor and I would like to welcome you all on this online discussion forum. As you all know, the aim of this discussion is to collaborate in order to come to a solution for the problem in the assignment. My job will be to guide and coach the discussion process and I will do this by summarising, repeating elements, clarifying things, ... In short, by structuring your learning process. Eventually, it is the intention that you take over my job to a certain extent, leading to self-regulation of your learning process.

For now, I would like to stress the importance that everyone contributes to the discussions since divergent opinions yield fascinating and new insights. Moreover, the discussion group is useful to elaborate on and to comprehend the theoretical background of the course.

Our first discussion assignment will focus on behaviourism as a learning theory. You will all see we have a busy programme. Therefore, I suggest to proceed immediately.

Table 3

Means and standard deviations of number of tutor messages, per tutor training condition and tutoring phase.

Tutor training	Model/coach condition		Multidimensional support condition		Control condition	
	Starting	Closing	Starting	Closing	Starting	Closing
M	19.70	13.64	17.58	11.31	21.35	12.95
SD	7.21	3.87	8.49	5.07	7.42	6.23

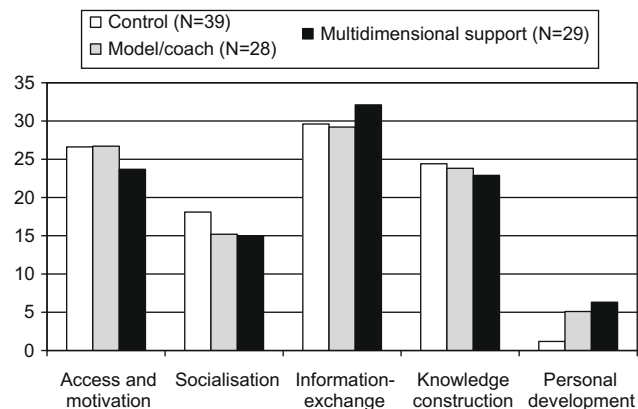


Fig. 2. Percentages of the occurrence of the different levels in e-moderation per tutor training condition.

So, that was all for now. Let me know when you have questions or problems!
I look forward to our collaboration and I wish you good luck!
Mieke

Imke – 04:21pm Oct22, 2006

Planning

Hi,
Some of you already started an interesting discussion. However, I would like to slow you down a little bit. I suggest to focus on the behaviouristic characteristics of RALFI, before starting with the third part of the assignment. In this way, the students who did not yet contribute to the discussion, can reflect on the first two parts of the assignment as well.

This planning does not keep you from discussing the first two assignment parts! Good luck!
Imke

Rik – 12:39 pm Nov18, 2006

Quotation of sources

Hi Marlies,
I really appreciate you refer to the source you read. Lies and Joke are including this information as well. Now the others!
I am really curious about the others' opinions about the possible contradiction you cite. Food for reflection???
Cheers, Rik

Andreas – 11:14 am Nov16, 2006

Some feedback

Hi everyone,
Time to give you some feedback about the previous assignment. . .

- *Structure*: During the second assignment, you introduced more structure to the discussion. This was a serious improvement!
- *Timing*: Try to spread out your contributions over the two weeks discussion time. In this way, we avoid to fall silent at the end.
- *React*: During tackling the assignments you went into each others' contributions. In this way, the discussion theme was elaborated on. A strength to take on in the next assignment!
- *Sources*: Supplying additional sources can be a rich supplement to the discussion. Try to integrate this extra information into the assignment and point explicitly at your reason to include the additional reference.
- *Examples*: The examples you include make the discussions more concrete. In this way, theory comes closer to practice, which is really important!

This feedback is more than looking back at the preceding discussion assignment. I hope it will also be a helping 'toolkit' to tackle the new task. That is what it's meant to be!

Good luck,
Andreas.

All tutors dominantly give tutor support that invokes 'information-exchange', followed by support focusing on 'access and motivation' and contributions eliciting 'knowledge construction'. The descriptive results also indicate that tutors in the multidimensional support or model/coach training condition engage more in stimulating tutees personal development. Further it appears that tutors trained to present

5.4. Research question 3: impact of training conditions on tutor characteristics

With regard to the third research question, statistical analyses were based on the comparison of mean questionnaire scores of tutors in both experimental tutor training conditions. The control condition was not taken into account since the tutor characteristics were not studied in this condition.

Self-efficacy beliefs of tutors were tested twice to be able to study evolution over time. Though tutors' overall self-efficacy beliefs are fairly high, tutors reflect lower mean scores during the concluding tutoring phase. A paired samples *t*-test reveals that the decrease over time is significant ($p < .001$) on both scales. Further comparison of tutors' self-efficacy beliefs shortly after training shows that tutors in the multidimensional training (mean = 2.74) reported a significantly higher level of self-efficacy with regard to fostering knowledge construction as compared to students in the model/coach training condition (mean = 2.40). As to the results, an independent *t*-test shows a significant difference between the conditions at the starting tutoring phase ($t = -2.237$, $df = 54$, $p = .029$).

Secondly, the evolution in tutors' perceived collective efficacy was studied considering the two different training conditions. Perceived collective efficacy is high in both training conditions (between 2.58 and 2.89). An independent samples *t*-test did therefore not result in significant differences. Tutors trained to provide multidimensional support did not show a higher or lower average perceived collective efficacy compared to tutors trained to evolve from model to coach. However, regardless of the tutor training condition tutors' collective efficacy is significantly higher in the closing tutoring phase (mean = 2.82) as compared to the starting phase (mean = 2.56). A paired samples *t*-test shows a significant increase over time that was significant at the 5% level ($t = -2.148$, $df = 56$, $p = .036$).

A third tutor characteristic taken into account in this study is the personal training evaluation of individual peer tutors. An independent samples *t*-test ($t = 2.809$, $df = 49$, $p = .007$) shows an overall significant difference in mean test scores in favour of tutors in the model/coach condition (3.63 versus 3.91). Looking in further detail at the mean differences for the seven distinct item scores between the training conditions, three items reflect significant differences. Being trained to evolve from 'model' to 'coach' appears to be conditional for reporting a higher mean score on the following items: (1) training contents have met my expectations ($p = .010$), (2) training contents have met my preparation needs ($p = .016$), and (3) training was presented nicely ($p = .018$).

6. Discussion

Building on the results of prior research uncovering weaknesses in online peer tutor behaviour (De Smet et al., 2008, 2009), the main aim of the current study was to explore the possibility to optimise the quality and the nature of online peer support by means of specifically developed tutor training approaches. More specifically, the present study examines the impact of three different tutor training interventions on the actual behaviour of cross-age peer tutors when supporting freshmen in asynchronous discussion groups. Additionally, it was assumed that tutor training can also affect tutor characteristics such as self-efficacy beliefs, perceived collective efficacy, and personal training evaluation. The three distinctive tutor training conditions under study respectively focused on (1) the adoption of multidimensional support, (2) the evolution of modeling to coaching, and (3) all-round information on online facilitation (control condition). To determine the nature of peer tutor behaviour, two content analysis schemes were employed. Logistic regression was applied to study and compare the impact of the different tutor training conditions on the adoption of tutoring behaviour as described in the e-moderating model of Salmon (2000) and on the evolution from model to coach. Since the study ran a complete semester, a starting and closing tutoring phase was distinguished.

As to the first research question, the results indicate that – independent of the tutor training condition – tutors adopt a varied pattern in the types of tutoring behaviour. This finding is in line with the results of a previous study (De Smet et al., 2008). More specifically, the peer tutors fulfilled all required e-moderator roles: motivator, social supporter, information deliverer, knowledge constructor, and challenger for personal development. However, exchanging information remained a predominant tutoring approach, contrary to the rather limited occurrence of tutor contributions focusing on the fifth step in the e-moderating taxonomy, namely eliciting personal development. As stated by Pilkington (2004), we agree that “it is important to meet students where they are and not where we want or expect them to be if we are aiming to effectively facilitate online discussions” (p. 163), implying that tutees – and especially freshmen – in online discussions might need more support on the earlier steps during collaboration before moving into the phase of personal development. Notwithstanding the fact that the overall pattern of peer tutor behaviour is quite similar for tutors from all three training conditions, the results indicate that the focus and subject matter of a tutor training can stimulate the adoption of certain types of online support. Different tutor training approaches seem to result in some differences in the patterns of e-moderating. For instance, participating in a content-focused tutor training (multidimensional and model/coach condition) in contrast with being prepared by means of a more general informative training seems to be associated with a decrease in e-moderating interventions stimulating social talk. Moreover, both experimental tutor training conditions initiate the adoption of tutoring behaviour that stimulates tutees' personal development and, therefore, more balanced tutor support. More specifically, it appears that specific tutor training helps peer tutors to deal with the difficulty to exceed the lowest phases of the e-moderating model and to diagnose low levels of knowledge construction in the discourse. In this respect, the findings suggest that a focused and specific tutor training can result in transfer of training to the actual tutoring setting (Barnard et al., 2001; Kirkpatrick, 1994; Nijman, 2004).

With respect to the second research question, the results reveal that only during the starting tutoring phase the specific tutor training condition does result in differences in the adoption of modeling or coaching behaviour. Contrary to the control condition, tutors receiving an experimental tutor training reflect a higher proportion of modeling behaviour at the start of the peer tutoring assignment. This predominance in modeling support results from the more pronounced content-focus in the training approaches explicitly alerting tutors to start as a 'model' or to provide multidimensional support. Especially for tutors in the model/coach training condition, the result is consistent with our expectations to find different patterns in modeling and coaching behaviour. These expectations build on the concept of transfer of training as rooted in organisational psychology (Ottoson, 1997). According to Nijman (2004), positive transfer of training is defined as the application in the task environment of the knowledge, skills, and attitudes gained in a training context. Since the differences between the three training conditions with regard to the occurrence of modeling versus coaching behaviour could not be replicated during the closing tutoring phase, further research is needed to explore tutors' underlying motives guiding or inhibiting transfer of training over a longer period of time.

The third research question focused on the impact of the tutor training approaches on tutor characteristics. The descriptive results revealed that at the start of the tutoring activities, online peer tutors already report a high level of self-efficacy beliefs and perceived collective efficacy. This implies that the tutors reported positive personal beliefs about having the means to learn or perform in an effective way (Ellis & Zimmerman, 2001). Similar positivism and a feeling of responsibility for ensuring that their peers addressed the tutorial objectives adequately were found in the empirical research of Solomon and Crowe (2001) on perceptions of peer tutors in problem-based learning. Further research is, however, needed to validate the extent to which tutors with high self-efficacy outperform tutors with lower self-efficacy regarding patterns in tutoring behaviour.

Considering the evolution over time, it was found that tutors' self-efficacy beliefs decreased whereas perceived collective efficacy increased over time. The decreasing self-efficacy results might be due to the fact that tutors incline to overrate their future tutoring capacities; but when confronted with the challenging assignment to support an asynchronous discussion group, they acquire a more realistic view regarding their competences and shortcomings as a tutor. However, the findings are in contrast to the assumption that efficacy beliefs are presumed to be relatively stable (Tschannen-Moran & Woolfolk Hoy, 2001). Growing in-depth group processing might further account for a positive evolution in tutors' perceived collective efficacy. Bandura (2000) suggested that perceived collective efficacy should be very likely affected by the quality of communication in group interaction. Referring to an academic peer tutoring context, Fresko (1996) reported that the most crucial factor directly influencing tutor satisfaction is the extent to which tutors felt they had achieved project goals with their tutees. At last, Wang and Lin (2007) pointed at the potential impact of group composition on self-efficacy and collective efficacy. In this respect, future research should also consider group composition effects on tutors' self-efficacy and their perception of the efficacy of the group.

7. Conclusion

The overall results of this study imply that providing novice peer tutors guidelines by means of a specific training approach can be fruitful regarding the actual occurrence of the expected tutor behaviour. The results more specifically demonstrate that tutors in the experimental conditions, who were explicitly trained in providing multidimensional support, facilitating tutees' personal development, and cutting back modeling in favour of coaching behaviour, make an effort to act up to these instructions in the actual online tutoring context. In addition to the findings that the experimental trainings succeed in affecting tutor behaviour, these training conditions had a positive impact on peer tutors' efficacy beliefs and confidence as well. Tutors in the experimental training conditions generally reported higher self-efficacy beliefs and a higher perceived collective efficacy, which might indicate that tutors in these conditions feel better prepared for their role as tutor and for guiding their assigned discussion group in working efficiently as a team.

Taking into account that the focus and subject matter of a tutor training can determine and stimulate the adoption of certain types of online support, a practical implication can be formulated as a result of the present study. A comprehensive tutor training program offering peer tutors explicit instruction and exercises in the expected types of tutoring activities is recommendable to improve the nature and the quality of tutors' and as a result also tutees' online contributions.

The results of the present study must, however, be considered in the light of a number of limitations to be addressed in future research. A first limitation has to do with the specific group of participants engaged in the study. Only Educational Sciences students were involved. Future research should try to replicate the findings involving other and larger online peer tutor populations.

A second important restriction of the study is the one-sided focus on the role of the online tutor. In this respect, tutor activities are too much studied in isolation and independent from tutee activities. We do, however, recognise the important interplay between tutor and tutees. As emphasised by Bereiter (2002) and Bandura (1993), the individual process of meaning-making is intrinsically connected to a particular context and cannot be seen in isolation. Therefore, in future research it will be interesting to shed light on the mutual influence of tutee and tutor behaviour, as suggested by Roscoe and Chi (2007). Since the nature of the tutor–tutee interaction during peer tutoring has only been studied to a limited extent (Jones et al., 2006), the present research results provide only a starting point to study the influencing factors on online tutoring behaviour.

Another suggestion for follow-up research refers to the applied research method. Quantitative content analysis, logistic regressions, and self-report questionnaires have been used in order to gain insight into tutor behaviour and efficacy beliefs. However, this approach is limited in acquiring a full understanding of cross-age tutors' supportive activities in view of tutees' knowledge acquisition. Triangulation of data collection should be adopted. In this respect, stimulated-recall interviews or think-aloud protocols may offer research-based evidence of the learning of the tutor, and this in relation to their tutor training and their self- and collective efficacy beliefs. Accordingly, future research can also focus on including tutors' and tutees' feedback regarding the ongoing peer tutoring activities and on qualitative research methods in general to provide additional insight in online peer tutoring processes. This is in line with the ideas of Dolmans et al. (2002) to set up qualitative studies to gain better insights in the conceptions about the tutor role and will meet the present limitation that qualitative research that aims at gaining insight in the perceptions of those who are actually participating in a peer tutoring setting is relatively underestimated (Solomon & Crowe, 2001).

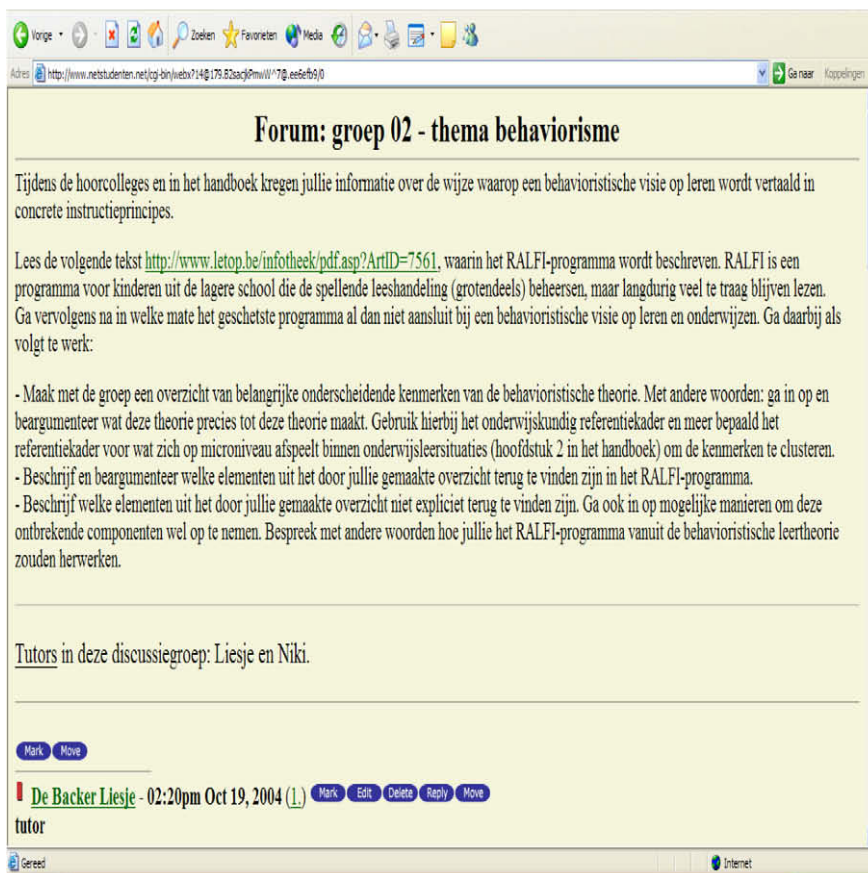
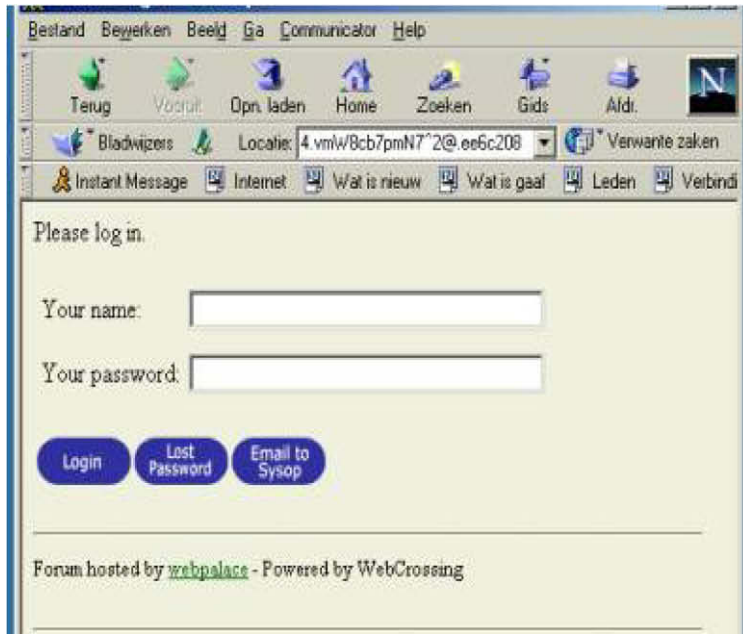
A final issue that needs consideration, is related to the nature of the tutor training conditions. In addition to the two experimental training approaches, a supplementary experimental tutor training could present a blend of both training approaches. Although Michalski and Cousins (2000) pointed at the difficulty of isolating the effects of training in association with specific effectiveness indicators, further research could attempt to control the variation in the training design components as suggested by McDermott et al. (2001): e.g., objectives, intensity, complexity, and in-service versus pre-service training. In this respect, it might be possible, for instance, to draw conclusions about the distinct as well as cumulative effects of the pre-service and in-service components intrinsic to the experimental training conditions (Huberty & Davis, 1998).

Acknowledgement

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Appendix A

Sample pages of the asynchronous discussion environment.



Bestand Bewerken Beeld Favorieten Extra Help

Adres http://www.netstudenten.net/cgi-bin/webx7230@242.Gs9mcAhymDf*2@.ee6c8c4 Ga naar

PORTFOLIO

Situeer deze **evaluatiebenadering** op de besproken dimensies (aggregatieniveau, functie, wie, leerdoelen, wanneer en technieken). Beargumenteer de voor- en nadelen van deze evaluatiebenadering (volstaat deze manier, mogelijke foutenbronnen, impact op het leerproces, ...). Geef een aantal randvoorwaarden waaraan voldaan moet worden opdat deze aanpak kan slagen. Probeer eventueel ook een alternatieve evaluatiebenadering naar voor te schuiven waar jijzelf kunt achter staan.

Mark Move

- [Nog niet helemaal overtuigd](#) by Torfs Kathleen - Jan 2, 02 (1.)
- [lees gerust verder](#) by Torfs Kathleen - Jan 2, 02 (2.)
 - [groepswerk ...](#) by Van Cauter Dana - Jan 13, 02 (2.1)
 - [Groepswerk, ja, maar toch...](#) by Van den Hende Erika - Jan 13, 02 (2.1.1)
 - [Hey!](#) by Vandendriessche Katrien - Jan 14, 02 (2.1.1.1)
 - [groot gelijk!!!](#) by Van den Bynde Sophie - Jan 15, 02 (2.1.1.1.1)
 - [het idee van groepswerk kan goed zijn maar individueel werk\(je\) is noodzakelijk](#) by Van Cauter Dana - Jan 15, 02 (2.1.1.1.1.1)
 - [nieuw voorstel, groepswerk met individuele verantwoording](#) by Torfs Kathleen - Jan 18, 02 (2.1.1.1.1.1.1)
 - [akkoord maar...](#) by Van Craenenbroeck Tineke - Jan 19, 02 (2.1.1.1.1.1.1.1)
- [sociaal lanterfantent...](#) by VanCoillie Sylvia - Jan 18, 02 (2.1.2)

Internet

De Backer Liesje - 04:21pm Oct 22, 2004 (11) Mark Edit Delete Reply Move

tutor

een planning

Sommigen van jullie zijn al goed bezig met de discussie, maar ik zou jullie toch wat willen "afremmen". Ik stel gewoon voor om ons nu te concentreren op de behavioristische kenmerken van RALFI, en nog niet over te gaan op het derde deel van de opdracht (nl, welke behavioristische kenmerken komen niet terug in RALFI en hoe kunnen we ze toch opnemen?). Als we na het weekend kunnen starten met dit derde deel, is er immers nog voldoende tijd over. Op deze manier kunnen studenten die nog niet deelnamen, ook eens rustig nadenken over deel 1 en 2 van de opdracht.

Deze planning belet jullie echter niet te discussiëren rond delen 1 en 2! Succes ermee!

Camerlinck Martlies - 11:43pm Oct 24, 2004 (11.1) Mark Edit Delete Reply Move

bedankt

Door problemen met mijn internetverbinding kan ik sinds deze avond pas deelnemen en ik schrok echt toen ik zag hoeveel er al gediscussieerd is. Sorry dus moest ik onnodige aanvullingen geven maar ik zal zo snel mogelijk proberen bij te benen.

Gereed Internet

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