Computer-Supported Collaborative Learning
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Exploring whether students' use of labelling depends upon the type of activity

Does student labelling depend on type of activity?

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Abstract This paper explores a labelling feature designed to support higher-level online dialogue. It investigates whether students use labels less often during a structured online dialogue than during an unstructured one, and looks at students' reactions to labelling and to both types of tasks. Participants are from three successive course offerings of a Master's-level course (n=37). All students are allowed but not required to use a labelling feature which enables them to insert phrases such as "Building on your point" directly into their online messages. All students participate in two types of online activities in small groups—first an unstructured online dialogue, then a structured online dialogue. Students tended to use labels significantly less often during the structured dialogue: $F(1, 36)=5.950$, $p<0.05$. Sixty-two percent of students used the feature more than once during the unstructured dialogue compared to 46% during the structured dialogue. The maximum number of labels that a student used in the unstructured dialogue was 28 versus 16 in the structured dialogue. Students generally found the structured dialogue to be more interesting and relevant, and to have clearer expectations. Student reactions to the labelling feature were mixed: The mean of satisfaction was 18.35, SD=3.88 (six items on a 5-point Likert scale). Students did not find labelling as useful during the structured dialogue: Perhaps labelling and the activity provided redundant scaffolding. These results imply that features built into the software should be implemented flexibly with thought to the other pedagogical scaffolds in the environment, particularly to the type of activity.

Keywords Labelling features · Asynchronous online dialogue · Type of online activity

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Purposes

Asynchronous computer-conferencing environments provide opportunities to support rich reflective dialogue in ways not possible face-to-face. When students and instructors can retrieve and post messages at different times, they can reflect during the reading and writing process, perusing the text-based recording of the interactions at their leisure. Due to its textual nature, students can reread messages, edit their own messages with care, and reflect upon the dialogue. Because of these advantages of text, the potential for online discussions to promote critical thinking was heralded in earlier days of online learning (Abrami and Bures 1996; Rohfeld and Hiemstra 1995). Online dialogues allow discussions to go at a different rhythm, potentially facilitating richer exchanges and more even class participation (Sproull and Kiesler 1991; Hewitt 2004; Lebaron and Miller 2005). Online dialogues permit students, even when they do not actively respond, to experience the possibility of responding (Guzdial and Carroll 2002). Through the combination of writing and talking, students can collaboratively build knowledge, some of which is explicit in the messages they write and the artifacts they create (cf. Scardamalia and Bereiter 1994; Hewitt 2004).

Nonetheless, online discussions can be superficial and promote surface learning. The online environment carries unique challenges, as discussed at length in the early literature. Students may have misunderstandings because the cues of face-to-face communication, such as body gestures, are lacking (Feenberg 1991)—which can create ambiguity. Students may have problems coordinating tasks to meet a shared deadline because they log on at different times and rates (Sproull and Kiesler 1991). Students may have problems dealing with multiple threads of discussion and numerous messages (Hewitt 2004). They may have difficulties conveying their own meaning and/or understanding others. They may not reflect upon the messages they read and/or write, and, thus, not take advantage of the potential of the online learning environment. Consequently, online discussions are not necessarily profound or meaningful. This study explores how to support users' engagement in high-level discourse, addressing the challenges of learning online and capitalizing on its unique potential. It explores ways to structure the online dialogue. In particular, it examines whether students use a labelling feature less often in more structured online activities and looks at students' reactions to the more structured activity, the less structured activity, and the feature.

Literature review

Researchers and practitioners are exploring various approaches to support students' reflective discourse online. The design of asynchronous conferencing software has been quite generic; in contrast, designers of decision support tools vary their design decisions widely based on the context: for example, the nature of the tasks to be undertaken, and the intentions or aims of participants (Sloffer et al. 1999). The work of Guzdial and colleagues on CoWeb aims to add a pedagogical layer to the wikiwiki software of Ward Cunningham to encourage a more effective collaborative learning among students than the generic software can (Rick et al. 2002; Rick and Guzdial 2006). Similarly, features can be added to conferencing software to reflect pedagogical aims (Xin and Feenberg 2006).

Some researchers are developing specific features (sometimes called scaffolds), embedded into the conferencing software itself (Feenberg 2002). A range of features are being explored. Collaborative scripts are instructional prompts built into the software; these remind students of the task or the process involved and are meant to support students' engagement in deeper

discourse (Dillenbourg 2006; Stahl 2006; Kobbe et al. 2006). Labelling features represent another approach. For example, the Asynchronous Collaboration Tool (the ACT), designed by Duffy and Dueber in 1996, allows teachers to define a set of labels that students use to describe how each of their messages fits the discussion (Duffy et al. 1998; Sloffer et al. 1999). This message labelling is related to tagging in Web 2.0 systems where users are able to tag their messages and resources, making it easier for others to retrieve relevant artifacts. In-line labelling or sentence openers allow users to insert phrases into the message itself. Jermann (1996) developed a simple labelling feature where students could choose whether to use the structured interface or enter sentences in a free-text dialogue space. Users could use four buttons labeled "I don't understand," "What do you think," "I agree," and "I disagree," and four text fields preceded by the labels "I propose," "You propose!," "Why," and "Because." Knowledge Forum provides a labelling feature with several diverse sets of labels tailored to specific contexts (Hewitt 2002). Students are required to use labels such as "My hypothesis is...."

Labelling features and scripts may help students clarify the meaning of their messages (Baker and Lund 1997; McAlister et al. 2004; Jeong 2005; Suthers 2007). Baker and Lund (1997) found that students using in-line labelling tended to have more task-focused interactions than did those in the control group. Jermann (1996) found that utterances containing labels were more likely to be task-focused than those not containing labels. Bures et al. (2010) found that labelling related to the quality of online dialogue.

By supporting the communication, designers are aiming to enhance student engagement in deeper online discourse, and thereby, student learning, motivation, and the quality of online dialogue. Often these scaffolds are built into the software and the user is required to use them. As it becomes more popular to engineer such scaffolds into the software, it becomes important to question whether structured features should be required or whether they should be flexibly built into the software, and how such features interact with one another. The cognitive load placed by the use of such features suggests that students should not use them when they are not necessary. There are risks associated with "over-scripting" CSCL (Dillenbourg 2002). Should such features be required all the time? Not all students necessarily "take" to such features (Bures et al. 2009). Not all contexts may suit labels. Both individual student characteristics and contextual factors, such as the type of online activity, may relate in a complex way to whether labelling is beneficial. Should students be able to choose when it is necessary?

One problem with not requiring usage is that some users who would benefit from certain strategies do not choose to use them; not all learners know what is good for them (Reiser 2002, 2004). Grabe and Sigler's (2002) study of college students' voluntary usage of online study tools found that users differed from nonusers with respect to Internet access, methodical study approach, and reading ability as measured by the Nelson-Denny Reading Test (1960). This provided more evidence that those who are more likely to use the strategy generally have higher ability, and thus, are not necessarily those most in need of the strategy.

Different contextual factors may mitigate the usefulness of a labelling feature. The structure needed may be provided by the tool, but it may also be provided by the moderator, other students, and/or the type of activity. The importance of the type of online activity has been discussed at length in the online learning literature as relevant to the quality of critical thinking exhibited in online discussions (Collins and Berge 1997; Davie 1988; Harasim et al. 1995; Hoadley and Linn 2000). If an online activity is structured in specific ways, then students will tend to produce particular types of thinking acts. For example, Gunawardena et al. (1997) found that a debate activity elicited co-construction of knowledge or critical

thinking in the earlier phases of critical thinking but not in the latter ones. Schrire (2004) provided more suggestive evidence that the type of activity influences numerous aspects of online learning. Dennen and Wieland (2007) found that being focused on a shared mission helps students engage in more meaningful online discussions.

A range of online activities have been documented ranging from small-group activities to whole-class discussions, with products varying from the discussion itself to a group final paper or synthesis (Harasim et al. 1995). In small-group discussions, students can be assigned roles. Sometimes students are assigned characters in the dialogue; for example, students pretending to be a school committee with the goal of writing a technology plan can play roles where one student is the principal, one the technology expert, one the head teacher, and one the parent representative. In the Grid, students are assigned different historical characters which they take on for the dialogue (Dillenbourg 2002, 2006). Other times, the roles are based on what approach to the discussion the student should take. For example, in one approach, students are assigned different colours of hats based on different approaches to thinking. The black hat brings up more pessimistic perspectives and the green hat creates harmony (Schellens et al. 2005, 2006). Assigning roles provides a potential way to support students' more profound engagement in online dialogue by structuring the context and clarifying the nature of dialogue for all participants.

Similarly, a HipBone Game is a type of online activity which clarifies communicational intentions and structures the flow of the dialogue. Originally designed to support higher-level dialogue in situations necessitating mediation through promoting perspective taking and linking between ideas/concepts (Cameron 1995), such games are one of many variants of the glass bead game inspired by Herman Hesse's the *Glass Bead Game* (1943). As modified for use in this educational context, students participate in small groups of three to four. Each player contributes three online messages to the game, taking turns. Each message is on one side or the other of an argument, except for two, which are synthesis statements. The messages are posted in an online forum. The students follow a visual game board specifying which message connects to which other message(s). Instead of posting a message in an online discussion where one can respond to any or several messages, or post a new contribution, here the students must connect each message to particular messages according to the lines of the game board. Thus, the dialogue is structured very specifically.

Such examples of structured approaches to online activities may render the use of labels redundant. For example, if students engage in a debate with very strict rules about turn taking and what each turn must contain, then a labelling feature might be redundant or relatively less important than in a situation where students are told to "debate" a topic in an unstructured fashion. Much evidence suggests that the nature of the task is preponderantly important compared to other factors in online learning; as Reeves argued succinctly, the nature of the task is by far more important than the other factors intertwined with it (Reeves et al. 2005). This argument runs parallel to the argument that it is not the medium, but rather the instructional strategies that are most relevant (cf. Clark 2001). It may be the interactions among the players, the medium, and the instructional strategies that count. Regardless of how one places one's allegiance in this argument, it does seem that the nature of the task most likely would interact with features such as labelling.

When students have clarity about the task as in the Grid (Dillenbourg 2002) or the HipBone Games, perhaps the labels or other structured features become somewhat redundant. This study looks at whether students choose to use labels less often when engaged in a structured online dialogue than a free-flowing dialogue and explores student reactions to the different types of online activities and to the labelling feature.

Methods

Questions

There are two key questions:

1) Will students tend to use the labelling feature less during the structured online dialogue than during the unstructured online dialogue?
2) What are students' reactions to the structured dialogue versus the unstructured dialogue? What are their reactions to the labelling feature?

Research design

This mixed-methods study examines whether the type of online activity (structured dialogue versus unstructured dialogue) has an impact on how much students choose to use the labelling feature. The independent variable is a within-group variable (the type of online activity) and the dependent variable is how much students choose to label. Descriptive statistics describe the usage of the labelling feature and students' level of satisfaction with the feature. Qualitative narrative analyses of online dialogue, field-notes, and open-ended questions comparing the two online activities and eliciting student reactions to the labelling feature were conducted.

The labelling feature was designed simultaneously to this research study being conducted, and so, as such, the object of study is, in itself, shifting throughout the "experiment." In this sense, the design of the research study reflects the design-based experiment literature (cf. Brown 1992; also: Barab and Squire 2004; Cobb et al. 2003; Collins 1992; diSessa 1991; Reeves et al. 2005).

Participants

Participants are volunteer participants drawn from one of three successive offerings of a graduate level education course on learning theories at a large multicultural urban university. There were nine students in the summer section, 15 students in the following fall session, and 13 students in the winter session, for a total of $n=37$ participants. All students voluntarily participated in the research.

All students participated in two or three graded online activities in groups of 3–4. Students were graduate students in educational technology or child studies. Each student had access to a labelling feature; usage was encouraged but not required. Each student participated in two different types of small-group online activities concerning broad questions—an unstructured online discussion and a more structured online discussion.

Types of online activities

Unstructured small-group dialogue In the unstructured dialogue, students discussed a higher-level question over a two-week period. The students' task was to discuss the question from multiple perspectives. For example, the first question was: "What perceived weaknesses of behaviorism did cognitivism aim to address? In other words, what could behaviorism not explain that cognitivism tried to?"

Structured small-group dialogue The second type of online activity took the form of a HipBone Game (Cameron 1995). Students posted the messages in a forum just as with the

other online discussion and they similarly discussed and debated a broad higher-level question, but in this more structured dialogue, the requirements for participation were more specific. Students in groups of three were expected to each post three emails as official "moves," with the moderator posting one email into each dialogue. Students took turns and could not post two messages in a row. Each student was required to post at least one message supporting each side of the argument at hand. One side of the argument represented the point of view that performance objectives are at the heart of teaching and learning; the other side of the argument represented a contrary point of view, specifically that performance objectives impede teaching and learning.

Students posted the messages into an online discussion forum, but followed a visual game board called The Comparison Board (a Necker Cube). See Fig. 1.

It is this geometric shape that provides the structure for the dialogue. Many different shapes could be used, but the Necker Cube was chosen for this activity as it makes it easy to have two clear sides. The cube shows ten positions, each of which represents one move or email. Moves into positions 1, 2, 3, and 4 are one side of the board, in this case, for performance objectives. Moves into positions 5, 6, 7, and 8 are on the other side of the board, in this case, against performance objectives. Moves into positions 9 and 10 draw on both sides.

The lines between the positions determine which messages connect to which others. This structures the flow of the dialogue. For example, position 8 is connected to positions 7, 6, and 4. If a student posts into position 8, then he/she must link it to any moves previously made into positions 7, 6, and/or 4 and cannot directly link to a message that another student made into position 5.

During the game, the students updated a visual representation of the game board to show the game in progress; at the end, each group posted online a final visual representation of their game showing the title of each move, the author, and the number of the move. The final dialogue is composed of 10 emails and the visual representation of the game. Figure 2 shows a visual representation of one game.

Notice the first student played the first message into position 8; in her online message, the student argued against performance objectives. He/she posted an online message with the subject header move 1, position 8. The second group member had to link to the previous message placed in position 8, so he/she could have played either into position 4 or position 6. If he/she had played into position 4, then the argument would have been for performance objectives; if he/she had played into position 6, then the argument would have

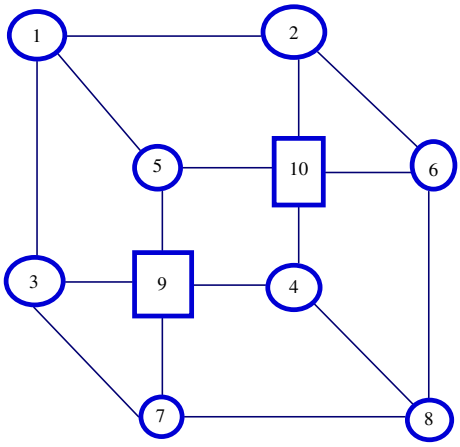


Fig. 1 The comparison board (Cameron, C.)

been against performance objectives. The second player opted to play into position 4, and to connect to the move in position 8. As the game progresses, it is more challenging to make a move as the final moves link to several moves in play. For example, in the game represented in Fig. 2, the last move was into position 10, so the student had to connect his/her move into position 10 to the messages previously played into positions 2, 4, 5, and 6.

Labelling feature

The labelling feature used was designed by Bures (2004). The labelling feature allows students to insert easily a common phrase into a message they are writing. Students can insert and tag a part of the text in the message that they are writing. The feature was designed into vBulletin (a customizable Web-based forums package). To tag some text with a label such as Building on your point..., the students simply surround the text with tags as shown below: Text that is tagged appears indented, with the label at the beginning and its abbreviation at the end.

[BOYP] some text [/BOYP] produces

Building on your point... some text—BOYP

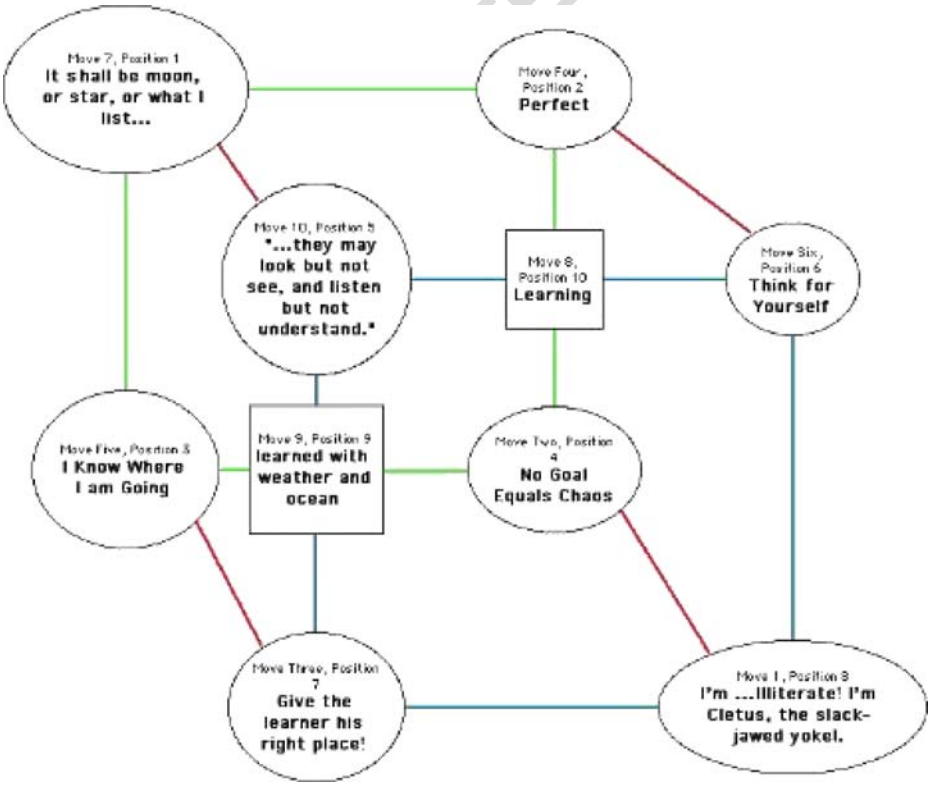


Fig. 2 The finished visual representation of a complete structured online dialogue. Positions 1, 2, 3, and 4 are for performance objectives; positions 5, 6, 7, and 8 are against performance objectives and positions 9 and 10 are synthesis moves

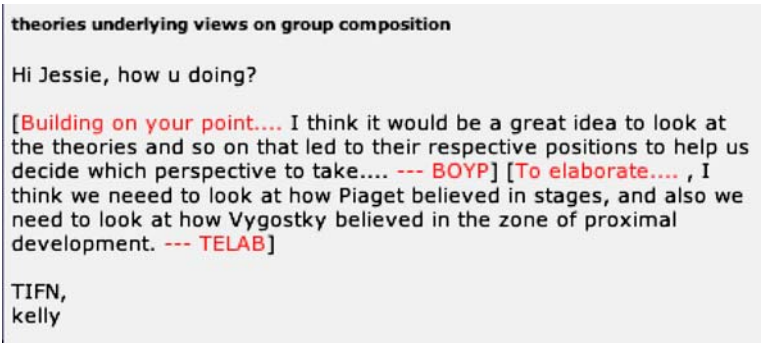
See Fig. 3 for a screen-shot of the labelling feature in use. A student can type the tags directly into the text editor. He/she is also able to tag text by using the buttons built into the interface. He/she needs to insert the original tag at the beginning of the tagged text, and then choose to "close" the label with a closing tag. This produces an identical result as typing the labels in oneself.

Categories of labels The labelling feature allows students to choose from three categories of labels or cognitive supports: "perspective," "inter-connecting," and "synthesizing."

Each category contains a few labels: for example, "perspective" includes "I propose the following perspective," "inter-connecting" includes "Building on your point," and "synthesizing" includes "points of agreement are." The labels and the titles of the categories were modified based on student suggestions and usage patterns. The final version is displayed in Fig. 4. "Perspective" labels are designed to help a user engaged in an activity where he/she needs to develop and support a perspective or point of view. For example, Jessie could choose "To brainstorm some ideas...." to start off. "Inter-connecting" labels are related to direct interaction with someone else's point. For example, Kelly could choose "Building on your point...." in response to Jessie. "Bringing it together" labels include labels to help users compromise and synthesize. These labels indicate ways that the team members can bring their insights together. For example, team members can clarify what they agree about, what they disagree about, and where the compromises might be. See Fig. 5 for an example of a student message containing three labels, one from each category.

Data sources

Online messages are used to measure usage of labelling and quantity of participation, $n=37$. A survey included researcher-constructed items measuring student satisfaction with online learning and with labelling. The survey is made up of 5-point Likert scale items as well as some open-ended questions regarding reactions to labelling and online learning. Open-ended questions specifically exploring reactions to the type of online activity (the HipBone Game versus the unstructured online dialogues) are included for $n=26$ participants; these open-ended questions were not included in the survey given to students in the first of the three course offerings. Field-notes are another data source.



Q2

Fig. 3 A screen-shot of labelling

Message by Gwen

as promised I'm back

Hello my little goblins,

Stef,
[Building on your point.... I do agree that physical and/or cognitive development play different roles on learning. Although we continue to learn throughout life it becomes more difficult to acquire new skills. You can become better and better at what you already do, but it is difficult to learn a new language as an adult, or develop a new golf stroke. This is due to the decline in the brain's plasticity.The human brain is especially plastic early in life, which is why the nurture part of the equation is important. --- BOYP]

Q2

As for my question on cooperative learning
[I propose this perspective.... According to Vygotsky all learning is social. That is to say that 'what students can do today only with peer support they can do tomorrow on their own", as a result of having enjoyed that support previously. Bruner believes that with cooperative learning involves a deeper thinking and his belief is that "what receives deeper thought is more likely to be understood and remembered". --- IPTP]. Therefore,
[To conclude.... I believe based on the ideas presented in class as well as my own experiences as a learner that cooperative learning can support an environment in which students feel encouraged to take part in higher order thinking. --- TC]

See ya

Fig. 4 Student message using three labels, one from each category

Results and/or points of view

Analyses

Descriptive statistics regarding labelling usage and quantity of online participation are included. Statistical tests treat the type of online activity as a within-group factor, examining whether students used the feature more in one type of online activity than another (n=37). Analyses of the open-ended questions and the field-notes were conducted as part of the process of describing student reactions to the labelling feature and the online activities more generally.

Student online activity and labelling usage

Students (n=37) contributed from 0 to 28 labels in the unstructured online dialogue activity M=5.51, SD=6.87, and between 6 and 26 messages, M=13.89, SD=6.08. In the structured online activity students contributed between 0 and 16 labels, M=2.86, SD=3.67, and between 6 and 42 messages, M=15.89, SD=8.19.

Students used significantly less labels during the HipBone Game than during the less structured online dialogue, $F(1, 36)=5.950$, $p<0.05$.

Seven of the 37 students never used the labelling feature in either activity. Of the 30 who did use it, three only used it once, leaving 27 of 37 students who used the feature two or more times, approximately 90%. Eleven of 37 students never used the feature during the unstructured dialogue; three only used it once, leaving 23 of 37 students or 62% who used the feature more than once during the unstructured dialogue. In the structured dialogue, 16 of 37 students never used the feature, and four more only used it once, leaving 17 of 37 students or approximately 46% who used the feature more than once. Five of the users of

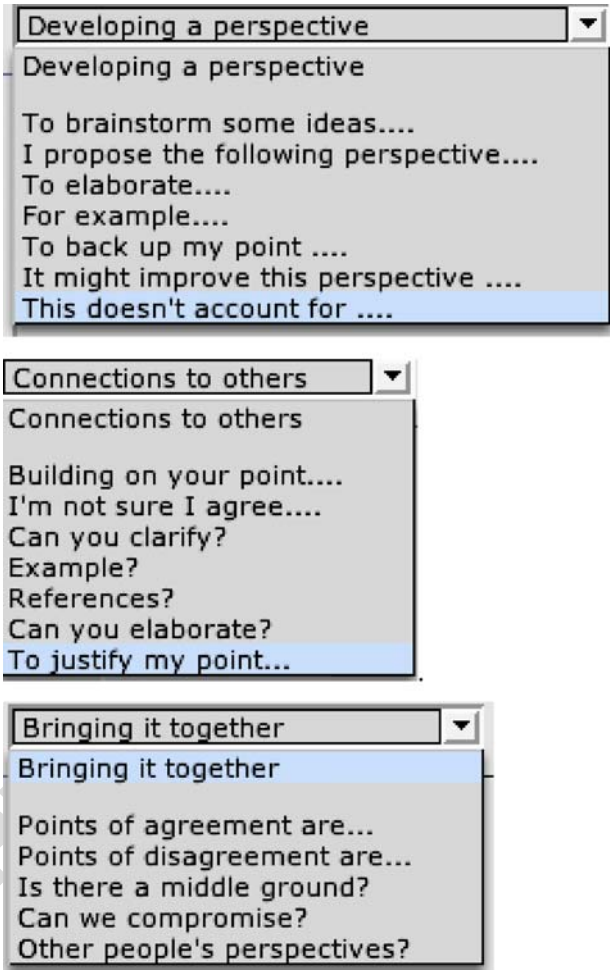


Fig. 5 Three categories of labels: Perspective, inter-connecting, and synthesizing

Q2

the labelling feature in the unstructured dialogue stopped using the feature entirely for the structured dialogue. Three students who did not use it in the unstructured dialogue began using it in the structured dialogue. In the unstructured dialogue, seven students used the feature more than 10 times and three of those were 20 or more times; in the structured dialogue, only two students used the feature more than 10 times and nobody used it 20 or more times. The maximum number of labels that a student used in the unstructured activity was 28 compared to 16 in the structured activity.

Student reactions to labelling

Satisfaction with labelling had a mean of 18.35, *SD*=3.88, and ranged from 8 to 25. Based on six items on a 5-point Likert scale, this amounts to a mean of 3.06 where 3 is neutral. Some students, who did not use it much, liked the labelling feature, and some students, who did regularly use it, reported not liking it. Although some students liked the labelling feature, and some used it regularly, there were distinct groups of people who did not. Three themes emerged from analyses of open-ended questions and field-notes. Both labellers and

non-labellers reported technical issues, some of which may deter some students' usage. Many students who did not like the feature wanted to use their own labels, as opposed to using labels built into the software. Others reported that they would never want to use a feature that inserted words in their own writing. This latter group was particularly interesting: Dubbed the fluid writers/thinkers, they did not like the structure imposed by labels and expressed quite clearly their dislike of a feature which inserted words into their own messages.

Student reactions to structured online activity versus unstructured one

In contrast to student reactions to labelling, student reactions to the more structured dialogue were quite positive. Only one student reacted negatively to the game. When faced with the structured activity, this student linked to many moves on the board beyond the ones the lines connected; in other words, when he/she was to link to only two other messages, he/she would link to several, ignoring the rules according to which the moves were to link. When the moderator stepped in, the student said: "You can put me in a box, but you can't keep me there." In essence, the game board was like a box to this student, and he/she was unwilling to stay within the lines or constraints imposed, especially in contrast to the free-wheeling discussion.

An open-ended question asking students which online activity they preferred elicited responses from 25 of the 26 participants in the second two sections. The majority of participants who stated a preference (13) preferred the HipBone Game (76.5%), in contrast to 23.5% who preferred the unstructured online dialogue. Eleven did not state a preference, commenting on both activities. Words such as "stimulating," "engaging," "interesting," and "creative" were used to describe the HipBone Game. The most common theme expressing the relative popularity of the HipBone Game was that it forced participants to create links to others' perspectives as well as to the material/content, and thus, was more engaging (11 respondents). On the other hand, a few respondents felt that the online discussion was more linear and collaborative, whereas the HipBone Game was more fragmented (three respondents). For some participants, the amount of instructor moderation and clarity of expectations related to overall satisfaction with an activity (six respondents); many of these students preferred the game because it was more structured, the expectations were more clear, and there was more moderator involvement. For a few, the higher complexity of the game meant that they preferred the online dialogue.

Points of view

Students used labels significantly less often in the HipBone Game than in the online dialogue. One interpretation is that the structure of the HipBone Game made the labels less necessary: in effect, one form of scaffolding replaced another. The predetermined game board, the set number of moves, and the clear requirements for each move, rendered the labels redundant. If the benefits of the labelling feature revolve around how it creates structure and clarifies communicational intent, and these benefits are already met with more structured online activities, then requiring in-line labelling regardless of the type of task is unwise.

Furthermore, the structured activity may provide an alternative way to scaffold high-level online dialogue, one more appealing to users than the labelling feature. The way in which even some dedicated users stopped or decreased using the labelling feature during the more structured activity was suggestive. Students had mixed feelings about the labelling

feature. These results fit in with early criticism leveled against the Coordinator (Flores et al. 1988), an early instantiation of a labelling feature. In contrast to the mixed reactions to labelling, students seemed to appreciate the structure created by the structured online activity. Even the fluid writers/thinkers who disliked the labelling feature because they did not like how it inserted words into their own writing, expressed positive feelings about the structured activity—they apparently did not have problems with the structure imposed by the game board and structured dialogue. The nonusers of the labelling feature were numerous, yet only one of these nonusers disliked how the HipBone Game constrained the ways he/she should link his/her moves.

This study suggests that more structured online dialogues may provide an approach to scaffold online activities, one more palatable to users than in-line labelling features, which allow users to insert phrases into their messages. This finding does not generalize to features where the writer tags or labels the message—our results suggest that negative reactions to the in-line labelling feature revolved around the insertion of words into one's own writing. Message labelling is an add-on to the messages, so the label does not become an integral part of the messages itself. These results should also not be interpreted as dismissing the pedagogical utility of in-line labelling features. The issue at stake in the current study is their utility in specific contexts. Not only is the type of activity of interest, but so, too, the moderator role, the age of the students, and their level of knowledge. For example, Knowledge Forum's in-line labelling feature was used successfully with elementary students learning basic scientific language with the help of scaffolds such as "My hypothesis is...," but that does not necessarily generalize to graduate students who feel they have a strong mastery of the English language and the subject matter. Scaffolds are intended to help the learner develop with the aim that the scaffolds be taken away once no longer necessary (Vygotsky 1978). As they may add cognitive load, they should not be used thoughtlessly. Q3

This study suggests that labels should be tailored specifically to the task as is the case with Knowledge Forum and the Asynchronous Conferencing Tool (the ACT; Duffy et al. 1998), and that, in some cases, they are not necessary. When considering the role of in-line labelling features, it is necessary to consider the other pedagogical supports in the environment, in particular, the type of activity. As time passes, assumptions that labels are generally helpful have begun to surface. The current study suggests that in-line labelling features which insert words directly into online messages might be redundant when certain types of structured online activities are used. Further research in flexible design of labelling features (exploring when and for whom it is useful) appears worthwhile.

Educational importance

This study contributes to our understanding of how to support high-level dialogue online, especially through structuring the dialogue either through the type of online activity or through structured features embedded into the interface. Many students chose not to use the labelling feature when engaged in the more structured activity, suggesting that the activity created its own form of scaffolding. This type of work suggests that designers and teachers need to be flexible in implementing these features. Exploring in which contexts and with whom such features are helpful may encourage designers to create more flexible choices for the user. This work also suggests that paying close attention to the types of online activities is quite relevant while designing structured features into user interfaces, providing more evidence of the importance of the nature of the task in computer-supported collaborative online learning.

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Q4

AUTHOR QUERIES

AUTHOR PLEASE ANSWER ALL QUERIES.

Q1. Year "1943" was linked to "Hesse (2002)". Please check if appropriate.
Q2. Figures 2, 3, 4, and 5 are poor in quality (pixelated and unreadable data). Please provide new images with better quality, otherwise, please advise if we can proceed with the figures as is.
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