ICT Can Recover Collaborative Tutorial Conversation and Position It within Undergraduate Curricula

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Abstract. A procedure is described for mobilizing ICT resources in order to implement collaborative tutorial conversations with large undergraduate classes. The method allows intense, intimate and regular face-to-face conversations the consequences of which are used as grounding for traditional lecture presentations. Data from focus group discussion, system logs, and measures of student contribution indicate the intervention ran smoothly, was popular, economical and effective.

Keywords: University, tutorial conversation, interact ional practices

INTRODUCTION

What forms of collaborative learning should be most vigorously cultivated? And how should such collaborative encounters be effectively integrated with the wider experience of an undergraduate subject curriculum?

Arguably, the most precious from of collaborative learning is that arising in the (scaffolded) conversation of a traditional tutorial group. After all, it is within just such intimate exchanges that so much informal learning takes place in our preschool years (Wood, 1988). And it is just such conversations that we most anxiously protect during, for instance, postgraduate supervision - and within other apprenticeship settings (Lave and Wenger, 1991). Yet in higher education these encounters have now been rendered almost obsolete by increasingly unfavourable staff-student ratios.

Computers have long been regarded (quite rightly) as a positive resource for promoting collaborative learning (Crook, 1994, O'Malley, 1994). Yet, if anything, this technology has tended to undermine rather than support the form of collaborative tutorial conversation identified here. Computers facilitate *other* sorts of collaboration – and do so very usefully. But, most commonly in conventional higher education, these collaborations are either asynchronous and text-mediated, or they are project-oriented peer interactions where the computer provides learners with a shared problem space.

Yet asynchronous exchange may fail to capture the momentum of live tutorial conversation – and it has never been attractive to full time students (Lightg, Nesbitt, Light and White, 2000). And computer-mediated peer interactions may not be practical to implement in many disciplinary contexts. (Moreover, such interactions may lack the conversational direction and momentum that a tutorial format can usefully bring.) It is proposed here that, however much we may wish these mainstream forms of CSCL to flourish, they should not be perceived as inevitable substitutes for tutorial collaborative talk. So, this situation presents an empirical challenge: can ICT provide a way of protecting and promoting such talk and, if so, how? An ICT-mediated procedure for doing so will be described in this paper.

A subsidiary concern here is with the effective *integration* of conversational learning encounters: getting them linked to the wider undergraduate curriculum. Too often, occasions of collaborative learning are decoupled from a larger learning narrative in which they should be situated. This can certainly be the case for research-led interventions: where innovative mediated encounters (although novel and engaging) are often simply parachuted into an ongoing curriculum. In the present context, this concern for integration suggests asking both: "where should the motivation for collaborative tutorial talk come from?" and, then, "where should it lead to next?" In other words, how do these encounters become "joined up" into the surrounding curriculum of other learning events?

The present report describes outcomes from an intervention that mobilizes ICT to economically achieve collaborative tutorial conversation within a large class – while integrating that talk into the surrounding curriculum of the course. The goal was to define a suitable ICT infrastructure to mediate these encounters. The theoretical rationale for curriculum integration was taken from Schwartz and Bransford's (1998) account of grounding lectures in prior activities of topic "differentiation". In this account of good educational practice, Schwartz and Bransford identify "differentiation" with periods of (usually hands-on) experimentation with domain materials that serve to sharpen learner awareness of crucial discinplinary distinctions and processes. This differentiation then becomes a firm platform for engaging with the "telling" that will go on within lectures and other sessions of teacher exposition.

CONTEXT

The starting circumstances for implementing tutorial collaborations were familiar (and daunting): a class of more than 80 traditionally full-time Psychology undergraduates allocated a weekly timetable slot (for instruction in "Social Development"). Five hours private study per week was also assumed. In sympathy with Schwartz and Bransford (1998), it was felt important to protect one of these two hours in order to organize the "time for telling" that was to be built on the experience of topic differentiations. This meant that any tutorial conversation would need to be orchestrated by the two instructors and two postgraduate assistants such that small (N=3/4) self-selected groups could meet fortnightly for discussion. This could only work if two conditions obtained. (1) The traditional one-hour discussion format was replaced by an intense *20-minute* format. (2) Tutors and students could be orchestrated to be suitably prepared for discussion and suitably informed as to when and where they should be for such a tightly framed encounter. Shared ICT resources made this possible in relation to three organizational issues.

These "prompts" for the conversations might be photographs, artifacts or formalisms such as diagrams or data summaries. Examples are shown in Figure 1 (although each may have been one among several).

Figure 1: Image, artifact and formalism examples of web-based tutorial prompts

The first is a photograph, and it is aimed to help differentiate the topic of infant attachment. The second is a child's drawing and is intended to help differentiate the topic of graphic representational development. The third is a formalized description of playground affiliation and is intended to prompt a discussion of friendship and status in early school years peer groups. Once again, a shared ICT infrastructure of web pages makes the preparation and presentation of these prompts straightforward. While the email system eases the process of alerting students to the location of the material they are to make the basis of reflection.

METHOD

The class was organized into 24 self-allocated tutorial groupings. Each would meet once every two weeks, the conversation being led by one of the four tutors, on a rotating basis. Institutionally shared ICT resources were recruited to coordinate these encounters in the following manner.

1. Attendance: students rotated around tutors on a fortnightly basis. An excel-based process was created to email individual reminders two days in advance. The process calculated each student's destination that week, specified it, and incorporated a direct link to a web page that contained the preparatory material.

2. Preparation: the web page provided grounding for discussion. It typically contained images that requested informal psychological interpretation. Each student was primed to speak for up to 2 minutes each on how they understood the images presented. A tutorial discussion then developed this.

3. Reflection: one group member acted as scribe and, by the following day, entered notes in a course web page text box. These were collated such that combined notes from all 12 groups meeting in a week were made visible for the whole class.

FINDINGS

The initiative was evaluated in terms of sustaining attendance, quality of scribe summaries, use of these summaries, and focus group commentary by student and tutor participants. Although attendance was not policed, it averaged 92% across the semester with most absences being accounted for by illness. Scribe reports were reliably presented within two days and, as shown in Figure 2, were typically substantial for a 20-minute confersation: around 400 words in length (a little shorter than the Introduction to this report), a commitment that remained steady across the 14 weeks.
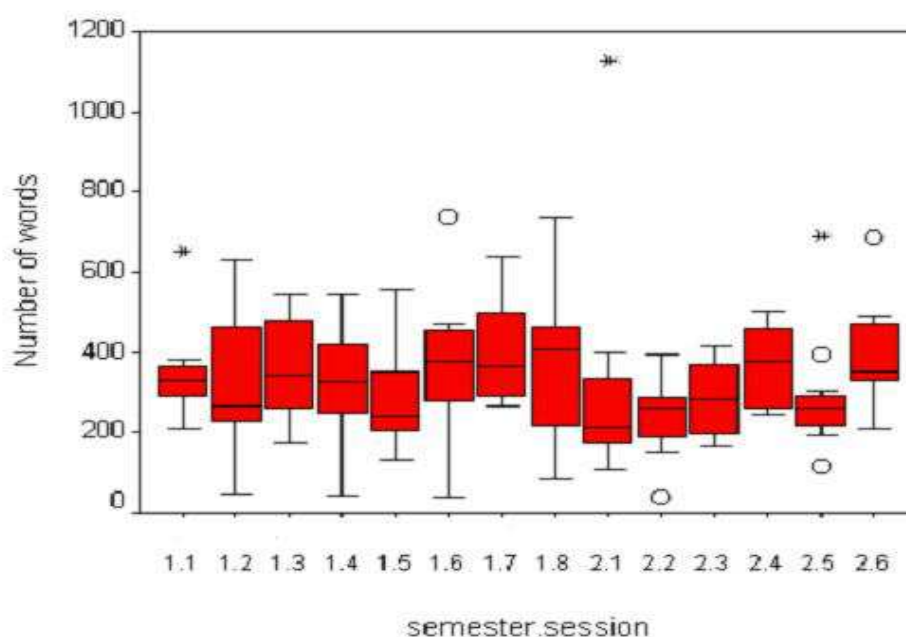

Figure 2: Length of scribe reports across the 14 weeks taken from two semesters

The collated sets of summaries were available on a single web page. These received a moderate level of consultation by other students (the average posting attracting attention from around 30% of the class). Focus group discussion suggested many students felt their own conversation had covered what the wanted to know, or they would rely on the start-of-lecture summary to bring them up to date. Yet other students reported finding it refreshing (and sometimes surprising) to see what other groups had decided and discussed. In some cases the discussions had taken very different directions and convergences. No pressure was put on students to make use of these resources yet the way in which those that did reacted to them suggest that this is a potent source of supplementary material that is worth knitting into the mainstream of a course curriculum.
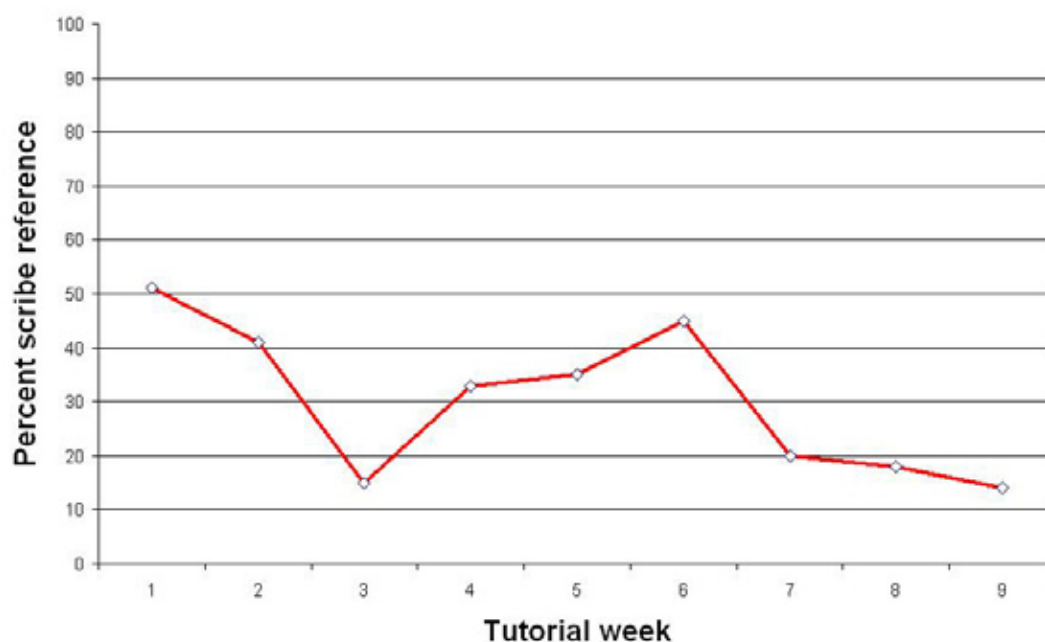
Figure 2: Average percent of class referring to a web page containing collated scribe reports.

In a group discussion, tutors confirmed that discussions had been universally on-task, well prepared, thoughtful and animated. In three focus group discussions, comprising volunteer members of randomly invited groups, a number of recurring themes surfaced. Students felt that the opportunity for academic conversation with staff – albeit short and occasional – created a stronger sense of being "recognized" within the normal anonymity of large class degree programs. It was also felt that the conversations located the more abstract content of the lectures in a grounding of common sense familiarity – as furnished by the everyday nature of some of the web images that served as discussion prompts. Conversations were experienced as harmonious and "collaborative" or "problem solving" in tone.

DISCUSSION

The study has illustrated a realistic and economical structure for recovering the tradition of small group tutorial conversation. These have been characterized here as "collaborative", as this is the spirit in which they were introduced to the students and managed by the tutors. Moreover, the style of conversation that actually evolved was described by the participants during the focus groups as equable and exploratory. However, it must be stressed that these collaborations were crucially "computer-supported" collaborations, in that they could not have occurred without the infrastructure of email servers, database management tools, and shared institutional web pages (including facilities for uploading text). It is also important to stress that none of these facilities are technically sophisticated. The general procedure described here is within the reach of the ICT infrastructure enjoyed by most higher education institutions.

Although others have explored the use of ICT for small group discussion (e.g., Anderson et al, 2000), the present intervention extends previous initiatives by establishing a system for resourcing, assembling, and documenting these meetings that is sufficiently automated to support large classes economically. Yet the actual meeting successfully protects the familiar genre of conversation associated with small group tutorials. Traditionally, such tutorials would last around an hour. The short and intense meetings developed here became known as "speed tutorials". Both tutor and student participants found them, if anything, more productive than the traditional format. They kicked off more sharply, discussion remained on task, and there was strong sense of needing to converge on a set of questions or uncertainties.

Of course, these were integrated with the following lecture session: the two stage process was an attractive structure to realise Schwartz and Bransford's (1998) agenda of topic differentiation proceding expository "telling". The public web posting of the summaries gave the lecturer time to shape his lecture such as to accommodate and make explicit reference to the issue raised in the tutorials. This created a strong sense of informal and intimate collaborative discussion being integrated into the evolving body of a traditional course.

Arguably, it is unusual for the products of collaborative learning encounters to be knitted into the overall fabric of a course in this manner. The technique reinforces Schwartz and Bransford's proposal that lectures ("times for telling") are most effective when they are resourced by prior experience in which students have actively differentiated the subject matter that is to be systematized or theorized in the lectures. Schwartz and Bransford achieve their student preparation through exploratory practical work. For the present topic, student practical work involving young children would be ambitious to organise. Thus our version of topic differentiation was achieved in collaborative conversation, although grounded in everyday images.

In sum, this report has presented a credible basis for prompting, supporting and integrating a form of collaborative conversation that is increasingly becoming lost under pressure of large class teaching. It might be argued that the "tutorial" dimension of these meetings is a luxury. That groups might be convened on a self-managing basis and the system remain just as successful. Our previous experience of such initiatives have not been encouraging. Moreover, in focus group discussion, students reinforced the value of having a tutor presence within these groups. We suspect it is a significant presence for both sustaining the direction and target of the talk – as well as for reinforcing and developing its insights.

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