

ClassConversations: Keeping The Learning Conversation Going

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Abstract—We describe ClassConversations a prototype that integrates a synchronous classroom backchannel with an anchored discussion forum.

Index Terms—Classroom technology, classroom backchannel, discussion forum

I. INTRODUCTION

CONVERSATION has a long tradition in learning. Classroom discussion, and more recently online out-of-classroom discussion are central learning activities in many pedagogical approaches. We are investigating the integration of a *classroom discussion backchannel* (a real-time

discussion to analyze and elaborate themes raised in class or in other course activities that takes place mostly out of class). By injecting one form of discussion into the other and vice versa, we hope to promote continuous reflection and re-integration of content across these rather different conversation contexts.

Classroom discussion backchannels and knowledge-building forums have different conversational and learning affordances. Classroom backchannels are tweet-like, real-time responses to instructor and student classroom interaction; they are often quite social in content; functionally, they are often acknowledgements or requests for clarification. Forums are more widely employed and more diverse; participation is generally asynchronous; content is relatively formal and substantive, consisting of reasoned contributions to

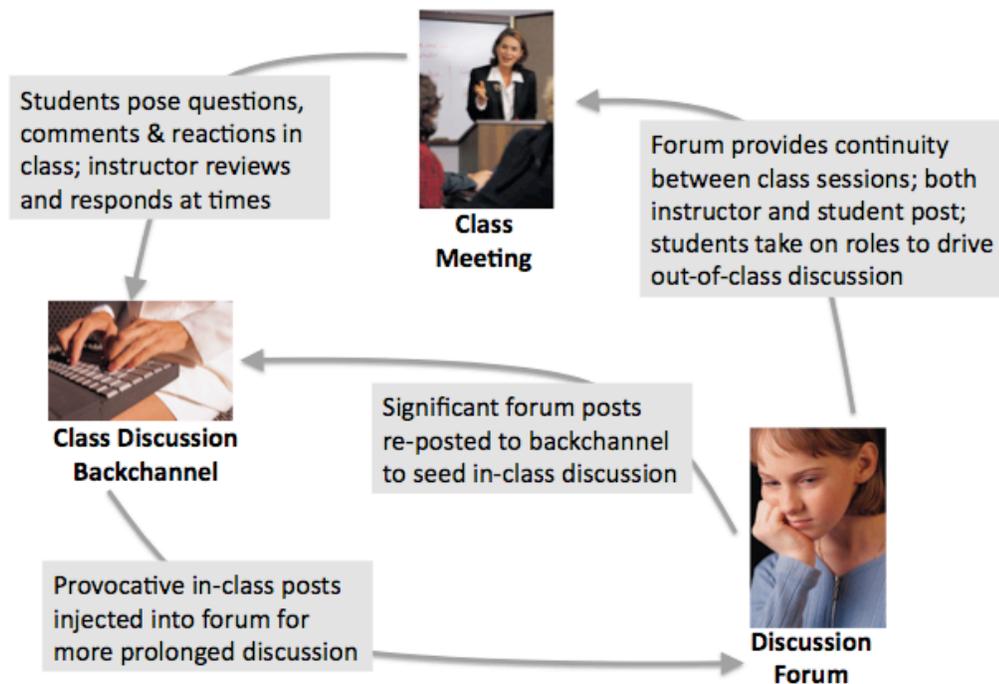


Figure 1. Continuous conversation threads connect in-class and out-of-class discussions, analysis, and course activities

chat among students, publicly displayed during class) and a *knowledge-building forum* (an asynchronous, threaded

critical analysis and debate of issues that may have originally been raised in the classroom. The two communication mechanisms can provoke complementary learning interactions, and may support learning in complementary ways.

Integrating these two types of learning conversations could combine their separate strengths, but also engage new synergies: Provocative contributions to a real-time backchannel might be developed and analyzed more deeply in

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a forum discussion, while forum contributions that attract substantial commenting or other indicators of interest might be re-raised and addressed face-to-face in classroom discussion, possibly provoking real-time backchannel responses. The result is that students and instructors can raise and discuss issues with each other more or less anytime (Figure 1). Supportive interactions with peer learners and developing mastery of domain concepts and skills are separate and critical determinants of successful learning trajectories; their effective integration may be even more powerful.

II. INTEGRATING ANCHORED DISCUSSION FORUM AND CLASSROOM BACKCHANNEL

There is substantial prior research on the *separate and independent* use of classroom chats and backchannels, and on forum discussion. For example, classroom response systems allow the teacher to present multiple choice or true/false questions; students can then respond to these with specialized handheld “voting” devices, perhaps resulting in a public display of aggregated results [1,2,3]. Such systems provide fairly limited communication channels and need special hardware. Active Class uses PDAs for classroom communication: Students can post text questions to the teacher during lectures, using a handheld device. A teaching assistant may respond to these questions during class, or the teacher may choose to address some questions. In undergraduate computer sciences classes, Active Class helped teachers get timely feedback from the students, overcame student apprehension in large classes, and enabled multiple students to ask questions at the same time [4].

Classroom Presenter extended the concept of a backchannel by allowing students to annotate a slide being discussed by the

teacher; the resulting notes are publicly displayed in the classroom. This increased class participation in classes ([5]; also Harvard Live Question Tool [6] and Fragmented Social Mirrors [7]). In prior research, we found that a classroom backchannel can also enhance sense of community in classrooms, and help students socialize with peers, make suggestions for course changes, share information, and seek help [8,9].

Guzdial and Turns [10] documented the benefits of anchored discussion forums in an undergraduate computer science course. They found that when discussion was anchored by key content questions or documents, the sustainability and length of discussions increased dramatically. They also found better learning outcomes for those who participated in anchored versus non-anchored discussions. More recent work by van der Pol, Admiraal, & Simons [11] found that unanchored forums led to more clarification questions than anchored posts. It may be that anchors help to establish common ground for participating students, making it more obvious to whether and how they might contribute.

Our ClassConversations prototype is a web-based toolkit that *integrates* classroom chats/backchannels and discussion forums; it supports *both* synchronous and asynchronous discussions inside and outside of classrooms. ClassConversations uses OpenID (<http://openid.net/>) for user authentication, which allows students to access ClassConversations with their Google or Yahoo account. There are two modules in ClassConversation. One is the backchannel module, a synchronous *public discussion backchannel* system; and the second is an *anchored discussion forum* (Figure 2).

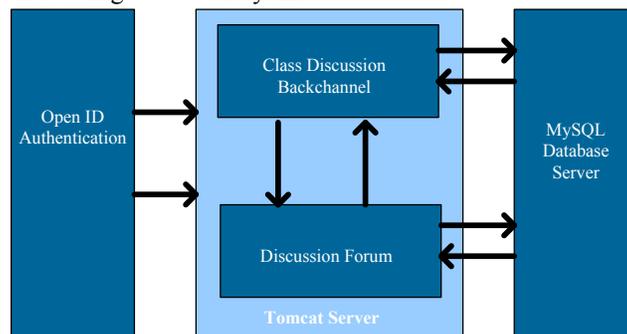


Figure 2. ClassConversations Architecture

III. BACKCHANNEL MODULE

In the backchannel module students can make comments, ask questions and share information during the class while the lecture is going on. Students can also post YouTube videos

and images. Figure 3 shows the public discussion backchannel, displaying a stack of messages ordered with the most recent messages at the top.

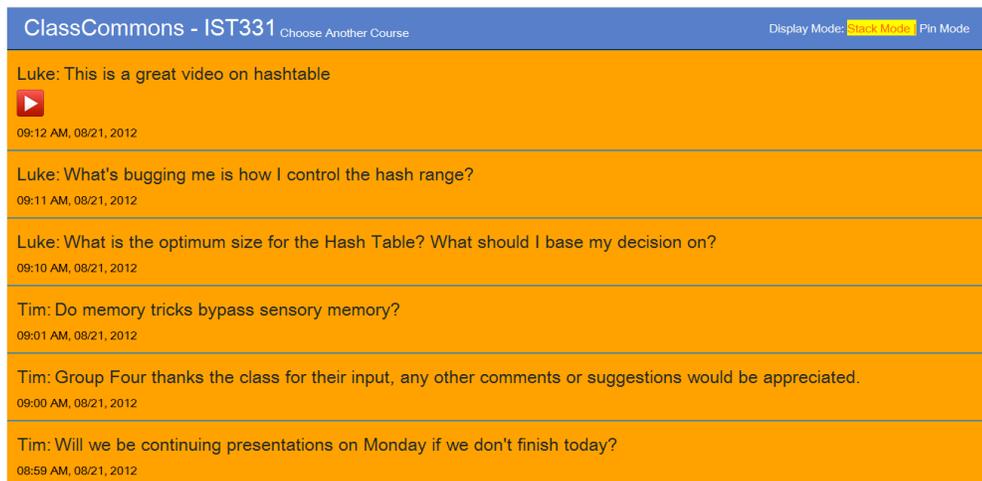


Figure 3. Public display of the backchannel

IV. DISCUSSION FORUM MODULE

The second module is the *discussion forum* module, an asynchronous discussion forum that supports anchored discussion. The discussion forum allows the students to post

files as anchors, persistently available to the students, as they engage in discussion interactions. The anchor documents and the discussion threads can be scrolled independently so that discussion references can always be grounded (Figure 4)

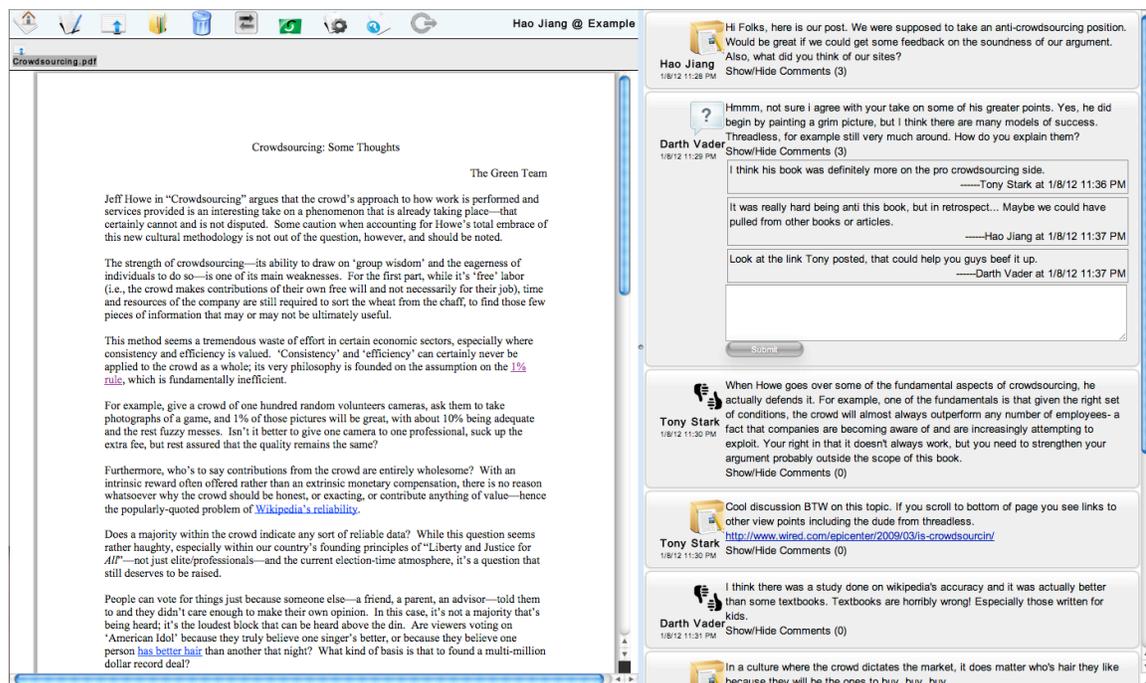


Figure 4. Anchored discussion forum

V. PROJECT STAUS AND PLANS

Over the past school year, we have experimented with each of the two modules in separate contexts, the discussion backchannel used in class and the discussion forum outside class. In our current prototype we have integrated the modules to leverage the advantages of both types of learning conversation. We are currently exploring design options for this integration. For example the new prototype allows students and instructors to port message from one module to another. Using this feature, important or particularly valuable messages that were shared in a classroom backchannel can be

discussed further outside class in the asynchronous anchored discussion forum, and points raised in the forum discussion between class meetings can be shared to the classroom backchannel as icebreakers for the start of a class meeting. Our plan is to investigate a range of approaches to integrating content among the two modules and the impacts of the resulting class conversations on students' learning outcomes and experiences.

Clearly, online chats and discussions are not exotic or sophisticated learning technologies. However, they are also far from routine. For example, the discussion forum tool in the CMS used by Penn State (Angel) does not support anchored

discussions, even though anchoring has been shown to be critical for effective knowledge-building (Guzdial & Turns, 2000). The chat tool in this state-of-the-art CMS supports real-time interactions that are directly managed and mediated by the instructor, but does not provide for publicly displayed backchannels appropriated and mediated by students (Du et al., 2009). And there is no integration of these conversation tools, meaning that there is no possibility of mutually leveraging contribution beyond cut and paste. Indeed, despite wide familiarity with chats and forums, and their complementary affordances in learning conversations, no effort has been made to investigate their potential integration and mutual influence. Finally, while it is true that instructors comfortable with managing their own technology can provide their students with both chats and discussion forums, and might even wish to integrate the two, this is not something most instructors do or are likely to do. Teacher adoption of novel technology has long been a topic of concern within the educational community. Thus a second aspect of our proposal is to explore ClassConversations features that might make the new tool more desirable to educators – not only in its provisions for student learning experiences and outcomes but also in its support for the teaching activities that are associated with student learning and will course management activities like student or team evaluations.

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