Connecting Stories and Pedagogy Increases Participant Engagement in Discussions

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Abstract
Student discussions over video in massive classes allow
students to explore course content, share personal
experiences and get feedback on their ideas. However,
such discussions frequently turn into casual conversations
without focusing on the curriculum and the learning
objectives. This short paper explores whether students can
achieve multiple learning objectives by solving challenges
collaboratively during discussions. We introduce
'think-pair-share' technique for video discussions. Our
pilot results, drawn from a Coursera class, suggest that
participants prefer to exchange information with their
peers using personal stories and connecting stories with
curriculum increases participant engagement.

Author Keywords
video; discussion; small groups; synchronous collaboration

ACM Classification Keywords
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Learning

Video discussions: popular, but under-utilized
In online discussion groups, students receive feedback,
brainstorm ideas, share personal experiences and develop
greater empathy, leading to deeper understanding of
course material [1].

Current discussions [1] use a discussion agenda to guide the participants while providing them the ability to structure discussions. With this structure, participants moderate discussions themselves, which sometimes devolve into conversations independent of the course material. For example, students feel pressed to fill moments of awkward silence with casual banter. These casual conversations help students build empathy and developing alternate viewpoints, but lack the opportunity to think deeply about a topic.

Seeding discussions with challenge questions

This paper explores whether more structured discussions can help achieve other learning objectives such as transfer of concepts [3], better collaboration/teamwork and faster cognition, while still preserving the benefits of a global conversation such as empathy and perspective-sharing. To achieve these learning goals, we introduce collaborative 'challenge-solving' to global discussions, where students see a specific challenge to be solved and a rigidly enforced discussion structure. This discussion structure enforces individual accountability and helps participants generate relevant ideas broadly and share them with peers.

We chose challenge questions with three learning goals: conceptual transfer of knowledge, building empathy among participants, and to encourage students to think in diverse ways. To help students transfer conceptual knowledge, challenge questions required participants to apply their understanding of course concepts to a problem. To build empathy and diversity in ideas, questions encouraged sharing (geographically) local ideas, which has been successful in prior work [1]. Furthermore, to help students with differing familiarity with content, the question draws from the relevant course content, but is chosen to be approachable without being pedantic.

Even given a specific challenge, participants might not automatically arrange their discussions productively. Instead, software could organize and moderate these discussions. Using software to organize discussions also helps enforce the discussion structure at scale and maintain consistency in participant experience. For our pilot, we built an embedded hangout application to provide the correct structure and provide participants cues at relevant times. This application displayed different parts of the discussion to participants, but we manually switched the discussion from one part to the next. This high-touch approach also allowed us to understand the requirements for the software.

Our work is the first to introduce software to enable specific active learning discussion structure for MOOC discussion groups.

Discussion structure for active learning

We turn to experiences in physical classrooms for insight on how software should structure discussions. In brick and mortar classrooms, discussions that emphasize active learning share features like collaborative goal, individual responsibility and feedback to improve self-esteem [4].

Collaborative goal requires students to work together towards solving a challenge. Individual responsibility requires every student to contribute to the discussion and to the final solution. An open feedback environment allows students to explain their ideas and improve them to to feel better about their contribution. A word of praise or spirit of comradeship is a positive step towards combating the "alone together" phenomenon [5]. Furthermore, while physical classrooms may experiment with elaborate discussion structures, online discussion structures should also be simple so that participants can use them without

How 'Think-pair-share' works

Think-pair-share enables students to collaboratively construct potential answers to an open-ended question. Consider the question: "Why are there few women leaders in global organizations?". In the first, **think**, phase, students formulate their list of ideas alone. In the **pair** phase, each student discusses their answer with a peer to develop it further with their feedback. In the final, **share**, phase, students share their answers with the whole class.
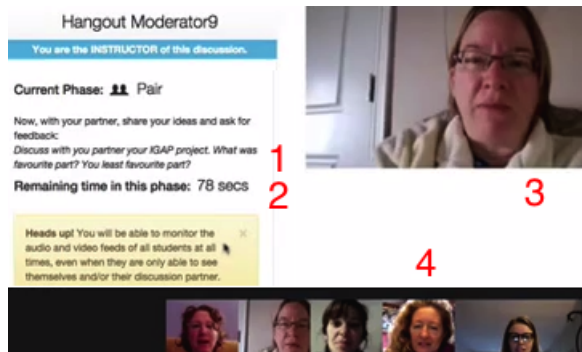
Figure 1: Moderator's view in the 'think-pair-share' discussion structure added to Talkabout [1]. In the pair phase, a participant can only see/hear another participant. The interface includes: 1. Discussion topic 2. Time remaining in the phase 3. Video feed of current speaker 4. Video feeds of all participants (and moderator).

training from in-person instructors. With these requirements, our pilot uses the 'think-pair-share' [2] structure, an active learning classroom technique named for its three sequential phases.

Pilot results: Focus on motivation and stories

We tested our pilot with students in a Philanthropy MOOC on Coursera, "Giving 2.0", which taught students "..to practice philanthropy more effectively". The course uses the online discussion group platform Talkabout [1]. Having observed discussions and interacted with the instructors, we knew the course objectives and the nature of discussions. We used this information to run pilots with different discussion structures. An app in the Talkabout platform provides the think-pair-share structure as shown in Figure 1. Using our app, a moderator (researcher) starts the 'think-pair-share' discussion after the participants have introduced themselves. Each of the three phases (think, pair, share) had time limits enforced to encourage students to focus on the important ideas and to make progress in the discussion. The think time was set as 1 minute, pair time as 2 minutes and share time was 5 minutes which moved to the free-flowing discussion format. The challenge question was *"In your*

community, how do you make people passionately follow and contribute to causes of their interest. Think about the principles mentioned in the course as well as your unique understanding of your community. "

We piloted with three discussions, with a total of 11 participants. In our first two discussions, we tried the challenge-solving exercise but realized that participants were not very motivated. Therefore, in the third discussion, we built the discussion structure around participant goals (e.g. sharing their projects and getting feedback). Given the small number of participants and course settings, our results are suggestive rather than rigorous, and have provided us insights into next steps and the challenges with this discussion structure.

In the first two discussions, participants discussed their ideas broadly and asked some questions in the pair and share phases. However, they did not seem motivated and did not complete the challenge exercise to create a final solution list. Some participants preferred getting feedback on their ideas while others wanted to hear their peers' experiences and insights in philanthropy. One participant said, *"I am attending this discussion to get feedback on my idea. I cannot spend time on this challenge exercise."*

Participants preferred sharing stories to solving a specific challenge. Ideas from course lectures were explicitly mentioned infrequently. Students' stories served to illustrate their ideas with events in their professional or personal lives; the personal nature of such narratives made peers supportive and curious. Consequently, we structured the third discussion as a collaborative exercise towards discussing end of the course projects. This seemingly allowed participants to have longer, detailed conversations that shared experiences in context of their projects.

Pilot results: Personal interactions matter

In our think phase, video and audio from other participants were blocked to allow participants to think by themselves. The inherently lonely nature of think phase and our interface made this phase awkward to participants who joined the discussion to "talk" to their peers. The pair phase allowed participants to talk in greater depth with a peer and participants seemed to enjoy such interactions. Participants preferred getting to know their classmates better through the pair phase, leading to stronger pair bonds later in the discussion. This suggests using a prompt that lets students relate to each other; for instance, using the pair phase to discuss their project which allowed them to describe their experiences. In our experience, this yielded higher participant engagement than putting up a hypothetical challenge.

Participants were most comfortable in the share phase possibly because it was easy to follow and seemed familiar from previous discussions. In the share phase, participants also encouraged their paired partners to speak up if they were not actively participating. Finally, different classes may benefit from different lengths of each phase. For instance, classes that require greater empathy among participants (e.g. a human rights class) might benefit from a longer pair phase, and a shortened think phase.

Conclusion and Future Work

This research aims to explicitly structure discussions to maximize learning goals. To be successful, our experience suggests that such structures must also satisfy students' desire to connect with classmates and share stories.

A primary obstacle in comparing different structures is finding metrics that capture the learning benefits. For instance, grades in open-ended work can measure students' performance, the post-discussion diversity amongst participants' work provides a measure for creative fixation. The difference in student work before and after discussions may help measure how well discussions transfer new perspectives. The fraction of students who choose each discussion format provides one measure of adoption, other measures include post-discussion surveys with measures of enjoyment and motivation.

With these metrics, future work will attempt to find structures which satisfy these student desires and leverage them to achieve learning goals.

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