

1. Introduction

The Peer 2 Peer University (P2PU) project was developed for KMD 1002 by Rebecca Michaels, Arlo Murphy, Eleonore Fournier-Tombs and Stian Håklev. The project involved choosing a design value and suggesting how this value might be integrated into designing a feature, application or tool for P2PU. In order to complete this project, the research team engaged in participant observation and created a future scenario video that aimed to show how the value could be designed into a tool and the impact this new tool might have for students at P2PU.

P2PU is a community open education project that allows members from around the world to co-create knowledge in a free online platform that avoids the formal hierarchical trappings of the contemporary university system. P2PU courses, ranging from mathematics and website development to policy-making and community organizing, are offered during three sessions annually, each of which lasts approximately three months. The courses are facilitated by “peers” with various levels of expertise in the subject matter. Students participate through the P2PU website and various online platforms, including discussion forums, video conferences, chat rooms and blogs.

Our project was to create a tool that expressed a value that is or should be important to P2PU. We selected collaboration, a value important enough to P2PU that it is mentioned in the five-sentence description blurb on their home page (P2PU, 2011). However, while collaboration is a clearly stated value of the P2PU organization, the extent to which it is realized in the courses they actually deliver is less clear. Our goal was to take this value, already expressed in their literature, and try to incorporate it in a new tool they could use, in order to help create the most collaborative environment possible.

2. The Value of Collaboration

Many contemporary writers in the field of education, and particularly online education, are interested in thinking about the best ways to foster collaborative education environments. Since we are

attempting to design a tool that goes some ways to help them create this sort of environment, we need a clear understanding of what exactly is meant by “collaboration”.

The traditional model of education is one of knowledge transfer: the teacher is an expert who imparts her or his expertise to a student who is a novice. In contrast, the collaborative model assumes that students can also share expertise and insights with each other. As Murphy notes (2004), this requires interactions among the students themselves and not just between the teacher and individual students.

Curtis and Lawson (2001) note that collaboration is distinct from cooperation. Where cooperation involves attempting to achieve a result together, it does not necessarily involve actually working together on the same problem. For example, if a problem involves two sub-tasks, and each of two people undertake to do one of these sub-tasks, then they are cooperating. They are not, however, collaborating. Collaboration involves genuinely working together to create a unified solution. This involves discussion and conversation, where the conversation leads to a shared understanding held in common by the members of the collaborating group.

Jucks et. al. (2003) note that collaboration also involves at least some shift in motivation from individual-oriented to group-oriented. The members of the group should be working toward improving group understanding, and not just toward improving their own individual understanding. It is worth noting, however, that the “team” result does not have to be altruistic, and can include extrinsic motivation such as a team grade on a group project as easily as intrinsic motivation such as a desire to help other team members understand a topic. Jucks et. al. also discuss the importance of feedback and debate in the learning process, and point out that both presenting their own views and also listening to the views of others serve to increase students’ understanding.

Using these concepts, we can define collaboration in education as interactive learning by a group, where the group works together toward a shared understanding. Collaborative learning takes place in an environment where the group's goals (which may be as nebulous as "understanding the course" or as precise as creating and producing a specific deliverable) act as norms that guide the individuals to contribute to the ideas of the group, to engage with ideas from the group, and, together, to produce a new, shared understanding.

3. Literature Review

We began by reviewing the literature on Peer2Peer University. Even though the project is quite young, it has already attracted the attention of several researchers. De Liddo and Alevizou (2010) piloted a tool called Cohere to track mentoring and peer interaction patterns in the course Copyright for Educators. Ponti (2011) used actor-network theory to analyze the interactions in the course Cyberpunk Literature. She found learning interactions dispersed among a number of external tools, most not well connected to the P2PU platform. Finally, Lena Hofman used the framework of science and technology studies to interrogate the term "openness" as understood by administrators and users of the P2PU platform.

This project built on the ethnographic fieldwork conducted by the three projects listed above, but went further in suggesting a possible design improvement to the P2PU software that could provide a richer collaborative learning experience. We built our designs on existing literature on graphical mind-mapping and discourse environments, such as Bernstein (2007)'s work on a personal information management system, and the importance of spatially organizing knowledge, Suthers (2008)'s overview of platforms using representational guidance to make different aspects of the learning discourse more or less salient, and Scardamalia and Bereiter (2006)'s focus on group cognition and knowledge building.

4. Field Work

4.1. Participant Observation Method

Team members observed peer facilitators and students in courses covering a variety of topics including:

- Election campaigning
- Conflict resolution
- Open government
- Software coding

Because courses are conducted online and students from anywhere in the world can and do take courses, direct observation of participants was not possible. The only observable was the text actually typed by the participants (facilitators and students) in both synchronous chat sessions (all participants present at the keyboard, discussing an issue in real time) and asynchronous forums (participants contributing to topic threads on their own schedule).

Not being able to observe participation in person is a disadvantage because we could not see all aspects of the participation. For instance, we could not see whether students were fully focused on course participation or whether they were engaged in other computer-related activities at the same time. However, the disadvantage of not being able to observe participants “live” was compensated by the advantage that, because we were essentially “observing” transcripts, we could gather and assess much more data than could be done in real time, given our short observation period. In many cases, we were able to use the chat sessions and forums for an entire 6 week course. This allowed us to see, for instance, if the education process becomes more collaborative or less collaborative over time.

No formal metrics were used due to the time constraints of the project. However, an informal measurement tool was agreed upon as a result of discussions among the team. This tool consisted of the following questions:

- 1) What are the users' expectations of the course and course facilitator?
- 2) How do they manage/share those expectations?
- 3) What are the users' interactions with each other?
- 4) Do they support each other in the course work, answer each other's questions?

4.2. Participant Observation Results

Our observations indicated that P2PU was not getting the level of collaborative learning that they wanted, although it also indicated that the people facilitating courses were attempting to create a collaborative learning environment. Course facilitators appeared to be very interested in encouraging collaboration, both in discussion and also in terms of the contents of their course syllabi. Rather, it was the students who tended to be more resistant. They seemed to have varying expectations of what interactions with facilitators and should fellow students be like. Some waited for instructions from the facilitators in order to complete work on share their ideas, while others initiated discussions and projects of their own. Generally, facilitators encouraged contributions not only to the content of discussion but also to the directions the courses should take, however, students generally preferred to follow the plan laid out by the facilitator rather than suggesting alternative topics or directions.

We also noted that the level of participation seem to decline over time. Students tended to participate more at the beginning of the course and drop off the forums towards the middle of the course. It seemed as though the poor enthusiasm was often contagious, discouraging even the originally active participants. In cases where fellow students responded to posts, this led to engaged and engaging discussions. On the other hand, in courses where posts tended not to elicit any response, the original poster tended to let her or his participation decline as well.

Our observations, then, supported the following two claims about collaborative learning at P2PU:

- 1) Course facilitators encouraged collaborative learning.
- 2) Students did not take course facilitators up on this encouragement.

4.3. Implications of Participant Observation Analysis

There are many possible reasons that the students did not engage collaboratively with the courses we observed. Perhaps the students have a traditional expectation of hierarchical learning. It is possible that they were enticed more by the idea of a *free* online course than by the idea of a *collaborative* online course. Or they may not have been aware of the collaborative ideology behind the courses. Finally, it is possible that they were aware of the ideology and did want to collaborate, but did not find the environment conducive to collaboration. It is not possible to come to any firm conclusions about this. However, it should be noted that, since our proposed tool explicitly addresses the environment, our tool will be most successful if the final possibility turns out to be the correct one.

5. Intentions of the Video

We have seen that collaboration is a stated goal of P2PU and of its facilitators, but that the students do not take it up. While it is possible that this is because the students do genuinely not share the value, it is also possible that it is because the tools used by P2PU to conduct its courses are not conducive to its values. That is, that the web forums and chat rooms do not support the kind of creative interactions that underpin a genuinely collaborative learning environment, and that these forums and chat rooms in fact serve to undermine the value that P2PU wants to champion. Operating on the latter assumption, we have created a future scenario in which the forums and chat rooms of P2PU are redesigned explicitly around the value of collaboration.

[The video](#) contrasts the current situation with our imagined alternative. In the current situation, a forum is presented as a single discussion thread in which ideas are easily lost, and therefore that discourages participation. In our imagined alternative, each student can simply pull the ideas that appeal to them out of the thread to gather the most important thoughts and who contributed these thoughts.

The student can then organize these ideas, creating a map that traces how the ideas link to each other.

These maps allow each student to understand and incorporate other perspectives to enrich her or his own perspective, which is an important foundation for collaborative learning (Murphy 2004).

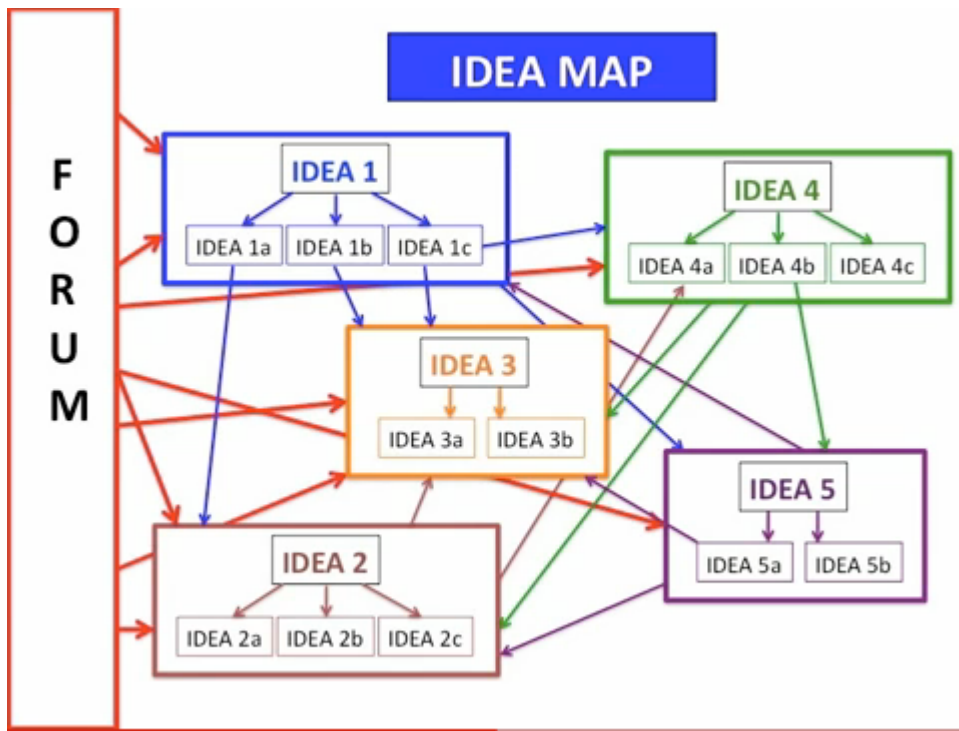


Figure 1: Students draw ideas from the forum and link them together around the ideas that excite them.

Idea maps, or concept maps, are also recommended by Jucks et. al. to facilitate collaboration (2003). Because ideas also trace back to their contributors, the idea map is not just for individual learning but can be used to organize groups in the class around the ideas that excite each individual student. Groups with similar interests will create similar maps, and these similarities will help to show who should work with whom and on what. Because these groups will be smaller than a full class, and therefore less intimidating, and also will be more likely to include students excited about similar things, they will be more likely to collaborate well together.

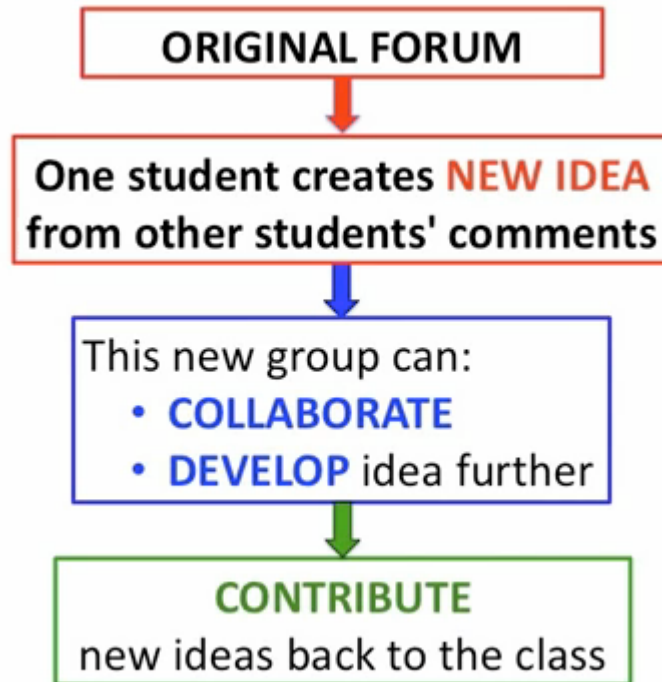


Figure 2: Small groups form around ideas that are exciting to group members.

Our design reflects Murphy's collaboration model in Figure 3. Social presence is created on the forum, where individual perspectives are articulated. The perspectives of others are accommodated by each student in creating the map as per Figure 1. These maps represent a co-constructed perspective and meaning, and when these maps are shared, groups that share goals and purposes form around maps that reflect similar interests, goals and purposes as per Figure 2. These groups, who are already excited about the same things, will be more interested in producing shared artifacts.

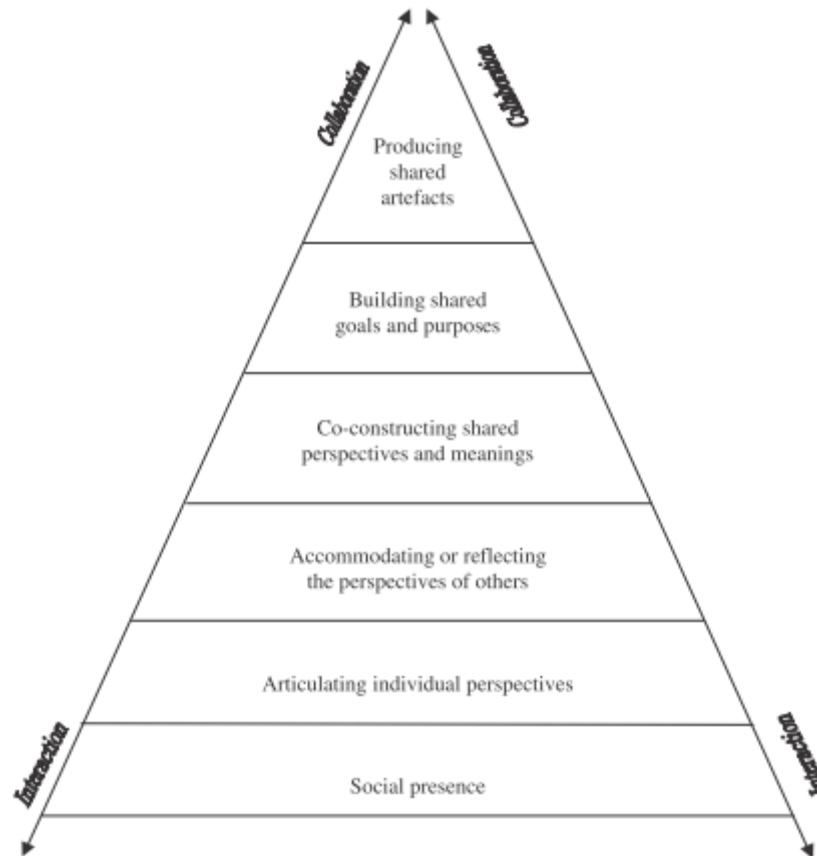


Figure 3: Murphy's Collaboration Model (Murphy 2003).

6. Analysis

We believe that the current forums and chat rooms can be simply read passively, and that this passivity discourages collaboration. In our future scenario, the tool rules out such passivity. In order to organize material, students have to actively engage with it, and they have to engage with it in a way that they are engaging with other students, or at least with other students' names. The idea maps they create at the same time connect them with the other students whose ideas informed those maps, and therefore, hopefully, with exactly the students with whom they could collaborate best. This would mean that, rather than trying to "collaborate" with the anonymous internet, students would only be working with a much smaller group of people with they already shared some ideas.

We recognize that there is no strictly technological fix for a social question such as how to create and foster a particular learning environment. Kling notes that “computerization alone rarely transforms organizations”, and we do not expect our tool to transform P2PU all by itself (Kling 1991) For instance, if students genuinely prefer a more hierarchical education model over a more collaborative one, our future scenario is not going to result in much greater collaboration. Or if students believe that their own education should be a free ride and are uninterested in engaging with other students’ ideas, even the best-designed tool is not going to be successful. However, for students who are keen to or even merely willing to engage in collaborative learning, our tool will help them to do it better, in a less frustrating environment, because our tool, unlike the currently used forums and chat rooms, is designed with collaboration as an explicit goal.

7. Conclusions

In this project we designed a future scenario in which P2PU is able to better encourage its students to learn in a collaborative manner. Collaboration is already an explicit goal of P2PU, however, collaboration is not implicit in the tools that P2PU uses. Partly because the tools P2PU currently uses do not actively encourage the collaboration that P2PU wants, the actual courses offered by P2PU fall short of the alternative model of education that they want to create. In our future scenario, we offer a replacement tool that actively encourages the collaboration that P2PU wants. We hope that, if P2PU uses tools, such as the one presented in our video, that are designed to harmonize with their values rather than to undermine them, then they will be able to create and foster the environment of peer learning that they want.

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