

CULTURE OF CRITIQUE: ONLINE LEARNING CIRCLES & PEER REVIEW IN GRADUATE EDUCATION¹

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ABSTRACT:

Abstract: In this paper we explore a strategy, “Online Learning Circles,” for helping students develop their own authority and trust in evaluating research and a respect for the authority of their peers. Our goal is to examine this online collaborative structure and its ability to foster a culture of constructive critique in graduate school education. The data we analyze includes peer review messages and survey responses. Student message data are coded for type and quality of peer review. The survey data is used to understand the students’ perspective about their experience in learning circles and their judgment of the quality of feedback they offered and received from their peers. This research addresses two important issues. First, it evaluates a structure, learning circles for group work in graduate online education, and second, it explores the type and form of peer feedback from within this collaborative structure. Learning circles did provide a structure for peer review but there are reservations and issues involved in helping students to develop the trust needed to work together effectively. The second issue revolves around authority in the process of peer review. Under what conditions are students willing to be critical and to accept criticism from their peers as legitimate? To do this involves a process of reacculturation that is difficult to create in courses of limited duration but may be one argument for the advantages of creating a cohort model of education in either on campus or online programs of study.

INTRODUCTION

Much of early schooling requires students to acquire knowledge alone with limited opportunities for inquiry, interpretation, design, and critique. In contrast, graduate education, either online or on campus, requires students to engage in a creative process of analytic interpretation, question-driven inquiry, and crucial reflection with the eventual goal of creating new knowledge. Group projects or peer feedback on projects engage students in deeper learning because these activities often involve a discussion of alternative interpretations and some accommodation to different strategies for accomplishing a task. This requires a trust in thinking and a willingness to experiment with ideas and approaches, some of which may need to be discarded.

Moving from knowledge acquisition to knowledge construction can be very difficult for students, who often vary in their ability to work collaboratively or offer constructive criticism. Peer review requires students to make evaluative judgments on the progress of their peers. This process requires a shift in many of the cultural assumptions students hold about school in general and graduate education in particular.

One reason a “culture of critique” is difficult to develop stems, in part, from graduate students’ expectations of their relationship to their instructors. Many students come to the university with the expectation that they will learn from the experts, their instructors. These same expectations are greater in online courses where students frequently ask for more feedback from their instructors. While online instructors might appear to be available more frequently, they face the same time constraints of on-campus university teaching, limiting their ability to engage in extensive one-to-one interaction.

Students have been conditioned to think of evaluative feedback as personal and private. However, the comments made by instructors to students are often very repetitive. If students were willing to receive their feedback in a public online forum accessible to all students in the class, the instructor could use examples to highlight problems that are likely to be encountered by a number of students in the class. Since graduate students often return from years of work experience, they bring valuable additional perspectives to the discussion. This valuable knowledge can only be exploited, however, if they can develop the trust and authority to offer and accept constructive criticism.

Building this trust is not easy. Many of the graduate students were in workplace positions where it was the role of a supervisor, for example a principal, to provide constructive feedback. Peer critique necessitates a reacclimation of students to help them develop a sense of trust in their own authority to evaluate the work of others and respect the authority of peer evaluation (Bruffee, 1999). This seems to be especially true when the graduate students are themselves involved in K-12 education. The traditional approach to education has fostered a school culture which displays a strong avoidance of wrong answers, constructive critique, or intellectual conflict.

Classroom habits carry over into professional dialogue, and though teachers often have extensive critiques of

their peers, they rarely develop the interpersonal trust to convey information in a way that constructively improves practice. Critique is viewed as the function of the administration. The consequence is a weakened professional community that loses the value of learning from one another.

A final factor challenging the creation of a culture of constructive critique in online programs has to do with the self-selection of students into educational programs. Compared to students enrolled in on-campus programs, students in some online classes have been found to score higher on independent learning style scales and score lower on collaborative and dependent learning style scales (Diaz & Cartnal, 1999). If this finding is valid, then placing students in highly cooperative learning contexts is contrary to the way they approach learning and could lead to some dissonance. It should, it would follow, be even more difficult for them to work in a collaborative, interdependent framework than students who attend university classes on campus.

PEER REVIEW

This book represents the burgeoning research interest in collaborative student learning and methods to evaluate group work in on-line education. The online practices are in many ways similar to those that described in research for peer evaluation in on campus education (Bruffee, 1999; Roberts, 2003, Topping, 1998). Peer review is often used for either summative or formative assessment of student effort, technical skills, and social attitudes (Brook & Ammons 2003; Conway & Kember, 1993; Li, 2001; Lejk & Wyvill, 2001). Less often, peer review involves a process-shared learning through discussion of the ideas and negotiation of plans and goals for action or project work (Bruffee, 1999).

Studies of peer review divide into two groups. The first group of studies assumes peer review is an assessment process related to grading and fair assignment of credit for different parts of an assigned task. The second set of studies focuses on peer review as either a peer tutoring or peer group collaborative learning process. After considering these studies, we explore the use of “learning circles” as a structure for online peer review.

1) Peer Review as Assessment—Advising on Grade Assignment

Group tasks in university courses tend to be practice activities, games or written tasks assigned by the instructor rather than selected by the students. Student learning is regulated by grades serving as a system of incentives or pressures. Any collaborative work is often completed outside of university class time and therefore not visible to the instructor. The final work or project is turned in to the instructor, or sometimes presented to the class. University instructors, not always comfortable giving all of the students in the group the same grade, look to peer review as a strategy to help extract individual grades from group products. In this use, peer review is a monitoring of student effort and time on task (Conway & Kember, 1993; Brooks & Ammons 2003).

Li (2001) reviews a number of strategies and formulas that have been created to determine individual grades by using students’ “peer review” or evaluations of the relative effort of their partners on a set of component tasks. These formulas weight the aggregate scores from peers and the relative importance of the task with the project

grade to calculate individual student grades. Students bring different conceptual and social skills and level of commitment to a group task, as well as different relationships with one another. The precision of the numerical scores masks the much more difficult issues of fairness of the assessment.

Peer review of the relative effort of one's partners evaluated early enough can increase the effect of external rewards on behavior. Students who are not working - "free-riders" or "social loafers" - can lower the morale of the group when the other students feel the work load is unfairly distributed (Brook & Ammons, 2003). To address this problem, Brook & Ammons experimented with having students give (and withhold) rewards throughout the process of group work, rather than solely at the end. Since these experiments were conducted with students in business courses, they gave each student a finite amount of "pay" to distribute to the group members based on contribution to the group, attendance at group meetings and social attitudes as they worked within their simulated company. As a result, peer review took place at multiple times through the course using specific evaluative criteria. This process of early identification of "lagging students" gave them a chance to improve, and also clarified the evaluative criteria of the project.

However, simply "telling" who did the work and identifying "free-riders," either at the middle or end of a project, does not exploit students' ability to help one another. From the students' perspective, this form of evaluation of their friends is likely to be viewed as a form of treason, and group criticism of the less popular students may lead to scapegoating. In either case, it is different than seeing students as social resources for one another's learning.

2) Peer Review as Negotiated Learning and identity transformation

Other characterizations of learning focus less on external factors and more on the social dimension of cognition (Bransford, Brown & Cocking, 1999). Learning in this tradition is described as a process of enculturation into a community of practice (Bruffee, 1999; Wenger, McDermott, and Snyder 2002; Vygotsky, 1978). Learning how to think, value and work with the physical, technical or mental tools of a community contributes to the transformation of the identity of the learner (Gee, 2002; (Wenger, McDermott et al. 2002). Identity as a member of a community is further shaped when a person creates new forms of knowledge that become are valued by the community. The community then provides the feedback for reflecting on the change created by the creative work.

In order for students to gain mastery in an area that involves moving beyond a reception of information, they need to be invested in their work. This involves not only acquiring knowledge but also adopting the practices, using the rules of evidence and sharing the values of the people who do the work. In effect, students are trying on the identity of the people in the field they are studying. This level of investment is hard to create without a design which gives students choice in their learning projects. Graduate students are encouraged to select an area in which to develop their expertise so that they can become a member of that knowledge building community. Learning in this area is tied with acquiring a new identity as a member of the intellectual

community. Once students have a strong interest in learning how to take on new roles, the grade becomes feedback on the process of change, rather than the motivation for their actions. But trying to create such a context where the work of learning is driving the student effort, rather than a preoccupation with grades, requires a transformation of the way that students approach schooling and the way instructors teach.

Rather than have students work together, and then try to divide up the work after it is done, it is possible to structure the work so that both the individual and group efforts are part of the learning landscapes.

3) Learning Circles as a Structure for Peer Review

Online “learning circles” are teams of learners situated in diverse locations who share a common goal of acquiring a deeper understanding of topics arranged around themes (Riel, 2004). Learning circles (also called study circles) have a history as an informal method for adult learning and social change. It was used by the Chautauqua Assembly in New York in 1870 as a vehicle for providing higher education to people who were unable to attend college. Instead of formal classes, people sent for discussion materials, and then assembled in small groups to discuss them. They learned from one another in a democratic fashion, without the formal direction of a leader (Campbell, 1998). Over time and across countries, civic organizations, neighborhood communities, trade unions, churches and social justice groups have used learning circles to empower their members to make choices and take action.

Learning circles have also been used as a tool in the process of constructing a community of practice in schools (Collay, Dunlap, Enloe, and Gagnon, 1998; Funk, 2003). As a professional development strategy for teachers, learning circles are defined as small groups of professional educators who are committed to improving their practice and that of their larger community by mutual support of each other in teaching and learning a specified task. A synthesis of the essential characteristics of these learning circles include democratic leadership, relational trust, constructivist learning, shared culture, assessment of group process, and documentation of circle work. Learning circles are viewed as nested in a larger community of practice and serve as the working units of the larger community (Funk, 2003).

Learning circles have been used online for student learning (Riel and Polin, 2004), and more recently in online graduate education (Penuel, Riel et al. 2004). Electronic learning circles have supported the learning of elementary and high schools education for several decades (Levin, et al., 1987; Riel, 1985, 1990). At the present time, more than 5,000 elementary and secondary students around the world participate in learning circles on the International Education and Resource Network (iEARN). This structure was designed in response to observations that the teachers and students who created an online project were much more invested in the learning than those who passively participated. In learning circles, each group sponsors a project and everyone participates in the projects of others. This local ownership makes it easier to align global project-based learning with local curriculum. The distinguishing characteristics of online learning circles are diversity of participants, development of relational trust, project-based learning with both individual and group

ownership of projects, reciprocity of work on multiple projects, distributive leadership, phase-structured interactivity, collaborative publishing (Riel, 2004).

Using online learning circle structure to help graduate students support their action research projects required some minor modifications; however the structure remains very similar (Riel, 2005; Riel & Polin, 2004). Distributed leadership, diversity, and constructed learning are essential elements. Fostering trust (Bryk and Schneider 2002) is essential for success. The task is similar to that of professional development learning circles with continual dialogue around assessment and documentation an essential part of their action research. The small group exchanges are used to support the development of action research in areas that were important to the students. The network of ties can be a valuable resource for the people in the learning circles but these ties are only valuable if the participants are willing to go past the perfunctory comments about each other's work and really engage in serious review of one another's work. It requires the work to build a culture in which critique is a resource not a negative sanction.

Peer Review, Identity and Learning Circles: A Culture of Critique?

In this paper we explore how small group exchanges in the structure of learning circles make use of the educational resources represented by the collective knowledge of the group. In these learning circles the task is the improvement of the quality of action research projects. Learning circles were used in this context to balance independent ownership of part of the process with reciprocal interdependence. The technology for collaboration visually displays the group work throughout its progress, taking away the need for students to report on who is, and is not, participating because the instructor can see for him or herself.

A second difference between this approach and peer review in university courses on campus is that without the physical ties to a single working location – the university - it was easier to have students design projects situated in authentic workplace settings. When student learning is connected to their work, it is likely to have more consequences for their professional development and identity (Wenger, 1998). This can make grades less salient as the form of reward for learning.

The circles were reformed each semester to give students the opportunity to work with most of the students in the cadre as this increases the exposure to different ideas. The goal in the setting is to extend the role of peer review to one of intellectual consultant rather than task manager. While students may be familiar with peer review which involves rating the work habits of their peers, it is uncommon for them to offer evaluative feedback on the quality of peer thinking or problem solving. This form of review takes preparation and explicit instruction; it involves the work of creating a “culture of critique.”

RESEARCH QUESTIONS

The questions we explore are:

Can online learning be structured so that students are comfortable with giving and receiving public, rather than

private, evaluations of their progress?

Can students, over time, develop sufficient trust and authority to give and receive constructive critique from their peers?

What type of critique do students provide for one another and does it change over time working together?

How do students evaluate the quality of their work in learning circles in comparison to working independently?

THE RESEARCH CONTEXT

This research focuses on students enrolled in a 13-month Master of Arts in Educational Technology program taught primarily online with three face-to-face meetings. The students meet face-to-face at the beginning and middle of the program for four days each of intensive learning. At the end of the program, four days are used for reflections and final presentations of research projects. The rest of the educational experiences take place online in a range of contexts, employing both synchronous and asynchronous communication. The program uses a cohort model in which the same group of students moves through a set of courses together. This study examines one group of 20 students from their first course in a summer –“Introduction to Distributed Learning” – and follows them through a three-semester course of action research with a culminating project presentation at the end of the program. This introductory course and the year-long action research seminar were taught by the same person (one author of this paper) who served as research advisor for the action research projects. The year-long sequence provided a context for examining how students developed their peer review skills.

The explicit goal of the graduate program is to help students develop a program of action research situated in their workplace. An equally important goal is develop “service” leadership skills in the area of educational technology. This form of leadership places high value on the authority of one’s peers and respects each person’s authority to contribute to the community. The graduate program is structured to help students develop their action research while experimenting with different strategies of team leadership. The open structure of leadership in learning circles lends itself to this process and students are encouraged to take responsibility for the quality of all of the action research projects in their circle. This might involve challenges the approach that a students is considering. For many this is not a simple process. It involves a serious reacculturation process (Bruffee, 1999) to create a learning culture that values open, constructive feedback from peers.

The role of the instructor as single “expert” was de-emphasized and students were encouraged to see the expertise was distributed. The instructor consciously modeled peer feedback. This distributed approach to expertise requires students to examine their experiences and draw connections between theoretical constructs and their life stories. To facilitate this type of work, the 20 students in this cohort were arranged in a series of smaller learning circles. The students were directed to meet with their learning circle each week to review their progress. This meeting was held synchronously in Tapped In®, a professional arena for group chats. The instructor joined one of the circles each week to discuss progress. The students in the learning circles also had

asynchronous “threaded” discussions where their comments on each other’s work were publicly available to all students in the course. The major work of supporting their action research plans and projects were facilitated by these learning circle interactions.

The 20 graduate students were placed in a series of four learning circles over each of the four terms with different circle partners each term and with evolving goals and tasks for each circle. This created a total of 16 learning circles, (four circles each semester with five students in each circle). These online learning circles were similar to those used in primary and secondary education and those used in professional development contexts in a number of important ways. They assumed a process of distributed learning with no person identified as the leader. Diversity was increased by the having an opportunity to work with each of the members of the class in these small units. The students saw each other face to face at the beginning, middle, and end of the program for four days at each time, and community circles were also used as a tool during these times to further build group trust.

Each of the graduate students pursued their own action research subject. The role of the others on their project was not as clear as with school-based learning circles. The students were each asked to serve as an advisory board or as “critical friends” in the design, implementation, reflection and final presentations of action research. While each student designed action research in their own setting, the students were evaluated for their role as researcher and advisor on the research of others. In this way, each student had an advisory board independent of the instructor.

RESEARCH METHODS AND DATA ANALYSIS

To examine our research questions around peer review we examined the work of a cohort of 20 students in Pepperdine University’s Master’s in Educational Technology graduate program. The student work comes from three sequential one-unit courses on action research taught in the fall (Sep.-Dec.), spring (Jan.-Apr.), and summer (Apr.-Jul.)

In each session students were asked to serve as consultants giving their learning circle partners feedback on their work. While positive comments serve to reinforce students, the goal was to help students learn how to give and receive more extensive feedback in a context that improved actions, reflections and writing. When the constructive criticism that the instructor supplied was made in public, it helped all students see how work could be improved. Therefore the student reviews and instructor reviews were delivered in the public forum. If or when a student was unwilling to accept public comments, they could ask for and receive a private review through email. Several students asked for private reviews, but in most cases the students were willing to have their work reviewed in the public setting. The instructor used student work as an opportunity to talk about how to improve their research skills, or work on some aspect of writing.

We drew on two sources of data for this analysis. First, we used the student messages that provided peer feedback exchanged in online learning circle interaction. Before using this data, the students were informed by

email of the purpose of this analysis and given the option of having their materials removed. No student took this option. The second data source was student surveys evaluating learning circle interaction. These surveys were completed after their second learning circle session and again at the end of the year providing their perceptions of the value of peer review in this structured format. They were voluntary and anonymous.

Student Messages Evaluating Peer Work

The students made use of many forms of technology (synchronous chats, email, instant messaging, interactive web journals, etc.) to facilitate learning circle interactions, however the messages exchanged in online discussion forums was the most public part of their work. These forums are open to all students and faculty in the Pepperdine community and the students were aware of this open access. While we recognize that the messages we use do not represent the whole of their interactions, we think it represents a reasonable sample of the forms of help they provided one another.

In each of the courses, the students and the instructor exchanged between 600-800 messages in threaded discussion forums. Some messages were posted in the whole class discussion forums and others were posted in threads only for learning circle participants (groupings of five students). In the fall, the writing was mostly around creating a literature review with messages coming from the second half of the fourteen-week course. For the spring session, learning circle discussions centered on helping students refine, conduct and write about their action research. In the first two courses the discussion took place as learning circles, “threads” of dialogue in the larger course discussion forums. In the final spring course, each learning circle used the discussion boards of Tapped In®, a collaborative messaging and chat tool for learning circle interactions making it easier to separate the learning circle messages from the class discussion forums.

The instructor read and responded to the action research projects in the learning circles to provide explicit models of different ways of giving constructive feedback. Her goal was to move students past positive comments (affirmations) towards thinking collaboratively about the process of action research and to develop the ability to give thoughtful feedback to one another. Since the instructor’s messages serve as models, we include them in the analysis, but keep them separated from the student’s messages.

Coding Student Forum Messages

A modified method of discourse analysis was used to look at the forms of evaluation that students provided to one another in the threaded discussion in the online (asynchronous) environment. It involved coding messages that students posted in the threaded discussion across 10 months (September to July) while engaged in action research.

Student messages were extracted from newsgroup or forum discussions and numbered by time and thread. Messages were read and coded in order of their thread – that is, all messages were ordered first by topic, and then by date and time. Messages sometimes referred to comments in previous messages or continued an online

dialogue. Each message was coded in three main categories; either as a solicitation, evaluation or reaction (cf. Mehan, 1977) or was determined to not be a part of the review process following the guideline in Table 1. These distinctions were easy to make with very high intercoder reliability.

Table 1: Messages coded as Part of the Review Cycle

<p>SOLICITATIONS - Help seeking</p> <p>Learning circles messages that asked for specific help or offers materials for students to review. This might include listing a website or attaching files for review.</p> <p>EVALUATIONS - Help giving</p> <p>Learning circles messages that offered some form of response to the work of a peer. These messages contained different forms of feedback such as comments, editorial or technical help, suggestions of resources, strategies, or alternative approaches.</p> <p>REACTIONS - Help Taking</p> <p>Learning circle messages that acknowledged help, responded to questions or described changes made in their approach or writing.</p> <p>NOT PART OF THE REVIEW PROCESS</p> <p>Learning Circle messages were not part of the peer review cycle and were not included in the analysis. These include messages that focused on course logistics, assignments or social issues.</p>

Procedural messages, sociability comments were excluded from the analysis. Table 2 shows the total set of messages that were coded for this analysis.

Table 2: Total Number of Learning Circle Messages related to review of Student's work posted by students and instructor over the year

	PEER REVIEW	INSTRUCTOR REVIEW	REVIEWED MESSAGES
FALL	59	14	74
SPRING	219	57	276
SUMMER	162	55	217
TOTALS	440	126	566

The evaluation messages were then coded based on their content as containing one or more of the following affirmations, editorial/technical comments, extension of the ideas, or constructive critique. Each evaluation message could receive up to four codes based on the presence or absence of these different forms of feedback.

Table 3: Coding Categories for Content of Evaluation Messages

EVALUATIONS --Help giving

- **AFFIRMATIONS:** supportive, appreciative statements about the work, but without information that would lead the work to be revised. Comments about the student's work, use of colors, quality of writing, or general appreciation all fell into this category. Indirect compliments or encouragement – “You're on the way to having a publication.” – also were coded as affirmations.
- **EDITORIAL/TECHNICAL:** encompassed anything that could be construed as mechanical advice, but didn't suggest major conceptual changes to the student's work. Misspellings, grammatical corrections, typographic errors, broken or missing website links, font or color changes – all represented situations where this code was appropriate.
- **EXTENSIONS:** represented feedback from peer to student that was intended to give more to consider, or new directions to explore. Personal stories that might be helpful, links or suggestions for new information locations, or other discussions of theory all represented extension. Importantly, extension contained no implied critique or attempts to question, reorient, or challenge ideas of the author.
- **CRITIQUE:** Constructive critique was used for feedback that challenged any aspect of what the student had written or presented, and offered a different direction for the student to consider. Comments suggesting a different method, questioning an outcome, or suggesting a different approach were coded as critiques. Sometimes the critique also represented a “kickstart” for a lagging student – if the message suggested that the student wasn't fully exploring the subject, or taking advantage of the peer review process, this was coded as Critique.

Initially each message was coded independently by two coders, and then checked for concurrence. In situations where the coders scored the message differently, the coders recoded the messages to resolve inconsistencies. Once intercoder reliability was consistently higher than 85%, the remaining data were coded by one coder. The test of reliability at the conclusion of coding was 94%.

Student Surveys Evaluating Learning Circles

The same 20 students were also asked to complete a survey to evaluate their learning circle experience across three semesters in terms of their trust, commitment, investment in the work of others, rate of participation, quality of the feedback and leadership. These voluntary, anonymous surveys were collected twice, once at the end of the second spring session (reporting on fall and spring) and again at the end of the summer session. Sixteen students completed the first survey; nine completed the final survey.

The surveys were completed via email and students used a code to link them. They were transmitted to a person who removed all identification except the code so that they could be analyzed anonymously. There was no way to identify non-respondents so we do not know their reasons for not responding. While recognizing that the number of student surveys at the end of the year is low, the surveys do provide a student perspective on some of the issues of trust and quality that are not evident from coding messages. The survey responses are examined in the next section to provide student's perceptions of the collaborative process of peer support in

learning circles.

FINDINGS

Data Set 1: Peer Review Messages

As noted in Table 2, there were 566 messages that were part of the Learning circles review cycle across the year. Of these 566 messages, 440 were posted by students and 126 were posted by the instructor. When the 440 student messages were coded into the three review categories there were 148 (34%) messages were Solicitations, (44%) Evaluations, and 98 (22%) were Reactions. The total number of messages from the first session, 59, increases to spring session, 219, and then decreases in the fall session, 162. Out of the 440 messages, 198 (44%) messages were evaluation and these messages became the set of messages used for looking at how students provided feedback to each other.

Table 4: The number (and percent) of messages coded as Solicitations, Evaluations and Reactions in the Student exchanges in Learning Circles each session.

	SOLICITATIONS	EVALUATIONS	REACTIONS	TOTALS
FALL	29 (49%)	17 (29%)	13 (22%)	59 (100%)
SPRING	77 (35%)	93 (43%)	49 (22%)	219 (100%)
SUMMER	42 (26%)	84 (52%)	36 (22%)	162 (100%)
TOTALS	148 (34%)	194 (44%)	98 (22%)	440 (100%)

Instructor Critique Of Student Work

The 129 messages posted by the instructor in the review cycle were all Evaluations, since the instructor was not sharing work for students to review. In these 129 messages, there was an average of 2.2 different forms of evaluation per message across the year (Table 5).

For the fall session, the instructor's messages averaged 2.1 forms of feedback per message with almost all of the messages (14 out of 15) containing positive feedback (Affirmations). The second form of feedback was almost equally likely to be an extensions or a critique and less likely to be editorial.

In the spring session, the number of evaluation messages increased substantially from 14 to 60 messages. The number of codes per message dropped slightly (1.7). While 70% of the messages contained positive comments, this contrasted with 97% in the fall. There were 8 messages with single codes and these were equally distributed across the four types of types of evaluation. The decrease in positive comments was accompanied by an increase in editorial comments with about the same rate for extensions and a slight decrease in critical critique relative to the other forms of feedback.

In the summer, the instructor's messages averaged 2.3 different forms of feedback, with 33 of the 55 messages (60%) containing positive feedback. While the relative frequency of positive comments decreased, the use of extensions increased with almost 70% of the messages containing an extension of the student's ideas. Overall,

49 of the 129 instructor's messages (38%) contained critical or constructive criticism.

Table 5. Forms of evaluation (affirmation, editorial, extensions, and critique) contained in messages posted by the instructor in the Learning Circles.

	AFFIRMATIONS	EDITORIAL	EXTENSIONS	CRITIQUE	TOTAL EVAL.	TOTALS MSG.	TOTAL EVALS. PER MSG.
FALL	13 (41%)	2 (6%)	9 (28%)	8 (25%)	32 (100%)	14	2.29
SPRING	42 (40%)	20 (19%)	27 (26%)	15 (14%)	104 (100%)	60	1.73
SUMMER	33 (27%)	27 (22%)	38 (31%)	26 (21%)	124 (100%)	55	2.25
TOTAL	88 (34%)	49 (19%)	74 (28%)	49 (19%)	260 (100%)	129	2.02

Students' Peer Critique

The students posted 194 evaluation messages with an average of 1.5 forms of feedback per message. They posted substantially more reviews during the middle session with a slight drop during the final session.

Of the 17 evaluation messages posted during the Fall session, 11 of them (65%) provided positive feedback and more than a third (35%) contained some help in extending the ideas. Less than one-fifth of the messages (18%) contained constructive critique.

In the spring session, the number of forms of feedback per message was only slightly higher (1.3 forms of feedback per message) however the number of messages increased dramatically. The relative number of affirmations increased from fall session to spring with 68 out of the 93 messages (73%) containing positive feedback.

By the spring session, students' positive comments were slightly less frequent; 52 (62%) of the messages exchanged during that session included positive comments. There was an increase in the number of codes per message (1.82) which signals longer messages. Constructive or critical criticism appears to be the hardest form of feedback for students to give each other. It only accounts for 7% of all of the students' evaluations and was found in only 11% of the students messages compared to 38% of the instructor's messages.

Table 6. Forms of evaluation (affirmation, editorial, extensions, and critique) contained in messages exchanged by students in the learning circles.

	AFFIRMATIONS	EDITORIAL	EXTENSIONS	CRITIQUE	TOTAL EVAL.	TOTAL MSG.	TOTAL EVALS. PER MSG.
FALL	11 (52%)	1 (5%)	6 (29%)	3 (14%)	21 (100%)	17	1.24
SPRING	68 (58%)	16 (14%)	30 (26%)	3 (3%)	117 (100%)	93	1.26
SUMMER	52 (34%)	44 (29%)	42 (27%)	15 (10%)	153 (100%)	84	1.82
TOTAL	131 (45%)	61 (21%)	78 (27%)	21 (7%)	291 (100%)	194	1.5

Data Set 2: Student Surveys On Learning Circles For Critique

In the first set of data we looked at the forms of evaluation that students provided to one another in their learning circle groups. The survey explored the students' opinions about the learning circle collaboration. Questions explored the perceptions of individual student performance within the group, how the group reciprocated with invested time and communication, and the quality and usefulness of the communication. Structural questions about leadership, and whether the learning circle membership should be periodically reorganized, were also included. While 75% of the students completed the survey for the first two sessions, the less than 50% return at the end of the year suggests caution in any assumption about trends over the whole year.

The Quality of Peer Review

Students were asked to evaluate the quality of the feedback they gave to their peers and the quality of the work they received from their circle partners (Table 7). In the fall, the students' rating of their skill took the shape of a normal distribution with 60% in the middle, 20% at the high end and 20% at the low end. Over the course of the year, by their self report, students gained skill in their ability to engage in the process of peer review. At the end, 55% of the students rated their feedback as high in quality and no one rated him or herself as low. While this change might signal a change in quality, it might also represent an increase in the development of confidence in their ability to help their peers. There was almost no change in their perceptions of quality of the feedback that they received from their peers.

Table 7: Perceived Quality of Peer Review

	THE QUALITY OF FEEDBACK PROVIDED			THE QUALITY OF FEEDBACK RECIEVED		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
FALL (n=15)	20% (3)	60% (9)	20% (3)	13% (2)	40% (6)	47% (7)
SPRING (n=16)	19% (3)	37% (6)	44% (7)	25% (4)	44% (7)	31% (5)
SUMMER (n=9)	0% (0)	44% (4)	55% (5)	11% (1)	44% (4)	44% (4)

Student Investment in Group Success

The goal of action research is for students to select a critical problem or issue in their workplace. While some succeeded at selecting a problem they were passionate about, most of the students were working in areas in which they were invested. Students were less concerned about grades because the goal was to affect their career trajectory directly through their actions in their communities, and not indirectly with report cards. Learning circles involve a process of shared responsibility for work. It was not clear if students would be invested in the work of their peers. Students were asked to rate the sense of responsibility they felt for the quality of the action research of their circle peers (Table 8). They were also asked about the inverse: that is, did students feel the others in their circle invested in their work?

Students reported their investment in the work of their peers was moderate (81%) to high (21%) in the fall. There was a decrease in the spring with a high rate in the summer. Students' perception of the investments of others was consistent with the collective report of the students. In the spring, the students' perceptions of the investment and reported investment mirrored each other exactly. One fourth of the students were not invested in the work of their peers and did not believe that others were invested in their work. The rest of the students split equally between those that invested and perceived investment to be high and medium. In the summer we see a mismatch. Over three fourths of the students (78%) report high investment but did not find this investment from their peers. It is possible that the respondents are the ones who were highly invested in the learning circle process and the non-respondents were those who were perceived as less engaged. The percentages reported on Table 8 are very similar for the nine students who responded to all three sessions.

Table 8: Perceived Reciprocal Investment in Student Work

	STUDENT'S INVESTMENT IN THE SUCCESS OF THE ACTION RESEARCH OF OTHERS			STUDENT'S PERCEPTION OF THE INVESTMENT OF OTHER IN HIS OR HER WORK		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
	FALL (n=16)	0% (0)	81% (13)	19% (3)	6% (1)	63% (10)
SPRING (n=16)	25% (4)	38% (6)	38% (6)	25% (4)	38% (6)	38% (6)
SUMMER (n=9)	0% (0)	22% (2)	78% (7)	22% (2)	33% (3)	44% (4)

Student Ability to Communicate Their Ideas and Solicit Help

Throughout the yearlong program, students needed to be able to communicate their action research in writing in a way that made it clear what help they needed from their peers. The circle work changed over time but each semester students needed to review their work and ask their new partners for help. Generally the tasks facing the circles each semester were:

Fall: generate action research questions, develop a literature review

Spring: Conduct their action research cycles (1 & 2), and write reports

Summer: Cycle 3 report and write final action research report.

Students were asked how well they felt they communicated the nature of their work to the group and how clearly they understood the project of others (Table 9). After the fall session, fewer than half the students (44%) felt that they communicated their project to others clearly and 56% felt that they understood the projects of others. By the end of the year, 89% of the students claimed that their communications were well specified while only 44% thought that their partners had clearly specified their projects. It appears from this data that students were not as effective in communicating their ideas as they thought they were.

Table 9: Perceived Quality of Communication with Peers

	STUDENT COMMUNICATION OF PROJECT TO OTHERS			STUDENTS UNDERSTANDING OF PROJECTS OF OTHERS		
	VAGUE	SOMEWHAT CLEAR	WELL SPECIFIED	VAGUE	SOMEWHAT CLEAR	WELL SPECIFIED
FALL (n=16)	6% (1)	50% (8)	44% (7)	0% (0)	44% (7)	56% (9)
SPRING (n=15)	7% (1)	27% (4)	67% (10)	7% (1)	47% (7)	53% (8)
SUMMER (n=9)	0% (0)	11% (1)	89% (8)	11% (1)	44% (4)	44% (4)

Trust and Commitment

Willingness to share substantial comments on one another’s work requires a sense of trust and responsibility to the group (Bruffee, 1999). The students were asked to rate their sense of trust in the circle (weak, moderate, strong) and their level of commitment to their circle partners (Table 10).

The sense of trust that students felt in their learning circles seemed to hold relatively steady through the program. Students reporting a high level of trust in the circle started at 62%, this declined slightly to 50% and then increased to 56%.

The commitment of students to the circle increased slightly over the year, with 75% listing a high commitment in the first session and 78% at the end. Four students reported a weak commitment to their circle during one of the sessions and only one student reported this for two sessions. The commitment to the circle may have more to do with the specific people in the circle than change over time.

Table 10: Reported Trust and Commitment to the Learning Circle

	SENSE OF TRUST IN THE CIRCLE			MY COMMITMENT TO THE CIRCLE		
	WEAK	MODERATE	HIGH	WEAK	MODERATE	HIGH
FALL (n=16)	6% (1)	31% (5)	62% (10)	6% (1)	19% (3)	75% (12)
SPRING (n=16)	6% (1)	44% (7)	50% (8)	6% (1)	56% (9)	38% (6)
SUMMER (n=9)	0% (0)	44% (4)	56% (5)	11% (1)	11% (1)	78% (7)

Circle Leadership

No one was assigned to lead the groups. Students were directed to work as a team of leaders. Therefore, we asked students “Did this work or would it have been better to assign one person the role of facilitator or leader?”

After the first session, 88% of the students were confident that leadership was not a problem and 94% indicated

there was no need for an assigned leader (Table 11). This confidence remained high until the last session. A few more students at the end felt that some assigned leadership or structure would have helped the circle progress.

Table 11: Perceived Need for Leadership in Learning Circles

	LEADERSHIP WAS A PROBLEM IN THE LEARNING CIRCLE (n=13)			IT WOULD BE BETTER TO HAVE AN ASSIGNED FACILITATOR (n=13)		
	AGREE	NOT SURE	DISAGREE	AGREE	NOT SURE	AGREE
	FALL (n=16)	0% (0)	12% (2)	88% (14)	94% (15)	0% (0)
SPRING (n=16)	19% (3)	6% (1)	75% (12)	88% (14)	6% (1)	6% (1)
SUMMER (n=9)	11% (1)	11% (1)	78% (7)	56% (5)	22% (2)	22% (2)

LEARNING OUTCOMES

Interactions in learning circles take time and effort. We asked the graduate students if they thought that working with peers in the learning circle structure helped or interfered with their progress on their action research projects (Table 12).

Table 12: Perceived Usefulness of Learning Circle on Individual Research

	STUDENT WOULD HAVE LEARNED MORE WORKING ON HIS OR HER OWN			STUDENT'S WORK WITH OTHERS WAS CRUCIAL IN DEFINING MY ACTION RESEARCH PROJECT		
	AGREE	NOT SURE	DISAGREE	AGREE	NOT SURE	AGREE
	FALL (n=16)	6% (1)	31% (5)	63% (10)	6% (1)	31% (5)
SPRING (n=16)	25% (4)	25% (4)	50% (8)	25% (4)	38% (6)	38% (6)
SUMMER (n=9)	11% (1)	11% (1)	78% (7)	11% (1)	22% (2)	67% (6)

Across the three sessions, more than half of the students rejected the premise that they would have learned more if they worked on their own research without helping their peers or being helped by their peers. About two thirds of the students in the fall (63%) and summer (67%) reported that their work with others had been crucial in defining their action research. In the spring there is a drop to these reports. This pattern is essentially the same for the nine students that responded for all sessions, suggesting that missing data is not responsible for the differences between fall, spring and summer.

ANALYSIS

Giving and Receiving Feedback in the Public Forum

Our first research question addressed the issue of student comfort in receiving and giving public rather than private feedback on action research projects. With the exception of final grading and special requests, all of the instructor's feedback on student work was shared in the public forum. This allowed for a much higher rate of feedback from the instructor, and also strengthened the modeling of providing constructive criticism, helping students understand how such feedback increase the quality of performance, while minimizing the personal

reaction. One source of evidence of increased comfort with public evaluation was the fact that there were few requests for private evaluation during the year and none during the final summer quarter.

A look at the content of student messages written as reactions to peer evaluations suggested that they accepted the concept of giving and receiving public critique. There were no messages that expressed any concern or challenged a review. Instead the messages expressed gratitude, responded to questions and described how the feedback helped them change their focus or led to a new document.

Identifying the degree to which students become more comfortable with this process of public critique is more challenging. The results of the survey suggest that the students became more convinced of the value of others' input on their own research as the program progressed; by the end of the year. This response, however, doesn't speak directly to how they preferred to receive their peers', or instructor's advice or criticism.

Providing Peer Feedback-Developing Trust and Authority

Our second question addressed students' ability to give and receive constructive critique. While difficult to create with one semester, it was unclear if a year-long course would provide enough time to develop trust and authority that underlies the student review process. Looking at students' feedback to their peers (Table 6), there is evidence that students did, in fact, learn to give and receive extensive feedback. More difficult to quantify is the students' comfort in offering criticism. There was undoubtedly significant private interchange between students that was likely underreported in their public postings – several messages referenced critiques which had been sent between students via e-mail. Significant feedback was exchanged in the public forums, but how authoritative students felt in offering this advice is unclear. Perhaps most telling is the increase from 20% to 55% in students who reported their belief that they were giving high quality feedback. It seems likely that a student who feels they have something significant to offer will be more likely to do so than a student with doubts about the quality of their input.

Another possible marker of increased comfort can be drawn from the average number of codes per message. Message length was not coded as messages often contained embedded repetition of previous messages, quoted text from prior messages, or copied parts of student's work. Our analysis did not attempt to code the number of repetitions of an evaluative move since it would be very difficult to determine when one move ended and a new one started. However, generally messages that received multiple codes were longer and provided more in-depth feedback. With the rise from 1.3 to 1.8 codes per message over the course of the program, it seems fair to say that the student feedback became more complex as the year progressed.

Changes in Forms of Feedback

Our third question was concerned with forms of feedback that students would provide for each other. The largest increase was in the extensions which are easier to provide than constructive critique. While constructive critiques increased over the year, students signaled their difficulty in providing this form of feedback by

expressing their concern “Please don’t take this wrong,” discounting their expertise, “I don’t pretend to know a lot about your work, but…” or appealing to authority “I am only saying this because [name] said it to me.”

Whether offering that feedback was more difficult is hard to say. It is important not to place too high a value on evaluative acts of criticism, since not every situation calls for the student to be redirected or corrected. With that in mind, however, it does seem that while students increased in their willingness to offer critique over the course of the program, they continued to be more likely to offer more technical, editorial comments. If we compare the instructor’s evaluations with those of the students, the difference is that the students were more likely to give positive feedback (45% of the students’ compared to 35% of the instructor’s evaluations were affirmations) and the instructor was more likely to offer constructive critique (19% of the students’ compared to 7% of the instructor’s evaluations were critiques). Other than that, the relative percentages for editorial and extensions were very similar.

Student Assessment of Learning Circle Collaboration vs. Independent Work

Finally, and now relying on the responses to the learning circle survey, we wanted to understand the value the students placed on collaborative work in learning circles.

The survey responses suggested a contradiction: Students generally felt that over the year they were communicating better, offering better advice and generally being more invested in the works of others. Yet they did not appear to see this progress in the work of others. It seems possible to envision a situation where students’ reluctance to say hard things about each other’s work would lead them to offer extension from their personal experience in hopes of making a difference, while at the same time hoping for very concrete constructive critique to make their own work better.

As a result of social concerns of students, the combination of the hope for the serendipitous discovery, and the desire for concrete assistance, seem to coexist. The trends shown in the coding of the messages suggests that possibly the students were breaking through this paradox as they completed the program, or perhaps not. It is interesting to consider what a second year of interaction among these students would have been like, especially if they had been asked to start a new cycle of research after having completed their first complete cycle of research and presentation. Would they have returned to a more affirmative tendency, or would their baseline have been shifted to a more critical (or more extension-inclined) interaction? The results of this study do not give a clear picture, but seem to hint at the latter alternative.

CONCLUSION

The purpose of this analysis is to explore the creation of a culture of critiques in an online education program. Difficult to create in a 14-week class, doing so in a 13-month program may have higher odds of success, but still requires significant effort and a conducive environment in order to establish the trust needed for effective public critique.

That students need trust is crucial to appreciate. Students are far less experienced with giving and receiving critique publicly; their educational history, and professional career experiences, are generally marked by private reviews between themselves and the instructor. An important part of convincing students to participate in a culture of critique is to show how others frequently make similar errors, or face similar challenges. Addressing these similarities publicly allows the collective group to get to deeper understandings, and explore more ways to change the individual's work.

Constructive critique then rests heavily on dispelling the fear of getting wrong answers. Making critique public or exposing to public comment the continual rethinking that is a part of learning, encourages distancing the student from the work so that they can consider alternative perspectives and develop a theoretical approach to problem solving.

This research addresses two important issues. First, it evaluates a structure, Learning Circles for group work in graduate online education, and second, it explores the type and form of peer feedback from within this collaborative structure.

Learning Circle Structure

Students are often drawn to online learning for the perceived flexibility it offers. They expect this to mean they will work alone and at their own pace. Working as part of a cadre, and specifically within learning circles, represents a significant shift from their expectations. This team-based approach to exploring and solving real problems in a community of practice provided a strategy to situate knowledge and skills in their own community.

Students rated the level of trust achieved in the group from moderate to high by the end of their experiences in learning circles. Another measure of trust was the willingness for the students to accept feedback in the open setting. In the first two sessions, some of the students' evaluations were sent through email to individuals but by the summer trimester all student feedback was shared in the group forum. This developed trust allowed written comments on students' action research to be addressed to the student and the class simultaneously providing additional feedback for students and reducing the number of times the instructor needed to address a similar issue in student papers. The instructor often referred students to comments on similar papers, or used the research reports of others students as a possible model to consider in making revisions. This gives the student many examples to guide their work and encourages students to use peer resources to assist them. The amount of feedback that the instructor was able to provide on student work in learning circles was significantly increased by the open nature of the critiques while the energy spent repeating similar comments were diminished.

Each semester learning circles were reformed with a different combination of students. This was done to increase the diversity of the people who offered help and to develop the ties to the larger cadre. But it also served the purpose of requiring students to periodically stand back from their action research and summarize

what they had accomplished for their new circle members. These retellings of the plan and process were practice for their final presentation where they would describe their research to a community audience. Asked about this process of regrouping, a third of the students found the process of changing circles disruptive and recommended fewer changes, but the rest of the students who responded found it valuable to shift to new partners.

However, a structure that encouraged peer responses is subject to evaluations of uneven quality. While many students demonstrated skill, talent and creativity in the review of the action research projects of others, not all students were as comfortable making substantial suggestions. Each learning circle was a unique set of people who created a specific learning context. It may be that the difference in group makeup, and not increased experience in this form of learning, was responsible for the differences in perceptions about the success of learning circles. Student feedback provides one way of understanding how students experience this effort to have them work not independently but rather as members of a circle with communal responsibility for the work of others.

It is worth noting that most of the survey items show a definite dip the students' assessment of the quality and value of the learning circle experience during the middle of the program. This might be an artifact of the overall stress of the action research cycle, or of the push to engage in peer evaluation. It is worth marking this pattern for comparisons in the future. It may represent initial concerns about distancing oneself from one's ideas and participation in a culture of critique.

Not surprisingly, students wanted to remain in circles that they saw as effective and switch out of circles that were less successful. While there was not a steady upward trend, this student's comments suggests that the intensity of preparing for final exhibition inhibited group work during the final semester; "the sense of responsibility to the group helped keep the work moving forward until the end when the work got so intense that participation fell off." One student reported difficulty in a circle that was less successful, "when a group isn't working hard but there is a high level of friendship—you don't want to report to the teacher that things are not going well." Another student reported using the learning circle structure in her teaching, saying "the experience was very helpful and has changed the way I teach larger groups. I now use the small groups and make students accountable to each other."

Process of Peer Review

The second issue revolves around authority in the process of peer review. Under what conditions are students willing to be critical and to accept criticism from their peers as legitimate? Through all phases of their action research, students provided feedback to one another. This acceptance and participation in a community that provides regular, public constructive criticism represents a significant shift from the practice of competitive grading. This shift involves a move away from student competition for the best grades to a commitment to help each member of the group to do well, and engages students in interpretive dialogue that crosses community

lines.

Over the course of the year, the instructor's comments shifted from always including positive comments to including either praise or an extension. Extensions of ideas, a form of thinking with the student, may have served as an indirect form of positive feedback. Students also wrote fewer messages that contained only positive comments over the year, however they were more likely to make suggestions that extended the work of a peer in the same direction, rather than take the risk of suggesting a redirection.

The results of analysis show a definite increase in the willingness of students to engage in a public evaluation of peers' work. While the students generally felt the value of other students' input stayed the same throughout the program, they increased their rating of their own ability to provide quality feedback higher over the duration of the program. Squaring this reported disparity – improved outgoing critique without improved reciprocal critique – presents some challenges, but the students' increased willingness to participate in a culture of public critique is clearly evident.

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