

The Importance of Peer-to-Peer Feedback in Pre-Service Education: Practicing what we teach.

Joyce L. Morris
College of Education and Social Services
University of Vermont
United States
Joyce.Morris@uvm.edu

Deborah Waggett
College of Education
Castleton State College
United States
Deborah.Waggett@castleton.edu

Abstract: Because teachers teach as they were taught and not taught to teach, it is important to find opportunities to *practice what we teach*. Student-to Student is a pilot project that engaged pre-service teachers in a web-based peer collaboration between Castleton State College and the University of Vermont. Students provided feedback to each other surrounding a specific multimedia assignment. An online threaded discussion board used Learning Village tools (called *Standards into Action* in Vermont) for the communication and exchange of documents and feedback. Students used rubric-based criteria to guide their feedback and improve upon their own products. Community developed as students provided feedback, learned to use rubrics and discovered the importance of understandings a student's prior knowledge and its role in curriculum design and assessment of learning.

Background

Since 1995, the IBM Corporation has worked with the Vermont Department of Education; through a grant initiative entitled *Reinventing Education*. This initiative created IBM's Learning Village (referred to in Vermont as *Standards into Action*) and set in motion a statewide effort in professional development for K-12 teachers that provided a web interface of communication tools, publication tools and a structure to create and share standards-based units of study. Through a concerted effort by IBM and the Vermont Department of Education, in 2002 additional funds were added to energize this site, enhance some of the tools and invited the State College and University of Vermont teacher preparation programs to use SIA (Standards into Action) with pre-service teachers as well. A new toolset would also be developed using a User Center Design approach with IBM and 8 other educational sites. This toolset, Teachers' Workplace will support electronic portfolio development. The RE3 project elicited proposals for pilots that would apply the use of the SIA (Standards into Action) tools to meet goals identified by collaborative of state educational leaders and representatives, and the findings of the Vermont Commission for Educator Quality.

Our project describes one of these pilots, Student-to-Student, that connected remote sets of pre-service teachers in two educational computer courses to provide feedback against a set of standards-based-criteria, and to help them improve upon one of their own assignments. The design of our project is based upon research about how people learn and how to apply this to our own objectives and practices with pre-service teachers.

Research

Assuming the saying that teachers teach as they are taught, not taught to teach is true, the importance for pre-service faculty to practice what they teach, and not just teach about how to teach, is critical. No Child Left Behind (NCLB) legislation relies heavily on assessment of student outcomes to determine the success of any particular school or system. National Council for Accreditation of Teacher Education (NCATE) standards have included programmatic

outcome based assessment criteria. for its accreditation of teacher preparation programs. Within classrooms, assessment is emerging as a key to guide teaching because it helps the teacher get a picture of what a student knows, believes and has learned (Morris, 2003; McCourty, Dominick & Reilly 1998 and multiple sources of data provide the clearest picture of the student. (Cochran-Smith, 2003, Anderson, 2000; Bransford, Donovan & Pellegrino, 2000).

The National Research Council published findings about the brain and process of learning in 2000 through an interdisciplinary inquiry focusing on how people learn and how this can be applied to teacher practice. The importance of understanding a students' prior knowledge, the importance of social construction of knowledge and building a practice of self-reflection were identified as key elements in learning. "...effectively designed learning environments must also be assessment centered." (Bransford, Donovan & Pellegrino, p.139) concluded. They further explain that opportunities for feedback should be continuous so students' thinking becomes visible. The complexity of assessment can make it difficult to provide quick and thorough feedback, yet the quicker the feedback, the more relevant and helpful it is to the student (Nilson, 2002-2003). Effective teachers provide feedback although not necessarily within a specific lesson and this may be formal or informal but peer feedback can provide additional sets of editors. Studies have shown that the best student outcomes occur as students build their own assessment skills while working with their peers. (Bransford, Donovan & Pellegrino, 2000).

These findings underscore the importance of helping teacher candidates learn how to assess and learn to be reflective practitioners themselves (Bransford, Donovan, Pellegrino, 2000; Danielson, 1996). Many teacher preparation faculty integrate a host of strategies that teach pre-service teacher how to assess K-12 students in their courses however, there is little published about imbedding a practice of peer feedback within their teacher preparation training (McGourty, Dominick & Reilly, 1998). There are many advantages in having teacher candidates practice quality peer assessment. It is through being faced with knowledge that is different from your own that metacognitive abilities become strengthened (Anderson (2000). Through peer collaboration one initiates an internal dialogue as one processes the input and confronts others' ideas. This in turn increases the range of information and interpretations available to respond to in different situations as one constructs new meanings and understandings (Frank, 2003-2004).

The complexity and frequency of assessment can make it difficult to provide quick and thorough feedback, yet the quicker the feedback, the more relevant and helpful it is to the student (Nilson, 2002-2003). Many studies have found that students benefit from involvement in feedback and assessment (Bransford, Donovan, Pellegrino 2000; McGourty, Dominick & Reilly, 1998, Falchikov, N.1996). Students manifested a greater sense of ownership of the assessment process and a greater sense of responsibility for their own learning. They developed communication skills, collaboration skills and habits of life long learning (Nilson, 2002-2003).

Although many educational leaders and institutions advocate for teacher mentoring Cochran-Smith (2003), recent studies have suggested that it is very difficult for in-service teachers to be taught collaboration. That it is best taught during teacher preparation. Research by Kluth and Straut (2003), also uncovered evidence that suggests teachers already in practice cannot be taught collaboration easily and that it is much more effectively used by teachers when they have regularly used it in their teacher preparation coursework.

The Project

The Student-to-Student project involved 28 pre-service teachers, 14 from each program, in an asynchronous peer feedback collaboration between Castleton State College and the University of Vermont during the fall 2003 semester. These two teacher preparation programs are some 67 miles apart and connected only by single lane roads. Distance provides a degree insulation and lack of communication between faculty, students, and administrators. We thought we could use the Standards into Action Tools to increase communication, build a learning community and provide an opportunity for students to receive and offer additional feedback on a required assignment. Both these teacher preparation programs offer a computer course that focus on learning and integrating how to use information technology in K-12 classrooms, and we decided to use one class from each program. This would offer us a chance to teach some computer skills within the context of increased attention to the research findings about how we learn.

Pre-service teachers both received and offered feedback as a peer group composed of seven randomly selected students (three and four) from each school. Each groups' task was to help the other students in their group reflect

and improve upon their project. An online threaded discussion board used *Standards into Action (SIA)* for the communication and exchange of documents. The students would each upload their assignment according to a schedule so they could receive help at least two times. The discussion area was customized so that only the instructors could read and write to all responses. Although all students could read all messages, they could only respond to those in their group. They could all look at each other's assignments.

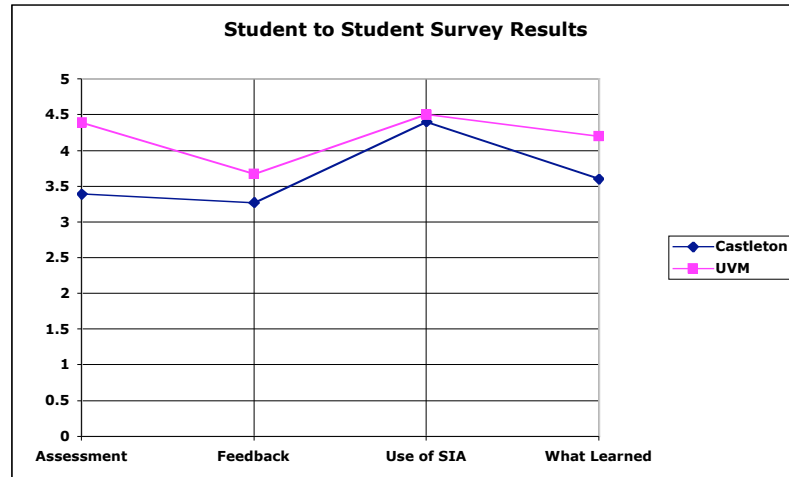
The assignment, to publish an autobiographical newsletter using Microsoft Word, was the first one given to University of Vermont students in this course. Although the UVM instructor used the assignment before, five new rubrics were used to guide the assessment, and the student feedback and group work was a new component. Criteria for the rubrics were based upon NETS-T standards for pre-service teachers and Vermont State Standards for High School Students in Information Technology. Specific rubrics and models were developed to assess: (1) computer operations, (2) visual literacy, (3) content, (4) desktop publishing skills, and (5) ability to provide and receive feedback. One lesson was dedicated to registering and introducing the students to SIA so they could easily login and the online resources particularly made for the project could be introduced. Each student was in one of four groups where the instructor began practice in using the discussion board to receive and send messages and to provide that initial introduction of students to each by posting an icebreaker.

A second lesson was dedicated to students working in their face-to-face group to practice using the rubrics to grade two previously constructed autobiographies. Benchmarks were developed to demonstrate a range of D to A projects responding to the rubric criteria. All groups developed a consensus within (.5) of a grade. Correspondently, a reading, "The Blind men and the Elephant" was assigned to students and discussed in relation to our group work in developing consensus and providing feedback. Students then received two lessons on using Microsoft Word to develop a newspaper. Technology skills included in addition to basic word processing skills: inserting a digital graphic, creating a banner, using the drawing and column tools. The content focused on revealing their previous experience in using technology, their interests and experiences they wished to share. They were also taught how to use the "tracking" feature to provide feedback and how to upload their documents as attachments to the *SIA* Team Project area that housed their discussion.

Assessment

A Likert scale survey was developed by the instructors to examine how successful they were in meeting their goals and to reveal students' perceptions and document their learning. Nineteen short and one open question was provided for specific student comment: The questionnaire was focused on four areas: Assessment, Feedback, Use of SIA Tools, and Overall Learning. Additional analysis is still taking place of student generated discussions, feedback offered and student final products.

The survey was given to students the last day of fall semester class and n=10 UVM students and n= 10 Castleton Students responded. The statements were rated by the students to reflect how true each, was for them. These ratings included: (1) not at all, (2) slightly, (3) somewhat, (4) mostly, (5) very. The data was averaged across each question and then aggregated into other statements from the same area. The chart below (*Table 1*) represents the mean of responses from students in both programs.



(Table I: Student-to-Student feedback)

Questions were averaged across each response (n=10 for UVM and n=10 for Castleton) to determine the mean response from each site. Questions were then aggregated by topic and their mean was determined for each site.

Analysis of data from the open-ended question reflected that most students thought the project was a good idea because it provided that additional range of perceptions that add to the richness of ideas and reflective practice of thinking about what feedback to offer and which feedback to accept. The models and other student products helped students understand the assignment and get develop additional ideas.

“This project is a good idea to use because it gives you different points of view.” (Castleton Student)

“I enjoyed this project because it was interesting looking at other students’ work and being able to comment on them.” (Castleton Student)

“Student (peer) feedback isn’t used enough in college. I think it’s mutually very beneficial. Detailed rubrics are also really helpful with projects.” (Castleton Student)

“This is a great way to introduce how to post messages on a discussion board and prepare students for Webct and other experiences.” (UVM Student)

Negative comments mostly reflected difficulties in synchronizing the activities in both classes resulting in less immediate and less frequent feedback than students would have liked.

“This project is a good idea but the timelines for projects between the schools need to match better... . Both schools also need to make sure that feedback is given to ALL students work.” (Castleton Student)

“Feedback to both groups needs to be a little bit better. (Neither of us was very specific using feedback).” (Castleton Student)

Discussion

The assignment, to create an autobiographical newsletter, had many purposes. It helped the course instructor learn about the students’ prior technology knowledge both in its content and demonstration, and also revealed a range of information about the interests and accomplishments of the students in the course. This information, in turn,

provides a basis for the instructor's metaphors that will help students link their new learning to something they already know. It provided practice in using a rubric to provide feedback to a peer at another college. It provided a sense of how well the teacher candidate understands assessment in relation to a rubric and models, how well they can relate this to others as well as reflect upon it in their own product. Pre-service students practiced using a web-based listserv to respond to other students by uploading and downloading their newsletters and depending upon their feedback for guidance. They learned how they might want to use a newsletter with their own K-12 students and how to provide feedback in a critical yet positive way. Beyond our initial assignment, some students continued to provide feedback on additional assignments and include personal communications. They also learned about and learned to work with students in a similar course at a remote location.

Coordinating time frames between different institutions presented a problem. The unexpected will often happen and flexible planning between instructors is critical. In retrospect, we have changed the assignment to fall later in the semester to build in more preparation and planning time and more time to adjust for unexpected viruses and server shutdowns. Since the students at UVM began their assignment before those at Castleton, they in turn received more feedback and seemed more satisfied with the project as a whole. Once the UVM students were working on another assignment, they lost interest in responding to Castleton students.

The UVM course is required and usually taken during the first or second year. The Castleton students were mostly second and third year students. During the first two years in UVM's teacher preparation program most students take their required academic courses and have had minimal exposure to assessment and educational theory. This may explain some of the disparity between the UVM and Castleton survey data. UVM students $n=10$ (mean=4.5) vs. Castleton $n=10$ (mean =3.5) regarding how much they learned about assessment. To most UVM students the concept of using rubrics (4.7) was new and important information, to the Castleton Students (2.7) this was perhaps something they were much more familiar with and therefore it did not provide quite the same benefit. We also sensed some frustration amongst the Castleton Students in receiving little feedback from the UVM students. There was a clear connection between the amount of feedback students received and their satisfaction with the project.

Students from both schools were introduced to the SIA tools and how to this statewide tool to communicate with others. Both groups were pleased with their introduction to the *SIA* tools and resources both in performance and ease of use (mean=UVM 4.5) (mean=Castleton 4.4).

Conclusion

This is a study in progress and a pilot that will be further analyzed and refined next semester, Spring 2004. We are excited to see how better timing and additional feedback will increase the educational value and further develop communication between instructors in different teacher preparation programs and between students in different teacher preparation programs. We believe there is significant value in connecting and involving students in a web-based assessment project that is not subject dependent but transferable to any discipline. Students liked feedback on their project and benefited in using rubrics to help provide that feedback. Timeliness and frequency of feedback are valued by students and using the rubrics that will guide the assessment of their own project helpful. SIA provided an easy vehicle in which to begin to build the kind of community where students from different preparation programs can engage in practicing assessment by providing feedback in a supportive environment. This is especially important if we want our practicing teachers to mentor newer teachers and provide a sustainable effective model of professional development. If we wish our future teachers to practice what we teach, then we should be looking for ways to integrate it into our teacher preparation programs and practices.

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