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Investigating Peer Review as an Intentional Learning Strategy to Foster Collaborative Knowledge-Building in Students of Instructional Design

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Peer review has been advocated for as an intentional strategy to support the knowledge and skill attainment of adult learners preparing for professional practice, including those students preparing for instructional design and technology practice. The purposes of this article are to discuss the practical application of peer review as an instructional strategy by articulating its use in both face-to-face and online Instructional Design courses and to formulate directions for future research on the use of peer review in instructional practice. Findings from a literature review of student-to-student peer review and the authors’ experiences with the use of peer review in Instructional Design courses are used to foster a discussion that interweaves both important scholarly and practical elements.

Citing Mills and Cottell (1998), Bangert (2001) observed that several professional organizations, including those affiliated with such diverse professions as accounting and teaching, endorse “instructional strategies, that promote active learning, complex problem solving, experiential approaches, group work, and innovative uses of technology” (p. 77). Current national standards for educational technology demonstrate that these aims are relevant for students of instructional design and technology. Specifically, the National Educational Technology Standards and Performance Indicators for Students (ISTE, 2007) promote communication and collaboration, critical thinking, problem solving, decision-making, and digital citizenship, the last of which includes a positive attitude toward using technology that supports collaboration.

One instructional strategy in alignment with such professional standards is student-to-student peer review of course-related work. For the purposes of this discussion peer review refers to "the structuring of a process to allow peers to review each other's professional processes and/or products with the goal of improving such processes or products" (Woolf & Quinn, 2001, p. 22). Peer review is a learning strategy situated at the highest level of Bloom’s taxonomy of learning in the cognitive domain (Bloom, Krathwohl, & Masia, 1956). Therefore, it is an attractive goal for educators, particularly those facilitating the learning of adults preparing for professional careers requiring the analytic and evaluative skills associated with problem-solving, and certainly in fields such as teaching and instructional design and technology. Peer review is well aligned with the concept of formative evaluation (Dick, Carey, & Carey, 2009) and, therefore, fits especially well within the context of an Instructional Design (ID) course, where formative evaluation is an important concept and skill for students to master. Incorporating peer review of course-related project work in an Instructional Design course reinforces the accreditation standards developed by the Association for Educational Communications and Technology (AECT, 2001) and the National Council for Accreditation of Teacher Education concerning formative evaluation. Peer review supports the concept of practice and its ongoing development as taking place within a situated and authentic context that supports a community of shared goals, artifacts, and interactions (Brown, Collins, & Duguid, 1989; Wenger, 1998), as well as the constructivist notion of shared knowledge-building through experience (von Glasersfeld, 1995). Peer review as an instructional strategy also aligns with the priorities identified by research on professional groups, group work, and group learning by fostering interpersonal skills in the marketing classroom (Chapman & van Auken, 2001) as well as shared creativity and reflection in the geographical information systems classroom (Livingstone & Lynch, 2000). In fact, peer scaffolding is identified not only as a viable alternative to instructor-scaffolded activities (Lai & Law, 2006), but also as a vital element to the collaborative group learning experience (Dalgarno, 2001; Towns, Kreke, & Fields, 2000).

The purposes of this article are to discuss the practical application of peer review as an instructional strategy in both face-to-face and online Instructional Design courses, and to formulate directions for research on the use of peer review. Findings from a literature review of student-to-student peer review and the authors’ experiences with the use of peer review in Instructional Design courses will be used to initiate and foster the discussion.

**Conceptual Context**

A review of the literature on peer review as an instructional strategy offers the following insights. First, findings reveal that peer review benefits students by helping them to: identify good practice and be more
review as of the Fall 20
practice. This section will describe the nature of peer literacy findings, as well as instructor reflections on depth based on student responses to the process, review strategy has evolved in scope, structure, and education courses since 2002. Over that time, the peer review strategy has evolved in scope, structure, and received wider recognition and application across various disciplines.

The first author has been using peer review in an instructional design and other IDT and teacher education courses since 2002. Over that time, the peer review strategy has evolved in scope, structure, and depth based on student responses to the process, literature findings, as well as instructor reflections on practice. This section will describe the nature of peer review as of the Fall 2009 instructional design course experience at a large research university in the southeastern United States.

The Principles of Instructional Design course is a required course for all Instructional Design and Technology (IDT) majors. Residential masters and doctoral students complete this foundational ID course face-to-face in the fall of their first year in the program. The course enrollment averages fifteen students, many of whom are international students, most of whom do not have formal instructional design training or experience, and a few of whom come from other disciplines such as educational psychology, engineering education, and agricultural education. The course meets face-to-face for three hours per week for fifteen weeks.

Students are introduced to the concept of peer review as a practical means for engaging in instructional design work during the second class meeting. The instructor discusses the concept, presents a generic process for completing peer review, and solicits input on common “rules of engagement” when it comes to providing feedback. After reading about and discussing instructional goals, they complete a brief in-class assignment during which each student drafts an instructional goal related to an identified ID project and provides it to a fellow student for review. Each student provides written feedback according to the criteria given for sound instructional goals and debriefs his/her partner that same night in class.

This first peer review assignment is meant to be simple, structured, and monitored by the instructor in order for students to experience low-threat practice with peer review as well as have an opportunity to get to know one another better. Students are debriefed about the peer review experience and reminded that they will use peer review in varied forms throughout the rest of the semester. Students are somewhat shy about providing feedback to one another during this first peer review assignment. The assignment’s simplicity, structure, and rules of engagement appear to ease this anxiety. The face-to-face setting is disadvantageous in that the instructor can closely monitor students’ reactions and experiences, providing guidance and encouragement as needed.

By week three, students are grouped into teams of three to four and assigned one real-world instructional design project to work on for the rest of the semester. The goal for each team is to develop an instructional unit that meets the identified needs of the project. Each week, students work through an iterative process whereby they read about a new ID core concept, e.g. learner analysis, content analysis, etc., outside of class and receive instruction on that concept in class to draw out critical elements, explore examples, and practice application of the concept. Then, in their teams, they draft the relevant portion of the instructional design for their team project, submitting it for peer review by
members of another team the following week during class. The structure of these weekly formative reviews is
less formal, although concept-relevant rubrics are
provided as an additional means of support for
knowledge and skill development. The challenge for the
instructor is to encourage students to refer back to their
support materials in conducting these reviews, as well as
to mitigate any conflicts that may arise. Students respond
positively to these reviews, noting that they often benefit
from perspectives outside of the team as well as see
things in the work of other teams that they can bring back
to their teams to improve the work to-date.

A final, more formal and extensive, graded peer
review occurs over weeks 12 and 13 of the semester.
By this time, each project team has a complete draft of
their instructional unit that has been subject to the
weekly formative evaluations. At week 12, the team
submits one full copy of their unit, via a project web
site, to three to four individual peer reviewers chosen
by the instructor. Each peer reviewer is provided with
instructions and rubrics for completing the review and
has one week’s time to complete the review outside of
class and provide electronic copy back to the authoring
team and the instructor. By this time, students are
comfortable with one another, with peer review, and
with the nature of the projects. They comment regularly
that this more extensive peer review is one of the most
valuable assignments in the course, forcing them to
reengage with core principles and concepts explored
during the semester at a deeper level in order to provide
useful ID feedback to another team on a project that
they understand themselves has become “near and
dear” to the team. During the week 13 class period, the
instructor debriefs students on their experiences with
this assignment, asking them to reflect on what the
authoring team members gained from the review in
terms of improving their instructional designs and what
the peer reviewers gained in terms of ID knowledge and
skill development.

The intent going forward is to continue peer review
in this course and conduct research to investigate the
role of peer review in a face-to-face instructional design
course. Anticipated outcomes of the research include
reporting impact on student learning and providing
guidelines for the effective application of peer review in
the development of instructional design and other
professionals-in-training who must engage in group
problem construction, collaboration, and resolution as
part of professional practice.

Peer Review in an Online
Instructional Design Course

The second author used a structured peer reviewing
process for an assignment in his two sections of an
online Instructional Design course during the fall of
2009. The class is part of an online M.Ed. program in
Instructional Technology offered through a regional
comprehensive university in the southeastern United
States. The students were enrolled in a course titled
Instructional Design. Each section had an enrollment of
25 students, and the students were distributed widely
across a large state in the southeastern United States.
Most of the students were practicing K-12 educators.
The course was offered in a completely asynchronous
format.

As part of the class, a learner analysis paper was
assigned during the fourth week of the 15-week
semester. Students in the course were required to
complete a detailed learner analysis and were provided
with assignment details and the scoring rubric. The
students were given 13 days to complete the
assignment. Part of the assignment included
participation in a blind peer review process, which
consisted of two steps, prior to submitting the paper to
the instructor for evaluation. Individuals posted their
learner analysis papers (step 1) and provided feedback
to one other student’s posting (step 2).

Eight days were scheduled for the students to
write their papers and post them for review. The
students posted their papers to an anonymous
discussion forum in the course management system.
Students were asked to include a pseudonym in the
subject line of their posting, and to communicate the
pseudonym to the instructor using email. Two days
were allotted for the review element of the peer
review process. Students were instructed to select one
paper to read and on which to provide feedback in the
discussion forum. The identity of the reviewers was
not available to the students receiving feedback. The
instructor suggested that the scoring rubric for the
assignment be used to structure the feedback.
Additionally, students were directed to be “critical and
constructive, but polite.”

At the conclusion of the peer reviewing experience,
students were instructed to revise their papers based on
the peer reviewer feedback and to include a section at
the end of the paper explaining the changes initiated by
the peer reviewing process. Three days were scheduled
after the review period for revisions and final
submission of the assignment.

The practice described here is part of an emerging
research program aimed at investigating the use of peer
review in online Instructional Design courses. The
general focus of the research program is to develop a
set of empirically grounded best practices for using peer
review in online instructional design courses. Feedback
from this pilot project indicates that students
appreciated the process and the opportunity to learn
from their classmates using peer review. The instructor
was not overburdened with logistical or technical
matters facilitating the process. A next step is to study
whether or not the peer reviewing process improves the quality of the work submitted by the students.

Concluding Remarks and Directions for Research

Peer review as an instructional strategy for developing instructional design and technology professionals has the potential not only to support professional standards but also to address ongoing concerns regarding the inadequate preparation of instructional design and technology professionals. Peer review can support the need for instructional design students to understand real-world instructional design practice as non-linear, complex, and demanding cross-functional collaborative problem-solving and management skills (Brill, Bishop, & Walker, 2006; Casey, et al., 1996; Woolf & Quinn, 2001). Similar concerns articulated by other disciplines can be addressed with peer review as well (Maleki, 2009; Queeney, 1996).

Our review of the literature draws out some important benefits of peer review as a promising higher education pedagogy, particularly for those adult students being mentored into a new profession that demands collaborative problem posing, reflection, and resolution. Peer review has been shown to promote the recognition of good practice as well as critical and constructive collaborative dialogue. The cases presented here suggest that peer review can be integrated into the higher education classroom effectively and can benefit from intentional literature-based strategies such as clear feedback criteria and blind review, but they only do so anecdotally. Thus, our next steps are to conduct empirical research in both face-to-face and online settings to investigate learning outcomes and instructional strategies. Our research plans respond to the advocacy of scholars and practitioners for more research and models to better understand peer review as an intentional learning strategy for adult learners (Casey, et al., 1996; Falchikov & Goldfinch, 2000; Woolf & Quinn, 2001). Ongoing scholarship among higher education professionals offers an important venue for dialogue about peer review as an opportunity for advancing instructional practice, research, and better professional preparation for real-world practice.

References


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