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The Effect of a Problem-centered, Enculturating Experience on Doctoral Students' Self-Efficacy

Joanna C. Dunlap

Abstract

Preparing students to be effective leaders in their organizational and professional settings is a common goal of leadership preparation programs. However, students often lack confidence to share their knowledge and expertise in public forums. This study addressed whether the use of the rich environments for active learning (REAL) instructional model increased students' self-efficacy regarding contributing to the professional community of practice through scholarship (i.e., research and study) and publication. Twelve doctoral students preparing to be educational leaders published an online journal. This study demonstrated how engaging students in problem-centered, enculturating activities that reflected the true nature of educational leadership and scholarship helped them feel prepared to share their knowledge and expertise with others, work effectively in their professions, and identify themselves as contributing members of the community of practice.

Keywords: problem-centered, enculturation, identity, doctoral, self-publication

Introduction

Self-confidence is an indispensable leadership characteristic; regardless of professional domain, a key characteristic of an effective leader is having the confidence to share knowledge and expertise to support organizational problem-solving, decision-making, innovation, and change initiatives (Fullan, 2002). In leadership preparation programs, therefore, it is imperative that educators help students gain the confidence to share their knowledge and expertise in public forums if those students are to become effective

leaders in organizational and professional settings. Doctoral programs, in particular, need to provide students with opportunities to develop the confidence to share their scholarly work within their organizations, as well as with their professional communities of practice through conference presentations and publications.

The School of Education and Human Development at the University of Colorado at Denver and Health Sciences Center has a school-wide doctoral program in educational leadership and innovation designed to prepare students as leaders in a variety of educational settings. Because of its urban location, most of the students work full time in K–12, higher education (community, private, and proprietary), government, military, or corporate settings. Students' interests cover a wide range of educational issues and topics, including instructional design, technology-enhanced teaching and learning, teacher education, postsecondary teaching and learning, counseling psychology, culture and critical theory, and inquiry science. The majority of these students pursue doctorates in order to move into increasingly demanding leadership roles in their organizations rather than for careers as tenure-track higher-education faculty. Although students are working professionals, they have yet to take on leadership roles in their organizations or to embrace leadership roles and responsibilities in their professional communities of practice.

Given the high quality of students' work and their links to actual problems of educational practice, the doctoral faculty frequently encourages students to share their work in public forums via conference presentations and manuscript publications. However, students rarely attempt to do so. When asked why, the students say that their work is not worthy of sharing, that they are not ready to contribute, that they are worried about their ability to handle the rejection of their ideas, that they do not know how to contribute, and that they are outsiders to the process. Students' views of their capabilities as inadequate for contributing to a community of practice through scholarship (i.e., research and study) and publication not only rob the community of good ideas and information but also reflect poorly on our doctoral program. Therefore, when asked to teach a course called *Theoretical Bases for Instructional Technology*, I created a problem-centered, enculturating learning experience using the rich environments for active learning (REAL) instructional model as a course design framework. This course involved students in actively contributing to the professional community of practice through scholarly activities including manuscript reviewing and publication to help them gain confidence both in their work and in the process.

The development of an online professional journal called *NOVA*tions provided the unifying experience necessary to create the community of practice while exposing students to an emerging trend—online publication. Publishing and contributing to *NOVA*tions provided doctoral students with an authentic professional experience in which they:

- Developed an online journal and all of its supporting information, including guidelines for contributors and reviewers
- Published articles, book reviews, and other journal features to learn more about the process of sharing scholarly ideas with the community of practice
- Participated on an editorial review board to learn about the editing process and, thus, improve their own writing

The primary goal of this problem-centered, enculturating activity was to improve students' self-efficacy related to the public sharing of their knowledge and expertise.

Enculturation

Enculturation is a maturation process that begins during an individual's training for the profession, often in the classroom. Learners study the knowledge and tools of the profession in a classroom, which is an artificial, decontextualized setting making it difficult to transfer learning into authentic situations. Describing how most students learn to use the conceptual tools (e.g., mathematics) of a culture (e.g., physics), Brown and colleagues described the need to situate the learning of tools, skills, and strategies within an authentic or simulated culture (Brown, Collins, & Duguid, 1989):

Conceptual tools . . . reflect the cumulative wisdom of the culture in which they are used and the insights and experiences of individuals. . . . To learn to use tools as practitioners use them, students, like apprentices, must be enabled to enter that community and its culture. Thus, in a significant way, learning is, we believe, a process of enculturation (p. 33).

Acting as practitioners and using the tools to address authentic problems of the domain exposes students to the culture of expert practice (Brown et al., 1989; Collins, Brown, & Holum 1991; Collins, Brown, & Newman 1989; Lave & Wenger, 1991). For example, through their participation in the Theoretical Bases for Instructional Technology course and the development of the *NOVA*tions journal, the doctoral students took on the roles of educational leaders by contributing as writers, reviewers, and editors and learning to use the domain tools as scholars in the community of practice. Therefore, the students' learning was a function of the activity, context, and culture in which it occurred (Wenger, 1998).

Contributing to a professional community of practice requires not only the ability to use the community's tools but self-efficacy as well. The acquisition of the community's knowledge and skills makes it possible for people to be contributing members of the community, but without self-efficacy, membership may not even be attempted. Therefore, the enculturation process must also involve enhancing students' beliefs about their capabilities—their self-efficacy beliefs.

Self-Efficacy

Self-efficacy refers to an individual's level of confidence regarding her or his ability to organize and implement actions needed to perform effectively (Schunk, 1989). Research indicates that there is a strong and positive influence of efficacy beliefs on various aspects of student motivation and achievement (e.g., Bandura & Schunk, 1981; Pajares & Miller, 1994, 1997; Schunk, 1983, 1984b; Zimmerman, Bandura, & Martinez-Pons, 1992; see also Multon, Brown, & Lent 1991, for a meta-analysis). Schunk's (e.g., 1982, 1983, 1984a) series of experiments, for example, showed that students' performances improved noticeably as their self-efficacy perceptions grew stronger. When students experience successful task completion, it may lead to a more positive self-appraisal of capability; students' beliefs about their capabilities are good predictors of their achievement and subsequent professional choices and decisions (Betz & Hackett, 1997).

Aims of the Research Study

In order to help students in the course develop confidence as emerging leaders to share their knowledge and expertise with others, my goal was to create a problem-centered, enculturating learning experience that would enhance students' self-efficacy to contribute to the professional community of practice through scholarship and publication. Thus, this study addressed the following research question: What is the effect of participation in the *NOVA*tions online journal experience on doctoral students' self-efficacy as it relates to contributing to the professional community of practice through scholarship and publication?

Designing a Problem-Centered, Enculturating Learning Experience Using the REAL Model

Problem-centered learning opportunities enable students to practice applying their content knowledge and workplace skills while working on authentic, contextualized problems and projects. These types of learning experiences or environments are also referred to as student- or learner-centered because (1) they place the learning needs of the students at the center of the instructional design decisions and (2) the instructional strategies used (e.g., inquiry, collaboration, and reflection) require active participation and drive from students (Grabinger, Dunlap, & Duffield, 1997). The problem focuses students' activity and encourages them to take more and more responsibility for, and ownership of, the learning process.

This "problem-first" emphasis is a direct contrast to the more conventional approach of assigning an application problem at the end of a conceptual unit. Problem-centered learning approaches, which include cognitive apprenticeships, case studies, anchored instruction, and intentional learning environments (Dunlap & Grabinger, 2003; Williams, 1993), share five instructional characteristics beyond the problem-first focus (Barrows &

Kelson, 1993; Dunlap & Grabinger, 2003; Grabinger, Dunlap, & Duffield, 1997; Koschmann et al., 1996; Spector, 2004). First, the approach to learning is context-sensitive and situated, and the learning process replicates the commonly used systemic approach to resolving problems or meeting challenges encountered in the workplace and world at large. Second, students are actively involved in the learning process from problem introduction to solution implementation and process reflection. Third, students set learning goals and create action plans to drive learning activities and conduct research. Fourth, students reflect on what they have learned and how they have learned. Fifth, students work collaboratively with colleagues to pool their knowledge and skills, share the results of their inquiry, engage in peer teaching, and ultimately solve the problem. Hence, problem-centered, or problem-based, learning environments may help prepare students for their professions because students actually work on problems in ways that require them to develop expert knowledge, problem solving proficiency, lifelong learning skills, and team participation skills (Dunlap, 2005a, 2005b).

The conceptual framework for the study used Grabinger and Dunlap's (1995; Dunlap & Grabinger, 1996) rich environments for active learning (REAL) instructional model to design course activities. The attributes of the REAL model reinforce and encourage students' enculturation by promoting learning within authentic, problem-centered contexts, and encouraging the growth of learner responsibility, initiative, decision-making, intentional learning, and ownership over the acquired knowledge. Additionally, REAL provides an atmosphere that encourages the formation of learning communities that assist collaborative social negotiation of meanings and understandings among the members of the community (Dunlap & Grabinger, 1996; Grabinger & Dunlap, 1995).

The REAL framework has five general guidelines. First, the application of the REAL model helps students manage their own learning by identifying their learning needs, setting learning objectives, selecting and employing learning strategies, using appropriate resources, and assessing their overall process. To be intentional, students must identify learning deficiencies and strengths, make and implement plans, develop metacognitive awareness, find appropriate learning materials, and revise those plans and actions based on that awareness (Dunlap & Grabinger, 2003).

Second, the REAL model requires authentic situations. Anchoring learning in larger, more authentic and complex contexts helps prevent the acquisition of inert knowledge (Cognition and Technology Group at Vanderbilt, 1993).

Third, the REAL model presupposes that learners are active constructors of knowledge—not just passive receptors of information. Generative learning activities require students—individually and collaboratively—to be responsible for creating, elaborating, and representing domain knowledge in an organized manner (Cognition and Technology Group at Vanderbilt, 1992; Hannafin, 1992; Scardamalia et al., 1989; Scardamalia & Bereiter, 1991). Through generative learning activities, learners take an active role in forming new

understandings through the creation of products and solutions to authentic challenges, helping them transfer knowledge structures, strategies, and the skills for lifelong learning to new situations.

Fourth, collaboration, communication, and establishing a community of learners are critical to the teaching and learning process (Pask, 1975). By employing collaboration strategies, REALs engage learners in a number of activities that support successful learning including collective problem solving, examination of multiple viewpoints, confronting misconceptions and misunderstandings, and learning collaborative work skills.

Finally, REALs embed self-reflection and assessment activities in order to support the development of both knowledge and lifelong metacognitive skills. Metacognitive skills required for lifelong learning include setting goals and creating action plans, activating prior knowledge, assessing progress and strategies, and modifying strategies (Dunlap & Grabinger, 2003; Ridley, Schutz, Glanz, & Weinstein, 1992). Self-assessment aids in deepening knowledge structures and the transfer of learning.

This study examined how students' self-efficacy beliefs with regard to the public sharing of their knowledge and expertise through publication and scholarly activity changed while involved in a problem-centered, enculturating learning experience that was designed following the REAL model guidelines.

Method

Overview

I used a mixed methods, nonexperimental, single-group research design to examine the effect of the course's enculturating experience on students' self-efficacy related to contributing to a professional community of practice through scholarship and publication.

Participants

Twelve students in a 16-week doctoral-level course on the theoretical bases of instructional technology participated in this study. Ten of the 12 students were women. All of the students were educators working in professional settings: six in K–12, five in higher education, and one in government. Most of the students had completed at least one year of coursework, with two students preparing for their dissertation research. Only two students were new to the doctoral program.

Setting

The course has two purposes: (1) to examine the potentials and limitations of technology for teaching and promoting learning, and (2) to examine contemporary theoretical and research foundations of instructional technology. I designed the course, specifically the

*NOVA*tions online journal experience, following the REAL model in order to create a problem-centered, enculturating learning experience that would enhance students' self-efficacy to contribute to the professional community of practice through scholarship and publication. Students took on leadership roles—such as scholars, writers, reviewers, and collaborators—in a professional community of practice interested in instructional technology. This community of practice situated students' learning to support their enculturation into the community of educational scholarship and publication. Their adopted roles helped them identify themselves as scholars, writers, and contributing members of the instructional technology community of practice. Their roles in the community required them to engage in the authentic professional activities of a community of practice, using the community's tools for scholarship and publication (e.g., the journal's reviewer guidelines and evaluation form, the journal's author guidelines, how-to resources to support writing literature and book reviews and research studies, the Publication Manual of the American Psychological Association (2001), and other online journals and forums used by professional communities of practice). In addition to being responsible for publishing the *NOVA*tions journal, students contributed to the journal by producing a number of products:

- Instructional technology gallery installation: Students prepared stories, interviews, collages, and other products for a virtual gallery, documenting the impact of the Internet on the educational environment.
- Webliography: Students collected Web resources and online publications for various instructional technology topic areas and annotated these resources to support *NOVA*tions readers who are interested in current instructional technologies, trends, and issues.
- Book reviews: Students wrote collaborative book reviews to submit to *NOVA*tions for publication.
- Publishable manuscript: Students produced a manuscript (including a proposal/outline and draft) to submit to *NOVA*tions for publication. Their manuscripts could be either a literature review or research study related to instructional technology.
- Editorial feedback: Finally, students also served on the editorial review board. They reviewed articles and book reviews, and provided constructive feedback to the other authors/students.

These activities provided an authentic, problem-centered environment in which to explore instructional technology research, literature, purposes, and paradigms. Students wrote literature reviews, research studies, and book reviews. They completed authentic, relevant activities requiring independent literature review, conceptualization, and writing. In addition, students delivered, received, and applied constructive criticism.

Data Collection

Data were collected using two tools. The Scholarly Community of Practice (SCoP) Self-Efficacy Scale compared the effectiveness of the course design as an enculturating experience from beginning to end. Guided reflective journal submissions were used to examine changes in students' perceptions of their ability to contribute to the professional community of practice through scholarship and publication—their self-efficacy—throughout the course.

Scholarly Community of Practice (SCoP) Self-Efficacy Scale. Students completed the Scholarly Community of Practice (SCoP) Self-Efficacy Scale at the beginning and end of the *NOVA*tions experience. (NOTE: From this point on the Theoretical Bases for Instructional Technology course is referred to as the *NOVA*tions experience to emphasize its role as an authentic community of practice.) Following Bandura's (1997) guidelines for assessing self-efficacy, the scale asked students to provide judgments of their capability to successfully perform specific scholarship and publication activities in support of the professional community of practice on a rating scale from 0 to 100 (Pajares, Hartley, & Valiante, 2001). Empirically grounded, the 0 to 100 scale is more sensitive and reliable than a typical Likert scale (Pajares et al., 2001) addressing Bandura's (1997) concern that "including too few steps loses differentiating information because people who use the same response category would differ if intermediate steps were included" (p. 44). Developed specifically for this study, the SCoP Self-Efficacy Scale is an 11-item scale designed to assess students' self-beliefs about ability to contribute to a professional community of practice like the *NOVA*tions community through scholarship and publication. Using a confidence rating ranging from "0 = Cannot do at all" to "100 = Certainly can do," the scale aims to capture a sense of personal competence to deal effectively with specific scholarly activities (see Appendix A), such as:

- Preparing a manuscript for submission to a professional journal
- Editing another scholar's manuscript
- Contributing ideas, views, and perspectives to the literature

Because I wanted to measure the overall construct of self-efficacy as related to scholarly sharing and contribution, which is measured by three subconstructs, I calculated the reliability for the subconstructs and overall scale. The internal consistency of the SCoP Self-Efficacy Scale items was tested, and the Cronbach's alpha was .93. The SCoP Self-Efficacy Scale is made up of three subscales based on the three types of activities in which students were involved during the *NOVA*tions experience: writing for publication, serving as an editor/reviewer, and producing work of value to the community (see Table 1). The three subscales demonstrated good reliability in the study sample: writing for publication (Cronbach's alpha = .87), serving as an editor/reviewer (Cronbach's alpha = .97), and producing work of value to the community (Cronbach's alpha = .80).

Table 1
SCoP Self-Efficacy Scale Questions by Subconstruct

Activity	Writing for Publication	Serving as an Editor/Reviewer	Producing Work of Value to the Community
1. Preparing a manuscript for submission to a professional journal	X		
2. Serving on a professional journal's editorial review board		X	
3. Editing another scholar's manuscript		X	
4. Reviewing/critiquing manuscripts for publication		X	
5. Contributing your own ideas, views, and perspectives to the literature			X
6. Researching educational problems that constitute a threat to effective practice			X
7. Drawing on relevant literature to establish a coherent conceptual framework for your ideas, views, perspectives, and research questions			X
8. Writing a publishable literature review	X		
9. Writing a publishable research study	X		
10. Writing a publishable book review	X		
11. Effectively responding to critical, constructive feedback on your manuscripts	X		

Guided reflective journals. Journaling is “a method of promoting exploration and facilitating reflection on learning and new experiences within the context in which the learning unfolds” (Gillis, 2001, p. 49). Journal writing fosters understanding and the application of concepts (see Connor-Greene, 2000), enhances critical thinking (see Hettich, 1990; Hodges, 1996), and improves achievement and attitude (see Borasi & Rose, 1989; Jurdak & Zein, 1998). It is also a powerful research tool for capturing students’ reflective practice, conceptual change, thinking, and learning. Moreover, because journal writing serves valid instructional and research purposes, the data collection may intrude less into the students’ authentic learning experiences (although knowing that they are participating in a research study may lead to a Hawthorne effect).

Students completed a reflective journal at specific points throughout the course. The journals helped students focus on their perceptions of personal preparedness to participate

in the professional community of practice through scholarship and publication. Journals were due once every two weeks, leading to eight completed journals for the semester. A time series approach to collecting students' guided journal responses mitigated the impact of other factors (e.g., students' experiences in other courses, in their doctoral research labs, or on the job) on the study's findings, allowing for comparisons in students' self-efficacy at different points during the *NOVA*tions experience. A set of questions guided students to reflect on the three types of activities related to contributing to a professional community of practice through scholarship and publication, specifically writing for publication, serving as an editor/reviewer, and producing work of value to the community (see Appendix B).

Students sent their journal responses to one of my colleagues (not the course instructor) via e-mail; using e-mail allowed students to (a) complete their responses in the comfort of their own surroundings and in their own time instead of in the classroom at the end of a long (five-hour) class meeting and (b) have time to reflect on the journal questions before responding (responses were due 48 hours after the class ended). My colleague changed the students' names to random initials to protect their identities during data analysis and reporting. Though submitting journal responses was part of the class participation requirement, I did not grade the journal responses, and I did not see them until after posting the semester grades.

Before work on *NOVA*tions began but after learning the project details, students submitted a baseline journal (Journal #1) to capture their perceptions of their abilities and preparation to contribute to the professional community of practice as it relates to scholarship and publication. Students submitted Journals #2 through 7 as they worked within the *NOVA*tions experience in order to capture and track their perceptions of their abilities and preparation to contribute to the professional community of practice. They submitted Journal #8, which was the final journal, after they had completed and turned in their final *NOVA*tions products. The journal responses from Journals #2 through 8 were examined for changes in students' perceptions by comparing them to the baseline journal responses (Journal #1).

Data Analysis

To analyze the Scholarly Community of Practice (SCoP) Self-Efficacy Scale, I conducted a two-tailed, paired, dependent t-test to determine pretest-posttest differences in the group's scores on the overall scale. In addition, because the scale is comprised of three subconstructs, I conducted two-tailed, paired, dependent t-tests on each subscale.

To examine the journals, I established a coding scheme based on themes pulled from the literature described earlier: changes in confidence regarding professional activity, changes in professional identity, and learning to use the conceptual tools of the professional community in order to transfer knowledge to professional activity (see Table 2). Using a coding table of themes with examples, two coders (a colleague and I) first reached consen-

sus on a subset of students' journals and then coded the responses independently. Cohen's kappa estimated the interrater reliability, a measure of percentage agreement corrected for chance agreement. Cohen's kappa indicated an agreement level of approximately 86%.

Table 2

Example Journal Questions by Coding Category

Changes in confidence regarding professional activity	<ul style="list-style-type: none"> • How well do you think you would do if you were asked to submit an article to a professional journal or serve on a journal's editorial review board? What skills and knowledge do you have to contribute? What would you still need to work on? • How well do you think you will do as a reviewer of a colleague's manuscript? What skills and knowledge do you have to contribute to the manuscript review process? What are you concerned about regarding the review process? • How do you currently feel about your ability to contribute to the professional community of practice? Have your feelings and/or abilities changed since the beginning of the semester? In what ways?
Changes in professional identity	<ul style="list-style-type: none"> • Has your definition of community of practice changed since the beginning of the semester? How? Who belongs to a community of practice? Who doesn't belong? How do people become contributing members of the community? How will you join and contribute to the community of practice? • How do you plan to contribute to the professional community of practice (focused on educational leadership and innovation) in the future? What are your immediate/next steps? Are these future plans different than what you had in mind for yourself before this course? If so, in what ways and why?
Learning to use the conceptual tools of the professional community	<ul style="list-style-type: none"> • How is the manuscript review process making you feel about your ability to contribute your ideas to the community of practice (specifically through publication and the support of others' publication endeavors)? Does it affect your interest in contributing your ideas to the community of practice? Why?

Results

The results are based on coding themes: changes in confidence regarding professional activity, changes in professional identity, and learning to use the conceptual tools of the professional community. Within each theme, students' perceptions are described at three different time intervals: pre-NOVA*tions*, during NOVA*tions*, and post-NOVA*tions*. I restricted my attention to the subset of journal responses where my colleague and I agreed on our classifications. The journal responses shared in this section are representative samples of this subset. No grammatical corrections were made to student responses, and students are not referenced by name to protect their identities.

Changes in Confidence Regarding Professional Activity

The results of the Scholarly Community of Practice (SCoP) Self-Efficacy Scale and guided reflective journals captured students' levels of confidence about contributing to the professional community of practice through scholarship and publication throughout the *NOVA*tions experience.

Scholarly Community of Practice (SCoP) Self-Efficacy Scale. Students completed the Scholarly Community of Practice (SCoP) Self-Efficacy Scale at the beginning and at the end of the semester. The pre-*NOVA*tions mean was 66.3 ($SD = 19.1, n = 12$). The post-*NOVA*tions mean was 79.2 ($SD = 9.4, n = 12$). A two-tailed, paired, dependent t-test determined pretest-posttest differences in the group's scores. The mean scores increased significantly from the pretest to the posttest [$t(11) = -3.19; p = .009$], indicating a significant positive change in the students' perceptions of personal ability and preparedness—their self-efficacy—to participate in the scholarly community of practice. Table 3 presents the results of two-tailed, paired, dependent t-tests on the three subconstructs of the SCoP Self-Efficacy Scale. The results show a significant increase from pretest to posttest on two of the subconstructs: writing for publication and serving as an editor/reviewer. The results of two-tailed, paired, dependent t-tests on the producing work of value to the community subconstruct were not significant. The questions that make up the producing work of value to the community subconstruct are less action and product oriented than the other two subconstruct scales, which may explain why there was not a significant increase from pretest to posttest. Alternatively, the students' pretest confidence rating mean scores for this subconstruct were above 70 (approaching "certain can do"), whereas the pretest confidence rating mean scores for the questions associated with the other two subconstructs were 62.5 or lower. This may indicate that students already had confidence regarding producing work of value to the community (although, this is not supported by the guided reflective journal results presented below).

Guided reflective journals. The guided reflective journal responses reflected positive changes in students' confidence about professional activity—specifically through scholarship and publication—from the start of the *NOVA*tions experience to the end. At the beginning of the *NOVA*tions experience, nine students expressed concerns about

Table 3

T-Test Scores for the Subconstructs of the SCoP Self-Efficacy Scale

	Pre-Mean	Pre-SD	Post-Mean	Post-SD	t(11)	p	Significant? ($p < 0.05$)
Writing for publication	66.2	21.9	80.9	14.4	-7.22	0.000	Yes
Serving as an editor/reviewer	59.2	25.9	76.5	17.4	-4.81	0.000	Yes
Producing work of value to the community	73.8	25.3	78.5	16.6	-1.37	0.179	No

whether they had anything of value to offer the community of practice. For example, one student reported:

Student NI: I do not feel that I am expert enough in any [particular area] to add substantively. . . . Any discomfort I would feel about writing for a professional journal comes more from lack of confidence that the professionals who subscribe to the journal would learn from me.

Only three students indicated that they had some confidence about contributing to the professional community of practice at the start of the semester. A student who had previously coauthored a publication wrote:

Student NR: We knew we were accepted for publication even before we submitted the article because our advisor was editing a special issue of the journal. I would like to have the experience of submitting to a journal where I am less known to see if they accept my work. I am still not confident that this will be as easy or go as smoothly as it did the first time.

While they worked on their *NOVA*tions products during the course (as reported in Journals #2 through 7), all of the students began expressing changes in their self-confidence about scholarship, publication, and contributing to the community of practice. One student described how the process of reviewing affected her confidence:

Student SY: I [believe I] can support other's publication endeavors because, after my partner and I had submitted our reviews to each other, we talked about the feedback we'd been given and she felt that I had helped her to solve some of the things that she was struggling with in finishing her paper. [I am starting to feel] very confident that I could contribute to the process of editing someone else's work towards publication.

In general, as students worked on their *NOVA*tions products, they reported increasing confidence in their scholarly voice and how their work might contribute to the community:

Student TR: I'm beginning to feel that I have more to contribute.

Student NG: Given the . . . feedback from my peers about their interest in my topic, I think that the manuscript will contribute to the community of practice by serving as a condensed look at a large issue.

Interestingly, the three students who expressed higher confidence in Journal #1 started to describe an adjusted level of confidence in Journals #2 through 7 as they realized what actually was involved in scholarly activities such as publication and editorial review:

Student CS: I think I have a more realistic picture of the scope of the task for producing a publishable article, and so while I think I have the potential to get there, I may not be as confident as before that I can produce an article that I would be comfortable publishing.

Student NR: I'd say my confidence is less, but that I am more realistic and knowledgeable about what it will take to produce work worthy of submission.

By the end of the semester (Journal #8), students' work on their *NOVA*tions products seemed to affect their personal appraisals of capability, specifically related to their scholarship and publication abilities:

Student TR: I think that the possibility of contributing through writing feels more possible now than it did at the beginning of the course. I will submit [my manuscript for publication]. I think there's a chance that it will be published.

In addition, 11 students described how their future plans included scholarship and publication:

Student CS: I will submit work to a professional journal, including a revision of the manuscript produced for this class . . . In the next year, I intend to write and submit at least two papers for publication, and also to adapt one of these topics for a conference paper and presentation.

The students recorded these positive views of their abilities in their journals after they had submitted their final manuscripts and second book reviews but before they received grades for the course from the instructor (in this way, students' responses were not biased by their grades).

Changes in Professional Identity

The journal responses collected throughout the course revealed changes in the ways students described their professional identities and their roles in the scholarly community of practice. In Journal #1, nine students indicated that they did not belong to the professional community of practice and did not identify themselves as scholars, writers, or reviewers. However, as reported by the same nine students in Journals #2 through 7, these perceptions shifted while the students were working on their *NOVA*tions products. For example, while reflecting on her contributions as a reviewer, one student wrote:

Student NM: Although I'm not sure I would be ready to fulfill this responsibility completely, I do feel I'm on my way closer to doing a good job if I were to serve on a journal's editorial review board.

Other students described the importance of the activities they were involved in during the course but without referring to their own roles in the process:

Student AC: In my view, publishing is important because it allows us to share what we have learned through research. If everyone kept the results of their research to themselves, we would constantly be re-inventing the wheel. Publishing is important to further progress. It is also a way to give back to a community that has allowed you entrance for research purposes.

By the end of the semester, in Journal #8 all of the students were describing their readiness to contribute to the professional community of practice as well as their future plans for contributing to the community of practice:

Student SY: I found that I contribute a unique perspective. . . . I feel very confident that I could contribute something of value to the professional discourse.

Student LA: I feel highly motivated to continue and am looking forward to finding new ways to contribute. Yes—my feelings and abilities (both) have changed since the beginning. . . . I was far more hesitant in the beginning, and not sure if I belonged within this “particular” community of practice; I no longer feel that way and think that my contributions are important and will be valued.

Nine students referred to themselves as *members of the professional community of practice, scholars, and educational leaders* as opposed to outsiders without the expertise to participate and with nothing valuable to contribute:

Student TR: I am certainly much more conscious about one of the main reasons for doing the work in this program—to make me better able to contribute to the community of practice. . . . I feel more grounded in reading, theory, and research, [and] more confident in speaking out as an educational leader.

Student NG: I [now] feel that I am an active member, albeit a novice member, of the educational leadership and innovation professional community of practice because I am participating . . . seeking to publish, and anticipating research in the field of education.

Learning to Use the Conceptual Tools of the Professional Community

In Journal #1, all of the students revealed a concern about the gap in their understandings of what scholars in the professional community actually did to contribute to the community and their present levels of expertise:

- volume 1, no. 2

Student TT: I don't think that I would do that well at writing a journal article ... [because of] not knowing that much about how to write professional journal articles.

Student NG: My main concern at present is the question of what a publishable lit review entails. ... I'm not totally sure where to start!

Student NI: The major concern that I have with my manuscript is simply whether or not [I can even approach] a literature review appropriately.

While immersed in working on their *NOVA*tions products (Journals # 2 through 7), 11 students started to get a sense of how to use the community's conceptual tools, stating:

Student LA: I think I have a better understanding of how to write a book review this time so I will know how to tease out key parts ... rather than just summarizing the book's contents.

Student AC: Learning to write a manuscript is probably the most valuable learning tool. ... Not only will this help me share knowledge with my community, but it will also contribute to my area of focus and add to my abilities to finish my dissertation process. As a leader, the research, synthesis processes, and communication required to complete the manuscript process is important ...

During this timeframe, students were also very clear that they still needed to learn to be successful community contributors:

Student AC: I still need to work on format, and repeat the process of writing a book review several times in order to become "proficient" at the process.

Student TT: I still need to know more about what other people are looking for in a book review.

Student NG: I know to stop collecting articles and start reading and analyzing them sooner, and I understand that my voice has to be in it ... but I'm not sure I know how to do that.

Although two students still expressed continuing reservations about their use of the community's conceptual tools after their *NOVA*tions products had been submitted for a final course grade, 10 students confidently described what they had learned with regard to using these tools (Journal #8):

Student NG: I feel ... more prepared for submitting an article to a professional journal because I now have experience in the many steps involved in the preparation and processes.

Student RN: After completing this course, my respect for the process of writing for a peer-reviewed journal has dramatically increased.... The magnitude of preparing a well-written, thoroughly researched literature review for peer-review publication was much more intense than I originally understood.

Discussion

To prepare for the type of educational leadership that involves becoming part of and contributing to a professional community of practice through scholarship and publication, students must have confidence in their abilities to perform and believe they can be successful (Bandura, 1977, 1986; Manz & Manz, 1991). The guided journals showed a change in most students' perceptions about their abilities to contribute as scholars, from a lack of self-efficacy before their semester-long *NOVA*tions experience to confidence at the end of the semester. A few students revealed a positive change in their self-efficacy based on acquiring a more realistic view of what it means to contribute to the professional community of practice through scholarship and publication; through the experience, they realized that contributing to the professional community of practice entails a lot more than they initially thought it did. The significant increase in the group's scores on the SCoP Self-Efficacy Scale supports the journal results. Because of their work on *NOVA*tions, students gained confidence and began to see themselves as scholars who have valuable ideas and skills to share with the professional community of practice.

Self-efficacy literature (e.g., Bandura, 1977, 1986) suggests two characteristics of the *NOVA*tions experience that may have contributed to these positive results: students' *performance accomplishments* on authentic activities and their involvement in *vicarious learning*.

*Performance Accomplishments and the NOVA*tions Experience

According to Bandura (1977, 1986), self-efficacy can be acquired and changed through performance accomplishments, also referred to as enactive attainments. Successful performance raises self-efficacy, while failures lower self-efficacy. By working on their *NOVA*tions products, students completed relevant, meaningful tasks. These activities led to performance accomplishments that had the potential to affect their self-appraisal of their capability to be members of the professional community of practice. All of the students described the effectiveness of this strategy in their journals:

Student NR: The whole experience of the class and particularly working on *NOVA*tions is a situated learning experience. By creating a proposal for an article, writing it, having it reviewed, and submitting it for publication, we are learning about scholarly publication by actually doing it.

Student LA: I learned that I do have the skills and abilities to be successful in each of these realms [scholarship and publication]. This course was a very positive experience that enabled direct participation in the community of practice in these ways—something that I value very much, and truly appreciate. Knowing that we were writing for a professional journal (in each case) made a difference in terms of the focus and commitment to the quality of the work.

Engaging students in scholarly activities also created opportunities to participate in the community of practice, improving students' ability to transfer their knowledge and skills to future challenges (Dunlap & Grabinger, 1996; Grabinger & Dunlap, 1995). One student described it in the following way:

Student RN: This class is a community of practice so by participating in the class I am learning how to participate in a community of practice. . . . The manuscript assignment is preparing us for one of the scholarly tasks that will be required of, that of writing and publishing. I think the other assignments are also helping us prepare to be educational leaders because we are learning the ways we can contribute.

In addition, I designed the *NOVA*tions experience following the guidelines of the REAL model regarding extensive reflection and self-assessment. Throughout the course, students reflected on their work when responding to the journal questions and reviewing other students' manuscripts, reinforcing their sense of accomplishment. Because the review process and the guided journals focused students' attention on their learning processes and what they had achieved, these activities reinforced their performance accomplishments (Dunlap, 2005a).

*Vicarious Learning and the NOVA*tions Experience

Vicarious learning is the acquisition of knowledge and skills that occurs by watching others and noting the consequences of their behavior (Bandura, 1977, 1986). By observing the successes of people with whom we identify, our own self-efficacy can be raised because we can witness the correct behavior to achieve the desired result. During the *NOVA*tions experience, vicarious learning occurred because students collaborated in three ways: developing the journal itself, writing two book reviews, and reviewing each other's journal products. These activities, based on the REAL model, provided them with opportunities to see and hear how others approached and solved problems. Working collaboratively made students' thinking processes observable and, therefore, open for personal and peer assessment and refinement. Nine of the students described how this process affected their confidence regarding their ideas and skills, for example:

Student NM: As I complete each class [in this] course, my confidence builds. I have shared my ideas and beliefs as well as heard different ideas and beliefs. I hope to continue this.

Student CS: Because I am reading, conversing, and writing with such a talented group [the other students in the course], we are together raising our skill levels and interest in [scholarship and publication].

Throughout the course, students tested ideas, identified misconceptions, and challenged each other's thinking (Johnson & Johnson, 1979; Lowry & Johnson, 1981). The group participation and support encouraged throughout the *NOVA*tions experience required students to understand many different roles and viewpoints leading to additional insights in their journal work. This sharing also engaged students in vicarious learning by allowing them to note the consequences of peers' activities and gaining the benefit of their knowledge and experiences. Additionally, the collaborative process provided explicit feedback to students about their performances, serving as a source of efficacy information. While reflecting on the writing of two collaborative book reviews for *NOVA*tions, one student described the impact feedback had on her performance:

Student RN: I find that [collaboratively] writing book reviews engages me in critical thinking and reading. . . . I find that the collaborative reviews are richer in reflection. If given the choice, I would submit a book review that was shared. . . . I [also] find myself appreciative of the criticism and reflection my colleagues give to my writing, and this is a reciprocal exchange.

Limitations

Although the study's overall results were positive, there were limitations that affect the study's generalizability. First, the sample size was small ($n = 12$) and narrow and homogenous (participants were students in an educational leadership doctoral program). Second, it was not a randomized study but rather a convenience sample of students based on who registered for the course. In addition, it was not a controlled comparison study; I did not examine a non-*NOVA*tions experience group. I also relied on students' self-reports—their guided reflective journals and responses on the SCoP Self-Efficacy Scale—and did not independently verify the behaviors that were being reported. Finally, I did not examine students' actual future leadership behavior to determine whether or not the findings extended beyond the *NOVA*tions experience into their organizational and professional lives.

There were also limitations associated with the instruments that influence interpretability of the study's results. For example, while the SCoP Self-Efficacy Scale showed

significant difference, it did not ask students to explain their responses for the scale items. As for the journal results, due to space limitations, I have included only a small, yet representative, sample of the students' journal responses to illustrate changes in their self-efficacy during the *NOVA*tions experience. Limiting the number of journal responses to which readers have access can hinder the interpretability of data because readers cannot view the full data set used during analysis. Limiting the number of journal responses does not give readers the entire range of responses. To mitigate this limitation, more than one student's response illustrates each point.

Considerations for Future Research

Even though employed as a research method, the guided journal writing engaged students in the type of reflective activity that puts them in a better position to translate theory into practice (Argyris & Schön, 1987). In this study, journal writing may have functioned as an instructional strategy that gave students an opportunity to reflect on and articulate their performance achievements, possibly precipitating change because "simply to record our behaviour is to interfere with it" (Simons, 1978, p. 18). Therefore, the possible connection between journal writing and the changes in students' self-efficacy requires investigation in order to determine to what extent, if any, journaling affected the results described in this study.

There are some clear follow-up steps to extend this line of self-efficacy research:

Following students throughout their doctoral programs and after graduation to see if their improved self-efficacy translates to subsequent activities

Determining if any positive impact on students' self-efficacy holds up over time, and what types of subsequent professional and/or learning experiences promote or hinder further self-efficacy improvements

In addition to the themes related to this study, other themes emerged from the journal data that would be interesting to explore:

A number of students referred to the time needed to participate in the professional community of practice and noted that time was a deterrent to involvement. How do members of the community of practice address this issue? Is time an issue only for more novice community members? Does participation require less time once you have developed more expertise in a particular area and more comfort in participating in the community?

Some students described the challenge of collaborative writing when reflecting on their strategies for writing book reviews. What strategies do successful collaborators use to create well-written manuscripts and achieve personal satisfaction with their contribution and the final product?

During the semester, students' definitions of professional community of practice and educational leadership changed. What was it about the *NOVA*tions experience that led to increasingly more detailed and inclusive definitions?

Implications for Design

The first implication is the importance of authentic learning activities. The roles taken on by students as journal publishers, contributors, editors, and reviewers in the *NOVA*tions experience enhanced self-efficacy. This process produced products that served as the basis for study, discourse, and reflection.

A second implication is the importance of collaboration and reflection in leadership preparation courses. Like any professional journal, this activity required constant discourse through collaboration. In addition to editing and reviewing, students formed book circles for joint book reviews. Through discussion, defense of ideas, problem solving, and joint reflection, students learned the value of collaboration to produce quality professional products.

Finally, working on *NOVA*tions gave students the opportunity to increase the depth and complexity of their performance accomplishments through scholarship and publication. The implication is that this method enables students to become enculturated and comfortable with their new doctoral student roles of leaders, researchers, and publishers.

Conclusion

Using a problem-centered approach, such as the one prescribed by the REAL instructional model, is an important design consideration for educators trying to achieve improved student self-efficacy with regard to abilities and performance. The results of this study demonstrate that the *NOVA*tions experience helped the doctoral students experience success in terms of producing scholarly products to share with the community of practice, improving their confidence to engage in similar activities in the future; these students ultimately produced an edition of the *NOVA*tions journal that was publicly shared with the community via the Web (<http://www.novationsjournal.org>). This study sheds light on how engaging students in a problem-centered, enculturating learning experience that reflects the true nature and requirements of educational leadership and scholarship helps them not only feel prepared to share their knowledge and expertise in public forums and work effectively in their profession, but also to identify themselves as scholars and contributing members of the community of practice. Including similar enculturating opportunities for students in leadership preparation programs is critical to preparing them for the leadership demands, challenges, and opportunities of their organizations and professional communities of practice.

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Appendix A. Scholarly Community of Practice (SCoP) Self-Efficacy Scale

Contributing to the Professional Community of Practice through Scholarship and Publication

Name: _____

To familiarize yourself with the rating form, please complete this practice item first.

Confidence Scale

0	10	20	30	40	50	60	70	80	90	100
cannot					moderately					certain
do at all					can do					can do

If you were asked to lift objects of different weights right now, how confident are you that you can lift each of the weights described below?

PHYSICAL STRENGTH	CONFIDENCE (0—100)
Lift a 10 -pound object	_____
Lift a 20 -pound object	_____
Lift a 50 -pound object	_____
Lift a 80 -pound object	_____
Lift a 100 -pound object	_____
Lift a 150 -pound object	_____
Lift a 200 -pound object	_____
Lift a 300 -pound object	_____

Using the same confidence scale, please rate how confident you are in the following activities associated with being an educational scholar/researcher and active member of the professional community of practice.

ACTIVITY	CONFIDENCE (0—100)
1. <i>Preparing a manuscript for submission to a professional journal.</i>	_____
2. <i>Serving on a professional journal's editorial review board.</i>	_____
3. <i>Editing another scholar's manuscript.</i>	_____
4. <i>Reviewing/critiquing manuscripts for publication.</i>	_____
5. <i>Contributing your own ideas, views, and perspectives to the literature.</i>	_____
6. <i>Researching educational problems that constitute a threat to effective practice.</i>	_____
7. <i>Drawing on relevant literature to establish a coherent conceptual framework for your ideas, views, perspectives, and research questions.</i>	_____
8. <i>Writing a publishable literature review.</i>	_____
9. <i>Writing a publishable research study.</i>	_____
10. <i>Writing a publishable book review.</i>	_____
11. <i>Effectively responding to critical, constructive feedback on your manuscripts.</i>	_____

Appendix B. Guided Journal Questions by Journal Number and NOVAtions Activity Type

Journal #	Type of NOVAtions Activity	Guided Journal Questions
1	Writing for publication	<ul style="list-style-type: none"> • How well can you prepare an article for submission to a professional journal? <ul style="list-style-type: none"> o Can you isolate what abilities would make you uncomfortable submitting an article to a professional journal? o Can you determine what your strengths are in preparing an article for submission?
	Serving as an editor/reviewer	<ul style="list-style-type: none"> • How well do you think you would do if you were asked to submit an article to a professional journal or serve on a journal's editorial review board? What skills and knowledge do you have to contribute? What would you still need to work on? • If you were asked to serve on a journal's editorial review board, describe how you view your ability to interact successfully with the other contributors. <ul style="list-style-type: none"> o Which skills and knowledge do you feel capable of using to contribute to the discussions? o Which skills and knowledge do you not feel capable of using?
	Producing work of value to the community	<ul style="list-style-type: none"> • How do you currently feel about your ability to contribute to the professional community of practice? Have your feelings and/or abilities changed since the beginning of the semester? In what ways? • What skills do you have or are developing that will help you to be successful as a: <ul style="list-style-type: none"> o Scholar and researcher? o Contributing member of the professional community of practice? • Are you confident that you can deal with the demands of scholarship and research? Professional community membership and activity? Why or why not?
2 – 7	Writing for publication	<ul style="list-style-type: none"> • How well do you think you would do if you were asked to submit a manuscript [book review] to a professional journal? What skills and knowledge do you have to contribute? What would you still need to work on?

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Appendix B

Journal #	Type of <i>NOVA</i> tions Activity	Guided Journal Questions
		<ul style="list-style-type: none"> • Reflecting on your manuscript [book review], how confident are you about contributing to the professional discourse? Submitting your work to a professional journal? What are your concerns regarding submitting your manuscript [book review] to a professional journal? About sharing your manuscript [book review] with your colleagues for review? • How confident are you about your manuscript [book review]? What are your concerns about writing your manuscript [book review]? Do you think it will be published? Do you think it will contribute to the community of practice (and, how will it contribute)? Why or why not?
	Serving as an editor/reviewer	<ul style="list-style-type: none"> • What are your concerns about people reviewing your manuscript draft? • How well do you think you will do as a reviewer of a colleague's manuscript? What skills and knowledge do you have to contribute to the manuscript review process? What are you concerned about regarding the review process? • How is the manuscript review process making you feel about your ability to contribute your ideas to the community of practice (specifically through publication and the support of others' publication endeavors)? Affecting your interest in contributing your ideas to the community of practice? Why? • Now that you have reviewed a colleague's manuscript, how confident are you about serving on a journal's editorial review board? Why? • How well do you think you did as a reviewer of a colleague's manuscript? What skills and knowledge did you contribute to the manuscript review process? What issues/challenges did you face, and how did you address them?
	Producing work of value to the community	<ul style="list-style-type: none"> • What have you learned about your ability to contribute to the professional community of practice so far this semester [over the last two weeks]? • What have you learned about your abilities over the last two weeks that would make you feel confident as a: <ul style="list-style-type: none"> o Scholar? o Contributing member of the professional community of practice?

Appendix B

Journal #	Type of NOVations Activity	Guided Journal Questions
		<ul style="list-style-type: none"> • What have you learned about your abilities over the last two weeks that would make you feel uncomfortable about being a: <ul style="list-style-type: none"> o Scholar? o Contributing member of the professional community of practice? • What skills do you have or are developing that will help you to be successful as a: <ul style="list-style-type: none"> o Scholar? o Contributing member of the professional community of practice? • How do you currently feel about your ability to contribute to the professional community of practice? Have your feelings and/or abilities changed since the beginning of the semester? In what ways? • Is your confidence to deal with the demands of scholarship changing? How? • Is your confidence to contribute to the professional community of practice changing? How? • Has your definition of <i>community of practice</i> changed since the beginning of the semester? How? Who belongs to a community of practice? Who doesn't belong? How do people become contributing members of the community? How will you join and contribute to the community of practice?
8	Writing for publication	<ul style="list-style-type: none"> • Now that you have completed the course, how well do you think you would do if you were asked to submit an article to a professional journal? Why? What skills and knowledge do you have to contribute? What would you still need to work on? • Reflecting on the work you completed in this course (manuscript, book reviews, gallery, collections, peer review and editing, and discussions), describe your level of confidence for contributing to the professional discourse in the future? Submitting your work to a professional journal in the future?
	Serving as an editor/reviewer	<ul style="list-style-type: none"> • Now that you have completed the course, how well do you think you would do if you were asked to serve on a journal's editorial review board? Why? What skills and knowledge do you have to contribute? What would you still need to work on?

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Appendix B

Journal #	Type of <i>NOVA</i> tions Activity	Guided Journal Questions
	Producing work of value to the community	<ul style="list-style-type: none"> • Now that you have completed your manuscript, how confident are you that it will be published? Do you think it will contribute to the community of practice? How will it contribute? Why or why not? • Now that you have completed two book reviews, how confident are you that they will be published? Do you think they will contribute to the community of practice? How will it contribute? Why or why not? • What did you learn about your abilities during the course, if anything, that improves your confidence as a: <ul style="list-style-type: none"> o Scholar? o Contributing member of the professional community of practice? • How do you currently feel about your ability to contribute to the professional community of practice? Have your feelings and/or abilities changed since the beginning of the course? In what ways? • How has your definition of <i>community of practice</i> changed, if at all, during the course? Who belongs to the professional community of practice? Who doesn't belong? How do people become contributing members of the community? To which professional communities of practice are you a contributing member? • How do you plan to contribute to the professional community of practice (focused on educational leadership and innovation) in the future? What are your immediate/next steps? Are these future plans different than what you had in mind for yourself before this course? If so, in what ways, and why?