In this issue:

Learning Communities in Information Systems Education: Developing the Reflective Practitioner

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Abstract: This paper makes the case for the adoption of learning communities as an educational pedagogy for information systems programs. The need for paying attention to pedagogy is addressed/explored and the need for significant learning experiences for tomorrow's information systems professionals is posited. The nature of learning communities is discussed and the benefits of employing learning communities as an educational pedagogy are examined through a brief discussion of the research on educational effectiveness. The experiences employing a learning community pedagogy at Quinnipiac University are related, and possible future directions for the employment of the learning community pedagogy at Quinnipiac University are presented. It is shown that the use of learning communities at Quinnipiac University has successfully created communities of engagement which are moving our students in the direction of acquiring the significant learning experiences desired for tomorrow's information systems professionals.

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This issue is on the Internet at **http://isedj.org/5/4/**

This paper is part of the group that was selected for inclusion in the journal based on preliminary ratings in the top 30% of papers submitted, and a second review placing it in the top 15% by persons unconnected with the conference or the journal, and whose names are withheld to preserve their anonymity.

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ABSTRACT

This paper makes the case for the adoption of learning communities as an educational pedagogy for information systems programs. The need for paying attention to pedagogy is addressed / explored and the need for significant learning experiences for tomorrow's information systems professionals is posited. The nature of learning communities is discussed and the benefits of employing learning communities as an educational pedagogy are examined through a brief discussion of the research on educational effectiveness. The experiences employing a learning community pedagogy at Quinnipiac University are related, and possible future directions for the employment of the learning community pedagogy at Quinnipiac University are presented. It is shown that the use of learning communities at Quinnipiac University has successfully created communities of engagement which are moving our students in the direction of acquiring the significant learning experiences desired for tomorrow's information systems professionals.

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1. INTRODUCTION

Efforts to develop model curricula in Information Systems historically have placed heavy emphasis on "what" should be taught in various courses or learning modules, but little attention has been given to the pedagogical issue of how best to deliver the course content to maximize student learning. In teaching courses in information systems it is also very desirable to address larger in scope societal and educational issues such as the shortage of an adequate number of students entering the information systems profession and the need to use information in a socially responsible manner. The use of a Learning Community paradigm in the teaching of Information Systems has the potential to foster the development of information systems professionals who possess the skill set necessary to succeed in the information systems field while simultaneously addressing the shortage of information systems professionals who also understand the civic responsibility associated with being educated corporate and community citizens.

2. THE NEED FOR "SIGNIFICANT" LEARNING

One of the initial tasks teachers face when designing a course is deciding "what" they want their students to learn. Students will always learn something, but good teachers want their students to learn something important or significant, rather than something relatively insignificant. This leads to a question that is central to the entire teaching enterprise: What are the ways in which learning can be significant? If we can develop a conceptual framework for identifying the multiple ways in which learning can be significant, then teachers can decide which of the various kinds of significant learning they want to support and promote in a given course or learning experience.

The most common taxonomy of educational objectives was developed by Benjamin Bloom and his associates (Bloom, 1956). This cognitive taxonomy consists of six kinds of learning that are arranged in a hierarchical sequence, from highest to lowest, as follows: Evaluation, Synthesis, Analysis, Application, Comprehension, Knowledge (recall).

There is no questioning the value of Bloom's taxonomy. Teachers have used this taxonomy both as a framework for formulating course objectives and as a basis for evaluating student learning for close to half a century – any model that withstands the test of time and commands this type of respect is truly extraordinary. However, individuals and organizations involved in higher education are expressing a need for important kinds of student learning that do not easily emerge from Bloom's taxonomy – for example; learning how to learn, leadership and interpersonal skills, ethics, communication skills, character, tolerance, the ability to effectively adapt to change, etc.

L. Dee Fink (2003), Director of the Instructional Development Program at the University of Oklahoma and past-president of the Professional and Organizational Development (POD) network (the largest faculty professional development organization in North America), has suggested that what those in higher education are expressing is a need for new kinds of learning, learning that goes well beyond cognitive learning itself. Fink posits the needs for a broader taxonomy of "significant learning" to address these new learning objectives as follows:

1) Foundation Knowledge – understanding and remembering facts and ideas;

2) Application – acquiring skills, creative and critical thinking, managing projects;

3) Integration – connecting ideas, people, and realms of life;

4) Human Dimension – learning about oneself and others;

5) Caring – developing new feelings, interests, and values; and

6) Learning How to Learn – becoming a better student, inquiring about a subject, self-directed learners.

Fink's taxonomy defines learning in terms of change – i.e. for learning to occur, there has to be some kind of change in the learner. For Fink, "significant" learning *requires* that there be some kind of *lasting* change that is important in terms of the learner's life.

3. THE NATURE OF LEARNING COMMUNITIES

Perhaps the paradigm that holds the most potential to foster significant learning is the use of learning communities. In higher education, curricular learning communities are classes that are linked or clustered during an academic term, often around an interdisciplinary theme, and which enroll a common cohort of students. A variety of structural approaches are used to build these learning communities, all of which are intended to restructure the students' time, credit, and learning experiences to build community among students, between students and their teachers, and among faculty members and disciplines. The three general types of learning community structures are as follows:

1. Student Cohorts / Integrative Seminar
   Learning communities can be structured as programs in which a small cohort of students enrolls in larger classes that faculty do not coordinate. In this instance, intellectual connections and community-building often take place in an additional integrative seminar.

2. Linked Courses/Course Clusters
   Learning communities may involve two or more classes linked thematically or by content which a cohort of students takes together. In this instance, the faculty do plan the program collaboratively.

3. Coordinated Study
   Learning communities may involve coursework that faculty members team teach. The course work is embedded in an integrated program of study.

These three typologies are broad categorizations along a spectrum of learning community activities. Dozens of adaptations of these types exist to fit the needs of specific colleges and universities.

Learning communities are found at all types of colleges and universities. Most programs are developed for first year students, but there are also learning community programs established as alternative general education pathways, and in both minor and major studies.

Goals and practices associated with learning community programs typically include the following:

- Community –
  - o Experience/understanding of the learning community (teachers and students) as a community … the focus is on "learning to learn in community"
  - o Some programs include study of and participation in a wider community; through engagement in community-based and/or service-learning experiences, reading, and discourse about community within a diverse society;
- Curricular connections and integration of ideas across disciplines; that is, connected knowing;
- Collaboration – learning team-work skills in meaningful contexts;
- Linking Theory with Practice –
  - o Occasions for demonstrating the ability to use concepts and ideas, not simply to have them
  - o Occasions for students to make the learning their own, through opportunities for applications and reflection
  - o Reflective practice and synthesis; occasions for explicitly drawing the pieces into the whole
  - o "Now pull all of the pieces together. What did you learn, and what sense do you make of it now? What stands out as important?
  - o "How did you go about learning in this program? What have you learned about yourself as a learner?"
  - o So what is the importance of all of this? What will you take forward from this experience?

4. WHY SHOULD WE HAVE LEARNING COMMUNITIES?

The role of community in the learning process has been well documented [Astin (1987), Boyer (1987), Palmer (1999), Brook (2003)], and the body of research is now solidly in support of learning communities as an effective pedagogy [Gabelnick (1990), Cross (1998), Tinto (2003), Smith (2004), Laufgraben (2004)]. In particular, the following research results have been well documented:

- In a variety of institutional settings and in a number of forms, learning communities have been shown to increase student retention and academic achievement, increase student involvement and motivation, improve students' time to degree completion, and enhance student intellectual development.

- Students involved in learning communities become more intellectually mature and responsible for their own learning and develop the capacity to care about the learning of their peers.

- Faculty members involved in learning communities that facilitate cross-faculty collaboration are expanding their repertoire of teaching approaches, continually revising their course content, and acquiring new scholarly interests. Learning community faculty members are also building mentoring relationships with each other and are more frequently engaging with beginning students and general education course offerings.

- Institutions use learning communities as sites for testing out new curricular approaches and strategies for strengthening teaching and learning.

- Learning community programs offer more coherent opportunities for the teaching of literacy skills, such as read-

ing, writing, and speaking, and provide for more coherent pathways for students to engage in the general education curriculum. They also offer a robust way to address interdisciplinary ideas and offer a more coordinated platform for study in the major. Partnerships between student and academic affairs divisions are strengthened as these organizations work to develop and maintain learning communities and these programs are a relatively low cost method for accomplishing all of the above.

• Learning community programs also address a variety of societal issues such as the increasing fragmentation of information and student alienation toward participation and engagement. With an emphasis on interpersonal dialogue, collaboration, and experiential learning within the context of diversity, these programs address a decreasing sense of community and connection in society in general and allow students to relate their college-level learning to larger personal and global questions.

Thus, research results indicate that the adoption of learning communities can effectively lead to the significant learning goals proposed by Fink.

5. LEARNING COMMUNITIES AT QUINNIPIAC UNIVERSITY

Learning Communities in the Information Systems Management program at Quinnipiac University have thus far been incorporated in ISM 101, Introduction to Information Systems, which has been paired with two other courses, SB 101, The Business Environment, and SB 111, Personal Effectiveness. The same student cohorts are in the same class sections for all three courses. Additionally, the SB 101 course involves a business simulation in which students form teams / companies to compete in a target market. These same student teams are preserved for group activities and projects in ISM 101.

Common assignments have been developed for each of the three courses which build on the topics covered in the other two courses – in fact, course outlines are very carefully crafted to follow an explicit time sequence. The use of the Blackboard course management system has greatly contributed to the

standardization of course topics and course time sequences for the various sections of all three courses. For example, student groups develop their marketing plan as part of their SB 101 course, and they produce both (1) a PowerPoint presentation in ISM 101 to present their marketing plan and (2) web pages using FrontPage in ISM 101 to support the e-commerce portion of their marketing plan. This use of this "problem-based learning" approach within the learning community paradigm allows students to work through real or simulated issues related to the learning goals of the courses, to strengthen their ability to collect and analyze data about business marketing issues, to propose alternatives to solve their simulated business problems, and to arrive at team-based solutions. This problem-based learning approach underscores the trans-disciplinary nature of most business problems and is employed in conjunction with group learning activities.

Over the course of the initial college semester students have developed both self-confidence and a social energy fostered by membership in their learning community, a confidence and social energy which was brought into the classroom resulting in ever-improving academic performance. Faculty members have seized this opportunity to incorporate that membership and social energy into their teaching. Collaborative group projects which transcended traditional course boundaries have provided teams of students the opportunity to learn actively, through shared discovery of knowledge. This collaborative learning approach allows students to create new knowledge together, while students involved in formal cooperative learning in-class exercises have searched together for pre-set "right" answers to problems or questions.

Learning communities have also involved reading and critical discourse about the issues of a diverse society; in particular, issues of ethics and social responsibility have been addressed much more effectively than by using simple, stand-alone individual assignments. Writing to Learn (WTL) prompts have been incorporated into the content of the course reading assignments, after which students share with their teammates their answers to these prompts. This has led to a much more heightened sense of social responsibility associated with the use of information systems. Writing and speaking

across-the-curriculum have thus emerged as fundamental components of our learning communities because these interdisciplinary experiences have allowed course instructors to demonstrate the critical nature of communication skills both across courses and in situations outside the traditional academic experience. In fact, learning communities, particularly for first-year students, are typically writing and/or speaking intensive in keeping with the primary goals of most undergraduate curricula.

The use of learning communities has had the effect of fostering "learning to learn" as a social act. On the metacognitive level, students have discovered that learning is more effective and ultimately more enjoyable as a group activity, which has made for much more productive and higher quality student assignments. Ongoing reflection has emerged as an essential component of our successful learning communities because these reflections provide for the time, space, instruction, and encouragement students often need to examine what they have learned, how they have learned it, and how that learning might be applied/transferred to other situations. Reflective learners who are consciously able to draw on past experiences are more efficient, confident, and effective learners. Metacognition allows students to examine what they have learned and to draw inferences about that learning's applications elsewhere. These metacognitive activities, which are experiential opportunities to bring students to a reflective mode of thinking, combine the thoughtful self-evaluation of reflective learning with active learning approaches, such as problem based learning and simulations.

Finally, the courses depend heavily on student self-evaluation activities as part of the assessment process, thereby placing the onus for determining levels of success or failure in a particular activity on the actual student engagement in that activity. Self-evaluation activities can be as simple as a one-minute paper that asks, "what worked, what didn't, what next" to the multi-term student portfolios being developed in SB 111, Personal Effectiveness.

6. CONCLUSIONS AND FUTURE DIRECTIONS

The initial learning community effort in the Information Systems Management program at Quinnipiac University holds much promise in the efforts to enhance student learning, but much more can be done on this front. The next step, scheduled to occur in the Fall 2006 semester, involves developing much stronger mutually reinforcing assignments in current learning community courses. By doing so courses can be effectively removed from their academic "silos" and students can be given activities that allow them to see how the subject matter of courses relate to other courses.

There exist other opportunities to employ learning communities in the sophomore and junior and senior years of the Information Systems Management program. In particular, cohort groups of students can take ISM 270 E-Business Systems and ISM 370 Systems Analysis and Design in the spring of their sophomore year, ISM 210 Advanced Programming and ISM 301 Hardware & Software in the fall of their junior year, and ISM 351 Database Programming and Design and ISM 330 Networking and Telecommunications in the spring of their junior year. Assignments can be carefully crafted to allow the paired courses to mutually reinforce each other, thus providing a much stronger academic program to our students. Moreover, the respective learning communities will travel as a cohort through courses in three consecutive semesters thus providing the community experience that is so essential to effective student learning.

In higher education in general, and in information systems education in particular, there has always been a grand vision to build communities of engagement and create teaching and learning environments that enable students to become competent citizens. However, reality has not always matched this vision. The learning community movement developed from a democratic belief that all students have the right to succeed. It has empowered educators to see their classrooms and their roles in new ways, and it continues to offer one of the most adaptive solutions to many of the critical issues facing higher education today and in the future

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