Mack Center Fellowship Proposal: Social Presence in Distance Education

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Introduction

The evolution in higher education from traditional to computer-mediated education creates challenges and opportunities for educators and researchers. The technical options beyond traditional site-based courses range from supplementing those courses with technological enhancements such as using email to communicate with students and using Oncourse to post course materials, to total asynchronous Internet-based course delivery. In the Campus Computing Survey, an annual survey of university information technology officers, Green reports that helping faculty to "integrate technology into instruction" is the top priority on campuses (2001, p.2). Further, Green finds that one-fifth of all college courses utilize technology for course management. Even as distantly as eight years ago, the growth of the Internet and computer-mediated communication was described as "explosive" (Gunawardena, 1995, p. 147). Evidence of this growth is seen in current Indiana University online course offerings. Forty-six departments or schools (in addition to the School of Continuing Studies) are listed on the IU Online and Distance Education website (Indiana University, 2003) as offering online courses. In fact, entire degrees may be earned online at Indiana University. Of the following degrees, each is taught asynchronously, with no site-based visits required: the high school diploma, the bachelor's in general studies, the bachelor's in labor studies, the master's in instructional systems technology, the master's in language education, and the master's in music technology (Indiana University, 2003). Available from Indiana University mainly through distance learning but with some site-based meetings are the master's in adult education, the MBA, and the master's in strategic management (Indiana University, 2003). The abundance of web-based courses and accredited degree programs demonstrates the importance of developing our understanding of the many complex features of distance education. *The purpose of this research proposal is to understand one aspect of online courses, social presence. Social presence, discussed more thoroughly below, is selected as a means to investigate online course delivery because, as Rourke, Anderson, Garrison, and Archer wrote, "social presence supports cognitive objectives through its ability to instigate, sustain, and support critical thinking in a community of learners" (1999, p. 52).*

Statement of the Problem

While the increase of computer-mediated education has been rapid, enthusiasm among educators has been mixed. Questions about the soundness of the pedagogy of online education arise. At the forefront for some educators are concerns about accreditation, which at present applies current standards for traditional courses to online courses (Benson, 2003). Certainly, Indiana University and IUPUI are strongly committed to excellence in teaching, as seen in the national recognition each has received. Indiana University was recognized by *TIME* magazine as 2001 College of the Year Among Research Institutions, and IUPUI has received honors for its innovations in undergraduate education (*Advancing Indiana*, 2003). What are the criteria, however, by which excellence in education should be judged? A review of the Scholarship of Teaching and Learning literature in a variety of disciplines reveals several relevant perspectives.

Selected Perspectives on Educational Excellence

A classic in the literature on educational excellence is Chickering and Gamson's *Seven Principles for Good Practice in Undergraduate Education* (1987). The seven principles are contact between students and faculty, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning (1987, p.3). More recently, research has been conducted on student engagement, developing Chickering and Gamson's seven principles into measurable variables and evaluating colleges across the country. Students have been surveyed about behavior such as contributing to class discussions, making class presentations, participating in community-based projects as part of course

work, working harder than they thought they could to meet an instructor's standards, and critical thinking skills, to name a few (Kuh, 2002).

Constructivism contributes the viewpoint that the instructor is a facilitator and the learner is an active constructor of new knowledge (Dewey, 1916; Piaget, 1973, Vygotsky, 1978; Bruner, 1996; and Ornstein and Hunkins, 1998). Bringing constructivism into the dialogue about online education, Huang (2002) articulates three issues for consideration by the online educator with a constructivist perspective. One, the distance created by the online learning environment suggests concerns of humanity and isolation for the learner. Two, online learners should be supported in influencing the quality of their learning through active participation. Three, the online educator should envision his or her role one more fitting with andragogy, or the "guide on the side," by providing resources, guidance, and consultation (Huang, 2002, p. 31).

From the field of communication education comes the concept of *teacher immediacy behavior*, based on Mehrabian and Wiener's early work in psychology (1968). Immediacy can be defined as the amount of "perceived physical and/or psychological closeness between people" (Christophel, 1990, p. 325). Smiling, having a relaxed body posture and position, speaking to the students rather than to the chalkboard, using humor, and modulating the voice are examples of teacher immediacy behaviors. Some research links teacher immediacy behaviors with positive student learning outcomes (Kearney, Plax, and Wendt-Wasco,1985; Gorham, 1988).

Immediacy behaviors proved a fruitful intellectual ground, giving rise to the concept of *social presence* as first identified by social psychologists Short, Williams, and Christie (1976). Social presence is "the degree to which a person is perceived as a `real person' in mediated communication" (Gunawardena, 1995, p.151). The more salient the other person in the interaction, the higher the degree of social presence. Immediacy increases social presence (Gunawardena, 1995). Considering computer mediated communication, Jones asks if it could "perhaps produce `real' social relationships in a 'virtual' medium?" (1995, p. 14). Gunawardena reports that studies of social presence and computer mediated communication have shown that "despite the low social bandwidth of the medium, users of computer networks are able to project their identities whether `real' or `pseudo,' feel the presence of others online, and create communities with commonly agreed on conventions and norms …" (1995, p. 151). Her own study found that students in computer mediated conferences were able to "create social presence by projecting their identities and building online communities" (Gunawardena, 1995, p. 163). Educators can use the concepts of social presence to develop effective learning environments, both through the activities they structure for the course and through the protocols they require for student communication. Research to consider the effectiveness of different educational strategies in different educational environments, however, should be examined.

Site-Based Vs. Web-Based Comparison Studies

How well do these perspectives on effective educational strategies translate from site-based to web-based environments? Skepticism about the ability of a web-based class to use the principles from the above list of educational perspectives and techniques abound in many fields, including my own field of social work. There is no lack of research in the area, with the *No Significant Difference Phenomenon* (Russell, 1999) defining an early direction of research. Russell examined hundreds of studies comparing the use of increased technology to traditional instruction, and found, overall, no significant difference in educational effectiveness. Roundly criticized by some (Phipps and Merisotis, 1999), and supported by others (Brown and Wack, 1999), Russell's work is of less interest currently because the research question of whether there is a significant difference between classes taught with more technology and those without is not seen as making much of a contribution to the literature.

Instead, many researchers have posited that comparing student satisfaction in site-based versus web-based courses is the important research question. Allen, Bourhis, Burrell, and Mabry reviewed 24 comparison studies and found "little decline in student satisfaction with the quality of the educational process" (2002, p. 91). Schoech and Helton (2002) studied a site-based and web-based course, taught with the same instructor at the same time, and found the same or better levels of satisfaction for the web-based course. Mama (2001) compared students' attitudes regarding a site-based and a web-based (with three face-to-face meetings) class, and found that the students in the web-based class felt it was more personal than site-based courses they had taken before. Students also reported that the web-based course required them to take more personal responsibility for their learning. In her review of the literature, Swan (2002) reports the findings that students perceive online discussions as more equitable and more democratic than traditional classroom discussions.

Some researchers call for a direction beyond student reports of satisfaction, however. Cauble and Thurston instead ask for research to "tell us which of these technologies is most effective under what circumstances and with whom" (2000, p. 428). Jaffee (2003, p. 227) states that the important questions in studying web-based learning are:

> "What are the relationships between the technical, the social, and the pedagogical infrastructures? How has the introduction of new instructional technologies influenced established pedagogical practices? How does the shift from a physical classroom to a virtual learning environment shape and reconfigure the social roles and relations among faculty and students? What consequences will these technologies have for developing pedagogical practices?"

The physical environment in the site-based classroom, with desks or tables and a chalkboard, is the normative social structure in higher education (Jaffee, 2003; Scott, 1987). The social roles derived from this physical set-up, both the roles between students and faculty and the roles among students, may be altered in a distance learning environment (Jaffee, 2003). The asynchronous, self-stimulating, overlapping communications in discussion groups and chatrooms may inhibit the amount of control an instructor can exert in a web-based class, leading to "instructor and student roles and relations [that] are less hierarchical and more overlapping and interactive … [with] a greater diversity of student opinion and perspective" (Jaffee, p. 231).

Rationale for Study

The purpose of the study is to examine the social presence aspect of an online class, in order to better understand how to construct an excellent, engaging online teaching/learning environment.

When Gunawardena wrote of the "explosive" growth of the Internet and computer-mediated communication, eight years ago (1995, p. 147), a social work educator wrote that faculty should consider using email to communicate with students and should teach students to use email with others (Flinn, 1995). While email has since been accepted, social work educators have been reluctant to embrace total web-based course delivery (Mama, 2001; Sandell and Hayes, 2002). Concerns about social work's strict accreditation standards and costs may have raised barriers early on, but faculty seem to have misgivings about the difficulties of teaching practice skills, facilitating group work, and establishing mentoring relationships with students (Mama, 2001; Sandell and Hayes, 2002). However, the need for distance education in social work is crucial, especially in Indiana. There are only 16 accredited schools of social work in Indiana, which graduated under 300 baccalaureate-level social workers in 2000 (Lennon, 2001). At the master's level, Indiana University offers MSWs at IUPUI, IU South Bend, and IU Northwest; the University of Southern Indiana in Evansville also offers an MSW degree. The rural parts of the state in particular struggle to fill both bachelor's and master's social work positions. With so few programs, and the programs spread across the state, agencies have difficulty hiring educated employees or sending current employees off to campuses

to earn their degrees. Web-based classes would help meet the educational needs of social service employees in Indiana; faculty meetings at the School of Social Work in the past two years have emphasized the importance of offering online courses.

In 2003 I was awarded an Indiana Higher Education Technology (IHETS) grant to develop two online child welfare modules with the Ball State School of Social Work, due to my commitment to make educational opportunities more accessible. Those modules will go online in the summer of 2004, and are targeted toward students as well as family case managers at the Division of Family and Children and others working in child welfare. As more social work faculty rise to the challenge of educating the workforce, however, what must not be left behind are the high educational standards of engagement, activity, and social presence.

Research Objectives

Consistent with the purpose of this research proposal, my research objectives are:

- To examine students' perceptions of social presence for both online and face-to-face classes, particularly comparing classes in which students are familiar with the faculty and those where this is not the case
- To examine social presence, as expressed through discussion groups and chatrooms in online classes
- To examine the relationship between student interaction in discussion groups and student perceptions of social presence
- To examine the relationship between course activities which students perceive to have high levels of social presence, and those which students perceive to have high levels of learning
- To understand what aspects of the above factors contribute to excellent online classes

Research Methodology

I will teach two sections of S442, Practice Policy Seminar in Children and Families, in Spring of 2004, both as asynchronous web-based classes. One section will consist of Bloomington seniors whom I have taught for four courses in three semesters before S442. The other section will be made up of Indianapolis seniors who have never met me.

Monique Busch, doctoral student in social work at IUPUI, will teach the same S442 in Indianapolis during the same semester, in a traditional site-based format. Ms. Busch has worked very closely with me to develop the S442 course, and lends particular expertise having taught the course before. Both site-based and web-based courses will be taught as similarly as possible – the same lectures, the same assignments, the same case studies, the same discussion topics, the same guest lectures (mine will be delivered online through videotaping, hers will be live), the same evaluation methods, and so on.

The S442 online and face-to-face sections will be compared to each other and to S371, Social Work Research, and S472, Practice Evaluation. S371 is a course I teach face-to-face in the fall of 2003, with juniors who have not met me before. S472 is a course I teach face-to-face in the fall of 2003 with seniors who will be taking S442 in the spring. Being able to compare students' perceptions of social presence in courses I am teaching both face-to-face and online, with students who know me and with those who do not, will make for a richly detailed comparison. The purpose is not to compare online to face-to-face in order to find out which is better, but rather to use the comparisons as rich sources of information.

Data will be gathered through three methods (available upon request):

1. Questionnaire on perception of social presence (Richardson, 2003).

Richardson's survey is an adaptation of Gunawardena's (1995), and asks questions such as, "This activity enabled me to form a sense of online community;" "The instructor created a feeling of online community during this activity;" "I felt comfortable interacting with other participants in this activity;" and, "I was able to form distinct individual impressions of some course participants during this activity."

2. Counts of participation in online and face-to-face discussion groups, and content analysis of online discussions (Rourke, et al., 1999).
   Rourke, et al., conducted a study of a content analysis of social presence of computer mediated communication, and developed three categories of social presence: interactive responses ("indices of threaded interchanges combined with messages of a socially appreciative nature," p. 56), affective responses ("expressions of emotion, feelings, and moods," p. 57), and cohesive responses ("exemplified by activities that build and sustain a sense of group commitment," p. 59).
3. Interviews with student volunteers (Richardson, 2003).
   Open-ended questions from Richardson's survey will be used as interview prompts. Examples are, "How much did you feel like you were a part of a group in this course?" "How much did you feel like you could share your feelings in this course?" " How much did you feel like you were able to learn about other people's feelings in this course?"

Student surveys will be conducted a week before the semester is over, and will be optional and anonymous. Interviews will take place when the semester is completed and grades are turned in. Data collection, then, will take place in December 2003 through May 2004. The Institutional Review Board at IUPUI has approved this study as an exempt study.

Social work seniors are a fertile group for such a research collaboration. As second-semester seniors, they have generally experienced the normative classroom style found in social work education. The "Seven Principles," the classroom of engagement, social constructivism, and high teacher immediacy behaviors tend to be what social work majors expect from their professors, in their small classrooms with the emphasis on group projects, discussion, field work, and respect for diversity. Students have high expectations for social presence, both from faculty and from peers. In addition, they have higher rates of ethnic diversity than the general IU student population. Seventeen percent of the Bloomington senior class identify as students of color, and 17% of the Indianapolis seniors also identify as students of color. Overall, I expect social work majors to be excellent evaluators of social presence. Their judgments will be a useful guide for the understanding of social presence as a construct in the development of effective online courses. Social work seniors can make a valuable contribution to the understanding of social presence in any discipline through their critical evaluations of the online course.

Conclusion

I believe the dissemination of the results of this project will be of interest both at Indiana University and to the field of social work education. The pressures to produce online courses and the need to understand how to translate excellence in site-based to excellence in web-based pedagogy are clear and present demands. Research on social presence in online courses will contribute to the Scholarship of Teaching and Learning. Because of my strong interests in teaching, in teaching online, and in studying teaching, this project combines three passions into one and will allow me tremendous growth as a teacher-scholar. I am also applying for a Grant-in-Aid for Research from the Office for Professional Development in order to hire assistants to help with coding and data analysis for this project. My long-term goal is to apply for a federal grant from the Fund for the Improvement of Post-Secondary Education (FIPSE) to help the School of Social Work develop a center for online education. I hope to be able to engage other social work faculty in much-

needed dialogue with this research as a foundation, so that together we can build the appropriate technology for our field and for Indiana University.

References

Advancing Indiana. 2003. Retrieved 10-9-03. http://www.indiana.edu/~iua2z/c.shtml.

Allen, M., Bourhis, J., Burrell, N., & Mabry, E. (2002). Comparing student satisfaction with distance education to traditional classrooms in higher education: A meta-analysis. *The American Journal of Distance Education, 16*(2), 83-97.

Benson, A.D. (2003). Dimensions of quality in online degree programs. *The American Journal of Distance Education, 17*(3), 145-159.

Brown, G. & Wack, M. (1999). The difference frenzy and matching buckshot with buckshot. *Critical Reading, May/June.* Retrieved 10-8-03. http://ts.mivu.org/default.asp?show=article&id=459.

Bruner, J.S. (1996). *Toward a Theory of Instruction.* Cambridge, MA: Harvard University Press.

Cauble, A.E. & Thurston, L.P. (2000). Effects of interactive multimedia training on knowledge, attitudes, and self-efficacy of social work students. *Research on Social Work Practice,10*(4), 428-437.

Chickering, A.W. & Gamson, Z.F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*(7), 3-7.

Christophel, D. (1990). The relationships among teacher immediacy behaviors, student motivation, and learning. *Communication Education, 39*, 323-340.

Flinn, J. (1995) Use of electronic mail to promote computer literacy in social work undergraduates. *Journal of Teaching in Social Work. 12*(1/2), 73-83.

Dewey, J. (1916). *Democracy and Education.* New York: The Free Press.

Gorham, J. (1988.) The relationship between verbal teacher immediacy behaviors and student learning. *Communication Education, 37*, 40-53.

Green, K. (2001). eCommerce comes slowly to the campus. *The Campus Computing Project* (October). Retrieved 10-10-03.
http://www.campuscomputing.net/pdf/2001-CCP.pdf.

Gunawardena, C. (1995). Social presence theory and implications for interaction and collaborative learning in computer conferences. *International Journal of Educational Telecommunications, 1*(2/3), 147-166.

Gunawardena, C. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *The American Journal of Distance Education, 11*(3), 8-26.

Huang, H. (2002). Toward constructivism for adult learners in online learning environments. *British Journal of Educational Technology. 33*(1), 27-37.

Indiana University. (2003). *IU Online and Distance Education.* Retrieved 10-12-03. http://www.iuonline.iu.edu/de/degrees.html.

Jaffee, D. (2003). Virtual Transformation: Web-based technology and pedagogical change. *Teaching Sociology,31,* April, 227-236.

Jones, S.G. (1995). *Cybersociety.* Newbury Park, CA: Sage.

Kearney, P., Plax. T., & Wendt-Wasco, N. (1985). Teacher immediacy for affective learning in divergent college classes. *Communication Quarterly,3*(1), 61-74.

Kuh, G.D. (2002). The national survey of student engagement: Conceptual framework and overview of psychometric properties. Retrieved 10-5-03. http://222.indiana.edu/~nsse/html/2002_NSSE_report/html/conceptual_1.htm.

Kuh, G. and Vesper, N. (1999). Do computers enhance or detract from student learning? *Research in Higher Education(42)*, 87-102.

Lennon, R. (Ed.) (2001). *Statistics for Social Work Education in the United States: 2001.* CSWE.

Mama, R.S. (2001). The classroom or the Internet? Student experiences and research results of a supervision in social work class. Unpublished paper. Retrieved 10-9-03. http://www.cosw.sc.edu/conf/tech/2001/abstracts/PDFs/Mama.pdf.

Mehrabian, A. (1969). Some referents and measures of nonverbal behavior. *Behavior Research Methods and Instrumentation, 1,* 203-207.

Ornstein, A.C. & Hunkins, F.P. (1998). *Curriculum: Foundations, Principles, and Issues*. (3rd ed.) Needham Heights: Allyn and Bacon.

Piaget, J. (1973). *To Understand Is to Invent: The Future of Education.* New York: Grossman.

Phipps, R. & Merisotis, J. (1999). What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education. A Report from the Institute for Higher Education Policy, April 1999. Retrieved 10-11-03. http://www.ihep.com/Pubs/PDF/Difference.pdf.
Richardson, J. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7,* 1. Retrieved 7-11-03. http://www.aln.org/publications/jaln/v7n1/pdf/v7n1)richardson.pdf.

Rourke, L, Anderson, T., Garrison, D.R., & Archer, W. (1999). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education,14*(2), 50-71.

Russell, T. (1999). *No Significant Difference Phenomenon (NSDP).* Raleigh, NC: North Carolina State University.

Sandell & Hayes. (2002). The web's impact on social work education: Opportunities, challenges, and future directions. *Journal of Social Work Education, 38*(1), 85-99.

Schoech & Helton. (2002). Qualitative and quantitative analysis of a course taught via classroom and internet chatroom. *Qualitative Social Work, 1*(1), 111-124.

Scott, R. (1987). *Organizations: Rational, Natural and Open Systems.* (2nd ed.) Englewood Cliffs, NJ: Prentice-Hall.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London: John Wiley.

Swan, K. (2002). Building learning communities in online courses: The importance of interaction. *Education, Communication & Information, 2*(1), 23-49.

Vygotsky, L.S. (1978). *Mind in Society.* Cambridge, MA: Harvard University Press.

Walther, J. (1996). Computer-mediated communication: Impersonal, intrapersonal and hyperpersonal interaction. Communication research, *23*(1) 3-43.

Wiener, M., & Mehrabian, A. (1968). *Language within language: Immediacy, a channel in verbal communication.* New York: Appleton-Century-Crofts.

Indiana University 2004-05
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Project Proposal

The Principles of Undergraduate Learning (PULs) are six broad goals that IUPUI faculty hold for every undergraduate student. While a number of faculty have begun the process of identifying practices which will help students achieve the goals embodied in the PULs, there has been no systematic attempt to demonstrate a direct connection between faculty teaching methods and achievement of the PULs. While numerous pedagogical strategies can potentially help achieve the goals embodied by the PULs, I am particularly interested in the role of classroom discussion. Scholarship of teaching and learning research suggests that student learning (Astin 1985; Kember and Gow 1994) and critical thinking (Garside 1996; Smith 1977) are facilitated through classroom discussion. Previous studies, including my own, have tended to focus on the types of students who participate in classroom discussion along with their reasons for participation and non-participation (See Fritschner 2000, Howard, James, and Taylor 2002, Fritschner 2000, Howard and Baird 2000, Howard and Henney 1998, Howard, Short and Clark 1996).

I have begun a study seeking to demonstrate a connection between the learning goals identified in the PULs and teaching methods in Introductory Sociology courses at IUPUI and IUPU Columbus. I hope to be able to determine whether the amount and nature of classroom discussion, the use of Oncourse, and the use of small group activities, etc. contribute to student learning, or at least student perceptions of their learning, as measured by the PULs. I am devoting my fall 2003 sabbatical semester to the data collection phase of this research.

Along with my research assistant, I am investigating this topic using a triangulation of research methods: (1) non-participant observation of 4 class meetings of each of 9 sections of R100 Introduction to Sociology; (2) interviews with 9 instructors teaching R100 and approximately 20 students enrolled in various sections of the course; and (3) surveys of students enrolled in 16 sections of R100 at IUPUI and IUPU Columbus.

Observation and surveys will enable us to identify the types and amount of interaction occurring in R100 courses. Pretest and post-test surveys will provide a measure of student perceptions of learning gains with regard to the PULs. By including sections of R100 at IUPUI and at IUPU Columbus, I will be able to examine the role of various teaching strategies in achieving the PULs both on a large urban campus with a racially diverse student population and on a small campus with a racially homogenous population.

The data collection phase of this project should be completed in the Fall 2003. During the 2004-05 Mack Fellowship year, the major tasks include (1) data entry of post-test surveys, (2) transcription of interviews, and (3) analysis of survey, interview, and observation data. I also will (4) collect data on the effectiveness of small group discussions in a section of R100 Introductory Sociology which I will be teaching on the Columbus campus. The expected outcome of the project is two peer-reviewed SoTL

publications in academic journals. I will also present the study results locally as well as at regional and national sociology conferences. The Mack fellow stipend will enable me to continue to pay a research assistant and will cover travel costs associated with presenting the study results at professional conferences.

Contribution of Project to the Scholarship of Teaching and Learning

This work will fill a void in the scholarship on classroom pedagogy by (1) examining the link between classroom teaching pedagogies and achievement of liberal learning goals embodied in the PULS, (2) addressing the role of student race in classroom discussion and (3) by moving beyond who does and does not participate to identify learning outcomes that may result from this pedagogical strategy. Scholarship in Teaching and Learning to date, has generated many "best practices," pedagogical ideas and strategies, but has provided much less systematic evidence that such practices and pedagogies result in greater student learning. This project will contribute novel insights in this respect.

Relevance of this Project in My Life as a Teacher-Scholar

This project is a part of my continuing program of investigation in the scholarship of teaching and learning (SoTL). I began doing SoTL research before I knew it was called the Scholarship of Teaching and Learning. I have a significant record of research publication with five peer reviewed SoTL research articles in *The Journal of Higher Education* and *Teaching Sociology* (See attached CV.) I also have nine published teaching related articles (See attached CV) and have made numerous teaching and research presentations at national and regional meetings and within the Indiana University system.

I have focused my professional service in sociology on the Scholarship of Teaching and Learning. For example, I am in the first year of a three year term as Associate Editor of the American Sociological Association (ASA) journal, *Teaching Sociology*. In this role I am responsible for soliciting reviewers and copy-editing all book and video reviews published in the journal. I am also the editor of a forthcoming ASA Teaching Resources Center publication, *Discussion in the College Classroom*, Second Edition. In the summer of 2003, I was an Institute Scholar at the "Opening Lines: Developing SOTL Scholars" institute at Rockhurst University, Kansas City.

This project fits well within my personal research interests and agenda as well contributes to the departmental and campus focus on the PULs at IUPUI.

References

Astin, Alexander W. 1985. *Achieving Educational Excellence.* San Francisco: Jossey-Bass.

Fritschner, Linda M. 2000. "Inside the Undergraduate College Classroom: Faculty and Students Differ on the Meaning of Student Participation." *The Journal of Higher Education* 71:342-62.

Garside, Colleen. 1996. "Look Who's Talking: A Comparison of Lecture and Group Discussion Teaching Strategies in Developing Critical Thinking Skills." *Communication Education* 45:212-27.

Howard, Jay R. and Roberta Baird. 2000. "The Consolidation of Responsibility and Students' Definitions of the College Classroom." *The Journal of Higher Education* 71:700-721.

Howard, Jay R. and Amanda L. Henney. 1998. "Student Participation and Instructor Gender in the Mixed Age College Classroom." *The Journal of Higher Education* 69:384-405.

Howard, Jay R., Lillard B. Short, and Susan M. Clark. 1996. "Student Participation in the Mixed Age College Classroom." *Teaching Sociology* 24:8-24.

Kember, David and Lyn Gow. 1994. "Orientations to Teaching and Their Effect on the Quality of Student Learning." *Journal of Higher Education* 65:58-74.

Smith, Daryl G. 1977. "College Classroom Interactions and Critical Thinking." *Journal of Educational Psychology* 69:180-90.

APPLICATION FOR A
2004-05 MACK CENTER FELLOWS

Creation of an Online Teaching Strategies Inventory

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Abstract

As the first step of a larger research initiative to examine the relationships among student learning styles, teaching strategies, and performance in online courses, this project will survey teaching strategies used in online courses at IUPUI, create and test an instrument to categorize these strategies, and develop a grant proposal for a larger study. Four dimensions will be studied: technology, course structure, assessment, and interaction. The resulting inventory will be used as a measurement tool in both the pilot and larger studies.

Project Purpose and Significance

The purpose of this project is threefold: (1) to complete an inventory of teaching strategies used in online courses at IUPUI and to create an instrument to categorize these strategies, (2) to test the instrument in a pilot study of learning styles and distance courses, and (3) to produce a quality external grant proposal that proposes to use this instrument to examine the relationships among student learning styles, teaching strategies, and performance in equivalent online and classroom-based courses. I am in the beginning stages of a new plan of research to discover what, if any, factors impact student learning in online courses and whether these factors differ for student learning in classroom-based courses. Do students with certain learning styles perform better in online versus classroom courses? Does the method of delivering online content affect student learning? Answers to these questions will provide guidance in directing students to online or classroom-based courses, and in the development of materials for online courses.

I started this line of research because as an instructor of an online course, I am always interested in learning what technologies and methods my colleagues are using in their online courses. I am also interested in what "mental model" they have of the course. Do they view the course as a structured independent study, do they follow a traditional classroom schedule, or do they use some other approach? Does this make a difference to student learning? I believe it is the interaction of the course structure, delivery technologies, and student learning styles that influence student learning. I'd like to test this hypothesis.

While there are an abundance of studies on the impact of student learning styles on achievement in both face-to-face and online courses (e.g. Day, Raven & Newman, 1998; James & Gardner, 1995; Kerka, 1998; Shih, etal, 1998), little work has been done with teaching strategies. This is because various instruments for measuring learning styles exist (VARK, 2001; Kolb, 1985; Kiersey, 2002) but few instruments exist for measuring teaching strategies. Thus this project is a necessary first step in pursuing this new line of research.

Currently ~20% of the credit hours offered by the CPT Department are being delivered online. The situation in other departments is similar. With the new IUPUI Online initiative, these numbers will only grow. An inventory of teaching strategies and online course models would be a great help to instructors who are struggling with developing online course materials to meet these new needs.

In the long run, identification of effective distance teaching strategies would help make course development more efficient by guiding course developers to spend their time and effort in creating content to support proven teaching strategies. A study of the relationships among student learning styles, teaching strategies, and performance in online courses would be of interest to external funding agencies. The NSF Research on Learning and Education (ROLE) Program invites research on learning in educational settings. Having completed a "seed project" that inventories current teaching strategies would increase the likelihood of obtaining such external funding.

Project Plan

To explain how this project fits into my overall research plan, I will first explain the proposed experimental design for the larger study.

The study population will consist of students taking web-delivered courses from IUPUI during a specific semester. Only those web-delivered courses for which a classroom-based equivalent exists will be used. Students in the equivalent classroom-based courses will be included in the study as a control group.

Subjects will be asked to complete a demographic survey and three learning styles inventories. They will be asked to release their final course grade to the investigators. Students will also be asked to complete an end-of-course survey indicating their preference for each teaching strategy employed in the course. For online courses, all instruments will be administered via the web. For classroom-based courses, a mixture of paper and pencil and online instruments will be administered.

Learning styles will be measured along three dimensions: perceptual, cognitive, and affective. The perceptual dimension deals with ways that students take in information. The VARK Learning Styles Inventory (VARK, 2001) will be used for this measure. The cognitive dimension, which includes information-processing modes, will be measured using Kolb's Learning Styles Inventory (Kolb, 1985). Kiersey's Temperament Sorter II (Kiersey, 2002) will be used to measure learning styles along the affective dimension. This dimension covers personality aspects related to attention, emotion and valuing. (James and Gardner, 1995) These particular instruments were chosen because they are all widely used, most have been validated, and all are available online.

No equivalent instruments exist for categorizing teaching strategies. Creating such an inventory is one of the goals of this project. The activities to complete this step include:

1. A sample of 20 online courses will be selected from all online courses offered at IUPUI during the Spring 2003 semester. Permission will be sought from the instructors of record to use the course in this study.
2. All published course materials will be reviewed and data will be collected along four dimensions: the technologies used, the course structure, assessment methods and interaction modes.
3. Structured interviews with the instructors of record will be conducted to identify their mental model for the course.
4. Content analysis will be conducted to identify categories within each dimension. These categories will form the basis for the Teaching Styles Inventory.
5. The resulting Teaching Styles Inventory will be tested against another sample of 10 online courses.

Part of this work has been started under a Summer Research Fellowship. It is about 50% complete. This fellowship will allow me more time to complete this work and continue on to the other goals of the project.

The second goal of this project is to conduct a pilot study using one or two web-based course sections, to further test the instrument and examine the feasibility of a larger study.

The final goal of this project is to develop a grant proposal to obtain external funding to conduct the larger study of student learning styles and teaching strategies. The Teaching Strategies Inventory developed in this project will be one of the instruments used in the larger study.

Dissemination

The first end product of this project will be the Teaching Strategies Inventory, which will initially be evaluated by using it to categorize teaching strategies in a sample of 10 online courses. Further evaluation of the Teaching Strategies Inventory will be done by using it in a pilot study of learning styles and online courses. These results will be disseminated through publication in a journal directed towards distance learning, such as *Distance Education*, The *American Journal of Distance Education* and *T.H.E. Journal.*

Another end project of this project will be an external grant proposal. Initial evaluation will be done by working with the Office of Professional Development to refine the proposal. Final evaluation of the proposal will be conducted by the funding organization it is submitted to. Successfully obtaining external funding will be the best measure of success for this project.

Professional Development Impact

This project is part of a new line of research dealing with various implications of student learning styles and learning. I have previously published a small study comparing the effectiveness of a Web-based tutorial versus classroom teaching. As part of a Faculty Learning Community (sponsored by the Office of Professional Development), I worked on a study looking at the effect of learning styles on performance in distance courses. This project to create a Teaching Strategies Inventory is a necessary step in developing a larger study on learning styles and teaching strategies in distance education.

I expect to obtain external funding to continue work in this area. While I have been successful in obtaining many internal grants, I have not yet been able to secure external funding. Doing so would greatly enhance my professional development. As a newly tenured Associate Professor, I hope to use this project as a first step in building a national reputation in learning styles and distance education, a necessary condition for future promotion.

References

Day, T.M., Raven, M.R. and Newman, M.E.. (1998). The effects of world wide web instruction and traditional instruction and learning styles on achievement and changes in student attitudes in a technical writing in an agricommunication course. *Journal of Agricultural Education*, 39(4), 65-75.

Fleming, N. (2001). *VARK – Introduction*. Retrieved February 19, 2002 from http://www.vark-learn.com/introduction.htm

IUPUI Online: A Concept Paper. (2002, March 6). Retrieved January 28, 2002 from http://www.online.iupui.edu/concept.pdf

James, W.B. and Gardner, D.L. (1995, Fall). Learning styles: Implications for distance learning. *New Directions for Adult and Continuing Education*, 67, 19-31.

Kerka, S. (1998). Learning styles and electronic information: Trends and issues alerts. *ERIC Clearinghouse on Adult, Career, and Vocational Education*. Washington, DC: Office of Educational Research and Improvement.

Kiersey, D. (2002). *Kiersey Temperament Sorter*. Retrieved February 19, 2002 from http://www.advisorteam.com/user/ktsintro1.asp

Kolb, D.A. (1985). *Learning Style Inventory*, Boston: McBer.

Shih, C., Ingebritsen, T., Pleasants, J., Flickinger, K. and Brown, G.. (1998). Learning strategies and other factors influencing achievement via Web courses. Distance Learning '98: Proceedings of the 14th Annual Conference on Distance Teaching and Learning. Madison, WI. August 5-7, 1998, 359-366.

Fellowship Application for 2004-05 Mack Center Fellowship

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During the past decade educational institutions at all levels have changed their focus from teaching to learning. Excellence in teaching has historically been judged by the behavior of the instructor, but now effective classroom instruction is likely to be judged by assessing student learning in conjunction with the pedagogue of the instructor. Scholarly teaching should be based on what we know about effective instruction in higher education, but it must also incorporate what we are discovering about how post-secondary students learn in and beyond the classroom. The learning that is occurring outside the classroom is self-directed and self-motivated which offers new challenges to educators interested in exploring the teaching-learning process through the scholarship of teaching and learning.

Students in higher education are held accountable for their own learning, but when students fall short of mastering the appropriate knowledge and skills their instructors are often unsure why the student has failed. Is the failure attributable to the student's academic ability, a lack of effort or ineffective study skills, or inappropriate teaching by the instructor? The focus of this fellowship will be on the contribution of reflection, specifically metacognitive awareness, to student learning in higher education. I will explore the relationship of metacognitive awareness to student learning and the potential impact of classroom practice and technology in facilitating this reflection in college students.

Higher education has always expected that university students take responsibility for their own learning. Instructors trust that students will know how to motivate themselves and choose the appropriate strategies to bring about learning at the level that is required for the academic tasks. But recent research has demonstrated that there is a vast difference between successful and unsuccessful students in their ability to plan and control for their own learning. In the past decade a number of researchers have explored the difference between expert learners and less skilled learners by focusing on the strategies expert learners use to regulate their learning. Pintrich (1995) describes self-regulated learning (SRL) as the "active, goal-directed self-control of behavior, motivation, and cognition for academic tasks by an individual student." (p. 5) Expert learner are experienced in choosing what to learn, where to learn, how to learn, and they have the reflective skills that are critical to assess how well they have mastered the knowledge and skills that will be required for the academic tasks. A more recent field of scholarship has explored this key prerequisite to students regulated their own learning.

An essential ingredient for students to regulate their learning is the ability to monitor their mastery of the tasks at the required levels. Pintrich (2000) compares monitoring to the thermostat of a furnace. When the temperature falls below a specified level the thermostat tells the furnace to turn on the heat; when a learner is confused or does not comprehend what they are studying the monitor tells the learner to regulate their behavior, motivation, and/or cognitive strategies to increase learning. To be effective learners, students must adjust their efforts based on their awareness of their own understanding and the level of difficulty of the upcoming task. Unfortunately, the skill of metacognitive knowledge monitoring is not nearly as automatic as the thermostat in your home. There is a growing body of literature that is demonstrating that expert learners possess this skill while less successful students lack this awareness of their own learning proficiency. In studies of higher education students Tobias and Everson (2002) have found a strong relationship between metacognitive knowledge monitoring and academic

success, “It therefore, may be hypothesized that accurate monitoring of prior knowledge is a prerequisite for the effective self-regulation of learning ... research examining these relationships is urgently needed.” (P.22)

Metacognitive knowledge monitoring (MKM) is the process students use to accurately differentiate between what they know and what they do not know to assist them in regulating their studying as they learn. The appropriate use of MKM allows students to focus attention and other cognitive resources on the material to be learned, thereby increasing their efficiency and increasing the likelihood of successful learning. Students who underestimate their mastery are likely to over-learn the material which will lead to success, but at a cost of time. Students who overestimate their understanding of the material are likely to disengage from learning and fall short of their goal. Tobias and Everson (2000) have developed the knowledge monitoring assessment (KMA) technique which allows researchers to evaluate the difference between learners’ estimates of their knowledge in a particular domain and their actual knowledge as determined by their performance. Using a variety of applications of the KMA, Tobias and Everson have found that knowledge monitoring ability is related to the academic achievement in college students. Students who are effective at assessing their understanding are more likely to be capable of regulating their own learning which increases the opportunity for academic success.

While the KMA research of Tobias and Everson (2000) has demonstrated a relationship between knowledge monitoring and general academic success in higher education, another field of metacognitive research gives an insight into a potential reason for the relationship. Research on college students has found that high achieving students are better at predicting their test scores than low achieving students (Hacker et.al., 2000; Isaacson and Fujita, 2001). These results are particularly revealing of a potential relationship between metacognitive knowledge monitoring, self-regulated learning, and academic success. High achieving students are not only better at predicting their test results, when they are incorrect in their predictions they are more likely to *under*-predict their test scores. Low achieving students are less accurate in predicting their test scores and they are likely to *over*-predict their scores. This suggests a potential metacognitive/self-regulated learning dilemma. When faced with an upcoming test, high achieving students seem to be more likely to *under*-estimate their mastery of the material which leads them to remain engaged in studying, which increases their potential for success on the test. When faced with the same test, low achieving students are more likely to *over*-estimate their mastery of the material which leads them to prematurely disengage from studying, which may explain their poor test performance. This metacognitive mismanagement of time and study efforts is likely to be happening in the dorm, library, or at home where low achieving students are convincing themselves that they understand the material. This may be why, after the test, they tell their instructor, “I don’t know what happened. I knew the information backwards and forwards!”

Higher education possess a unique challenge for studying the teaching-learning process because university instructors typically expect students to do most of their learning outside the classroom. As we experience the paradigm shift from concentrating on the instructor’s behavior to the student’s learning, we must also adjust our focus on learning from inside the classroom to the potential for learning outside the classroom. This challenge can be addressed by the opportunities afforded by technology. When students are studying in preparation for a test they are likely to ask themselves the following metacognitive awareness question, “Do I know the

course material at the level that will be required for the demands of the test so that I can achieve my goals?" This is an important question for students to consider as they prepare for a test. Successful students are likely to have a reservoir of specific strategies they can use to assess their understanding, which will help them to effectively and efficiently regulate their learning. Low achieving students may not even consider the potential advantages of accurately assessing their knowledge as they regulate the time they devote to studying, and their internal metacognitive awareness strategies may be flawed. Technologies such as Oncourse offer the potential to develop resources that students can use any time from any place that has on-line services. This fellowship will explore the potential use of technology to assist students to improve their metacognitive awareness in preparation for college tests.

In post-secondary education students are held responsible for their learning and a great deal of this learning occurs outside the classroom. There is clear evidence that one factor in the success of college students is their ability to monitor their learning and make adjustment to their studying when they are falling short of their learning goals. The challenge of this dilemma is to identify the students who are having metacognitive difficulties and begin the develop strategies that will assist them to monitor their learning. A recent study by Isaacson and Fujita (2003) has shown that metacognitive knowledge monitoring can improve over time, but more work needs to be done to examine which students need the help and what strategies might be used to help them. This fellowship will begin to address these questions:

- Are there individual differences in metacognitive awareness that predict success in college?
- Are probationary university students lacking in metacognitive awareness?
- Is there a metacognitive difference between traditional and non-traditional students?
- What is the relationship of content expertise to metacognitive awareness?
- Can technology be used to facilitate the improvement of student metacognitive awareness?

Goals of the Fellowship

For the past two years I have been exploring the relationship of metacognitive knowledge monitoring to self-regulated learning and academic success in college. During my fellowship I would like to continue to expand my study to explore individual differences in metacognitive awareness including a number of populations that may add significant insights into the antecedents of the relationship. I am particularly interested in exploring the relationship between metacognitive awareness and levels of academic success and experience, such as at-risk students, freshman vs. seniors, and even post-graduate students: Is metacognitive awareness a significant skill in becoming an expert learner? My most recent work (Isaacson and Fujita, 2003) indicates that metacognitive awareness can improve over time and I would like to extend this work to explore how instructors can facilitate this improvement in students. I have talked with Jay Fern at Oncourse and we are interested in exploring the potential application of the new generation of Oncourse to this challenge. As a Mack Fellow I will have access to IU colleagues across the state who may be interested in exploring these questions and field testing Oncourse software.

During the 2002-2003 academic year I developed a Knowledge Monitoring Assessment (KMA) instrument for my educational psychology class and during the summer 2003 I revised the instrument for the 2003-2004 year. This instrument is essentially a vocabulary test of 50 fairly technical words from psychology. Students are asked to identify whether they know, or do not know, each term and are then asked to take a multiple choice test on the terms to determine if

they know each of the words. A student's score on the KMA indicates the accuracy of their assessment of their understanding: high scores on the KMA occur when students are skilled at predicting which words they know *and* which words they do not know; low scores occur when students over-estimate *or* under-estimate their mastery of the terms. During my fellowship I would like to expand my exploration of knowledge monitoring in a number of ways:

- I have developed a KMA for my educational psychology students that is also applicable for general psychology students. The work with my educational psychology students has demonstrated that students can improve their metacognitive knowledge monitoring over the course of a semester (Isaacson and Fujita, 2003) and the next step is to examine if this improvement is due to the metacognitive assistance I am offering in my class through Oncourse and other classroom practices. I plan to compare my Educational Psychology students to students in a traditional Introduction to Psychology class using the new KMA.

- I would like to develop a KMA that is general enough that it can be given to entering college students to explore the differences between a variety of populations of students. The initial population I would want to explore would be the differences between probationary students, regular students, and students admitted to the honors program at IUSB. These students have been admitted based on their high school record: Are there metacognitive differences between these students independent of their previous academic record? One advantage of being a Mack Fellow would be the potential access I might have to students across the Indiana University system. My poster presentation at the 2004 FACET retreat would allow me to identify colleagues that might have an interest in helping me to develop a reliable and valid KMA and give me access to other populations of students on other campuses.

- I am also interested in exploring the differences between traditional and non-traditional college students. It is possible that knowledge monitoring may be related to developmental and motivational differences that are likely to be identifiable in traditional and non-traditional students. Do older non-traditional students have better metacognitive awareness than younger traditional students, and what impact does this difference have on learning?

- I am presently working with an honors student at IUSB who is interested in whether metacognitive knowledge monitoring is domain specific. She is interested in exploring whether senior college students are better at metacognitive knowledge monitoring in their area of expertise (i.e., their major) than they are in other disciplines. I would like to expand her study to include a wider variety of experts. Do post-graduate students have better metacognitive awareness in their field than undergraduate students? I will also solicit volunteers from the faculty ranks to include in this study. The Mack Fellowship will give me access to many FACET colleagues which will allow me to explore the impact of expertise from novices, to undergraduate majors, to post-graduate students, to experienced Ph.D. professors.

- Perhaps the most significant contribution of this Fellowship will be the exploration of teach-ability of metacognitive knowledge monitoring. The data I analyzed this past summer (Isaacson and Fujita, 2003) demonstrates that metacognitive awareness can improve over the course of a semester. The next step is to examine how classroom practice and technology outside the classroom might be used to improve metacognitive knowledge monitoring. I am hopeful that this fellowship will allow me to explore the potential

applications through interactions with colleagues across the IU system. I believe that the significance of metacognitive knowledge monitoring is readily apparent once the concept is presented to expert teachers. At the FACET retreat in May 2002 I made two presentations on metacognitive knowledge monitoring which were well received by both groups. At the retreat FACET colleagues inquired about the application of the concept for their own classes. I am confident that if I receive a Mack Fellowship I will have the opportunity to teach many more colleagues the concepts at the 2004 retreat and discuss how we might apply technology like Oncourse to address this challenge.

Time Line for the Fellowship:

Spring & Summer 2004

My first task in the fellowship will be to begin to develop a general Knowledge Monitoring Assessment (KMA) instrument that can be given to incoming freshmen students. My experience developing my first KMA the past year will be very valuable in doing this work. I have also begun to establish a working relationship with Tobias and Everson. They are interested in my project and helped me with the initial revisions during the summer, 2003.

My second, and more important, task will be to recruit FACET colleagues who might be interested in being involved with this project. The 2004 poster session at the FACET retreat will be a great opportunity to enlist colleagues to assist in two ways: to help me to develop lists of concepts that are discipline specific (for the MKM domain specific study), and to identify colleagues that would be willing to work with me and administer the KMA to their students through Oncourse.

I would also be administering the psychology KMA to my Educational Psychology classes and Introduction to Psychology classes at IUSB. This would help me to begin examining the teach-ability of knowledge monitoring to students.

Fall 2004

During the fall 2004 I would be administering the KMA to a number of groups:

Incoming Freshmen at IUSB and other campuses if I can recruit colleagues who are interested in this project including probationary students (students at IUSB taking U100, a study skills course), regular students, and honors students (students at IUSB taking H100, the honors seminar for freshmen);

Senior Undergraduates at IUSB and other campuses to explore the differences between domain specific experts and novices in a field. This group could also include post-graduate students and even faculty, if I can recruit enough colleagues across the campuses. The post-graduate aspect of the study will depend on my ability to recruit colleagues from campuses with large graduate programs (e.g., Bloomington) since the graduate programs at many of the regional campuses are quite limited. This aspect of the program has great potential but is very dependant upon the enthusiasm of my colleagues and my persuasiveness.

Spring 2005

During the winter and spring 2005, I will do the first data analysis of the data from the fall 2004. During the summer 2004, I will analyze the data comparing my Educational Psychology class and the Introduction to Psychology class to begin to assess the impact of classroom practice and technology (Oncourse) on metacognitive knowledge monitoring. In the winter and spring 2005, I will begin the analysis of probationary, regular, and honor freshmen students; expert senior discipline specific students, and post-secondary students and faculty.

Spring 2004-05 During my fellowship I will be working with Jay Fern and others in Oncourse to develop technology that will support the assessment and training of metacognitive knowledge monitoring. The traditional Oncourse program can be used to assess and support some metacognitive initiatives but the new generation of Oncourse will offer many more options. To create these new initiatives will probably require funding beyond the Mack Fellowship and I am hopeful that during my fellowship I will be able to explore and obtain the needed funding.

Applicant Background

As an educational psychologist I have always been interested in the scholarship of teaching and learning. When I first began my professional life at Indiana University South Bend my focus was primarily on teaching and I believe I have established myself as a quality teacher at IUSB and across the Indiana University system. I was chosen in 1989 to be a member of the Faculty Colloquium on Excellence in Teaching. I have also received numerous teaching awards including the Frederic Bachman Lieber Memorial Teaching Award from IU in the spring of 2003.

My involvement in FACET since 1989 has been quite extensive. I have attended almost all of the spring retreats and many Lilly House functions. I have also served on the planning committee of three FACET retreats. My FACET experience has been extremely instrumental in my professional development and I believe my interactions with members of FACET over many years will assist me in getting the cooperation that will help this fellowship succeed.

My interest in the scholarship of teaching and learning has included attending many conferences on the SoTL and giving support to others who have shown an interest in this field. In 1999 I helped start the *Journal of Scholarship of Teaching and Learning* (JoSoTL) and I have served as the managing editor of this online journal since its inception.

References

Hacker, D.J., Bol, L., Horgan, D.D. & Rakow, E.A. (2000). Test prediction and performance in a classroom context. *Journal of Educational Psychology, 92,* 160-170.

Isaacson, R., & Fujita, F. (2003, October). *The development of metacognitive knowledge monitoring: Can reflection on understanding be improved and can that improvement increase learning.* Presented at the Annual Conference of the Mid-Western Educational Research Association. Columbus, Ohio.

Isaacson, R., & Fujita, F. (2001, April). *The effects of goals, expectations, and self-efficacy on self-regulation and performance in college students.* Presented at the

Annual Conference of the American Educational Research Association. Seattle, Washington.

Pintrich, P.R. (1995). Understanding self-regulated learning. In P.R. Pintrich (Ed.), *Understanding self-regulated learning* (pp. 3 - 12). San Francisco, CA: Jossey-Bass.

Tobias, S. & Everson, H. (2000). Assessing metacognitive knowledge monitoring. In G. Schraw & J. Impara (Eds.), *Issues in measurement of metacognition* (pp. 147-222). Lincoln, NE: Buros Institute of Mental Measurement.

Proposal for Mack Center Fellowship
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Problem and Purpose

It is a truism that motivation is important to learning. While every teacher believes this, nobody has been able to map out the exact linkages between motivation and classroom performance. The best practical advice, that generally can be offered, is that more motivation is better. However, this might not be true. Rather, it might be the case that multiple varieties of motivation exist and that even moderate levels of some varieties may be more adaptive than high levels of others. With the support of the Mack Center Fellowship, I propose to explore one set of factors that bears directly on this issue. This exploration will include an empirical study to examine variants of motivational factors and an intervention to aid struggling students.

One psychological theory concerned with the relation between motivation, learning, and classroom performance is called Achievement Motivation or Goal Orientation theory (Ames & Archer, 1988; Dweck & Leggett, 1988; Harackiewicz, Barron, & Elliot, 1998; Hidi & Harackiewicz, 2000). Goal orientation theory suggests that when students engage in a class, they strive to reach one or more goals. Some students want to satisfy a requirement. Some students are interested in the material. Some have heard that this is an easy class. Goal Orientation theory suggests that two goals are of primary importance: mastery goals and performance goals. Students who adopt mastery goals are interested in learning the material in the class, strive to master that material, and are eager to accept challenge (Ames, 1992; Blumenfeld, 1992; Dweck & Leggett, 1988). Students who pursue performance goals are interested in demonstrating their competence, especially relative to other students, and are averse to challenge (Dweck & Leggett, 1988; Urdan, 1997).

Goal Orientation theory suggests that the adoption of mastery goals is accompanied by a host of adaptive academic behaviors and attitudes such as use of effective learning strategies, the enjoyment of learning, the enjoyment of challenge, persistence, and engagement in learning (Ames, 1992; Blumfeld, 1992; Dweck & Leggett, 1988). The adoption of performance goals leads to more complex outcomes but is sometimes accompanied by a set of maladaptive and irrational academic behaviors such as procrastination, the pursuit of effort minimizing strategies, self-aggrandizing, self-handicapping, task aversion, and learned helplessness (Dweck & Leggett, 1988; Urdan, 1997). When first offered, Goal Orientation theory offered the promise of a potential linkage between motivation and academic performance. Theorists predicted that mastery orientation should lead to adaptive student behaviors which should, in turn, lead to academic success. Performance orientation could sometimes foster poor academic behaviors which would result in poor academic success. These predictions have enjoyed some support in children in laboratory settings (Dweck, 1999). However, they have not enjoyed much support in studies examining the effects of goal orientation in college students. In college samples, goal orientation has frequently been linked to

attitudes and beliefs but not to academic performance. In those few studies that have found any effect on grades, it has not been robust (Bouffard, Boisvert, Vezeau, & Larouche, 1995; Eppler & Harju, 1997; Greene & Miller, 1996; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Harju & Eppler, 1997; Pintrich, Zusko, Schiefele, & Pekrum, 2001).

For the past several years, I (along with colleagues and students) have been examining the effects of goal orientation in Introductory Psychology (P101) students at IUN. We have repeated some of the procedures and analyses used in the archival literature. For instance, we have examined the effects of four varieties of goal orientation in four groups of our students: 1) Students who strongly pursue mastery goals; 2) Students who pursue performance goals. 3) Students who pursue both mastery and performance goals. 4) Students who pursue neither. Our results replicate the archival literature fairly closely. Students who endorse neither goal tend to do poorly on P101 examinations, are more likely to drop the class, and on average receive the lowest grades. In some semesters, students who pursue mastery goals maintain higher examination and course grades than any other group. However, the effect is not consistent and not robust (Hoyert & O'Dell, 1999; 2000a; 2000b; 2001a; 2001b; 2002, 2003).

We have also conducted a new analysis. One theorist (Dweck, 1999) has speculated that the goal orientation effects are altered or amplified during stress or challenge but she has never examined this prediction. We were surprised in the lack of an overall effect and intrigued by the possibility of a different effect following stress. We could identify an obvious and frequent source of stress in our students, failure on an Introductory Psychology examination. Therefore, we examined the effects of goal orientation after failure on an examination. We tracked students to see what happened on the subsequent examination after the failure. Students who endorsed mastery orientation had a 15 point increase on the next examination. Students who pursued performance goals had a 10 point decrease. Not only did different patterns of goal orientation lead to an effect on academic performance, but it was very robust. A 25 point difference in examination scores can lead to a difference of two or three letter grades. Further, ninety-five percent of the mastery oriented students attained a higher examination grade on the subsequent test. About half of the performance oriented students had a decrease in grade on the subsequent examination (Hoyert & O'Dell, 1999; 2000a; 2000b; 2001a; 2001b; 2002, 2003). Thus, it appears that Goal Orientation is relevant to academic success and seems to have a strong effect following a challenge.

Plan of Research

With the fellowship, I hope to build on this failure finding and further explore the effect in two ways: 1) design a study examining variants of performance orientation and 2) design an intervention to help struggling, poorly motivated students.

Project 1: Exploring Multiple Performance Goals

Mastery orientation has a clear and unidirectional affect on academic performance after failure. That is, virtually all students display an improvement. However, performance orientation seems to have a more complex effect. While the overall mean was lower, only about half of the highly performance oriented students had a decreasing score. I wish to explore this lacunae in the data. Some goal orientation theorists suggest

that there are multiple variants of performance orientation. Perhaps some variants promote maladaptive behaviors following a failure while other variants are not so deleterious or are even beneficial. The data are consistent with the notion that multiple variants exist and that they may have differential effects on academic performance after a failure. With the support of the fellowship, I will design an instrument to measure three different variants of performance orientation (performance approach, performance avoidance, and extrinsic performance). I will track Introductory Psychology students after they have failed an examination and relate their subsequent test performance to the variants of goal orientation. If we can find links between one or more of the types of performance orientation and the failure effect, this would help clarify our understanding of the phenomenon and would be useful information in the design of interventions.

Project 2: P101 Intervention

One of the reasons that I became interested in goal orientation theory is its obvious potential for application. We all have had students in our classes who act irrationally, procrastinate, self-handicap, self-aggrandize, and commit those other sins that are associated with the pursuit of performance goals. I have been exploring goal orientation now for several years. I discovered and have now replicated the failure effect several times and am quite convinced of its relevance. As a result, I have been exploring small scale interventions to aid struggling P101 students. In the current version I invite introductory psychology students to tutorial sessions after they have failed an examination. I sometimes lead the sessions and I have sometimes trained student peers to lead sessions. The goal is to alter goal orientation (especially in performance dominant students) in order to prevent the decrement sometimes seen in performance oriented students. The tutors coach students on a variety of techniques, all aimed at increasing the adoption of mastery orientation. The techniques included orientation modeling from several different perspectives, discussion of multiple study techniques, goal setting, and value referencing. It must be pointed out that the tutorials only address motivational issues. We do not cover classroom material. The program has been successful in both increasing mastery orientation and in increasing examination and course grades. The average student has achieved a 15 point increase between examinations. About half of the students passed the class. Few would have passed without this help.

While we are heartened with the successes of the program, it remains small scale. We have offered the program to only one section of P101 during the last two semesters (and none currently) and have served about 30 students. Further, the intervention has not attempted to include coverage of content as is the common purpose of tutorial programs. Using the support of the fellowship, I would like to expand the tutoring program to more (ultimately all) sections of Introductory Psychology at IUN and to begin embedding the coverage of content within the session. It will be interesting to see if a larger group of peers (perhaps including non-psychology majors or students who are not particularly sophisticated in the above techniques) can successfully guide the interventions. If they can, the project should produce exciting increases in student success. If they are not as successful, we will need to further refine the existing techniques, develop new techniques, or revise the methods for recruiting and training the tutors.

Timetable

I will be able to work on designing an instrument to measure variants of performance orientation beginning in the fall. I plan to pilot test the instrument in the late fall and can be ready to collect data in the spring. It typically takes a year to collect a complete set of data. Therefore, I should be able to complete data collection in the Fall Semester 2004. Since I have a version of the intervention already in place, it can be expanded fairly quickly. I should be able to offer the program to multiple sections of P101 in the Spring Semester 2004. Depending on the feedback that I receive from the program, it could be expanded or revamped after that.

Future Directions

The program outlined above relies on individual contact. This approach has great strengths and, as such, I selected this style of interaction for the early interventions. It, however, does have some limitations. For instance, it is not always flexible enough to accommodate all student schedules. It introduces between tutor variability. It is very labor intensive. An alternative program that I may pursue in the future could include an interactive, computerized tutorial that incorporates the motivational techniques.

Relevance to My Life as a Scholar/Teacher

The proposed project is directly related to my interlocking roles as scholar and teacher. The fellowship will enable me to continue and to expand a line of research that I have found quite interesting and illuminating for the past several years. This research is firmly in the domain of the scholarship of teaching and learning. As such, it will inform my teaching as it adds to our understanding of the process of learning. The experimental work should lead to the development and dissemination of knowledge about the effects of failure on goal orientation and the effects of goal orientation on subsequent academic performance following a failure. The work will also pose implications for several goal orientation theories. For instance, two theories discuss the effects of goal orientation on stress. Failure is one instance of stress. The extant models can not account for the effects that I have already observed. Understanding more about the varieties of performance orientation could influence the theories of goal orientation.

The intervention is especially interesting to me. I invest a great deal of effort in my teaching role. I continuously try to improve my teaching and conversely to enable student learning. I have read about, studied, developed, introduced, and published techniques to make my classes more interactive, to make learning active, and to build more involvement in the learning process. The proposed projects serve a similar function. They should aid the student/instructor dialogue. Further, since they embody a change in the motivation of the student, they offer the potential for far reaching growth. A student who begins to pursue mastery goals can follow those goals in Introductory Psychology, in their other classes, as well as in other endeavors in life.

References

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. Journal of Educational Psychology, 84, 261-271.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. Journal of Educational Psychology, 80, 260-267.

Blumenfeld, P.D. (1992). Classroom learning and motivation: Clarifying and expanding goal theory. Journal of Educational Psychology, 84, 117-148.

Bouffard, T., Boisvert, J., Vezeau, C., & Larouche, C. (1995). The impact of goal orientation on self-regulation and performance among college students. British Journal of Educational Psychology, 65, 317-329.

Dweck, C. S. (1999). Self-theories: Their role in motivation, personality, and development. Philadelphia: Psychology Press.

Dweck, C. S. & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. Psychological Review, 95, 256-273.

Eppler, M. A. & Harju, B. L. (1997). Achievement motivation goals in relation to academic performance in traditional and non-traditional college students. Research in Higher Education, 38, 557-573.

Greene, B. A. & Miller, R. B. (1996). Influences on achievement: Goals, perceived ability, and cognitive engagement. Contemporary Educational Psychology, 21, 181-192.

Harackiewicz, J. M., Barron, K. E., & Elliot, A. J. (1998). Rethinking achievement goals: When are they adaptive for college students and why? Educational Psychologist, 33, 1-21.

Harackiewicz, J.M., Barron, K.E., Tauer, J. B., Carter, R. A., & Elliot, A. J. (2000). Short-term and long-term consequences of achievement goals: Predicting interest annd performance over time. Journal of Educational Psychology, 75, 183-205.

Hidi, S. & Harackiewicz, J. M. (2000). Motivating the academically unmotivated: A critical issue for the 21st century. Review of Educational Research, 70, 151-179.

Hoyert, M.S. & O'Dell, C.D. (1999). Achievement motivation in traditional and non-traditional students. Poster presented at the Annual Meeting of the Midwestern Psychological Association, April 29 - May 1, 1999, Chicago, IL.

Hoyert, M.S. & O'Dell, C.D. (2000a). Achievement Motivation and Academic Success in Traditional and Non-Traditional Aged College Students. Poster presented at the 16th Biennial Meeting of the Conference on Human Development, April 14-16, 2000, Memphis, TN.

Hoyert, M.S. & O'Dell, C.D. (2000b). Achievement Motivation and the Impostor Phenomenon. Poster presented at the Annual meeting of the Midwestern Psychological Association, May 5, 2000, Chicago, IL.

Hoyert, M.S. & O'Dell, C.D. (2001a). Goal Orientation and Challenge in College Students. Paper presented at a symposium entitled: Toward a scholarship of teaching and learning in developmental psychology at the Biennial Meeting of the Society for Research in Child Development, April 10-22, 2001, Minneapolis, MN.

Hoyert, M.S. & O'Dell, C.D. (2001). Achievement Motivation and Excuse Making. Poster presented at the Annual meeting of the Midwestern Psychological Association, May 3-5, 2001, Chicago, IL.

Hoyert, M.S.& O'Dell, C. D. (2002). Altering achievement motivation and the response to failure. Poster to be presented at the CTUP Creative Classroom Poster Session to be held during the 73rd Annual Meeting of the Midwestern Psychological Association, May 3-5, 2002, Chicago, IL

Pintrich, P. R. & Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M. L. Maehr & P. R. Pintrich (Eds.), Advances in motivation and achievement: Goals and self-regulatory processes (Vol. 7, pp. 371-402). Greenwich, CT: JAI Press.

Urdan, T. C. (1997). Examining the relations among early adolescent students' goals and friends' orientation toward effort and achievement in school. Contemporary Educational Psychology