Research in Higher Education Journal **Volume 4 - September, 2009**

The Research In Higher Education Journal (RHEJ) publishes original, unpublished higher education manuscripts. Appropriate topics for consideration in the journal include retention, financial management in higher education, new program development, curriculum and recruitment. This journal has been accepted by the Cabell's review board for inclusion in the 2009 Cabell's Directory of Publishing Opportunities, and by EBSCOHost and the Directory of Online Journals (DOAJ) for inclusion in their online databases.

Published by:

Academic and Business Research Institute (AABRI)
P.O. Box 350997 Jacksonville, Florida 32235-0997
Phone: (904)248-1978 – http://www.aabri.com - E-mail: editorial.staff@aabri.com
Russell K. Baker, Executive Director

ISSN: 1941-3432

AABRI Editorial Advisory Board:

Adams, Michael, Professor, Jacksonville University, Jacksonville, Florida
Almerico, Gina, Professor, University of Tampa, Tampa, Florida
Duggar, Jan, Dean, Holy Family University College of Business, Philadelphia, Pennsylvania
Elam, Elizabeth, Professor, Western New England College, Springfield, Massachusetts
Erben, Tony, Professor, University of Tampa, Tampa, Florida
Gordon, Ronald, Professor, Retired
Locander, William, Dean, Joseph Butt College of Business, Loyola University, New Orleans, LA
McCann, Joseph, Dean, Davis College of Business, Jacksonville University, Jacksonville, Florida
Mullins, Terry, Professor, University of North Carolina at Greensboro, Greensboro, North Carolina
Papp, Raymond, Professor, University of Tampa, Tampa, Florida
Wensveen, John, Dean, School of Aviation, Dowling College, Oakdale, New York

AABRI Academic Peer Reviews:

The following 2008-2009 AABRI journal authors have agreed to serve as manuscript reviewers as needed:

Ackerman, Marc, Jacksonville University
Akinyokun, Charles, Federal University of Technology,
Angaye, Cleopas, National Information Technology
Arney, Janna, The University of Texas at Brownsville
Banatte, Jean-Marie, Norfolk State University
Barger, Bonita, Tennessee Technological Universit
Barnes, Cynthia, Lamar University
Barrere, Donald, Nova Southeastern University
Barron, Elizabeth, The University of Tampa
Baugher, Dan, Pace University
Bergsiek, Micha, University Of Applied Sciences Fhdw
Blankenship, Dianna, Texas Center for the Judiciary
Borg, Mary, University of North Florida
Borg, Rody, Jacksonville University
Bridges, Deborah, University of Nebraska at Kearney
Bryan, Lois, Robert Morris University
Calvasina, Eugene, Southern University
Calvasina, Gerald, Southern Utah University
Calvasina, Richard, University of West Florida
Case, Carl, St. Bonaventure University
Cavico, Frank, Nova Southeastern University
Chacko, Jacob, Clayton State University
Chalermsri Jogthong, Nakhon Ratchasima Rajabhat University
Chen, Jim, Norfolk State University
Choi, Youngtae, University of North Florida
Christiansen, Linda, Indiana University Southeast
Chrysler, Earl, California State University
Clark, Indiana State University
Cohen, Alan, Ithaca College
Conteh, Nabie, Shenandoah University
Curtis, Tamila, Nova Southeastern University
Damtew, Desta, Norfolk State University
Das, Neel, Appalachian State University
Davies, Thomas, The University of South Dakota
Davy, Jeanette, Wright State University
Demps, Julius, Jacksonville University
Divine, Richard, Central Michigan University
Divine, Richard, Central Michigan University
Dudley, Dan, Tarleton State University
Duron, Robert, Husson University
Dykstra, DeVee, The University of South Dakota
Ellington, Linda, Palm Beach Atlantic University
Finkle, Todd, The University of Akron
Fitzpatrick, Laura, Rockhurst University
Fitzpatrick, Thomas, Saint Anselm College
Flanegin, Frank, Robert Morris University
Freed, Rusty, Tarleton State University
Friday-Stroud, Shawnta, Florida A&M University
Garver, Michael, Central Michigan University
Gilchrist, Lou Ann, Truman State University
Gilchrist, Neil, Truman State University
Gray, Deborah, Central Michigan University
Griffin, Tom, Nova Southeastern University
Ha, Jong-Wook, Columbus State University
Haight, Timothy, Menlo College
Hamilton, Karen, Georgia Southern University
Hannay, Maureen, Troy University
Harrison, Jeff, Jacksonville University
Hazen, Samuel, Tarleton State University
Heine, Peter, Stetson University
Hernandez, Edward, California State University
Highfill, Jannett, Bradley University
Hill, Aretha, North Carolina A&T State University;
Hise, Richard, Texas A&M University-College Station
Irani, Feruzan, Auburn University
Irving, Justin, Bethel University
Jacobs, Pearl, Sacred Heart University
James, Kevin, Middle Tennessee State University
Jones, Irma, University of Texas at Brownsville
Kenyon, George, Lamar University
King, Darwin, St. Bonaventure University
Kolesnikova, Marina, Saint Petersburg State University
Lander, Gerald, University of South Florida
Landry, Jeffrey, University of South Alabama
Larke, Alvin, Texas A&M University
Larke, Patricia, Texas A&M University
Lee, Jong-Ki, Kyungpook National University
Leonard, Karen, Indiana University-Purdue University
Lerner, Linda, Tennessee Technological University
Limbach, Barbara, Chadron State College
Linrud, JoAnn, Minot State University
Litzinger, Patrick, Robert Morris University
Lively, Debra, Saginaw Valley State University
Lovett, Marvin, University of Texas at Brownsville
Maddox, Nick, Stetson University
Mancillas, Margarita, University of Texas
Maples, Glenn, Northwestern Louisiana University
Mapp, Johnnie, Norfolk State University
Martin, Nora, University of South Carolina
Massad, Victor, Pennsylvania State University
Matulich, Erika, The University of Tampa
McClung, Gordon, Waynesburg University
McConnell, Cheryl, Rockhurst University
McNeil, Kimberly, North Carolina A&T State
Mcpherson, Bill, Indiana University Of Pennsylvania
Mensch, Scott, Indiana University of Pennsylvania
Miller, Robert, Central Michigan University
Mills, Richard, Robert Morris University
Moen, David, The University of South Dakota
Moore, T. Winters, East Tennessee State University
Mujtaba, Bahaudin, Nova Southeastern University
Mujtaba, Mustafa, Florida Gulf Coast University
Murphy, Richard, Jacksonville University
Naik, Bijayananda. University of South Dakota
Oh, Dong-Yop, University of Alabama
Okpara, John, Bloomsburg University Of Pennsylvania
Page, Robert, Southern Connecticut State University
Pardue, J Harold, University of South Alabama
Parkinson, John, York University
Petrosky, Alfred, California State University
Pineda, Rodley, Tennessee Technological University
Pineno, Charles, Shenandoah University
Pordeli, Hassan, Jacksonville University
Potter, Paula, Western Kentucky University
Powell, Colleen, University of North Florida
Prince, Diane, Clayton State University
Ramakrishnan, Kumoli, University of South Dakota
Reilly, Anne, Loyola University Chicago
Reinstein, Alan, Wayne State University
Rivas, Olivia, The University of Texas at Brownsville
Rosarin Pimolbunyong, Nakhon Ratchasima Rajabhat University
Rosenberg, Donald, Towson University
Rota, Daniel, Robert Morris University
Rucker, Beth, Jacksonville University
Rudd, Denis, Robert Morris University
Rutihinda, Cranmer, Bishop's University
Schain, Linda, Hofstra University
Scharff, Michael, Limestone College
Schlesinger, Warren, Ithaca College
Schmidt, Martina, University Of South Florida
Shaw, Christopher, University of South Alabama
Silverman, Helene, The University of Tampa
Simkin, Mark, University of Nevada Reno
Slaubaugh, Michael, Indiana U - Purdue U
Smith, B.J., Jacksonville University
Smith, Kenneth, Salisbury University
Snyder, Lisa, North Carolina A&T State University
Spohn, Karen, Rivier College
Spralls, Samuel, Central Michigan University
Stewart, Geoffrey, University of Louisiana at Lafayette
Stingley, Paul, Lockheed Martin Space Systems
Stranahan, Harriet, University of North Florida
Suh, Jingyo, Tuskegee University
Tamilla Curtis, Nova Southeastern University
Tanner, John, University of Louisiana at Lafayette
Tapp, Anne, Saginaw Valley State University
Tenkorang, Frank, University of Nebraska at Kearney
Thornton, Barry, Jacksonville University
Tony Karounos, Loyola University Chicago
Totaro, Michael, University of Louisiana at Lafayette
Tucker, Joanne, Shippensburg University
Ubaru, Moses, National Information Technology
Van Auken, Stuart, Florida Gulf Coast University
Varanelli, Andrew, Pace University
Wanasika, Isaac, New Mexico State University
Wang, Hwei Cheng, Alabama A&M University
Waugh, Wendy, Chadron State College
Weisbord, Ellen, Pace University
Wells, Anecia, Jacksonville University
Wells, Ludmilla, Florida Gulf Coast University
Wertz, Monnie, University of Tampa
White, Gayle, Southern Arkansas University
Williams, Kaylene, California State University
Wilson, J. Holton, Central Michigan University
Wilson, Joseph, Jacksonville University
Wittmann, Randy, Jacksonville University
Wojcikewych, Raymond, Bradley University
Xu, Hongjiang, Butler University
Yahr, Michael, Robert Morris University
Yates, Rhett, Jacksonville University
Yu, Jongtae, Mississippi State University
Zocco, Dennis, University of San Diego

Information for prospective authors:

The Academic and Business Research Institute publishes twelve journals supporting business, accounting, finance, technology, economics, education and international studies. AABRI journals have been approved by Cabell's for listing in the 2009 Cabell's Directory of Publishing Opportunities. All manuscripts submitted are editorially reviewed for compliance with AABRI submission requirements then blind peer-reviewed by academics in the manuscript's discipline. AABRI journals' targeted initial acceptance rate is less than twenty-five percent. All AABRI journals may be accessed through our website at http://www.aabri.com. AABRI is not affiliated with any conference, other organization or university.

If you would like to submit your manuscript for publication consideration, please review the submission requirements, procedures and fees on the AABRI website http://www.aabri.com. A convenient submission form is provided on the Manuscript Submission Form page of the website. Review of your submitted manuscript will be expedited and you will receive a response promptly. If you have any questions regarding AABRI journal publication that are not answered by the website, please contact our staff or me at your convenience.

AABRI publishes the following peer-reviewed academic journals:

- Journal of Academic and Business Ethics
- Journal of Aviation Management and Education
- Journal of Behavioral Studies in Business
- Journal of Case Research in Business and Economics
- Journal of Case Studies in Accreditation and Assessment
- Journal of Finance and Accountancy
- Journal of Instructional Pedagogies
- Journal of International Business and Cultural Studies
- Journal of Management and Marketing Research
- Journal of Technology Research
- Research in Business and Economics Journal
- Research in Higher Education Journal

AABRI is not affiliated with any university or professional organization. For information regarding publishing in an AABRI journal please visit the www.aabri.com website

AABRI Authorization and Originality Certification

Authors certify that submitted manuscripts are original work that has not been previously published. Upon acceptance of the manuscript for publication, the author(s) grants in perpetuity to the Academic and Business Research Institute (AABRI) the exclusive right to publish this manuscript at its discretion in an AABRI journal or working series publication. AABRI authors retain copyright ownership of their work product for all other purposes. For permission to use any of the contents herein, please contact the author(s) directly.

Contents Page

An evaluation of predictors of achievement on selected outcomes in a self-paced online course

R. Nicholas Gerlich
West Texas A&M University

LaVelle H. Mills
West Texas A&M University

Marc Sollosy
West Texas A&M University

ABSTRACT

A self-paced online Principles of Management course was utilized to measure the effects of gender and age (demographic variables), Locus of Control (LOC, a psychosocial measure), and cumulative GPA (a measure of effort) on three separate outcomes: written work, a comprehensive post-test, and the final score earned in the course. In two of the three models, the only significant predictor of student outcomes was cumulative GPA, which is a measure of student effort.

Keywords: Online, self-paced, achievement, outcomes, predictors

INTRODUCTION

Distance education has been an option for learners since the mid-1800's (Parker, 2003). Written correspondence courses delivered by the postal service represent one of the earlier technologies used for distance learning. Over time correspondence courses incorporated the media of television and radio. The technology used in today's distance learning courses involves computer-mediated communications and the Internet (Artino, 2007). There is a well-established history of research studies which have compared the attitudes and academic achievements of distance learners in a wide variety of distance learning formats with those of traditional classroom students. The results from such studies have repeatedly reported no statistically significant differences in student learning between the various distance learning formats (Russell, 1999). This distance learning study examines the use of a self-paced course design with course delivery provided via the Internet.

According to Artino (2008), the Internet as a technology-of-choice for learning and teaching at a distance has been developing for slightly more than a decade. Online course offerings and number of student enrollments are expanding rapidly in postsecondary schools. This is evidenced by a growth rate of 9.7 percent for online enrollments as compared with a growth rate of 1.7 percent for the overall higher education student population (Allen & Seaman, 2007).

A variety of reasons have been cited as the motivation underlying the propensity of postsecondary level students to select online courses. These vary from increased student access to higher education (Ebersole, 2008) to meeting needs of both geographically dispersed working adults and traditional students (Marks, Sibley & Arbaugh (2005). Other online students may be

attracted to this environment because of the need for being a lifelong learner who must also continue to pursue their selected career path and continue meeting family commitments and responsibilities (Parker, 2003). Another issue of importance to both the online students and the postsecondary school offering online courses is the quality of learning taking place in the online environment (Ebersole, 2008; Gaytan & McEwen, 2007; Roblyer, Davis, Mills, Marshall, & Pape, 2008).

The purpose of this paper is to explore learning outcomes in a self-paced online course and to determine the factors influencing these outcomes. Self-paced courses are a sub-section of the online genre in that there is little or no synchronicity vis-à-vis other students and the professor. Thus, students proceed through the course at their own speed, influenced only by the parameters of an end date for the term, as well as their own motivation level and lifestyle.

Specifically, three broad types of factors are considered in this study (demographic, psychosocial and student effort), as are three types of learning outcomes (student performance on the overall final course score, student scores on a comprehensive post-test assessment instrument, and student scores on written exercises). Our contribution to the literature is a greater understanding of the interplay of these factors on three separate measures of student achievement within the context of a self-paced course.

THEORETICAL FRAMEWORK

As online course offerings continue to expand and student enrollments continue to increase, it is important to provide evidence that online learning does add value for student learning outcomes (Jennings & Bayless, 2003; Moskal, Dziuban, Upchurch, Hartman & Truman, 2006; Waschull, 2005). One evidence of student learning might be simply the overall score attained in an individual course at the end of the semester. This would be applicable to courses taught in any of the currently popular formats: traditional classroom format, online format, and a hybrid format that combines both the traditional classroom and online formats. In each of these formats, student learning can be examined both as an overall score achieved and in light of student performance in terms of program learning outcomes (Terry, 2007).

Student learning and development can be reviewed through a variety of program assessment methods (Sinha, 2007). Program assessment has been defined as a "systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development" (Palomba & Banta, 1999, p. 4). Research literature reflects that program assessment has become an explicit obligation of modern programs (Terry, Mills, Rosa, & Sollosy; 2008; Martell & Calderon, 2005; Trapnell, 2005). This focus on student-centered and learning-oriented assessments is evidenced in accreditation requirements of The Association to Advance Collegiate Schools of Business (AACSB International) for business programs aspiring to attain or maintain AACSB International accreditation (Gerlich & Sollosy, 2008). In business programs following AACSB accreditation requirements, there is utilization of direct measures of student achievement for specified learning goals for each program (Martell, 2007; Pringle & Michel, 2007. Online course offerings are included in these program assessments and represent a rapidly expanding component of overall course offerings as discussed earlier.

It is the position of these researchers that as the growth of online course offerings and student enrollments continue to expand and mature, it is important to study potential predictors of student learning in the online format. The purpose of this study is to examine potential

predictors of student achievement on selected outcomes in a Principles of Management course taught in a self-paced online format. Potential predictors of student outcomes included students' Locus of Control (Rotter, 1966) scores, gender, age, and grade point average.

Rotter (1966, p. 1) stated, "the effects of reward or reinforcement on preceding behavior depend in part on whether the person perceives the reward as contingent on his own behavior or independent of it." Rotter created an instrument, Locus of Control (LOC), to measure a person's perception of the role of preceding behavior as a determinant of a particular reward (1966). The instrument has been used by a number of researchers to examine the possibility of LOC score as a predictor of course achievement.

Rotter's scale ranged in value from 0 to 23. Individuals scoring less than 12 were said to have an internal locus of control (LOC), with all others having an external LOC. Internals typically demonstrate a high degree of control over their environment and outcomes, while externals tend to believe more in luck, fate, and outcomes being determined by others.

Several studies have shown that externality was significantly related to course achievement with the comment that this finding was unusual (Massari & Rosenblum, 1972; Wilhite, 1990). Current researchers continue to look for correlations between LOC scores and achievement with several studies now being conducted with students who are taking courses in an online environment. Yukselturk and Bulut (2007) describe mixed reports of LOC scores as a predictor of course achievement and indicate their position that there is agreement among some researchers for the existence of a relationship between LOC scores and student success. At the same time, other research reports show that internals seem to be more successful in an online environment (Kerr, Rynearson & Kerr, 2008; Yukselturk & Bulut, 2007). Other researchers have found that although students had an strong internal LOC score they were likely to use surface learning strategies in online discussions (Knowles & Kerkman, 2007). Still another report related to the relationship between LOC scores and student academic success shows student LOC scores tend to change over the course of a semester, moving to stronger internal scores by the end of the course (Liu, Lavelle & Andiris, 2002).

Writing in 1966, Rotter addresses the idea that reward, reinforcement, or gratification are crucial in the acquisition and performance of skills and knowledge. Yet, in 1975 he specifically addresses problems and misconceptions related to the construct of internal versus external control of reinforcement (Rotter, p. 57):

> "When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in *external control*. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in *internal control*."

Rotter (1975, p. 59), still writing to address possible misunderstandings of the construct of internal versus external control of reinforcement states, "to make a locus of control prediction, one must either control reinforcement value or measure it, and systematically take it into account."

Perhaps there exists a perceived face validity that someone with a strong internal score would persevere longer or work harder to achieve a higher score in a traditional or online course without consideration of a student's self value or interest related to a particular course or other goal. Rotter (1975) expressed ideas, that when considered from the perspective of an academic course setting, could explain behaviors by students with either a strong external LOC score or a strong internal LOC score. For example, drawing from Rotter's work, a student with a strong external LOC score in an online course today might persist in a particular activity because they like some of the other people involved, they enjoyed the group activities, they didn't want to disappoint their parents by dropping the course, or they wanted to stay on track to be able to graduate with their friends. On the other hand, it might be possible to extrapolate Rotter's ideas to say that a student with a high internal LOC score may not persist because they are not interested in the course content, don't see a personal relation or benefit to them personally or think their time and energy would be better invested in other activities (e.g., work activities or perhaps a different course).

What can be inferred from the volume of studies based on Rotter's work still being conducted today is that there remains a high level of academic interest in Rotter's concepts and how they may or may not apply to student success today. Locus of Control is one of four predictors of student outcomes examined for this research project. A review of each of the other three predictors of student success follows.

The effect of gender on performance in online courses has been addressed by a number of research studies with little to no differences in success outcomes reported (Daymont & Blau, 2008; Friday, Friday-Stroud, Green & Hill, 2006; Dutton, Dutton & Perry, 2002). Arbaugh (2005) reported that females had somewhat lower perceived learning expectations while Friday, et al (2006) reported that females earned somewhat higher final grades.

The effect of age as a predictor of success in an online class has been reported as not significant in a study by Dutton, Dutton & Perry (2002). A study conducted by Yukselturk and Bulut (2007) also found that age was not a significant factor in predicting student success in an online course. Artino (2008) has reported that younger students are more likely to use surface processing in online discussion forums. Several research studies included gender as a possible predictor of student success in an online course but omitted age (Friday, et al, 2006; Daymount & Blau, 2008).

Artino (2007) reported GPA as a significant predictor of student success in an online course. Prior GPA as a determinant of student success was not included in the research findings discussed earlier in this paper. Artino (2008) did report research findings that showed students with higher self-regulating behaviors tended to have higher GPAs.

The methodology used in this research project is described in the following section. Also included is an explanation of each hypothesis examined as part of this project.

METHODOLOGY AND HYPOTHESES

One online section of a Principles of Management course was tracked for an 8-week summer term at a Division II public university in the southwest. The course utilized a self-paced format. Students could access materials for the next chapter once they had earned a score of 80 percent or higher on the chapter quiz for the current chapter. There were a total of thirteen chapters included in the course. There were specific course assignments for each chapter in addition to the required chapter quizzes. Students were provided with a grading schedule for

chapter assignments at the beginning of the semester. The grading schedule determined assignments and dates by which the assigned work would need to be completed in order to earn a grade. The self-paced component of the course allowed students to move through the assigned chapters at a schedule that fit their individual needs as long as they met the dates specified in the grading schedule.

A veteran of online course delivery who had taught the course multiple times in the preceding ten years taught the course. A total of 40 students completed the course in its entirety, and thus formed the sample for this study.

At the onset of the course, students completed Rotter's (1966) Locus of Control instrument. Locus of Control as a predictor of performance in college courses has shown mixed results (Wilhite 1990; Blackner 2000), but is a significant predictor of dropout rate (Parker 1999; Moore & Kearsley, 2005). Blackner's study, though, is comprehensive in scope and unilaterally showed LOC to be positively related to achievement in academic coursework (i.e., higher LOC is related to higher achievement scores). Students with internal LOCs understand the cause-and-effect relationship between effort and outcome, and realize that they are in control of affecting their own outcomes. Upon completing the LOC the bulk of the course was opened to the students.

The course was organized into 13 chapters of material that supplemented the textbook; students were required to perform at the 80% level or better on a short quiz at the end of each chapter. Upon reaching the minimum grade, the subsequent chapter was opened. Students could thus not move around the course at will, but rather in a linear progression based on their performance.

In addition to graded exams and projects throughout the course, a comprehensive outcomes assessment instrument (PostTest) was required of students. This instrument formed the basis of internal assessment for all sections of this course taught throughout the academic year. The last variable to be collected was Final Score, reflecting the total points earned by the students in the term.

As a measure of overall achievement in the course, a final score was calculated for each student using the points earned on a variety of exercises (articles, cases, and discussion board), and two exams. A comprehensive assessment exam was embedded as a portion of the final exam. The Assessment variable contains a percentage score between 0 and 100.

Locus of Control (LOC) was reported in a range from 0 to 23, with those scoring 11 or less being characterized as having an internal LOC. All others were characterized as having an external LOC.

The following variables were gathered by querying the university database. Gender was coded as 0 for females and 1 for males. GPA ranged from 0.00 to 4.00; Age was reported in years.

A general model as depicted below in Figure 1 (Appendix) illustrates the relationships we seek to study. Essentially, three categories of inputs (Demographics, Psychosocial and Effort) are proposed to affect outcomes in both Final Score and PostTest.

Based on the theoretical background reported above, we hypothesize the following relationships:

H1a: Gender will not be a positive and significant predictor of Final Score

H2a: LOC will be a negative and significant predictor of Final Score

H3a: GPA will be a positive and significant predictor of Final Score

H4a: Age will be a positive and significant predictor of Final Score

H1b: Gender will not be a positive and significant predictor of PostTest
H2b: LOC will be a negative and significant predictor of PostTest
H3b: GPA will be a positive and significant predictor of PostTest
H4b: Age will be a positive and significant predictor of PostTest

H1c: Gender will not be a positive and significant predictor of Written
H2c: LOC will be a negative and significant predictor of Written
H3c: GPA will be a positive and significant predictor of Written
H4c: Age will be a positive and significant predictor of Written

Based on these hypotheses, the following three models are proposed:
Model 1:
$\text{Final Score}_i = a + B1a(\text{Gender}_i) + B2a(\text{LOC}_i) + B3a(\text{GPA}_i) + B4a(\text{Age}_i) + e_i$
Model 2:
$\text{PostTest}_i = a + B1b(\text{Gender}_i) + B2b(\text{LOC}_i) + B3b(\text{GPA}_i) + B4b(\text{Age}_i) + e_i$
Model 3:
$\text{Written}_i = a + B1c(\text{Gender}_i) + B2c(\text{LOC}_i) + B3c(\text{GPA}_i) + B4c(\text{Age}_i) + e_i$

RESULTS & DISCUSSION

Multiple regressions using Final Score (Model 1), PostTest (Model 2) and Written (Model 3) as Dependent Variables were run using SPSS software. Tables 1a and 1b (Appendix) report findings for Model 1, tables 2a and 2b report findings for Model 2, and tables 3a and 3b report findings for Model 3. While the sample size is somewhat small (40 observations), Elliott and Woodward (2006) report that it is commonly acceptable to use multiple regression as long as there are 10 or more observations for each independent variable, which equals the results and parameters of the models used herein. In all cases, the Independent Variables were Gender, LOC, GPA, and Age. R^2 (Model 1) = 0.562, R^2 (Model 2) = 0.144, R^2 (Model 3) = 0.524 . Regression analysis for the models showed that only the GPA variable, a measure of student effort throughout their cumulative academic career, is a significant predictor of student achievement in Models 1 and 3. Based on these results, only H3a and H3c were retained; all other hypotheses were rejected.

Of particular interest is the inconsistent relationship between LOC and the three dependent variables. In the case of Final Score and Written, externals scored lower, while on the comprehensive PostTest, externals scored higher. Correlations between LOC and the three dependent variables are reported in Table 4 below. While not statistically significant, this difference may result from internals feeling much more in control in the overall breadth of course assignments (which included a large writing component), than they do on multiple choice objective exams under which they have no control other than what they have in short-term memory. It should also be noted that Final and Written are highly correlated, as about 80% of the course grade was determined from scores on written exercises. There were also 13 multiple-choice quizzes in the course that were not tallied in the final grade, but served as gateways to subsequent chapters once a score of 80% of higher was earned.

Also of interest is the Age variable. Although this variable was not a significant predictor in any of the three models, a general relationship was observed in that age was inversely related

to performance on the three outcomes. It is possible that older students felt less at home with the online format than did their younger peers.

CONCLUSIONS

The results reported above appear to indicate that GPA is the sole predictor of success in a course of this type, and that various other factors such as a student's Locus of Control and demographics are not significant predictors of achievement. This study is limited, though, in that it reports the findings from one online course at one institution, and at one period in time.

That GPA is the only significant predictor of success is not surprising in light of the literature cited above. GPA is a valid measure of student effort, and cumulatively becomes a good predictor of future outcomes. Given that the course observed in this project is a junior-level class, most students enrolling will have already completed about one-half of their degree requirements (i.e., 60 hours). Their cumulative GPAs thus reflect their efforts to date.

The disconfirmation of LOC as a significant predictor in this study is somewhat surprising, especially given that the course is well-suited for a take-charge individual (i.e., strong internal LOC). This result may have occurred because the course utilized a mic of both objective and subjective graded components. Had the course relied exclusively on subjective (i.e., written) exercises, it is possible the impact of LOC would be different.

It would be interesting to assess how LOC scores change over the course of a semester. The literature cited above shows that students tend to move toward stronger internal scores by the end of the course. Also of interest is the possibility of LOC being a subset of self-efficacy; in other words, as the semester unfolds and students gain mastery of the content, the shift toward more internal LOC scores may be explained.

That age and gender are not significant predictors is not surprising, given the findings of prior research. While age was indeed negatively correlated with the three outcomes, its effect was not large enough to warrant attention. Any differences (significant or non-significant) may very well be minimized over time as an increasing proportion of future students enter academic programs with substantial computer experience.

A future study would thus be advised to test these variables in other settings, including comparing results for identical courses taught in other formats (self-paced online, other-paced online and face-to-face). Furthermore, it would be interesting to test these variables with same-course sections taught by different professors, across time, perhaps across business disciplines, and even at multiple institutions before sweeping generalizations may be made.

REFERENCES

Allen, I. & Seaman, J. (2007). *Online Nation: Five years of growth in online learning*. Needham, MA: Sloan Consortium.

Arbaugh, J. (2005). Interaction and learning. *Academy of Management Learning & Education, 4*(2), 135-149.

Artino, Jr., A. (2008). Promoting academic motivation and self-regulation: Practical guidelines for online instructors. *TechTrends, 52*(3), 37-45.

Artino, Jr., A. (2007b). Self-regulated learning in online education: A review of the empirical literature. *International Journal of Instructional Technology and Distance Learning, 4*(6), 3-18.

Blackner, D. (2000). Prediction of community college students' success in developmental math with traditional classroom, computer-based on-campus and computer-based at a distance instruction using locus of control, math anxiety and learning style. (Doctoral dissertation, University of North Texas, 2000). Retrieved September 1, 2008 from http://www.library.unt.edu/theses/open/20001/blackner_deborah/Dissertation.pdf

Daymount, T. & Blau, G. (2008). Student performance in online and traditional sections of an undergraduate management course. *Institute of Behavioral and Applied Management*, 275–294.

Dutton, J., Dutton, M. & Perry, J. (2002). How do online students differ from lecture students? *Journal for Asynchronous Learning Networks (JALN), 6*(1), 1-20.

Ebersole, J. (2008). Online learning: An unexpected resource. *The Presidency: The American Council on Education's Magazine for Higher Education Leaders, 11(1),* 24-26, 28-29.

Elliott, Alan C. and Wayne A. Woodward (2006), Statistical Analysis Quick reference Guidebook*,* Thousand Oaks CA: Sage.

Friday, E., Friday-Stroud, S., Green, A. & Hill, A. (2006). A multi-semester comparison of student performance between multiple traditional and online sections of two management courses. *Journal of Behavioral and Applied Management, 8*, 66-81.

Gaytan, J. & McEwen, B. (2007). Effective online instructional and assessment strategies. *American Journal of Distance Education, 21*(3), 117-132.

Gerlich, N. & Sollosy, M. (2008). Evaluating the assessment outcomes in the principles of marketing course. *Academy of Educational Leadership Journal.* In Press.

Jennings, S. & Bayless, M. (2003). Online vs. traditional instruction: A comparison of student success. *The Delti Pi Epsilon Journal, XLV*(3), 183-190.

Kerr, M., Rynearson, K. & Kerr, M. (2003). Predicting student success in online courses: A new measure. In R. Han & J. Woosley (Eds.), *Proceedings of the 10th Annual International Distance Education Conference*.

Knowles, E. & Kerkman, D. (2007). An investigation of students' attitude and motivation toward online learning. *Student Motivation*, 2, 70-80.

Liu, Y., Lavelle, E., & Andris, J. (2002). Effects of online instruction on locus of control and achievement motivation. Paper presentation at *AERA Annual Conference in New Orleans on April 1, 2002.*

Marks, B., Sibley, T. & Arbaugh, J. (2005). A structural equation model of predictors for effective online learning. *Journal of Management Education, 29*(4), 531-563.

Martell, K. & Calderon, T. (2005). Assessment in business schools: What it is, where we are, and where we need to go now. In K. Martell & T. Calderon Eds, *Assessment of student learning in business schools* (pages 1-26). Tallahassee,

FL: Association for Institutional Research.

Martell, K. (2007). Assessing student learning: Are business schools making the grade? *The Journal of Education for Business, 82*(4), 189-195.

Massari, D. & Rosenblum, D. (1972). Locus of control, interpersonal trust and academic achievement. *Psychological Reports*, 31, 355-360.

Moore, M. & Kearsley, G. (2005). Distance education: A systems view (2nd ed.) Belmont, CA:Wadsworth.

Moskal, P., Dziuban, C., Upchurch, R. Hartman, J. & Truman, B. (2006). Assessing onlinelearning: What one university learned about student success, persistence, and satisfaction. *peerReview, Fall,* 26-29.

Palomba, C. & Banta, T. (1999). *Assessment essentials: Planning, implementing, and improving assessment in higher education.* San Francisco, CA: Jossey-Bass.

Parker, A. (1999). A study of variables that predict dropout from distance education, International Journal of Educational Technology [Online], 1(2). Retrieved September 1,2008 from http://www.ed.uiuc.edu/ijet/v1n2/parker/index.html

Parker, A. (2003). Identifying predictors of academic persistence in distance education. *USDLAJournal, 17*(1), 55-62.

Pringle, C. & Michel, M. (2007). Assessment practices in AACSB-accredited business schools. *The Journal of Education for Business, 83*(4), 202-211.

Roblyer, M.D., Davis, L., Mills, S., Marshall, J., & Pape, L. (2008). Toward Practical Procedures for Predicting and Promoting Success in Virtual School Students, *The American Journal of Distance Education,* 22(2), 90-109.

Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 80(1), 1-28.

Rotter, J. (1975). Some problems and misconceptions related to the construct of internal versus external control of reinforcement. *Journal of Consulting and clinical Psychology, 43*(1), 56-67.

Russell, T. (1999). *The no significant difference phenomenon as reported in 355 research reports, summaries & papers.* Raleigh, NC: North Carolina State University.

Sinha, N. (2007). An active student centered learning (ASCL) approach to instruct and assess a software engineering course. *International Journal of Instructional Technology & Distance Learning, 4*(6).

Terry, N. (2007). Assessing the difference in learning outcomes for campus, online, and hybrid instruction modes for MBA courses. *The Journal of Education for Business, 83*(4), 220-225.

Terry, N., Mills, L., Rosa, D., & Sollosy, M. (in press, 2008). Do online students make the grade on the business major field ETS exam? *Academy of Educational Leadership Journal*.

Trapnell, J. (2005). Forward. In K. Martell & T. Calderon Eds. *Assessment of student learning in business schools.* Tallahassee, FL: Association for Institutional Research.

Waschull, S. (2005). Predicting success in online psychology courses: Self-discipline and motivation. *Teaching of Psychology, 32*(3), 190-192.

Wilhite, S. (1990). Self-efficacy, locus of control, self assessment or memory and study activities as predictors of college course achievement. Journal of Educational Psychology, 82(4), 696-700.

Yukselturk, E. & Bulut, S. (2007). Predictors for student success in an online course. *Educational Technology & Society*, 10(2), 71-83.

Appendix

Figure 1: Predictors of Student Outcomes

Table 1a

Model 1 Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.750(a)	.562	.512	63.89724

a Predictors: (Constant), Age, Gender, GPA, LoC

Table 1b

Model 1 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	418.938	58.243		7.193	.000
	LoC	-1.848	2.718	-.079	-.680	.501
	Gender	.248	20.563	.001	.012	.990
	GPA	105.433	15.841	.768	6.656	.000
	Age	-1.840	1.060	-.208	-1.736	.091

a Dependent Variable: Final

Table 2a

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.380(a)	.144	.046	12.86974

a Predictors: (Constant), Age, Gender, GPA, LoC

Table 2b

Model 2 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	42.037	11.731		3.583	.001
	LoC	.841	.548	.249	1.537	.133
	Gender	1.684	4.142	.064	.407	.687
	GPA	5.800	3.191	.293	1.818	.078
	Age	-.017	.213	-.014	-.081	.936

a Dependent Variable: post

Table 3a

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.724(a)	.524	.470	60.92722

a Predictors: (Constant), Age, Gender, GPA, LoC

Table 3b

Model 3 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	379.529	55.536		6.834	.000
	LoC	-2.174	2.592	-.101	-.839	.407
	Gender	-2.310	19.608	-.014	-.118	.907
	GPA	92.717	15.105	.738	6.138	.000
	Age	-1.652	1.011	-.204	-1.635	.111

a Dependent Variable: Written

Table 4

Correlations

		LoC	Final	PostTest	Written
LoC	Pearson Correlation	1	-.077	.238	-.099
	Sig. (2-tailed)		.639	.139	.543
	N	40	40	40	40
Final	Pearson Correlation	-.077	1	.124	.993(**)
	Sig. (2-tailed)	.639		.444	.000
	N	40	40	40	40
PostTest	Pearson Correlation	.238	.124	1	.047
	Sig. (2-tailed)	.139	.444		.772
	N	40	40	40	40
Written	Pearson Correlation	-.099	.993(**)	.047	1
	Sig. (2-tailed)	.543	.000	.772	
	N	40	40	40	40

** Correlation is significant at the 0.01 level (2-tailed).

Forecasting the number of publications of papers on entrepreneurship in academic journals

Wol Soon Chung
Soongsil University, Korea

Choon Yup Park
Dongguk University, Korea

ABSTRACT

Research on entrepreneurship has been growing very rapidly. The question of how long this growth process would continue may be very important to those involved in research and education on entrepreneurship. The objective of this paper is to forecast publications of papers on entrepreneurship in academic journals. Through this forecasting, we attempt not only to forecast publications of papers on entrepreneurship but also to shed light on the growth process of research on entrepreneurship. For research data, this research used online web databases. Using the data from the databases, we constructed a time series representing the number of papers on entrepreneurship in academic journals for the period 1961-2004. We fitted an S-shaped curve or the Fisher-Pry model to this time series data. The estimated forecast indicates that the number of papers on entrepreneurship in academic journals would grow at a accelerating rate through 2013, and the growth process would continue through 2026 at a significant rate. Then the growth rate would become marginal through 2037. Forecast indicates that after 2037 the growth may be near zero. However, the average number of publications of professional papers on entrepreneurship in years 2038-2060 would remain at a level greater than four times of that of 2004. This research has a number of limitations regarding its validity, including the assumptions made, database used to collect data, and adoption of the bound for the forecast model. These kinds of limitations are inevitable in forecasting to some extent. Nonetheless examinations on the publications on the past trend and future directions of research and education activities on entrepreneurship seems to be consistent with the results of this paper, supporting the validity of this research. This research appears to be the first one of this kind and may play a role as a reference data for researchers and educators in the area of entrepreneurship.

Keywords: Entrepreneurship, entrepreneurship research, research paper, forecasting, number of publications.

I. INTRODUCTION

Entrepreneurship research has been one of the most rapidly growing disciplinary areas of management science in recent years. As such there are considerable works on reviewing past trends, and suggesting future directions in the area of entrepreneurship research (Dean, Shook and Payne, 2007; Low and MacMillan, 1988; Busenitz, West, Shepherd and Nelson, 2003). Also papers concerning the past and the future of the education of entrepreneurship have been published (Katz, 2003; Brush. C. G. et al., 2003). One of many possible conclusions that can be drawn from these works on entrepreneurship research and education is that research and

education on entrepreneurship is still in the early stage of its development in the long range perspectives.

In this context one of our natural queries is the future of entrepreneurship. In particular, it should be one of our genuine interests to make long term prediction on the development of entrepreneurship research and education. However, there is no published material on the long term projection on entrepreneurship research and education. We may be interested in how long this growth process would continue. With regard to the growth of research and education in entrepreneurship, we may raise following questions.

- How long will the discipline of entrepreneurship continue to grow?
- What stage of the whole growth process are we in now?
- What would be the saturation level if there would be one?
- When will the saturation take place?

This type of question may be of particular importance to those who consider initiating professional new projects in relation to entrepreneurship education and research such as developing new graduate programs or establishing research institutions in this field. Information about the future of entrepreneurship research and education may be of interest also to those graduate students who are looking for their areas of specialization because it would be related to job market in this field.

The objective of this paper is to forecast the number of papers on entrepreneurship in academic journals (NPEAJ). NPEAJ is taken as a measure that represents the level of research activities on entrepreneurship. Through this forecasting, we attempt not only to forecast publications of papers on entrepreneurship but also to shed light on the growth process of academic research and education activities on entrepreneurship.

For research data, we use EBSCOhost web database which indexes article from most of the professional journals written in English world widely. Using the data from the database, we construct a time series NPEAJ for 44 years covering the period 1961-2004. In Section II, we examine the overall trend of NPEAJ for the period 1961-2004. In Section III, we build a statistical model to be used for forecasting. In Section IV, this model is used to forecast NPEAJ for the period 2005-2060 which is 56 years, and we examine the forecast data and discuss the implications of the forecast.

II. OBSERVATIONS ON THE PUBLICATIONS OF ENTREPRENEURSHIP RESEARCH PAPERS IN ACADEMIC JOURNALS

2.1. Data

One of the very important decisions for this type of research is defining the population from which the sample for this research would be taken. In other words, we need to select the database that covers most of important academic journals that publish research papers on entrepreneurship. In this regard we evaluated several databases including EBSCOhost, ProQuest, and Blackwell. Among these databases, EBSCOhost seems to be the most appropriate one for our research considering the number of journals indexed, the area of coverage, and time span of coverage. In academic premier search in EBSCOhost, more than 4,000 academic journals in the areas of management, economics, social sciences and applied sciences are covered. Since entrepreneurship research has tendency of multidisciplinary studies, the database that covers wide range of disciplines seems to be the most appropriate one.

We counted the NPEAJ for the period 1961-2004 in the EBSCOhost web database which is subscribed by Dongguk University, Seoul, Korea as of December 2005. In order to designate the area of entrepreneurship, we used the keyword "entrepreneurship" in the EBSCOhost web database. Among the EBSCOhost research databases, we used the "Academic Search Premier" database and applied the following limits to our search.

- "Scholarly (peer reviewed) Journal" (This option excludes, for instance, book reviews.)
- Publication Type: "Periodical" (This option excludes newspaper, and books.)
- Number of Pages: "All"
- Article with Images: "All"
- Period of search: 1961-2005 (45 years)
- Academic Journals: Number of Papers on Entrepreneurship

2.2 Overall Observation

The NPEAJ that resulted from our search is tabulated in Table 1. Plotting the data in Table 1, we obtained a graph as shown in Figure 1. We can divide the time-series data in Figure 1 into three stages with distinctive features: (1) Introduction stage, (2) Early growth stage, and (3) Rapid growth stage.

1) Introduction Stage (1961-1982): The period of 1961-1982 may be called the "Introduction Stage" because it is a period in which publications on entrepreneurship began to appear in academic journals (Kent, Sexton and Vesper, 1983). During this period, NPEAJ in a year did not exceed 10. It may be worth noting that for some years (1962, 1964, 1965, 1969, and 1977), the number was zero as shown in Table 1 and Figure 1. Such a small number of publications on entrepreneurship during this period appear to be surprising when it is compared with worldwide research activities on entrepreneurship of recent years. At that time the research activities on entrepreneurship did not appear to get some momentum to grow. However, changes in socioeconomic conditions seem to have played a role to stimulate such activities afterwards.

2) Early Growth Stage (1983-1999): During the period of 1983-1999, we see that NPEAJ shows a trendy growth as in Figure 2. During this time many graduate education programs on entrepreneurship were established in the United States and other parts of the world, and academic journals for article on entrepreneurship were initiated (Katz, 2003).

Table 1. Number of Papers on Entrepreneurship in Academic Journals (1961-2004)

Year	NP*	Year	NP*	Year	NP*	Year	NP*	Year	NP*
1961	1	1971	2	1981	3	1991	18	2001	69
1962	0	1972	2	1982	4	1992	24	2002	84
1963	4	1973	2	1983	2	1993	22	2003	150
1964	0	1974	4	1984	5	1994	40	2004	188
1965	0	1975	8	1985	9	1995	37		
1966	3	1976	1	1986	11	1996	30		
1967	0	1977	0	1987	7	1997	40		
1968	2	1978	2	1988	6	1998	51		
1969	0	1979	5	1989	19	1999	64		
1970	2	1980	3	1990	12	2000	81		
Total	12	Total	29	Total	78	Total	407	Total	491

NP*: NPEAJ

Figure 1. Plot of the Number of Papers on Entrepreneurship in Academic Journals (1961-2004)

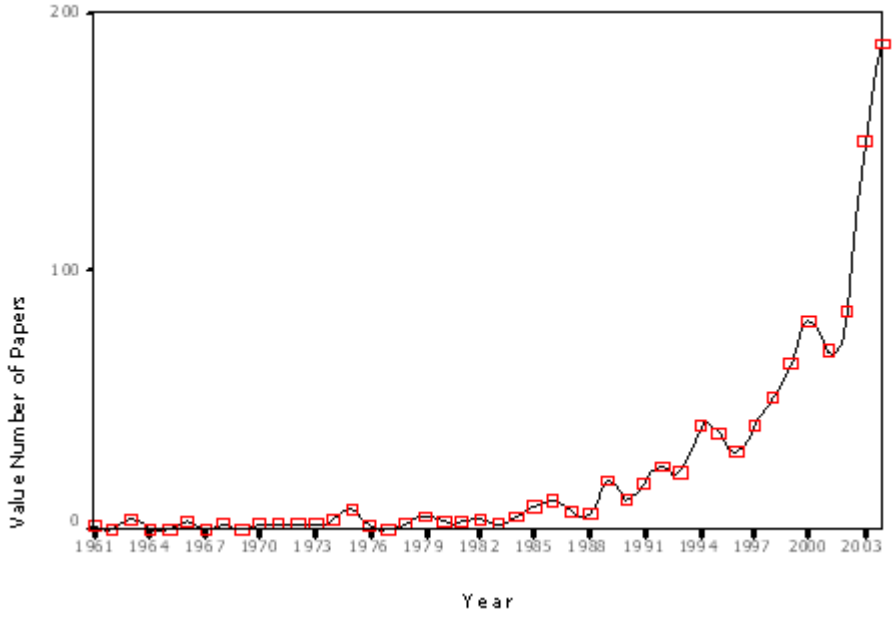


Figure 2. Plot of the Number of Papers on Entrepreneurship in Academic Journals (1961-1982)

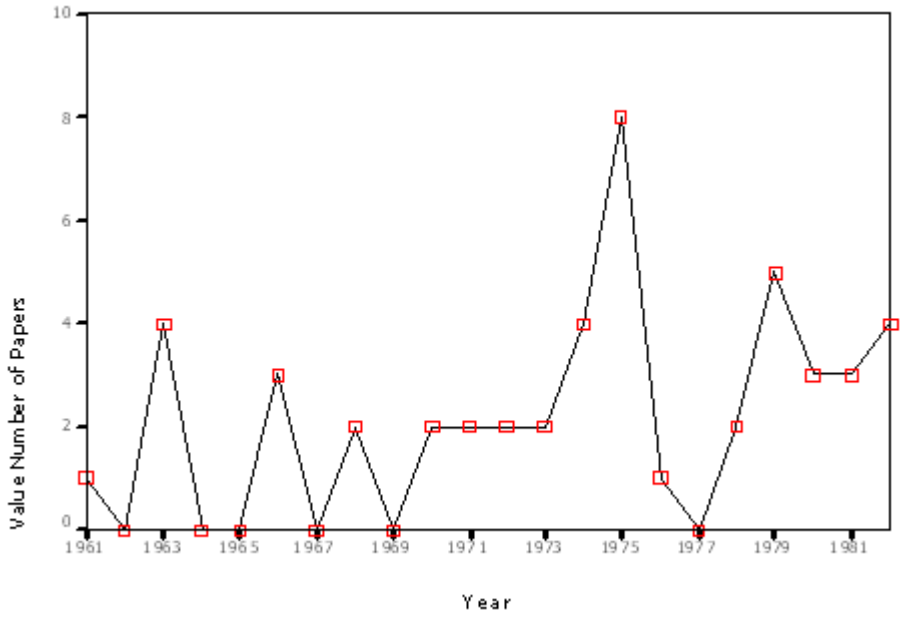
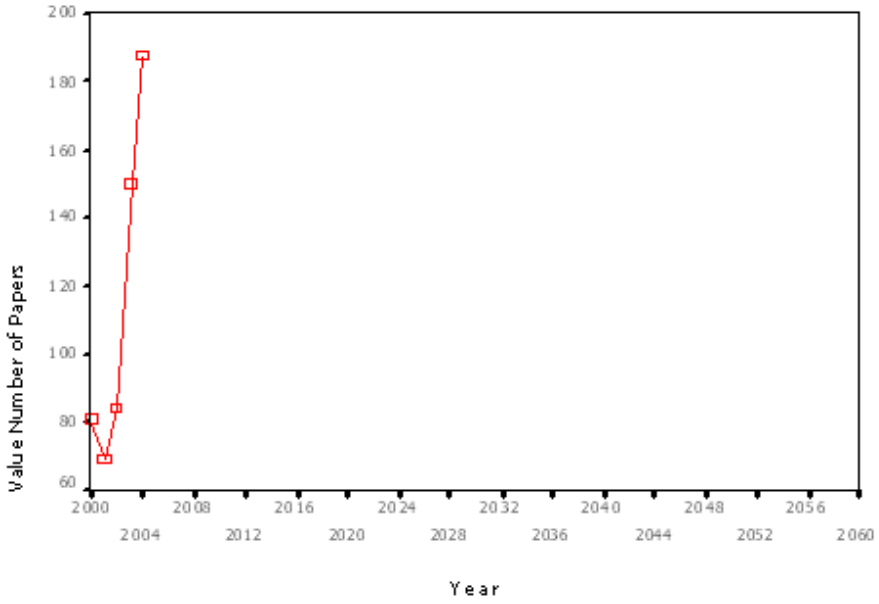


Figure 3. Plot of the Number of Papers on Entrepreneurship in Academic Journals (1983-1999)

3) Rapid Growth Stage (2000-2004): From 2000, the rate of growth of NPEAJ became greater than that in the previous years and the slope became steeper Figure 4. The growth pattern during the period of 2000-2004 or the Rapid Growth Stage is contrastingly different from that of the period of 1983-1999 or the Early Growth Stage. The former appear to be exponential while the latter followed a linear trend. This change in NPEAJ can be explained with new establishments of academic journals and research activities in educational and research institutions.

Figure 4. Plot of the Number of Papers on Entrepreneurship in Academic Journals (2000-2004)



III. MODEL BUILDING

3.1 Fitting the Fisher-Pry Model

In this section, we build a statistical model to represent the pattern in the time-series data in Table 1 or Figure 1. In order to define a model that will fit to the data, we may follow the following logical steps.

- It may be generally assumed that NPEAJ would follow a growth process with a certain limit. This assumption is very natural because without this assumption NPEAJ data would explode in the long run.
- A general model describing a growth process with a limit is an S-shaped model.
- Considering this, we see that the data in Figure 1 appear to follow the initial stage of an S-shaped curve or a typical growth curve with a limit.
- Hence, we can attempt to fit an S-shaped curve to NPEAJ.
- There are typically two types of S-shaped curves. One is a growth model that is also called the Fisher-Pry model, the other is a mortality model or the Gompertz model (Porter et al., 1999). Relating the characteristics of the two models to the growing nature of NPEAJ, it appears reasonable to use the growth model or the Fisher-Pry model to fit the data.

In order to build the Fisher-Pry Model we define the following terms. The fraction of the potential market penetration, f,

$$f = N / L$$

where L is the upper bound for growth of the variable N which is NPEAJ in our case.

The fundamental assumption in this approach is that the rate of change in the market share f over time is proportional both to the current market share f and inversely to the remaining portion of the market or (1- f). Expressing this assumption in mathematical form, we have

$df / dt = b[f /(1 - f)]$ (1)

Solving the differential equation in Equation (1) for f yields

$f = 1/[1 + c\exp(-bt)]$ (2)

Equation (2) is referred to as the Pearl Curve (after Raymond Pearl, refer to Porter et al., 1999). However, the name "Fisher-Pry Curve" is commonly used for the model in Equation (2) (Porter et al., 1999).

Equation (2) may be transformed as follows.

$z = \ln[(1 - f) / f] = \ln(c) - bt$ (3)

Equation (3) may be rewritten as a linear regression form for time series data as

$z_t = \ln[1 - f_t) / f_t]$

$z_t = \ln(c) - bt$ (4)

Fitting Procedure

Step 1: Assume a value for L

Step 2: Compute $f_t = N_t / L$, where N_t is NPEAJ in year t

for t = 1961, 1962, ..., 2004.

Step 3: Compute $z_t = \ln[(1 - f_t) / f_t]$, for t = 1961, 1962, ..., 2004.

Step 4: Fit a regression model

$Z_t = b_0 - bt$ (5)

to the data set (Z_t, t) for t = 1961, 1962, ... , 2004,

obtaining estimates for intercept and the slope, $\hat{b}_0$ and $\hat{b}$, respectively.

From Equations (4) and (5), we obtain $c = \exp(\hat{b}_0)$ from $\ln(c) = \hat{b}_0$.

Substituting $f_t = N_t / L$ in Equation (2) and solving for N_t, we obtain the forecast model for N_t

$N_t = L/[1 + c\exp(-bt)]$ (6)

Substituting $c = \exp(\hat{b}_0)$ and $b = \hat{b}$

Step 5: Compute

$\hat{N}_t = L/[1 + \exp(\hat{b})\exp(-\hat{b}t)]$

$= L/[1 + \exp(\hat{b}_0 - \hat{b}t)]$ (7)

$\hat{N}_t$ for t = 1961, 1962, ..., 2004 represents fitted values for N_t.

The sum of squares of errors between the observed value N_t and estimated value $\hat{N}_t$ is computed as

Step 6: Compute the error sum of squares as

$SS_E = \sum_{t=1961}^{t=2004}(N_t - \hat{N}_t)^2$

Repeat Steps 1 through 6 for different values of L. We used SPSS for statistical computation.

3.2 Selection of the Adequate Model

The major factor that affects validity of the Fisher-Pry model is the value of the upper limit L (Porter et al., 1999). Possible alternatives to determine the value of L are multiple. However, there is no general rule to determine the value of L.

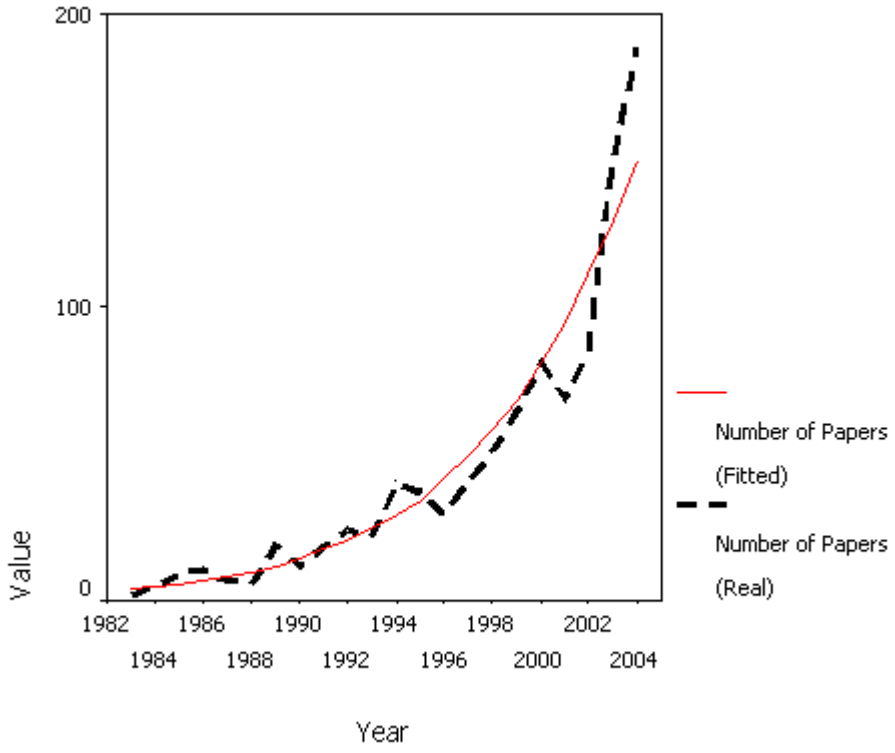
We used the criteria of the minimization of the sum of squares of errors for t = 1983, 1984, …, 2004 ($SS_E = \sum_{t=1983}^{t=2004}(N_t - \hat{N}_t)^2$). In order to find the value that minimizes SS_E, we tried various values of L, including 770, 780, 790, 800, and 810.

The SS_E is minimized at L = 790. We use the data only for the period 1983-2004 because the data for 1961-1982 appear to be irrelevantly long past for the S-shaped model under consideration. The final model we obtained using NPEAJ for the data of 1983-2004 is

$$\hat{N}_t = 790/[1+\exp(364.172+0.181t)] \qquad (8)$$

Based on the historical data for the period 1983-2004 and estimated values using the model in Equation (7), we obtain the plots shown in Figure 5. The dotted line in Figure 5 shows the real values and the continuous line shows the values estimated form Equation (8). The estimated line appears to represent the pattern of the real data quite well. Thus, it appears that our selection of the S-shaped model for the data is adequate.

Figure 5. Plot of the Number of Papers on Entrepreneurship in Academic Journals (1982-2004)



IV. FORECASTING

4.1 The Forecasting Model

Forecasts of NPEAJ for the period t = 2005, 2006, …, 2060 can be obtained using the model in Equation (8)'.

$$\hat{N}_t = 790/[1+\exp(364.172+0.181t)] \qquad (8)'$$

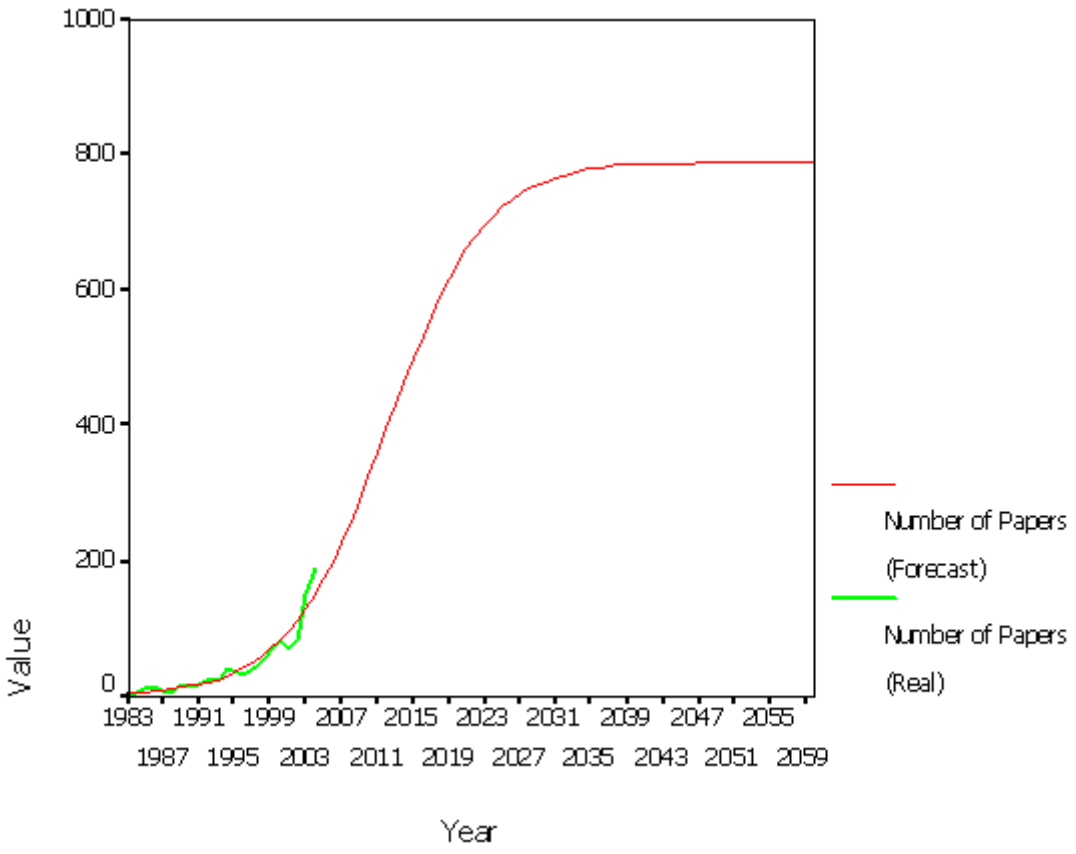
for t = 2005, 2006, …, 2060.

4.2 Overall Trend

Figure 6 shows NPEAJ for the period 1983-2060. The plots for 1983-2004 in Figure 6 are the same as those in Figure 5. (Plots for the period 1983-2004 in Figure 6 show both real and estimated values, and those for 2005-2060 are forecast values).

The plots for the period 2005-2060 in Figure 6 are forecast values. Figure 6 shows the whole process of a typical S-Shaped curve. The forecast value converges to the upper limit of 790 as time approaches 2060. It is noted that the rate of growth of NPEAJ decreases significantly after 2030. We will examine changes in the growth process more closely in Sections 4.2 and 4.3.

Figure 6. Plot of the Number of Papers on Entrepreneurship in Academic Journals (1983-2060)



4.3 Short-term Forecasting

Using the model in Equation (8)', we can obtain the forecast values for the period 2005-2009. NPEAJ continues to grow for this period. The growth rate NPEAJ based on the forecast values for years 2005-2009 are 14.9% (2005), 14.7% (2006), 14.6% (2007), 13.2% (2008), 12.4% (2009), 11.7% (2010) and 10.8% (2011) and 10.0% (2012), respectively. It may be noted that the growth rate for this period are two-digit Table 2.

The net increases of NPEAJ for each of these years are 23, 25, 29, 30, 32, 34, 35 and 36. The magnitude of annual growth measured in the increase of NPEAJ is greatest in 2012 and 2013, when the annual increase of NPEAJ is 36.

Table 2. Forecast Values of the Number of Papers on Entrepreneurship in Academic Journals (2005-2060)

Year	NPF*	Increase	Growth** (%)	Year	NPF*	Increase	Growth** (%)
2005	174	23	14.9	2023	695	16	2.4
2006	199	25	14.7	2024	709	14	2.0
2007	228	29	14.6	2025	721	12	1.7
2008	258	30	13.2	2026	732	11	1.5
2009	290	32	12.4	2027	741	9	1.2
2010	324	34	11.7	2028	749	8	1.1
2011	359	35	10.8	2029	755	6	0.8
2012	395	36	10.0	2030	761	6	0.8
2013	431	36	9.1	2031	765	4	0.5
2014	466	35	8.1	2032	769	4	0.5
2015	500	34	7.3	2033	773	4	0.5
2016	532	32	6.4	2034	776	3	0.4
2017	562	30	5.6	2035	778	2	0.3
2018	591	29	5.2	2036	780	2	0.3
2019	616	25	4.2	2037	782	2	0.3
2020	640	24	3.9	2038	783	1	0.1
2021	660	20	3.1	2039	784	1	0.1
2022	679	19	2.9	2040	785	1	0.1
				2041 -2059	786 ~ 789	< 1	
				2060	790		

NPF*: Forecast Values of NPEAJ

Growth**(year) = [NP(year)-NP(year - 1)]/ NP(year - 1) *100

2) Significant Growth Period (2014-2026): During this period, the annual increase of NPEAJ is forecast to decrease after the peak year of 2013. However, the annual increase of NPEAJ may be said to be "significant" because it is still a two-digit growth. This significant growth continues for 13 years, marking 35 in 2014 and 11 in 2026 Table 2.

3) Marginal Growth Period (2027-2037): According to the forecast, the annual growth of NPEAJ during this period is forecast to be nine in 2027 down to two in 2036 Table 2.

4) Near Zero Growth Period (2038-2060): The annual increase of NPEAJ during this period is expected to be one or less. However, this should not be mistaken as 'no activities'. This simply means the 'growth' is minimal while the level of NPEAJ remains at that of the previous year.

4.5 Implications of the Forecast

Results of the forecasting of NPEAJ make it clear that NPEAJ would increase for some decades in the future. This implies that the research and education activities on entrepreneurship will increase accordingly. This seems to be a favorable condition for the research and education institutions on entrepreneurship to grow.

If we apply the law of inertia to the research and education activities on entrepreneurship, the growth pattern would continue for some, and the current accelerating pattern of growth would continue for some time. This hypothesis is consistent with the forecast result we obtain in this research.

V. Conclusions

It is generally observed that research and education activities on entrepreneurship have grown significantly since early 1960s. Interest in entrepreneurship of people not only in academic institutions but also of those in economic policy area appears to grow. The growth pattern does not indicate any significant deceleration in any time soon. This growth pattern observed stimulates our interest in the future of research and education activities on entrepreneurship.

We take NPEAJ as one of reasonable measures that represent the level of research and education activities on entrepreneurship adequately. The objective of this paper is to forecast NPEAJ. Thus, this paper is an attempt to forecast the level of research activity on entrepreneurship in the future.

This paper deals with NPEAJ for 100 years covering the period of 1961-2060. We examine the historical data of NPEAJ for the period 1961-2004. In particular, we build a forecast model based on the NPEAJ data of 1983-2004. To these historical data, we fit a Fisher-Pry S-shaped model. The bound for the model is estimated to be 790. With the model obtained, we forecast NPEAJ for the period 2005-2060.

The overall observation on the forecast is that the growth of NPEAJ would continue to year 2060. The time period for which this paper makes forecast may be divided into four periods: Namely, accelerated growth period, significant growth period, marginal growth period, and near zero growth period.

During the accelerating growth period (2005-2013) NPEAJ is expected to grow at an accelerating rate. In particular, the net increase of NPEAJ of the current year over that of the previous year is greater than that of the previous year. During the significant growth period

(2014-2026) the annual increase of NPEAJ is forecast to decrease after the peak year of 2013. However, the annual increase of NPEAJ is "significant" because it is still a two-digit growth. This significant growth of NPEAJ continues for 13 years, marking increase of 35 in 2014 and 11 in 2026.

During marginal growth period (2027-2037) the annual growth of NPEAJ is forecast to be nine in 2027 down to two in 2036. During the near zero growth period (2038-2060) the annual increase of NPEAJ is expected to be one or less. However, this should not be mistaken as 'no activities'. This simply means the 'growth' is minimal while the level of NPEAJ remains at that of the previous year.

A suggestive remark with regard to opportunities in the area of entrepreneurship research and education is that the opportunities are expected to grow for some decades. Therefore, it seems to be no late to initiate new projects on entrepreneurship research and education such as new education programs and establishing a new research institution.

This research has a number of limitations with regard to its validity, including the assumptions made for model building, database from which data is collected, and adoption of the bound for the model. These are, however, some of the inevitable problems we encounter when we attempt to make forecast. Nonetheless examinations on the publications on the past trend and future directions of research and education activities on entrepreneurship seems to be consistent with the results of this paper, supporting the validity of this research.

This research appears to be the first one of this kind. Further research activities in this direction may be necessary for professionals in research and education, and practitioners of entrepreneurship.

References

Busenitz, Lowell W., G. Page West III, Dean Shepherd, Teresa Nelson, Gaylen N. Chandler and Andrew Zacharakis (2003). Entrepreneurship Research: Past Trends and Future Directions. *Journal of Management*, 29(3), 285-308.

Brush, Candida G., Irene M. Duhaime, William B. Gartner, Alex Stewart, Jerome A. Katz, Michael A. Hitt, Sharon a. Alvarez, G. Dale Meyer and S. Venkataraman (2003). Doctoral Education in the Field of Entrepreneurship. *Journal of Management*. 29(3), 309-331.

Dean, Michelle A., Christopher L. Shook And G. Tyge Payne (2007). The Past, Present, and Future of Entrepreneurship Research: Data Analytic Trends and Training. *Entrepreneurship: Theory and Practice*, 31(4), 601-618.

EBSCOhost Research Database. A Web Database Subscribed by Dongguk University, Seoul, Korea.

Kent, C. A., D. L. Sexton and Karl H. Vesper (eds.) (1983). *Encyclopedia of Entrepreneurship*. Englewood Cliffs, New Jersey: Prentice Hall.

Katz, Jerome, A. (2003). The Chronology of Intellectual Trajectory of American Entrepreneurship Education. *Journal of Business Venturing*, 18(2), 283-300.

Low, Murray B. and Ian C. MacMillan (1988). Entrepreneurship: Past Research and Future Challenges. *Journal of Management*, 14, (2), 139-161.

Porter, Alan L. A. Thomas Roper, Thomas W. Mason, Frederic A. Rossini, Jerry Banks, and Bradeley J. Wiederholt (1991). *Forecasting and Management of Technology*. New York: John Wiley & Sons.

Student Preferences for Learning College Algebra in a Web Enhanced Environment

Laura Pyzdrowski
West Virginia University

Anthony Pyzdrowski
California University of Pennsylvania

Abstract

It is important to determine students' preferences if we hope to engage them better in the processes of learning, understanding, and doing mathematics. Responses collected from high school students enrolled in web enhanced college algebra courses from Fall 2004 through Spring 2008 are reported in this study. Feedback from 684 students responding to survey questions on end-of-course evaluations shows that homework from the book, computer laboratories, and online quizzes are chosen most often as helpful components in assisting with student understanding of mathematics. In particular, most students enrolled in the Spring 2008 semester chose homework from the book as the most helpful component, while over time, the online quizzes were chosen most frequently. While the focus of this study is on student preferences for learning algebra, responses made by the high school teacher facilitators in the project are included in order to compare their choices with those made by the students.

Keywords: Mathematics, Student Preferences, College Algebra, Web Enhanced, High School

Introduction

It is important to determine students' preferences if we hope to engage them better in the process of learning, understanding, and doing mathematics. What components of a course do students choose as most helpful with respect to understanding? Knowing the answer will help teachers better prepare to facilitate learning. Though it can be argued that students may not have a realistic or accurate sense of what is actually most effective for their learning, finding out what they think is important. In their study undertaken to improve performance in high school algebra, Kortering, DeBettencourt and Braziel concluded that research needs to incorporate student feedback as to what interventions or accommodations are most effective for given subjects and settings (2005). Dr.David Bressoud, president elect of the Mathematics Association of America, challenged in an April 2008 meeting, "We need more current and comprehensive data about what happens to students as they cross the divide from high school to college." In response to Dr. Bressoud's call for current data, this study reports feedback from high school students enrolled in web enhanced college algebra courses from Fall 2004 through Spring 2008 and in particular, explores in depth the data collected from the Spring 2008 semester. Such data add to the existing knowledge base regarding how we can help students succeed in mathematics as they transition from high school to college level mathematics by offering insight into their preferences.

In their study, Kortering et al found that little knowledge exists about what students say regarding their algebra classes (2005). This study analyzed survey results given to 46 high school students with learning disabilities who were enrolled in mathematics classes. Forty-six students

responded to the question, "What is the best part of the class?". Twenty percent of the responses pertained to group work and 17% pertained to learning. In particular, quotes about liking the class when they knew how to do and understand mathematics were documented. To the question, "How can we help students to be more successful with the work, quizzes, or tests?", the greatest number of responses pertained to bookwork (16 responses), quizzes (18 responses) and chapter tests (17 responses). Most of the associated responses showed that students wanted more help through the support of such things as tutoring or individual help from the teacher. Finally, 43 students responded to the question, "What is the most important thing we could do to improve student performance in algebra?" Once again the dominant theme in the responses was related to getting help through support services, tutoring and encouragement. Strong themes could also be found pertaining to teaching styles and group work. In their discussion, Kortering et al report that students in the study suggest they require alternative formats for learning and that such things as group work and software programs may be helpful accommodations that can provide additional support or assistance (2005).

Schoenfeld (1989) explored the beliefs and behaviors of 230 high school students enrolled in a plane geometry course by the use of a questionnaire. Unlike the study performed by Kortering et al, this study was performed in highly regarded schools with participants who were enrolled in Regents', college bound mathematics classes. A high correlation was found to exist among students' overall academic performance, expected performance in mathematics, and sense of their own mathematical ability. From this finding, it can be surmised that students with a good sense of their mathematical ability, who expect to perform well, will. It is reasonable to expect that such students will also have a good sense of what formats are best suited to assist them with learning and understanding mathematics. However, it is interesting to note that the students in the study believed they could succeed if they worked hard, but at the same time expected typical homework and test problems to be completed in only a minute or two.

In a review and synthesis of 33 research studies on personal epistemology and mathematics, Muis (2004) found that mathematical instructional environments were inferred to influence the development of students' beliefs about mathematics. Significant relationships were found among beliefs and cognition, motivation, and academic achievement which supports the findings of Shoenfeld (1989). All studies reviewed by Muis show that attempts to change students' beliefs, explicitly or implicitly, significantly modified students' learning strategies. Muis concludes that according to studies, changing beliefs of students is possible and can be attributed to changes in instructional style. From this, it can be hypothesized that changes in instructional style can modify students' learning strategies.

Stiggens (2005) points out that students' perception of formal and informal assessments may stem from their emotional strength and their previous success on such types of measures. He also points out that assessment has traditionally been used in schools to motivate students via such things as pop quizzes and final comprehensive exams. His work describes the newer dual role for assessment being used in schools today. This includes a summative role, the type of assessment used in the past to inform primarily the teacher about student learning, and a formative role. Formative assessment is a way to use assessment for learning and is meant not only to inform the teacher, but also the student.

Are the course components preferred by students aligned with formative or summative assessment? This study provides insight into which formats high school students perceive as most helpful to their learning of algebra. Unlike Kortering et al (2005) who worked with high school students with learning disabilities and Schoenfeld (1989) who studied highly motivated

students in highly regarded schools, the participants in this study were those seeking to attend college, but were not enrolled in the typical *Advanced Placement* courses offered at their rural schools. The *WvEB Algebra Project* used in this study was funded in part by the National Science Foundation project number 0339117. The project allows high school students to dual enroll in Algebra III in high school and College Algebra via a web enhanced offering. High school students enrolled in *WvEB Algebra* perform better than students enrolled in on-campus sections with respect to grades earned in the course and success rates attained in next courses (Author, in press).

Method

Participants

Participating in this study were 1,322 students in the *WvEB Algebra Project* in West Virginia. The students attended 19 high schools throughout the state from Fall 2004 to Spring 2008. All student participants had at least a 3.0 overall high school grade point average and a "C" or better in Algebra I, Algebra II, and Geometry. In addition, high school mathematics teachers participated as facilitators at each of the schools.

Procedure

Course content is made available to high school students via lectures on a CD, homework assigned from the book, laboratories done with partners using a computer and student manual, reading assignments, and online quizzes that allow multiple attempts and the use of books notes and peers for help. For college credit, students are required to meet three hours per week for fifteen weeks with high school mathematics teachers who serve as facilitators. Facilitators often reinforce the CD lectures with mini lectures of their own. As with the on-campus course, tests are given to the high school students on-line. Tests are password protected and proctored by the facilitators. Ninety percent of all grading for the College Algebra course is done directly through the university, whether "by hand" or through on-line assessments designed by the faculty instructor. Facilitators contribute points worth up to10% of the college grade. Most of the facilitator points come from the grading of homework assignments from the text book. Anonymous surveys were given at the end of each semester and were submitted by the mail or in later years via the web.

There are five primary course components associated with helping the students learn the content in the *WvEB Algebra Course*. The CD lectures are professionally recorded sessions that resemble typical lecture meetings. The homework from the book is the assignment of problems focusing the student toward the major content objectives of the lesson. These problems are mostly procedural in nature though many require the student to apply conceptual understanding and problem solving abilities. The computer laboratories are group assignments where students are asked to use applets and laboratory sheets to answer procedural, conceptual and problem solving questions. These assignments are focused primarily toward enhancing conceptual understanding. In each laboratory assignment, students are required to write about mathematics after communicating in a group. A group grade is assigned for laboratory work. Online quizzes are composed of 10 multiple choice questions. The questions are chosen randomly from banks of questions. The quizzes may be repeated up to three times with the highest score used in the

grade. The student is encouraged to use books, notes and peer tutoring while working on a quiz. Facilitators do not answer questions about quizzes until they are graded. Quizzes may be completed from any computer with internet access at any time during the day or night. Students are asked to complete quizzes that are associated with an exam before taking the exam. The reading assignments are from the text book and are associated with the content objectives of the lesson.

Results

An analysis was performed to determine which course components were chosen as helpful in student understanding of course material. In addition, each participant was asked to select the component that most helped with student understanding. In the Spring 2008 semester, participants were also asked to briefly explain why the choice was made.

Table 1 shows results from the end of course survey given to students as a part of the course evaluation from Fall 2004 through Spring 2008. Of the1,322 students asked to respond, 684 submitted forms. This yields an approximate 52% return rate.

Table 1

Results from 684 students Fall 2004 - Spring 2008 Web Enhanced College Algebra Course

	All that helped		Helped the most	
Component	Total	Percent	Total	Percent
CD Lectures	76	5.0	38	5.5
Book homework	458	30.2	195	28.5
Laboratories	409	27.0	122	17.8
Online quizzes	534	35.3	316	46.2
Reading	37	2.4	13	1.9

For example in Table 1, of the 684 respondents, 76 chose the CD Lectures as a helpful component accounting for five percent of the responses. The CD Lectures component was chosen by 38 respondents as the most helpful component accounting for five and one-half percent of the responses.

Table 2 shows results from the end of course survey given to teachers as a part of the course evaluation from Fall 2004 through Spring 2008. It should be noted that the Algebra course is offered once per year at most schools in either the fall or spring semester. These data reflect the responses from the same teachers over time with some teachers joining the project later than others. Of the total of 60 opportunities for all teachers to submit over time, 39 responses were collected. This yields an approximate 65% return rate.

Table 2

Results from high school teachers Fall 2004 - Spring 2008 Web Enhanced College Algebra

	All that helped		Helped the most	
Component	Total	Percent	Total	Percent
CD Lectures	6	5.9	1	2.6
Book homework	32	31.7	18	46.2
Laboratories	29	28.7	14	35.9
Online quizzes	29	28.7	5	12.8
Reading	5	5	1	2.6

For example in Table 2, of the 39 responses, six chose the CD Lectures as a helpful component accounting for approximately six percent of the responses. The CD Lectures component was chosen once as the most helpful component accounting for approximately two and one-half percent of the responses.

Table 3 shows results from the end of course survey given to students as a part of the course evaluation from in the Spring 2008. Of the 70 students asked to respond, 45 submitted forms. This yields an approximate 64% return rate.

Table 3

Results from 45 students Spring 2008 Web Enhanced College Algebra Course

	All that helped		Helped the most	
Component	Total	Percent	Total	Percent
CD Lectures	9	7.5	3	6.7
Book homework	38	31.7	27	60.0
Laboratories	33	27.5	5	11.1
Online quizzes	36	30.0	10	22.2
Reading	4	3.3	0	0.0

CD Lectures

Of the 45 students completing the Spring 2008 evaluation, nine chose the CD as being helpful with 3 choosing it as the most helpful component. Reasons given were that the lectures were a good start in helping one understand the problems and that it was much easier to learn

from watching rather than reading before doing. "I chose to watch the computer lectures because it is much easier for me to learn by watching someone else giving examples, rather than just reading and trying to do them myself."

Homework Assignments

Of the 45 students completing the Spring 2008 evaluation, 38 chose the homework assignments from the book as being helpful with 27 choosing it as the most helpful component. Reasons given were the repetition required in doing all of the assigned problems, the book having examples similar to the homework problems, the problems in the book allowing for trial and error, and the assignments promoting self learning. Also noted was that the assignments allowed one to ask questions from peers and the teacher without penalty, and that students could learn things well through explanation. Students felt that the problems helped prepare them for the tests and quizzes. "I made this choice because I believe that a student has to do work on his or her own in order to truly understand the materials, and with the homework assignments... a student doesn't get penalized for not knowing the material, and they get another chance to discuss with the teacher what they don't understand."

Laboratories

Of the 45 students who completed the evaluation, 33 chose the laboratories as being helpful with five choosing it as the most helpful component. Reasons given included liking the step by step guidance. They felt the laboratories provided the best examples for understanding and that they provided a challenge. Some students noted that it was the only thing the instructor helped with and that the time constraint forced one to work quickly. "The laboratories seem to give the best examples to better understand the properties of the math."

Computer Quizzes

Of the 45 students who completed the evaluation, 36 chose the computer quizzes as being helpful with 10 choosing it as the most helpful component. Reasons given were that the quizzes tested for understanding and allowed them to know what they did not understand. It was felt that the quizzes forced them to understand. They liked the retries and felt that quizzes allowed them to gain confidence in their ability. "I made this choice because I could take the quizzes more than once, and every time I did that I could understand why I always got one wrong and actually try and figure out how I got it wrong."

Teachers

Of the two out of five teachers who responded in the Spring 2008, both chose the homework, laboratories, and computer quizzes as being helpful. Only one chose the reading assignment and neither one chose the CD. Both teachers chose the homework as being the most helpful. "The homework assignments allow the student and the facilitator to see if the student understands the concepts taught." "I would use the homework assignments as examples in class for preparing students to take the quizzes and tests. I also recommended that the students keep a homework notebook. I used the notebook to help me give bonus points for the end of the year

high school grade."

Discussion

Over time, as seen in Table 1, all five components were selected by students as being both helpful and most helpful to their understanding. Therefore, it is likely that by having the CD lectures, the homework from the book, the computer laboratories, the online quizzes, and the reading assignments available, some students were accommodated that might not have been if all of the components had not been available. Table 2 shows that over time, teachers have also selected each of the components at least once as being both helpful and most helpful components for student understanding. Unlike the student data that reflect unique student responses over time, the teacher data reflect the variation of individual opinions over time. Upon further investigation, it was determined that teacher selection of CD lecture and reading assignments were chosen during semesters when there were new high school sites added to the project. It could be that the high school teachers found these resources helpful in their own preparation to facilitate the course for the first time.

As indicated by Tables 1 and 2, both students and teachers chose the homework, laboratories, and quizzes as the three primary components that helped with student understanding. This finding could reflect the findings of Muis (2004) that instructional environments can influence the development of student beliefs about mathematics. However the students chose the online quizzes as the most helpful component with 46.2% of the responses as compared to 12.8% of the teachers. This could be because the students are focusing on the similarities of the quizzes to the online exams. While the online quizzes most resemble the regular exams and comprehensive final in both appearance and delivery, only half of the questions on an exam are pulled from the same bank of questions as those used on the quizzes. In addition, at least one question on a 20-question exam is asked that is directly connected to a laboratory question. Based on the responses from the Spring 2008 surveys, it does not seem to be the case that students are choosing the quizzes primarily because of the similarity to the exams. Instead, perhaps the students are more digitally inclined and prefer to work in a digital environment as suggested by Prensky (2001). This may also contribute to their choice of the laboratory as a helpful component though the use of technology was never specifically mentioned in a student response.

Due to the large number of students taking College Algebra, it has been necessary for the regular exams and comprehensive final to be administered as online multiple choice exams that are password protected and proctored. This administration is the same for all of the approximate 1,750 students who take College Algebra per academic year whether on or off campus. These assessments were designed to be used primarily for summative assessment. However, the homework from the book, laboratory assignments, and online quizzes are components that were designed to be used for both summative and formative assessment as described by Stiggens (2005). Upon further investigation, it was found that over time, students and teachers have consistently chosen the homework from the book, the computer laboratories and the online quizzes as those components that help the most with the understanding of mathematics.

Kortering et al (2005) found that students requested help in learning algebra through support, tutoring and encouragement. They also suggest that students require alternative formats for learning such as group work and software programs. All of these findings support the selection of the quizzes, laboratories and homework from the book as helpful components. The

quizzes make use of software and supply immediate results once submitted. Students are encouraged to get help from peers when completing quizzes. A quiz is not timed and may be opened and printed off. When ready, the student can re-open the quiz and submit answers. Once submitted, the quizzes are immediately scored. Students only find out if the question was correctly or incorrectly answered. No solutions are given. They are encouraged to seek help about missed questions. The laboratory assignments significantly differ from the quizzes and homework from the book. The laboratory assignments are graded by hand and are often embedded with comments by the grader that can be viewed as encouragement and support. Conceptual understanding and problem solving are being assessed in the laboratory assignments and collaborative group work is encouraged by the way points are awarded for a grade. Any student working alone does not receive communication points for the assignment which are worth up to 10% of the grade. Finally, the homework from the book is a component that allows for significant interaction between the student and the high school facilitator. Student comments from the Spring 2008 survey indicate that students have the opportunity to discuss their work with the teacher facilitator and the teachers indicate that the homework gives them a chance to find out if the students understand the material before the test and quiz is administered.

It is interesting that the data in Table 3 show that students in the Spring 2008 semester overwhelmingly chose the homework from the book as the component that helped them understand mathematics the most. Of the two out of five teachers who responded that semester, both chose the homework as the most helpful component. Could this reflect the findings of Muis (2004) that instructional environments can influence the development of student beliefs about mathematics? Further semester by semester analysis was conducted from Fall 2004 to Spring 2008 surveys and it was found that the Spring 2008 semester was the only semester where there was a one-to-one relationship between the most helpful component chosen by the students and high school facilitators. However, in three other semesters, the selection alignments were such that one component of a tie for most helpful choice of one group matched the one most helpful choice of the other.

In conclusion while students in this study had one common instructor from the university, there were as many as 19 high school teacher facilitators working in the project. It is cautioned that students' perceptions of the course components most likely were influenced by possible confounding variables at individual sites. Though approximately 90% of the students enrolling in the algebra course earn an "A", "B", or "C", responses on the end-of-course evaluations in this study were anonymous and were unable to be linked directly to student performance. Further study should be devoted to the connection between the teaching environment and student beliefs and consequently student performance. Would the enhancing of the teaching environment and individual assessments with more occurrences of materials directed toward conceptual understanding and problem solving influence the preferences that students have for components that help with their understanding of mathematics? Would student performance be significantly affected? Are there other course components that can be developed or used that would accommodate student understanding?

References

Author (in press) *Proceedings of The Nineteenth Annual International Conference on Technology in Collegiate Mathematics, USA*.

Bressound, D. (2008, April 12). Retrieved October 7, 2008, from

http://www.macalester.edu/~bressoud/talks/Allegheny/Calculus_in_HS.pdf

Kortering, L. J., DeBettencourt, L. U., & Braziel, P. M. (2005). Improving performance in high school algebra: What students with learning disabilities are saying . *Math and Learning Disabilities . Vol. 28, No. 3*, 191-203.

Muis, K. R. (2004). Personal Epistemology and mathematics: critical review and synthesis of research. *Review of Educational Research. Vol. 74, No. 3*, 317-377.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon. 9 Nol 5*, 1-6.

Schoenfeld, A. H. (1989).Explorations of students' mathematical beliefs and behavior . *Journal for Research in Mathematics Education. Vol. 20, No. 4*, pp. 338- 355 .

Stiggens, R. (2004). From formative assessment to assessment for learning: A path to success in standards-based schools. *Phi Delta Kappan. 87, No. 04*, 324 - 328.

Values in Practice – Teachers' and Student Teachers' Understanding of a Desired Classroom Dialogue

Margareta Sandström Kjellin
Mälardalen University

Abstract

A Swedish study is presented in which a comparison is made between teachers' and student teachers' understanding of the National curriculum as regards the nature of the classroom dialogue and also to discuss teacher education and school development from this aspect. The study was a comparative case study and the method for collecting data was an inquiry with fixed response alternatives. 34 teachers and 50 student teachers participated in the study. Results were that the student teachers had more set their minds than the teachers on pursuing the intentions of the National curriculum which require pupils' participation in setting rules for the work and the time together in the classroom. The teachers appeared to be more self-confident, or even presumptuous, of their teacher role than the student teachers. It is discussed whether the views put forth by the student teachers were more directed towards pupils' development of key competences formulated by the European Union.

Keywords: comparative case study, classroom dialogue, teachers and student teachers, values

Introduction

The purpose of this article is to present a Swedish study in which a comparison is made between teachers' and student teachers' interpretation of the National curriculum, Lpo94 (Swedish National Agency for Education, 2006) in Sweden as regards the creation of fundamental values in the classroom and also to discuss teacher education and school development (national and international) from this aspect.

In Sweden, schools were governmentally controlled until 1994. From that year on, schools have been locally controlled; this means that the local staff is responsible for developing and improving their own school. This responsibility has been stressed even further in the new teacher education (Utbildningsdepartementet, 2000). Contemporary teacher education is also more strongly linked to educational research than previously. It is argued that a consequence of this is that many newly examined teachers are more updated in both educational research and the implications of the current National curriculum than teachers educated previously. At the same time, these last mentioned teachers are probably more familiar with practical problems related to educational research findings and to the demands of school development than newly examined teachers. The teacher training committee argues that the practical part of the teacher training in Sweden should "work as a bridge between teacher education and the pedagogical working practice" (Utbildningsdepartementet, 1999, p. 103).

In the National Curriculum for the compulsory school in Sweden, Lpo94 (Swedish National Agency for Education, 2006), two kinds of goals for the school in Sweden are formulated: Goals to be attained and Goals to strive towards. The Goals to be attained in particular concern the mastering of basic skills. Goals to strive towards are based on a number of fundamental values; according to these values, the purpose is, in short, to educate citizens who

can participate in a public debate on problems of modern society. Teachers face a dilemma situation since they are expected to focus on as many as possible of all pupils being graded as Approved, *i. e.* to reach Goals to be attained), and at the same time the teachers are expected to let the Goals to strive towards be the focus for all work in schools. We also know that schools, as institutions, struggle with old hierarchies in which the newly examined teachers are expected to step back for those educated a long time ago. Along with the teacher education reform in Sweden (Utbildningsdepartementet, 2000) it has been clearly stated that the responsibility for teacher education is shared between the teacher training institutions and the local authorities.

The study presented in this paper gives an example of the differing apprehensions of teachers and student teachers as regards the creation of values and, thus, focusing some aspects of the Goals to strive towards. It appears from the National Swedish curriculum that one of the most important tasks for the school in Sweden is to promote the pupils' development into responsible citizens, who participate actively in professional life and in society. This is also pointed out from a European perspective; in the EU 'Education and Training 2010' work programme it is stated that future Europeans will need certain key competences such as 'interpersonal, intercultural, social and civic competences' (Commission of the European Communities, 2005, p. 13).

In order to facilitate such development it is necessary to create prerequisites for all pupils to participate in a democratic dialogue between children and adults, which is an aspect of sustainable development in the society. Such dialogues may take place in the classroom (between teachers and pupils), and the National Swedish curriculum clearly states that the teacher should for example "openly present and discuss different values, ideas and problems" […] "together with the pupils develop rules for working and participating in the group" (Swedish National Agency for Education, 2006, p. 9). But, it must be noted that teachers face a dilemma situation, since the school also demands that teachers should in particular instruct the children regarding fundamental skills.

Values and actions

It can be said that our actions are guided by our values. Certain actions, thoughts and views are regarded as self-evident and they are not questioned; they are often rooted in a fundamental value and these values may be very hard, or even impossible, to change. However, it seems possible to bring humans to the insight that values are not general, but most frequently cultural. Since teachers will in their profession pass on their own values (consciously or subconsciously) to their pupils, it is important to find out which values teachers, and student teachers, embrace.

Ödman (1998) points to the fact that teachers´ values are reflected in their attitude towards different pupils. Ödman calls this different 'mentalities'. Many researchers touch upon this phenomenon in different terms. Bourdieu (1993) uses the concept 'habitus' and refers to similar phenomena when discussing that, as humans, we have different opinions of moral, sense of responsibility, duty *etc.*

The standpoint is taken in this article that it is not possible to educate without mediating values; Lindgren (2003) states that even if you do not explicitly mediate values, you still do it implicitly by your actions. The Goals to strive towards are meant to form the base for all work in Swedish schools and they denote the main goal for the school: to educate democratic citizens. However, the curricular goals have not been precisely defined for different subjects, resulting in

teachers often working with the Goals to be attained in sight, since these goals are relatively concrete and measurable (Zackari & Modigh, 2000). Since the syllabus goals have not been precisely defined for different subjects there is an obvious risk that teachers will find it easier to work towards the Goals to be attained than towards the Goals to strive towards. The link between fundamental values, the goals and the grades makes it even more interesting to find out more about teachers' attitude in this respect. The question is what kind of dialogue the teacher offers the pupils in the classroom in order to make it possible to approach these goals, *i. e.* if the teacher is able to award all 'kinds' of pupils, both explicitly and implicitly. In the national curriculum it is stated that the teacher should openly present and discuss different values, ideas and problems; to make this possible it seems necessary that teachers have made their own values visible to themselves and reflected over them. If the teacher has not made this reflection there seems to be a risk that s/he will focus on Goals to be attained and that the instruction will, thereby, take place on a far too basic level.

Purpose of the study

The purpose of the study is to find out how teachers and student teachers interpret the National Swedish curriculum as regards the desired character of the dialogue in the classroom between the teacher and the pupils, and also if there are differences between teachers' and student teachers' interpretation. How does a group of teachers assess the dialogue in the classroom? and how does a group of student teachers interpret that this dialogue should be performed; do the teachers "openly present and discuss different values, ideas and problems" and do they "together with the pupils develop rules for working and participating in the group" (Swedish National Agency for Education, 2006, p. 9)? How do the student teachers understand that the classroom dialogue should be in this respect?

Method

Design.

The study is a comparative case study; a comparison is made of data collected in two different studies, where the same data collection instrument was used. In one study (Sandström Kjellin, Månsson & Karlsson, 2005) student teachers answered an inquiry in which they were to consider statements from the National Curriculum as regards the classroom dialogue, and in the other study teachers at a secondary school answered the same inquiry.

Participants.

Participants were 34 teachers working at a secondary school in Sweden and 50 student teachers attending a course in their teacher education; both groups are in the same geographical area of Sweden. The inquiry was handed out to 42 teachers; 33 of them answered it. 107 student teachers were offered to participate in answering the inquiry; 50 of them answered it.

Materials and procedure.

Both groups answered an inquiry containing two questions. The group of student teachers answered the inquiry during a lesson in their ordinary teacher training, and the group of teachers answered it during a staff meeting. The teachers answered the inquiry one year later than the student teachers; the reason for this is that the student teachers answered the inquiry in the beginning of a regular course in their teacher education, and the teachers answered the inquiry in a first phase of a school development project.

For the teachers the first question was: How are rules set for the work and the time together in the classroom? For the student teachers the first question was: How do you think that the rules for the work and the time together in the classroom should be set?

Two alternatives were given:

1. The rules are set by teachers
2. The rules are set by teachers and pupils together.

For the teachers the second question was: How common is it that different ideas and values are discussed openly in your classroom? For the student teachers the second question was: Should a teacher discuss her/his ideas and values openly in the classroom? Four alternative answers were given: never/if I find it necessary/if the pupils ask for it/always.

Data analysis.

The data was analysed quantitatively.

Ethical aspects.

Informed consent was collected from the teachers and student teachers participating in the study. They were informed that the participation was voluntary and could be terminated at any time. The study is reported such that it will not appear at which school and which teacher education institution the data material is collected and such that it will not be possible to identify individuals. It was made clear that the gathered information would not be used by the researchers for any other purpose than research. A risk-benefit analysis reveals that the benefit, both for research and for teachers, is that the study illuminates an area that is essential for student teachers and for teachers in their everyday professional life.

Results

First, the result of the first question in the inquiry is reported and then the result of the second question of the inquiry. In the figures, percentage is indicated. In figure 1, the teachers' and student teachers' opinions/estimations are reported of how rules are set/should be set for the work and the time together in the classroom.

Teachers: N= 33 Student teachers: N=50

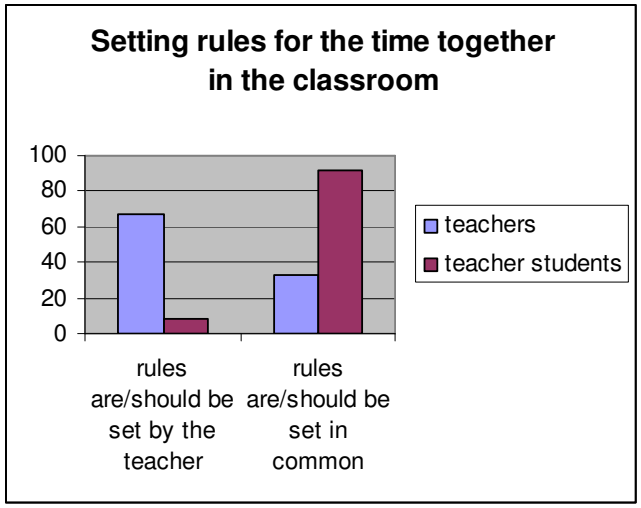


Figure 1. H**ow rules are set/should be set for the work and the time together in the classroom.**

Figure 1 displays that there were large differences between the answers in the two groups. 67% of the teachers had the opinion that rules are set by teachers, whereas only 8 % of the student teachers expressed that rules should be set only by the teachers. 92% of the student teachers had the opinion that classroom rules should be set by teachers and pupils together, but only 33% of the teachers estimated that this was done in their classrooms. The difference is statistically significant, $p<0.001$. In figure 2 it is reported how the teachers and student teachers assess the occurrence/desired occurrence of discussions about different ideas and values in the classroom.

Teachers: N = 29 Student teachers: 50

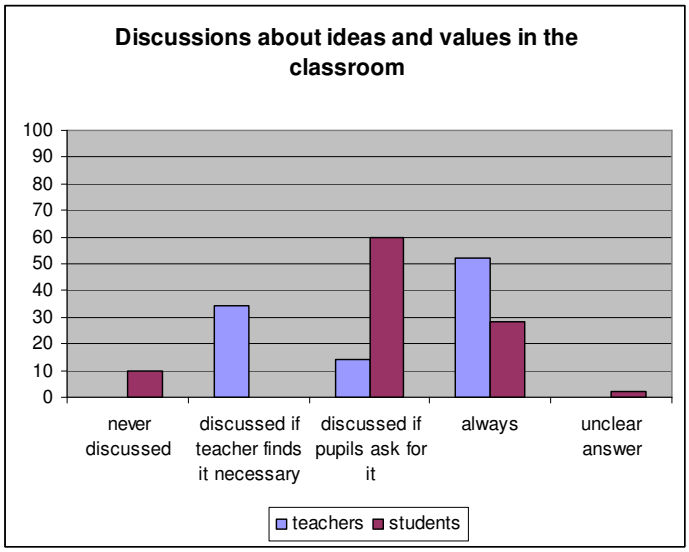


Figure 2. Teachers' and student teachers' opinions of discussions in the classroom about different ideas and values.

Figure 2 displays that 52% of the teachers always openly discuss values and ideas, whereas only 28% of the student teachers have the opinion that this should be done. 60% of the student teachers have the opinion that this should be done if the pupils ask for it; this estimation is made by only 14% of the teachers. The alternative 'if I find it necessary' was chosen by 34% of the teacher, but not by any of the students. However, the difference is not statistically significant. Only 29 of the 33 teachers answered these questions.

Discussion

The major differences between teachers and student teachers were that the teachers were less inclined to let the pupils participate in setting rules for the work and the time together in the classroom, and also that there seemed to be a pattern in the teachers of being more self-assured of their role as a teacher and a pattern in the student teachers to be less self-assured of their teacher role but more inclined to let the pupils participate in a democratic dialogue.

A majority of the teachers made the estimation that rules for the work and the time together in the classroom were decided by teachers only. Is this a sign that the teachers do not consider the pupils to be mature enough to participate in such a discussion and decision? Or is it a sign that the teachers are simply unwilling to let the pupils participate in this, *i. e.* a remnant from older curricula than the current one? The most probable explanation is perhaps that both explanations apply. However, Lpo94 (Swedish National Agency for Education, 2006) states that rules for the work and the time together in the classroom should be formulated by the teacher and the pupils together; the purpose is to prepare the pupils for an adult life as citizens who participate in a public debate on problems of modern society, and the teachers' answers is not in accordance with the ambitions set forth in the European society at large (Commission of the European Communities, 2005). If interpreted as a remnant from older curricula, this result can be explained by the theories of Bourdieu (1993): that it is a question of a common teacher 'habitus', and also Ödman (1998): that it is a question of a common teacher 'mentality'.

As regards the student teachers, a large majority had the opinion that classroom rules should be set by teachers and pupils together. This result is an example that student teachers seem more inclined to work in accordance with the National curriculum, Lpo94 and the European society at large (Commission of the European Communities, 2005).

The result also showed that there were differences as regards the open discussion of values and ideas in the classroom. There were many more teachers than student teachers who estimated that they openly discuss values and ideas (or, for student teachers, had the opinion that this should be done). The most plausible explanation to this is perhaps that student teachers feel more insecure and more inexperienced than teachers and, therefore, do not make the estimation that they would themselves be able to perform lessons where they openly discuss values and ideas; this is also a probable explanation to the fact that there were a number of student teachers who stated that ideas and values should never be discussed in classrooms.

However, the student teachers were much more inclined than the teachers to discuss values and ideas if the pupils asked for it; the interpretation of this is that the student teachers are more willing to promote a democratic classroom dialogue, which is in accordance with the National curriculum, Lpo94 and the Commission of the European Communities (2005). The teachers, on the other hand, declared that they discussed values if they themselves found it necessary; this can be explained by reference to Bourdieu (1993) and Ödman (1998). No teacher

student chose this alternative; this is interpreted as being a manifestation that the student teachers in this case did not have the same 'habit' (Bourdieu, 1993) or 'mentality' (Ödman, 1998) as the teachers. To put it simple, the teacher group appeared (not surprisingly) to be more self-assured as teachers and the teacher student group appeared more willing to listen to the pupils.

To sum up the results of the study, they showed that dialogue was needed between 'old' and 'new' teachers, for the benefit of both those groups, but in particular for the benefit of their pupils. The importance of teacher dialogue is pointed out in Sandström Kjellin & Stier (2008a; 2008b), and Sandström Kjellin (2008c) gives an example of how this can be performed.

The present study points at an important aspect when it comes to educate future Europeans who have 'interpersonal, intercultural, social and civic competences' (Commission of the European Communities, 2005); it seems hard to furnish young people with these competences if the classroom dialogue is not democratic. Yet, it is also known that performing a democratic dialogue is easier said than done! Sandström Kjellin & Stier (2008b) exemplifies how participants in a European collaborative project with the purpose to promote democratic dialogue, themselves didn't manage to perform such dialogue in their collaborative work.

A dilemma situation for Sweden has been pointed out: the Goals to be attained are easier to measure and this may be a reason for teachers to focus more on these goals (Zackari & Modigh, 2000). Recent changes in Swedish school politics also request teachers to focus more on the Goals to be attained. Probably this situation is not restricted to Sweden. It is likely that teachers all over the world fight with this dilemma. In fact it is well-known that testing and test preparations (to measure pupils' achievement of basic knowledge), is counterproductive to learning (see for example Banks, 2007). Probably the teachers in this study are more aware of the request from school politicians than the students, who may be more aware of the ideological requirements at a European level (the ideological sources may have been emphasized by their educators). A democratic classroom dialogue is not necessarily in accordance with an effort to make all pupils achieve the Goals to be attained. However, for the future we need to find ways to measure also the Goals to strive for; this study has been an example of an effort to 'measure' such goals for teachers and student teachers. We need to broaden the competence in teachers/student teachers to understand what mechanisms are working when trying to perform democratic dialogue. The experience from Sandström Kjellin & Stier (2008b) showed this necessity.

Limitations

It must be noted that the study has limitations, but partly the limitations are also the key interest of the study. The teachers in the study are from one school only; this means that they have answered from the position of their daily situation at work at the particular school; this is a limitation to the study. The teachers could have been chosen from different schools, but this would have implied a larger study that was not possible to perform. The student teachers are from one teacher training institution only; this means that they are probably influenced by the values taught at the specific institution; this is also a limitation to the study, and the reason for this is the same. However, the interest of the study is to compare ideals that student teachers are taught to apply in the future and how qualified teachers treat these ideals in practice. Therefore the method, to perform a case study is justified.

The fact that only 50 student teachers out of 107, and 33 out of 42 teachers participated in the study may be of some importance for the result. The teachers who chose not to participate did

not give a reason for this, but it is likely that those who participated were more positive towards an open discussion of values in classrooms. However, since the result showed that, as a group, the teachers were not in favour of an open discussion of classroom rules, this limitation does not seem all that important for the results of the study. If all teachers had participated they would probably have been even more negative, as a group.

The student teachers who did not participate were asked to motivate this, and a reason given by many of them was that they did not have time to take part in the study (taking part included more for the student teachers than only answering an inquiry). It seems likely that those who did not answer the inquiry were probably less in favour of an open discussion of values in classroom; this might have given another result of the study. However, a conclusion is that this is a comparison of a group of teachers and a group of student teachers who are both interested in values discussions in classrooms, and as such the result is relevant.

Acknowledgements

The study was conducted as part of the project "VIP- Values in Practice in the Classroom" given financial support by Mimer Bostads AB, the City of Västerås and The Faculty Board of Education at Mälardalen University.

References

Banks, J. (2007) Multicultural Education. Issues and Perspectives (6th ed.) Hoboken, NJ: Wiley.

Bourdieu, P. (1993). Kultursociologiska texter [Sociocultural texts ; in Swedish]. Stockholm/Stehag: Brutus Östlings bokförlag Symposion.

Commission of the European Communities (2005). http://europa.eu.int/comm/education/policies/2010/et_2010_en.html.

Lindgren, J. (2003). *Värdegrund i skola och forskning 2001* [Fundamental values in schools and research; in Swedish]. Umeå, Sweden. Umeå universitet: Värdegrundscentrum.

Sandström Kjellin, M., Månsson, N. & Karlsson, O. (submitted). *Values in Student Teachers' Educational Practice.*

Sandström Kjellin, M. & Stier, J.(2008a). Citizenship in the classroom: transferring and transforming transcultural values. *Intercultural Education, 19:1,* 41 – 51

Sandström Kjellin, M. (2008b). Focus group dialogues as a method for identifying a school's developmental needs. *European Journal of Teacher Education,31:4*, 379 — 388

Sandström Kjellin, M. & Stier, J. (2008c). Practice what you preach? Managing Cultural (Un)awareness in a Multi-Cultural Collaborative Project. *The Learning Teacher Journal*.

Swedish National Agency for Education (2006). *Curriculum for the compulsory school system, the pre-school class and the leisure-time centre Lpo 94.* Stockholm, Sweden: Fritzes.

Utbildningsdepartementet (1999). SOU 1999:63. *Att lära och leda – En lärarutbildning för samverkan och utveckling* [To teach and to guide – a teacher education for cooperation and development; in Swedish]. Stockholm, Sweden.

Utbildningsdepartementet (2000). Regeringens proposition 1999/2000: 135. en förnyad lärarutbildning [The government bill 1999/2000: 135. A renewed teacher education; in Swedish]. Stockholm, Sweden.

Zackari, G. & Modigh, F. (2000). *Värdegrundsboken – om samtal för demokrati i skolan* [The book of fundamental values – about dialogues for democracy at school; in Swedish]. Stockholm, Sweden. Regeringskansliet: Stockholm, Sweden.

Ödman, P. J. (1998). Kontrasternas spel [The play of contrasts; in Swedish] Stockholm, Sweden. Stockholm: Prisma.

Characteristics of Executive MBA Programs at Public Colleges in the United States

Fred Maidment
Western Connecticut State University

John Coleman
Western Connecticut State University

Stan Bazan
Western Connecticut State University

ABSTRACT

Eighty-three (83) public colleges of business administration were surveyed in this study. The study addressed: where the EMBA was taught; where the program was housed; how many months to complete; what percent were full-time; the percentage of practitioners; how they were compensated; and tuition costs. The programs are both expensive and demanding, and they are not entered into as a way to make money in the short-run. The public institutions use the EMBA as a means of establishing long-term connections with business and industry, and providing a valuable service to executives in their career development.

Keywords: Executive MBA, Public Colleges, Characteristics, Survey.

INTRODUCTION

Time, effort and money are being spent on the training and education of managers. Much of this money is spent on in-house training programs while additional funds are spent on education outside of the work environment. One of the sources for the training and development of managers is in the traditional collegiate educational environment. This environment includes most of the traditional colleges and universities in the United States. The programs that these institutions offer include both credit and not-for-credit programs. One of the types of programs designed for business and industry, exclusively for managers, is the Executive MBA (EMBA) program. These programs are designed expressly for managers currently working in industry who continue to perform on the job during their tenure in the programs. They represent an extensive effort on the part of the faculty of the business college, and a growing area of activity for schools and colleges of business administration.

SIGNIFICANCE OF THE RESEARCH PROBLEM

Eighty-three (83) public colleges of business administration offer EMBA programs (The Executive MBA Council, 2003). These programs are often carried out as an activity of the graduate arm of the school of business. Often a business college will establish an institute or some other similar administrative unit to help conduct the program and maintain the distinctiveness of the program from the rest of the traditional graduate offerings of the college. EMBA programs such as these are important to the college of business and the university for five reasons (Maidment, 1989):

(1) they help establish and maintain contacts with the corporate world;
(2) they give the faculty exposure to executives;
(3) they assist the college in faculty development;
(4) they operate at a profit, bringing in additional funds to the college in the form of fees; and
(5) they enhance the reputation of the university, particularly the college of business, with a potentially large source of financial and other support.

Since the university operates in a changing environment, the university must seek to maintain contact with the various important components of that environment. Business and industry represent a major source of funds and other types of support that the university may utilize. Finally, the university has an obligation to establish and maintain a positive attitude on the part of industry toward the university so graduates of the institution may find a receptive group of employers upon graduation (Maidment, 1990).

STATEMENT OF RESEARCH PROBLEM

The executive MBA program was defined, for purposes of this study, as an academic credit educational program designed by public colleges and universities for managers in industrial organizations. These programs of study led to the MBA degree (Master of Business Administration) upon successful completion of the course of study. These were distinct programs from the regular course of study leading to the traditional MBA. These programs were not evening programs such as those given at many institutions, especially in urban areas, after regular working hours. They were distinct programs from the traditional ones offered by the college of business administration. The study investigated the characteristics of executive MBA programs at public colleges of business administration.

Of particular interest were:

- the unit in which the EMBA program was housed;
- the number of months to complete the program;
- the location of the classes;
- the percent of faculty with terminal degrees;
- the percent of faculty that were full-time;
- the percent of faculty that were practitioners;
- how the faculty was compensated;
- the average compensation for a faculty member;
- the total cost of the program to the student (sticker price).

PURPOSE

This study examined the current status of EMBA programs at public AACSB accredited colleges of business administration. The study was designed to ascertain the characteristics of executive MBA programs in the United States. Finally, the study identified the characteristics of EMBA programs at public colleges of business administration in the United States.

DELIMITATIONS OF STUDY

This study addressed the EMBA programs developed for managers by public colleges of business. Colleges that were private, or were outside of the United States, were excluded from the study. 83 public colleges of business administration in the US in 2003 had EMBA programs listed in the 2003 directory of the Executive MBA Council.

OVERVIEW OF THE LITERATURE

Information on education for industry was found in two sources: (1) the literature on training and development in industry; and (2) the literature on non-traditional education in academia. This literature was separated into these two broad categories based upon the perspective of the writer of the literature, and whether they were writing from the perspective of an academic or a practitioner.

The literature on training and development in industry was essentially "how to" in nature and was usually associated with the problems of training people inside of the corporation. Occasional articles dealing with not-for-academic-credit programs at colleges of business designed for executives have appeared in the literature (Maidment, 1986), but these articles have mostly dealt with training and development. Publications included in this category would include Training, Training and Development, Workforce, HR Magazine, as well as other publications aimed at business practitioners. Over the past several years, academics have taken an interest in management education once the student has left the traditional educational environment. The establishment of fairly recent academic journals including the Journal of Management Education, the Journal of Human Resource Development, and the Journal of Executive Education all point to increased interest in the various areas of executive education. Yet, there has been little in the way of academic research and publication on Executive MBA programs.

Starting in the late 1970's and early 1980's there was a small trickle of research and publication dealing with executive education in academia for business and industry. Several dissertations were published during this time (Lowery, 1983) (Baker, 1983) (Zerges, 1984). Several studies, sponsored by a variety of groups and organizations, investigating higher education for business and industry were published (Porter, & McKibbin, 1988) (Byrne,1991). But, few of these studies addressed EMBA's directly, or if they did, only in a peripheral way as a part of the general whole. It was during this time that the MBA degree, itself, rose tremendously in popularity and demand with many more institutions offering the degree than in the past.

It should be noted that there have been a number of articles dealing with EMBA programs, in a superficial way, in terms of ranking them to see which one is the best (Ranking the Best MBA Programs, 2001). These are very popular articles and can often be found in a variety of popular publications, but really serve no useful purpose other than as a marketing tool for those institutions who's programs are ranked highly.

In sum, while the executive MBA programs are often promoted by public colleges of business, little is known about them in terms of the characteristics of these programs when viewed as a whole.

PROCESS AND METHODOLOGY

This study addresses nine (9) questions:

(1) What was the unit of the institution in which the EMBA program was housed?
(2) How many months did it take to complete the EMBA program?
(3) Where was the EMBA program conducted?
(4) What percent of the faculty had terminal degrees?
(5) What percent of the faculty were full-time?
(6) What percent of the faculty were practitioners?
(7) How were the faculty compensated?
(8) What was the average compensation for a faculty member?
(9) What was the cost of the program to the student (Sticker price)?

This study consisted of a survey of the eighty-three (83) public colleges of business administration. A rate of return 31.32 percent was obtained. Five attempts were made to contact these institutions. The first two attempts were by email and the last three attempts were by US mail. The sequence of activities was as follows:

(1) The instrument and a letter of explanation was emailed to the public colleges of business that conducted an EMBA program. This list was EMBA Council list of EMBA programs in March of 2003.
(2) Mailings three through five were sent via US mail at roughly two month intervals. These mailings contained a letter of explanation, the instrument, and a return, self-addressed stamped enveloped. Institutions that had responded to each prior mailing were eliminated from the succeeding mailing.
(3) The next step was analysis. All responses were averaged and descriptive statistics, including frequency distribution, means, and standard deviations were computed.

Responses to each question in the questionnaire were summarized. For each of the forced response questions, the frequencies and proportions of responses were calculated. A profile of the typical characteristics of an EMBA program at a public college of business administration was described.

FINDINGS

A rate of response of 31.32 percent was achieved by the study for the 83 public institutions with 28 school responding. As may be seen in Table 1, fifteen public institutions indicated where the programs were housed. Sixty-six percent of the respondents indicated that the programs were housed in the college of business;

TABLE 1
Where Was The EMBA Housed?

Location	Responses
Executive Education Facility	0
College of Business	10
College of Business Executive Degree Programs	3
Graduate School of Management	1
Graduate School	0
School of Management	1
Responses to question	15

Length of the program was also addressed by the study. There was one school that responded with more than one EMBA program making a total of 28 EMBA programs addressed in this category as one other institution did not respond. Nearly forty percent of the programs took between 19 and 21 months. However, programs at public institutions taking only 12 months and 22 to 25 months were almost equal in number.

TABLE 2
How Many Months Does the EMBA Take?

Number of Months	Responses
12 – 18	8
19 – 21	11
22 – 25	7
26 – 29	2
Over 30	0
Responses to questions	28

EMBA programs were frequently held at more than one location including regular classrooms, off campus and separate education facilities on campus. "Other" locations for public AACSB accredited institutions indicated by the respondents included:

- On campus in "special" classroom;
- On campus, but in executive style regular classroom;
- On campus in "special" high tech classroom;
- EMBA facility

As may be seen in Table 3, one of the more interesting aspects of this data is that only three institutions had on-line as a site for their instruction. Given the recent discussion on internet/web/on-line instruction, it is interesting that only three of the twenty-eight institutions would be utilizing on-line instruction in their programs.

TABLE 3
Where Were the Classes Conducted?

Location	Responses
Regular Classroom	10
Off Campus	9
Separate Executive Education Facility on Campus	9
Online	3
Other	3
Responses to question	34

The percent of faculty with terminal degrees, the percent of full-time faculty, and the percentage of practitioners used in the programs was also of interest to the researchers. The mean percentage of faculty with terminal degree at public universities was over 90 percent. The percentage of full-time faculty in public EMBA programs was over 95 percent, and practitioners accounted for less than 9 percent of the faculty at public executive MBA programs.
Faculty were compensated using a variety of methods, and many used more than one, but as indicated in Table 4, over half of the methods utilized involved either as a part of the regular salary and teaching load or as overload credit. In addition to a separate contract, other compensation methods at public institutions included:

- All receive additional stipend of $750 per credit hour taught;
- Load plus stipend;
- Combination overload and regular salary load.
- Extra stipend in addition to regular load

Of those faculty that were compensated over and above their regular teaching load or overload credit, well over half were compensated over $6,000 per course/module.

TABLE 4
How Were Faculty Compensated?

Methods	Responses
Separate Contract	9
Part of Regular Salary and Teaching Load	14
Overload Credit	8
Other	5
Responses to question	35*
	*Some institutions used multiple methods

CONCLUSIONS

The analysis of the data collected yields several interesting conclusions. First, all of the EMBA programs were housed in colleges of business or schools of management. This suggests that EMBA programs are grounded in traditional business school structures and processes and are not part of the executive or management development programs that can be found at many public colleges. Second, the cycle time for students to move through EMBA programs is short as 26 out of the 28 respondents indicated that their programs could be completed in 25 months or less. The majority of programs took only 19 – 21 months to complete. The short cycle time for students to move through these programs suggests a need for very tight scheduling, staffing, and other logistics and also indicates a need for continuous and robust recruiting. Only three respondents indicated that classes were conducted online. This is surprising and may represent an opportunity to shorten the length of programs, reduce the cost of delivering programs, and provide more flexibility for students. Give that over 95% of the faculty in EMBA programs were full-time faculty and that EMBA programs tend to be pragmatic and applied in nature, it would be interesting to see if more practitioners could be deployed to the EMBA classroom. Doing so might provide an even more applied focus in certain courses and might help conserve the load credit of full-time faculty for other activities. If this alternative is considered, the standards for professional qualifications of the AACSB would have to be fully considered. Finally, EMBAs are expensive and the price of these programs ranged between $14,000 and $100,000. Schools offering EMBAs may need to be more conscious of prices and perceived value given the current emphasis on cost containment in most companies.

RECOMMENDATIONS FOR CONTINUED STUDY

An initial avenue for continued study could be to compare the characteristics of EMBA programs to the characteristics of traditional full-time or part-time MBAs to assess how similar or dissimilar these programs really are. Outcome measures such as satisfaction with one's classmates, impact on employment or career, and satisfaction with the overall experience could be evaluated. More specific areas of research could investigate the potential roles of practitioners in the EMBA classroom, the enhanced use of on-line technology to include social networking sites, and the relative price sensitivity of potential EMBA students and their employers. Additional areas for exploration could include the use of cohort models, the use of varied models of class scheduling, and areas of academic emphasis such as ethics, finance, or even processes used in consulting. A last area of study could be to systematically investigate the projected benefits attained from the business community as a result of offering the EMBA. This research would focus on the return on investment from offering EMBA programs and such analysis could be useful in making more informed choices about the amount and type of resources that might be committed to these programs.

REFERENCES

Allio, R. J. (1984). Executive Retraining: The Obsolescent MBA, Business and Society
Review, Rensselaer Polytechnic Institute, 50: 59-61.

Baker, J. S. (1983). An Analysis of Degree Programs Offered by Industrial Corporations, Unpublished Doctoral Dissertation, University of Arizona.

Byrne, J. (1991). Business Week's Guide to the Best Business Schools, New York, McGraw-Hill.

Lowery, O. (1983). A Summative Evaluation of Short-term Training Programs For Middle Management Government Employees Involving Their Application of a Goal Setting Procedure to On-site Performance, Unpublished Doctoral Dissertation, University of Southern California.

Maidment, F. (1986). Educating Execs: B-Schools Want the Job, Managerial World, The Administrative Management Society, Willow Grove, PA, June, (15)5: 44.

Maidment, F. (1989) Clientele of Executive MBA Programs at Public AACSB Accredited Colleges of Business. The George Mason University Seventh Annual Conference on Non-Traditional Interdisciplinary Programs.

Maidment, F. (1990) Characteristics of Continuing Education Programs at Public Departments and Schools of Accountancy Accredited by the AACSB. The Journal of Technical Careers. Southern Illinois University, Carbondale, Illinois: March.

Porter, L. W., & McKibbin L. F. (1988). Management Education and Development: Drift or Thrust into the 21st. Century, New York, McGraw-Hill.

Ranking the Best EMBA Programs (2001). Business Week, October 15, (3753): 16.

The Executive MBA Council (2003). Directory of Executive MBA Programs. Orange, CA.

Zerges, R. (1984). Instructor Behaviors Valued by Continuing Education Business Student Related To Student Personality Type, Sex, and Program Majors, Unpublished Doctoral Dissertation, Cornell University.

Accessible Distance Education 101

Jodi Roberts
Mississippi State University

Laura Crittenden
Mississippi State University

Abstract

Currently, there is a quiet but insistent discussion gaining voice and prominence among educators, legislators, and students alike to actively evaluate and enforce the development of new standards that address the specific educational accessibility needs of those individuals with disabilities. Unfortunately, understanding the process of implementing accessible distance education has been slow to come to fruition despite the increasing enhancements of technology. With each new technology developed and implemented by institutions of higher learning, the need to address the accessibility component of each course offered is essential. Since approximately 600 million people worldwide have some type of disability, public and private entities should be aware of the many issues which may affect the learner of the media being utilized (United Nations Educational, Scientific and Cultural Organization, 2006). Campuses are pushing the latest and greatest technology in regards to distance education, but as the debate regarding online accessibility continues, institutions are in need of comprehensive training in order to work proactively to ensure that all learners can benefit. The key to moving toward full and equal accessibility for everyone begins with a clearly defined definition of the term, as well as an understanding of the term in relation to the types of technology that exist.

Keywords: accessibility, compliance, disability, distance education, higher education

Accessibility's Legislative History

In 1973, Congress laid the groundwork for the equal access for all Americans when it passed Public Law 93-112 Rehabilitation Act. The law advanced the Civil Rights movement and mandated that all persons, whether disabled or not, have equal access to employment. The Rehabilitation Act of 1973 was designed primarily to help people with disabilities obtain, maintain, or retain employment. However, the Act also contained Title V, Section 502, provisions which mandated accessibility of buildings and telecommunications. Section 504 of the Rehabilitation Act of 1973 also states that … "no otherwise qualified individual with a disability… shall, solely by reason of his or her disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal Financial assistance…" (U.S. Department of Labor (USDOL), 2006). Within this statement, institutions of higher learning are included, as is any public system of higher education (USDOL, 2006). This law laid the groundwork for more extensive legislation that would be established within the next seventeen years.

In 1990, Public Law 101-336, the Americans with Disabilities Act (ADA), was passed, which covers disability compliance for all aspects of society, ranging from "commercial establishments, public accommodations, and telecommunications…" (Wheaton & Granello,

2003, p. 4). The ADA is built on an existing foundation of which all private business, as well as local, state, and federal governments, are mandated to make their products and services accessible to all people, including those with disabilities, in order to be in compliance with equal access regulations. To clarify, the ADA addresses four main areas of compliance: ". . . (a) the full participation and maximum independence of people with disabilities, (b) the dynamic nature of disability, (c) discrimination as encompassing both prejudice and barriers, and (d) environmental alterations to reduce functional limitation" (Danek, Conyers, Enright, Munson, Hanley-Maxwell, & Gugerty, 1996, p. 40). While the ADA strengthened the foundation for equal access for all, future amendments addressed the technology boom that took place in the 1990s.

In the 1990 ADA legislation, Congress did not specifically mention web pages or online courses, although Section 508 of the Rehabilitation Act does stress that federal and state agencies will ensure their electronic information is accessible to all. Section 508 was established in 1998 as an amendment to the Rehabilitation Act and was designed to specifically set minimum guidelines for information and technology accessibility standards for electronic information. "Such information must be available in alternate formats upon request at no additional charge. Alternate formats or methods of communication can include Braille, cassette recordings, large print, electronic text, Internet postings, TTY access, and captioning and audio description for video materials" (General Services Administration, 2006). Accessible distance education would also be included under Section 508. Since the passage of these laws, new standards have been developed to ensure that electronic information will be accessible to persons with and without disabilities. However, until recently, accessibility in distance education programs has not been formally addressed.

Accessibility and Distance Education: The Necessity of Reciprocal Recognition

When developing courses for online instruction, it is essential that educators are equipped to meet the needs of all of their potential audience members, which may include individuals with disabilities. By taking the approach that meeting accessibility standards is a tool to enhance learning, it becomes a fundamental element to the educational success of all students, which is the central value of any educator and/or educational institution. Understanding accessibility as a skill that can be taught is essential to the overall success of a particular program or course, and educators will more readily embrace the concept and take action. If implementing accessibility is communicated to be a method in which all faculty members are invested, then the collective body will be more apt to move toward such design. Since approximately 600 million people worldwide have some type of disability, public and private entities should be aware of the many issues which may affect the learner of the media being utilized (UNESCO, 2006). It is also important that designers and instructors recognize the difference between accessibility and usability with regards to course design. By making online courses accessible, educators will be making the course usable by all persons regardless of whether or not a disability is present.

In light of the growth pattern of distance education across the nation and the globe, making online courses accessible can easily fit into any institutional vision. In a Sloan study conducted by Allen and Seaman, surveys were sent to the chief academic officers of 4,491 institutions of higher learning, of which 2,251 responses (50.1% response rate) were combined with responses from annual surveys encompassing 2002 through 2005 to determine a growth rate of and commitment level to distance education (2006). Results of the study illustrated "…that almost two-thirds of all institutions of higher education currently have some form of online

course or program offerings" (Allen and Seaman, 2006, p. 133). In addition, the overall agreement with the statement that "online education is critical to the long term strategy of their school" was found to be at 58.4% for the 2006 survey year (Allen and Seaman, 2006, p. 137). Clearly, it is of equal importance for educators to recognize the difference between accessibility and usability in order to adequately assist students with disabilities via distance.

Usability affects all users of electronic information, and all users are equal. Accessibility, however, affects whether a person with a disability can access a website or the corresponding course materials; thereby, materials that are usable are not automatically accessible. Herein lies the true distinction between these two buzz words of the technological age, and it is this distinction, so minute in it application but so vastly different in terms of implementation, that initiates heated debates over exactly what qualifies as fully accessible or simply usable. Trying to find a starting point for coming to terms with the necessary knowledge and skill base for this implementation can be both frustrating and overwhelming. While it is clear that institutions of higher learning are pushing the latest and greatest technology in terms of distance education, the hope is institutions will come to terms with accessibility – its meaning and its application – proactively rather than reactively. Only via such a thoroughfare will accessibility standards not only be met but exceeded. Since exceeding standards of academic rigor, faculty excellence, and accreditation are part of the norm in higher educational institutions, then the discussion regarding meeting accessibility standards should be focused on supporting these ideals.

To emphasize an earlier point, educators must understand the importance of accessibility and how it affects all members of the audience for which the instruction is intended. They must ensure that when they are developing online education programs their "materials are developed in more than one media to allow all students access…" as well as those with mental, physical, or other sensory disabilities (Persichitte, Ferrell, Lowell, Nathan & Roberts, 2000, p.157), and "all potential characteristics of participants are considered" (Burgstahler, 2001, p. 5), since their target audience will most likely contain people with disabilities in light of the exponential growth of distance education globally. Making sure that all the information is in an accessible format will ensure equal access for all. In 1996, the U.S. Department of Justice ruled that all distance education courses must be fully accessible to all qualified people with disabilities who enroll in the course (Burgstahler, 2006). Instead of waiting for users to find out that the programs are inaccessible, institutions should provide educators with the necessary tools and training to address accessibility issues in terms of course design.

Multimedia and Disabilities

Accessibility standards have been developed by the World Wide Web Consortium (W3C) based on the mandates set out by Section 508 of the Rehabilitation Act, as well. W3C is an international consortium made up of organizations, the general public, and W3C staff that work to develop standards for the Web, including those that deal with accessibility. Accessibility standards that have been created continue to grow as more and more individuals seek the convenience of distance learning as the only means through which they can obtain a quality education without sacrificing career and family obligations. The standards set forth by the W3C are considered the benchmark for web accessible sites and pages. In order to fully understand the issues with respect to accessibility to online instruction, it is helpful to understand the groups that are most affected, as well as identify the most common roadblocks they are experiencing.

Typically, these groups are comprised of people with hearing, visual, mental, and/or mobility impairments (Burgstahler, 2002; Foley & Regan, 2004).

When considering the accessibility of multimedia and people with disabilities, it is helpful to understand how they may use that media. Table 1 illustrates how certain disability groups may access online materials (Thompson, Bethea, 1996; Thompson, Bethea, Rizer, & Hutto, 1997, 1998; Georgia Tech Research on Accessible Distance Education, 2005; Nielsen, 2000). The information provided in Table 1 is not meant to be all inclusive but is intended to provide a basic overview of issues which most often affect these groups. The best starting point for further research is to ask the students what they can and cannot access.

Table 1: Select disabilities and how they interact with different types of media.

Disability Type	Access Issues	Possible Modifications
Hearing or Hard of Hearing	• Unable to hear audio based materials. • Background noise may impede ability to hear.	• Closed or open captioning of media. • Transcripts for audio based files. • Use of video cues as well as audio cues.
Blind or Low Vision	• May not be able to see or read small text or graphics. • Materials may not be accessible to the assistive technology devices used by the student. • Screen readers or magnification software most often used.	• Provide alternative text write up. • Save PowerPoint slides as rich text. • Provide descriptive text for other visual information. • Order texts in Braille. • High contrast between background and foreground colors. • Format to allow for mouseless operations.
Mobility Impairments	• May have limited use of hands and arms. • May also have decreased eye-hand coordination. • May be unable to use mouse or make multiple key strokes. • May require the use of screen reader.	• Provide alternative text write up. • Save PowerPoint slides as rich text. • Provide descriptive text for other visual information. • May need information presented in a format in which the student can control the pace of instruction. • Format to allow for mouseless operations.
Learning Disabilities	• May not be able to process information if material moves too quickly. • Material presented with too much background can be distracting.	• Provide information in an alternate format. • May need information presented in a format in which the student can control the pace of instruction. • Provide written instructions.

Accessible Software

A closer examination of distance education platforms and software used to develop distance programs are the basis for determining if those programs meet current accessibility standards. For example, Adobe, the developer of such programs as Adobe Acrobat and

Macromedia's Dreamweaver, is one of the leading organizations working toward ensuring that users of its software products develop sites that meet the current accessibility standards. For example, Adobe products are often used to convert existing materials into accessible products, such as PDF or HTML documents. Macromedia has developed and implemented accessibility checks into their most recent versions of Dreamweaver. These checks enable educators to immediately identify areas of their online courses that do not meet accessibility standards. In the Preferences section, the educator can select the features that they want to make accessible. For example, if the educator has inserted a graphic into the page, the Dreamweaver program will prompt for alternative text to be added. When the mouse then glides over the graphic, the alternative text will appear, telling the student what the graphic was designed to display. If the graphic is intended to provide a great deal of information, the long description option will need to be utilized. Long descriptions are typically separate text and describe in great detail what the image is.

Cascading Style Sheets (CSS) is a style document which dictates how the document should appear and is usually saved as a separate document referenced in the header section of the mark-up. This feature is very popular in that it allows for easy access to codes used for styling, and if the code needs to be changed, educators need only make the appropriate change in one place in order to affect the entire document. CSS not only determines the style of the document but helps with the accessibility of the layout for tables, forms, and graphics within the document.

Although people with disabilities can adjust their browsers to make most pages accessible, the most effective way of making online materials accessible is to design sites using accessibility features that are built into the program (Mills, 2000). Dreamweaver does that for educators; in fact, they do not even need to know all of the regulations. If a problem arises, Dreamweaver will alert educators as to what the problem is and why. This validation check makes it easier for educators to identify, correct, or avoid inaccessibility issues in the earliest stages of development (Mills, 2000). Dreamweaver will check all the multimedia files and prompt educators to add the accessibility elements required for that media; thus, it has passed the accessibility test to date.

Ensuring Online Accessibility

Currently, many validation tests are available to determine if online documents and web pages are accessible. In 1990, when the W3C was officially established, its main objective was to make the web accessible to all users. The Web Accessibility Initiatives (WAI) and Web Content Accessibility Guidelines (WCAG) are the two key guidelines developed by the W3C designed to assist with accessibility regardless if the student(s) has a disability (W3C, 2006b).

To begin, the WAI is comprised of five priority areas that educators use as tools to address accessibility issues. The five priority areas are technology, guidelines, tools, education, and outreach, with research and development components included. If a noncompliant accessibility issue arises within a document and educators are unsure of how to rectify it, they are directed to the W3C website and provided the WAI guidelines with applicable examples of how to resolve the problem and become compliant. Additionally, the WCAG works within a set of priorities and guidelines created to assist educators in order to make all web-based documents accessible to people with disabilities. Each guideline has a checkpoint, each checkpoint has a priority, and each priority has a conformance standard. The checkpoint priorities are illustrated in Table 2 (W3C, 2005).

Table 2: Checkpoint Priorities

Priority 1	Content "**must** satisfy this checkpoint. Otherwise, one or more groups will find it impossible to access information in the document".	"Satisfying this checkpoint is a **basic requirement** for some groups to be able to use Web documents".
Priority 2	**Content "should** satisfy this checkpoint. Otherwise, one or more groups will find it difficult to access information in the document".	"Satisfying this checkpoint will **remove significant barriers** to accessing Web documents".
Priority 3	**Content "may** address this checkpoint. Otherwise, one or more groups will find it somewhat difficult to access information in the document".	"A Web content developer Satisfying this checkpoint **will improve access** to Web documents".

Conversely, WCAG conformance standards indicate at what level the site has met the established priorities. There are three different levels of conformance as illustrated in Table 3 (W3C, 2005). Designers of online materials should aim for Priority 3 and a Conformance Level of "Triple-A."

Table 3: Conformance Standards

Level A	All Priority 1 checkpoints are satisfied
Double-A	All Priority 1 & 2 checkpoints are satisfied
Triple-A	All Priority 1, 2 & 3 checkpoints are satisfied

It is important to note when discussing accessibility compliance that there are many different types of evaluation and repair tools available that can be used to determine if online materials are meeting even the minimum standards of accessibility. Most of these do not cost educators anything but are an excellent resource for providing immediate accessibility feedback. *Bobby was* the most recognized evaluation tool that provided a free service to allow educators to check and repair accessibility barriers. Since Bobby's acquisition by IBM in 2007, it is no longer available (Utah State University, 2009). However, a variety of free resources are available to take *Bobby's* place. One such product is WebAim's WAVE (2009). WAVE will check individual pages to see if it conforms to the WCAG and Section 508 guidelines (see Table 4). Upon completion of the check, *WAVE* provides a report indicating where the barriers to accessibility lie and the guidelines for repairing them (see Table 5). Each symbol tells the web developer what the specific accessibility barrier and how to fix the problem. In addition to *WAVE*, the W3C offers a free HTML validation checker, (See Table 6) which incorporates the W3C standards and ensures that the page and its contents work in all accessible formats (W3C, 2006a; W3C, 2006b). Table 7 illustrates the final report for that particular webpage. The report highlights the line where the error occurred and a brief description of the problem as well as suggestions for repairing the error.

Table 4. WAVE checking a website for accessibility.

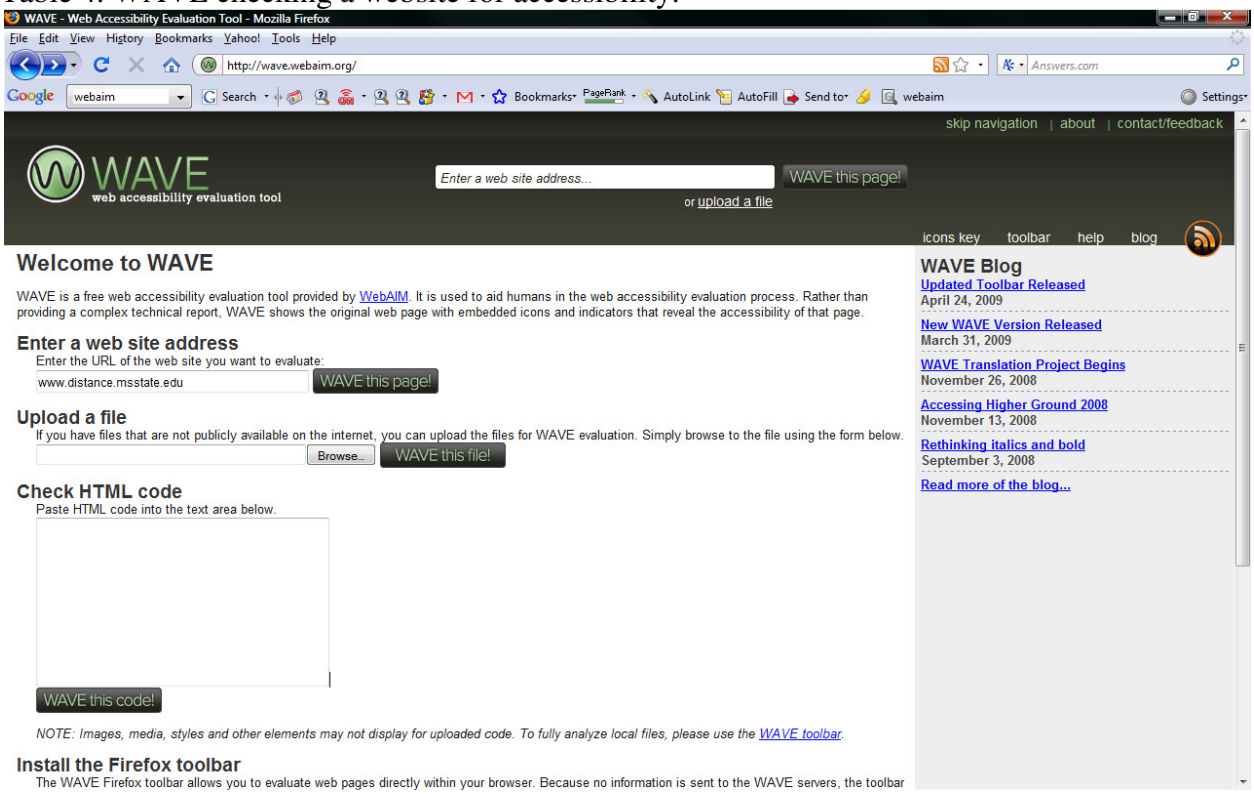


Table 5. WAVE Accessibility Report

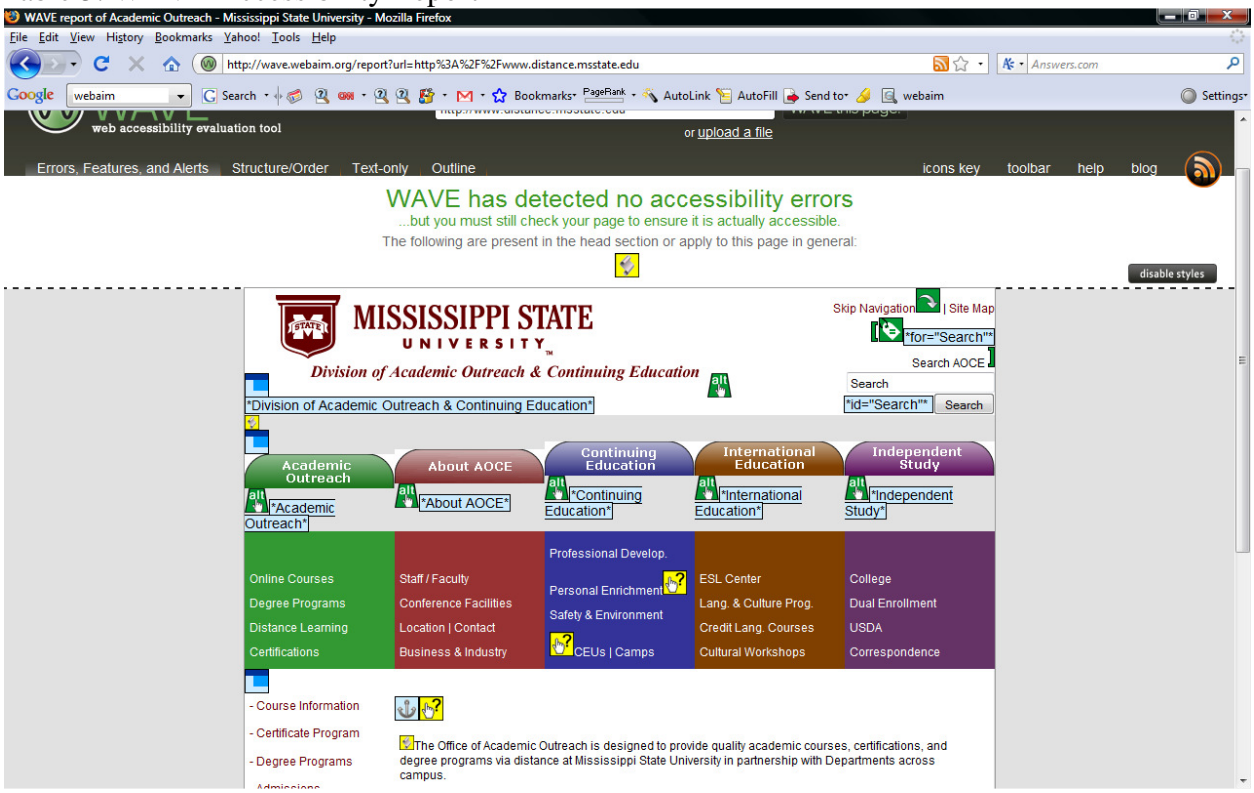


Table 6. W3C Checking website for accessibility.

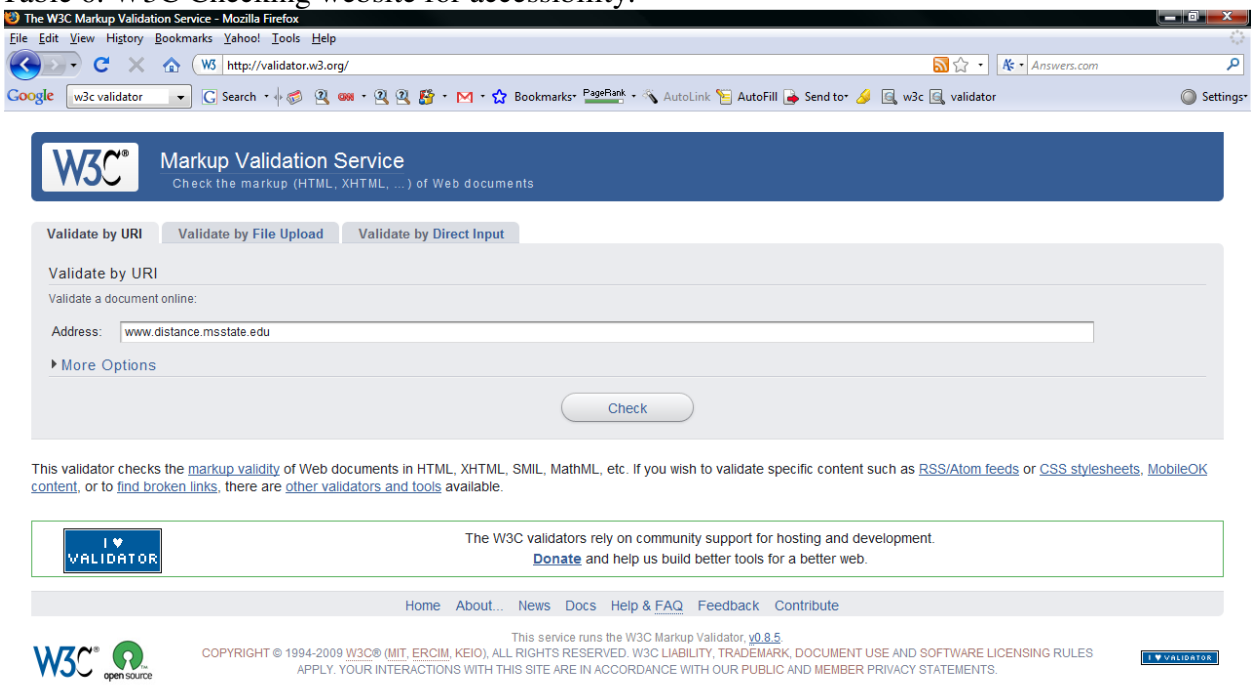
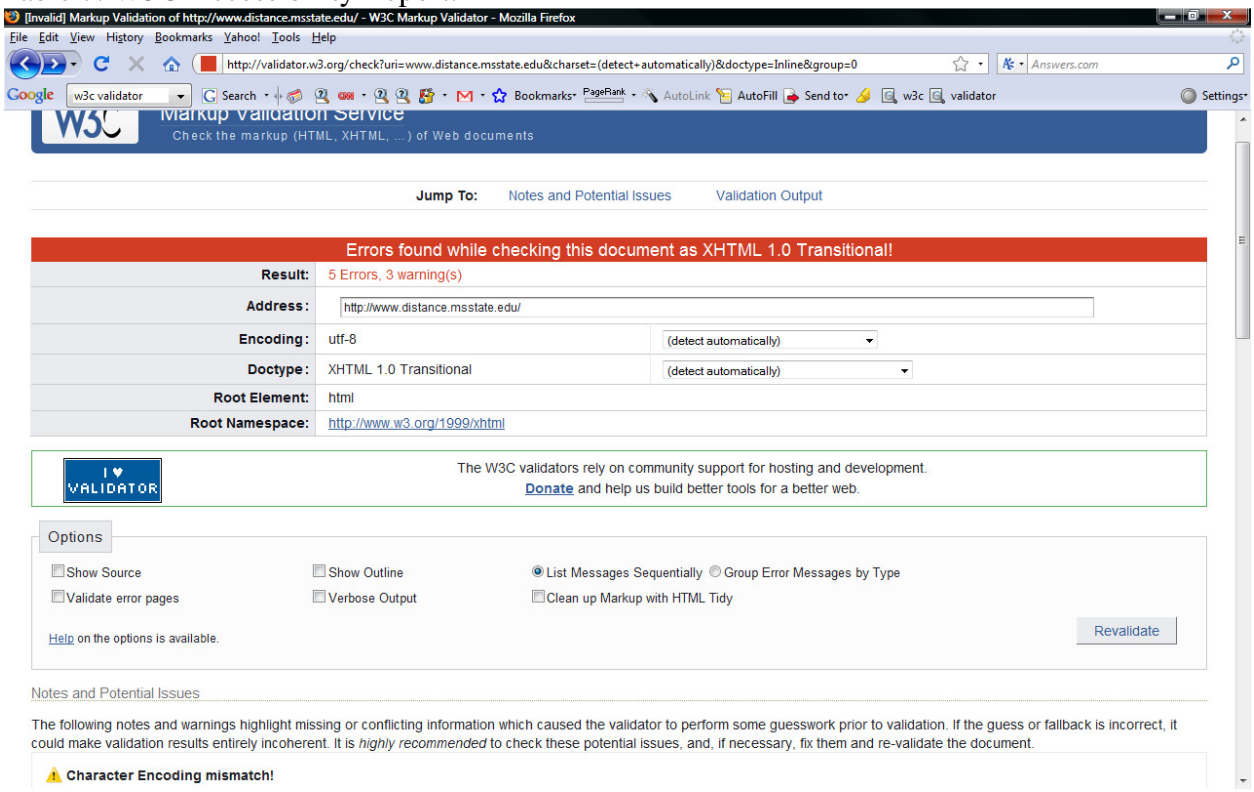
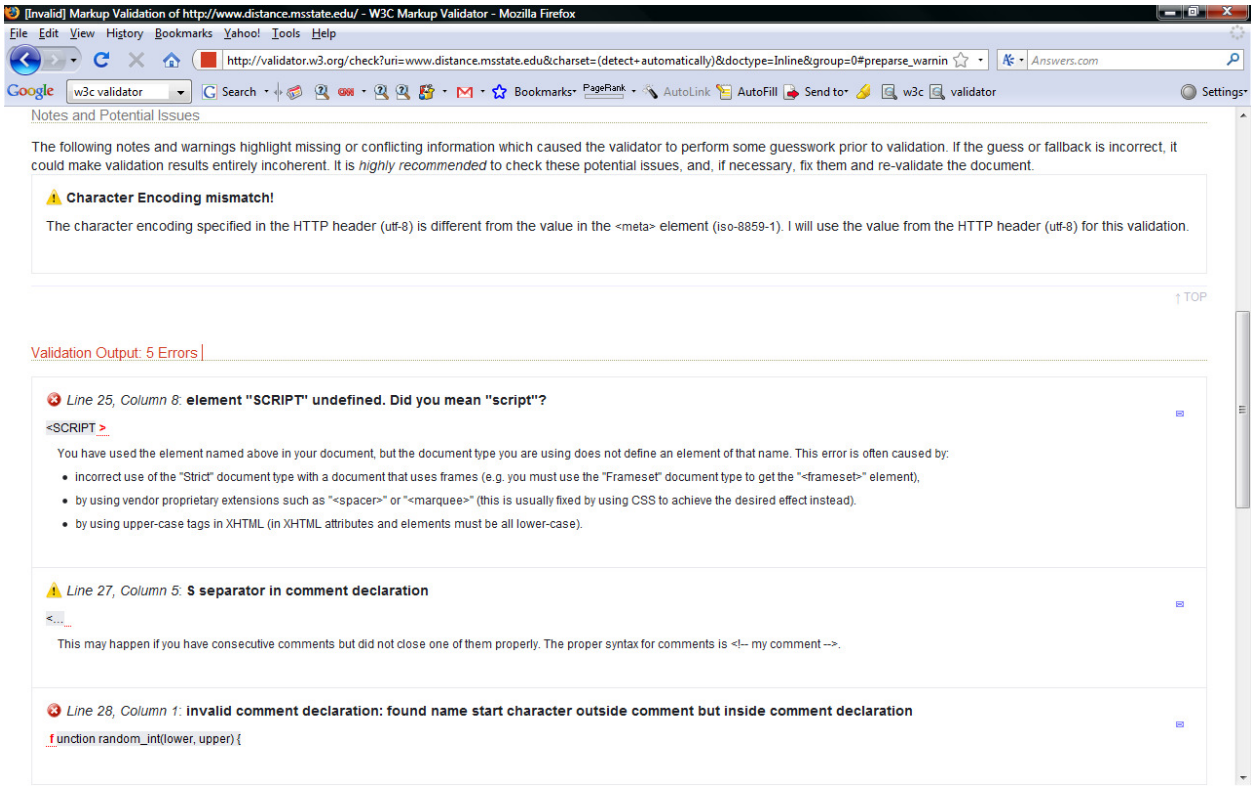


Table 7. W3C Accessibility Report.





WAVE and W3C are only two of the free resources available to web developers to assist them in complying with web accessibility standards. As demonstrated above, accessibility does not have to be costly or difficult to achieve.

Conclusion

Clearly, there are specific laws in place that mandate accessibility, and while designing accessible distance education courses does require advanced planning, this planning benefits everyone regardless of whether a disability exists or not. Accessibility should be approached from the mindset that understanding its benefits is part of a global and mutually rewarding service. With the free software and other standardized tools available to educators, accessibility can easily become a part of the design process. Meeting the needs of persons with disabilities worldwide continues to rise, as does the need for accessible distance education courses and the increase in the use of technology to access these courses. With this mindset, accessible education compliments the criteria necessary to meet standards of academic quality and rigor.

References

Allen, E. I., & Seaman, J. (2007). *Changing the landscape: More institutions pursue online degree offerings.* On the horizon, 17, 130-138.

Burgstahler, S. (2006). *Equal access: Universal design of distance learning.* DO-IT. Retrieved November 7, 2006 from http://www.washington.edu/doit/Brochures/PDF/equal_access_uddl.pdf.

Burgstahler, S. (2002). *Distance learning: universal design, universal access.* Educational Technology Review, 10(1). Retrieved November 10, 2004 from http://www.aace.org/pubs/etr/issue2/burgstahler.cfm.

Burgstahler, S. (2001). *Real connections: Making distance learning accessible to everyone.* DO-IT. Retrieved November 10, 2004 from http://www.washington.edu/doit/Brochures/Technology/distance.learn.html.

Danek, M.M., Conyers, L.M., Enright, M.S., Munson, M., Brodwin, M., Hanley-Maxwell, C., & Gugerty, J. (1996). Legislation concerning career counseling and job placement for people with disabilities. In E.M. Szymanski & R.M. Parker (Eds.) *Work and disability: issues and strategies in career development and job placement* (pp.39-78). Austin, TX: Pro-Ed, Inc.

Foley, A. & Regan, B (n.d.). *Best practices for web accessibility design and implementation.* Macromedia website. Retrieved November 11, 2004 from http://www.macromedia.com.

General Services Administration (2006). *Summary of Section 508 standards.* Retrieved October 15, 2006 from http://www.section508.gov/index.cfm?FuseAction=Content&ID=11.

Georgia Tech Research on Accessible Distance Education (2005). *Access e-learning.* Georgia Tech Center for Assistive Technology and Environmental Access, Atlanta, GA.

Mills, S.C. (2000). *Unlocking the gates to the kingdom: Designing web pages for accessibility.* Proceedings of Selected Research and Development Papers Presented at the

National Convention of the Association for Educational Communications and Technology, Denver, CO.

Nielsen, J. (2000). *Designing web usability: The practice of simplicity.* Indianapolis, IN: New Riders Publishing.

Persichitte, K.A., Ferrell, K.A., Lowell, Nathan, & Roberts, S. (2000, October). *Distance learning and disability access: A success*. Paper presented at the National Convention of the Association for Educational Communications and Technology, Denver, CO.

Thompson, A. R., & Bethea, L. L. (1996). *A desk reference guide for faculty and staff: College students with disabilities.* Mississippi State University, Starkville, MS.

Thompson, A.R., Bethea, L. L., Rizer, H.F., Hutto, M.D. (1998). *College students with disabilities and assistive technology: A desk reference guide.* Mississippi State University, Starkville, MS.

Thompson, A.R., Bethea, L. L., Rizer, H.F., Hutto, M.D. (1997). *College students with disabilities and assistive technology: A desk reference guide.* Mississippi State University, Starkville, MS.

United Nations Educational, Scientific and Cultural Organization (2006). Retrieved November 6, 2006 from http://www.unescobkk.org/index.php?id=3063.

U.S. Department of Labor. *Section 504, Rehabilitation Act of 1973.* Retrieved October 15, 2006 from http://www.dol.gov/oasam/regs/statutes/sec504.htm.

Utah State University (2009). WebAim newsletter, February 2008. Retrieved April 28, 2009 from http://www.webaim.org/newsletter/achieves,php.

WAVE, 2009. *Web accessibility evaluation tool.* Retrieved April 28, 2009 from http://.wave.webaim.org.

Wheaton, J.E., & Granello, P.F. (2003). *Designing web pages that are usable and accessible to all.* Cybercounseling and Cyberlearning: An Encore. Retrieved November 10, 2004. (ERIC Document Reproduction Service No. ED481130).

World Wide Web Consortium (W3C) (2006). *Markup Validator Service.* Retrieved November 1, 2006 from http://validator.w3.org/.

World Wide Web Consortium (W3C) (2006). *Web Accessibility Initiative.* Retrieved October 27, 2006 from http://www.w3.org/WAI.

World Wide Web Consortium (W3C) (2005). *Web Content Accessibility Guidelines 1.0.* Retrieved March 6, 2005 from http://www.w3.org/TR/WAI-WEBCONTENT/wai-pageauth.html#priorities.

The macroeconomics course and the college student vote - A new assessment of economic literacy

Karen Spohn
Rivier College

Kevin Wayne
Rivier College

Abstract

This study examines the effects of the principles of macroeconomics course on the college student vote. This study surveys a small group of college students (n=40) enrolled in a macroeconomics course during the election of 2008. Students in this course were required to examine the economy and rate the economic plans of both McCain and Obama. College students' ratings were compared to economists' ratings in a new test of economic literacy. Findings from this study indicate that one in three college students changed their vote as a result of the course requirements. Other results from this survey are presented in addition to suggestions of future research on assessment that defines economic literacy as the ability to "think like economists."

Keywords: macroeconomics course, college student vote, presidential election, economic literacy, assessment

1 Introduction

1.1 Background

During the 2008 U.S. presidential campaign, the dramatic changes in financial events placed economic issues in the forefront of media debate and coverage. This emphasis on economics is not new to American politics. Over the past three decades, the economy has trumped moral issues as the major concern of individual voters (Ansolabehere, Rodden & Snyder, 2006). Consequently, U.S. voters went to the ballot box on November 4, 2008 with the economy on their minds.

Previous studies indicate deficiencies in the economic literacy of the U.S. voting public. According to the results of the 1996 Survey of Americans and Economists on the Economy (SAEE), biased beliefs and misconceptions about economics exist among the typical median voter in the U.S. (Caplan, 2008). In the 2005 National Council on Economic Education survey, the participants averaged 70 percent on a test of economics and finance. In addition, 28 percent of the respondents failed (Koshal, Gupta, Goyal, & Choudray, 2008).

Compared to their non-college bound peers, college students are more likely to vote in presidential elections (Farrell & Hoover, 2004). Similarly, the college voter is more likely to have taken a college level economics course. Economists and economic educators continue to discuss what the principles of economics course should achieve for the non economic major (Lucas, Krueger, & Blank, 2002). Some question the effectiveness of such courses to teach students to "think like economists." In *The Myth of the Rational Voter: Why Democracies*

Choose Policies, Caplan (2008) argues that economic education has only had a marginal effect on the economic literacy of the U.S. voter.

The 2008 U.S. presidential campaign highlighted the importance of economic literacy of the voting public. The election also provided a real-time experiment to measure the impact of an economic principles course on the college student vote.

Similarly, the presidential campaign offered an alternative means of assessment of the economic literacy of college students. Over the years, the traditional assessment tools included the Test of Economic Literacy (TEL) developed by the Joint Council of Economic Education and the Standards of Economics Survey developed by the National Council on Economic Education (Koshal, Gupta, Goyal & Choudhary, 2008).

In this paper, economic literacy is narrowly defined as the ability to "think like an economist" when evaluating the economic plans of the presidential candidates. In a 2008 survey by *The Economist,* economists were asked to evaluate the overall plans of both presidential candidates. Similarly, in this study, college students enrolled in the macroeconomics principles course were asked to analyze and rate the economic plans of both McCain and Obama. The college students' results were then compared to the economists' results.

1.2 Research Questions

This paper addresses the following key research questions: 1) Can a macroeconomics principles course taken at the time of a presidential election affect the college student vote? and 2) Can a macroeconomics principles course teach college students to "think like economists" when evaluating the economic plans of the presidential candidates?

To address these questions, two surveys were conducted on a small sample of college students (n= 40) enrolled in a principles of macroeconomics course during the U.S. presidential campaign of 2008. Key results of the college student survey were than compared to results of *The Economist* 2008 survey.

1.3 Purpose and Plan of Study

The purpose of this study is to provide new insight into the effect of a principles of macroeconomics course on the college student vote. In addition, it offers a new means of real-time assessment of the economic literacy of college students. The paper is organized into the following sections. Section 2 is the literature review. Section 3 is the methodology section which presents the primary data collection process including the survey instruments used and details of the economic analysis required by each student. Section 4 is the analysis of results. Section 5 is the conclusion which includes additional comments on the limitation of the data and suggestions for future research.

2 Literature Review

Economics has become a dominant theme in American politics. This pattern has developed despite a concurring trend by the major political parties to become increasingly oriented around religion and culture rather than economics (Glaeser & Ward, 2006). Studies have indicated that the role of the macro economy has a major effect on voter outcome. Smyth and Taylor (2003) find that the macro economy contributes more to the success or failure of

political issues than did scandals in previous administrations. Studies have found that economic judgments motivate individuals to switch between parties and also lead to nonvoting by devoted partisans (Tillman, 2008).

Over the past three decades, economics has had more weight than moral issues among individual voters (Ansolabehere, Rodden & Snyder, 2006). The 2008 presidential election was no exception. The U.S. financial crisis made the economy the key issue on voters' minds. College-age voters shared similar concerns. According to a self-selected online poll, 90% of college-age respondents indicated that "the economic crisis" was a factor in their voting decision (Campus Compare.com, 2008).

Wood and Doyle (2002) found that greater economic literacy was associated with more overall education and more college economics coursework. College-age voters, however, are not guaranteed a full understanding of economics and the models that economists use to evaluate an economy. U.S. high school graduation requirements in economics are limited and typically fall under Citizenship Guidelines that vary by state. In New England, for example, New Hampshire requires a minimum of one-half credit in economics. Contrarily, Massachusetts does not list any specific minimum credit requirement in economics to graduate. In addition to differences created by state mandates, variations exist within classes that follow the state imposed guidelines (Lopus, 1997).

As a result, the undergraduate economics principles course may be a college student's first exposure to a semester long concentration in either the macro or micro economic models. Since college students are more likely to vote than their non-college bound peers, the college principles course may play an important role in college student voting patterns.

Discussions continue amongst economists and economic educators as to what the principles of economics course should achieve for the non economics major college student (Lucas, Krueger, & Blank, 2002). Caplan (2008) questions the effectiveness of economic education in the following:

> Even the most talented teachers in economics have to admit that their reach exceeds their grasp. The amount of economics that students learn in an introductory course is disappointingly small. Even if you successfully teach your students how to think like economists, many perhaps most, of them reconcile with their misconceptions soon after the final exam. (p. 3)

Roos (2007) examined non-expert beliefs about the macro economy and asked whether economic education makes a difference. Roos found that students whether majors in economics or business administration interpret macro events differently than economists.

Roos' results also suggested that application of current events may be instrumental in learning economic concepts. Consequently, the presidential election and financial crisis offered a real time experiment to examine college student voting decisions as well as their economic literacy as measured by their evaluation of each presidential candidate's economic plan.

3 Methodology

3. 1 Overview

The participants of the study were taken from a convenience sample of students (n=40) enrolled in two principles of macroeconomics courses at a small college in New England in the fall 2008 semester. At the start of the course, students completed a preliminary survey on the

presidential election. This preliminary data collection is labeled Pre-Project Survey. Students were assigned a research project that included the analysis of the current economy and the economic plans of each of the presidential candidates. The day before Election Day, students who completed the research project also completed a second and final survey. The final data collection is labeled Post-Project Survey. All survey responses were anonymous. Survey results were aggregated. Individual responses were not tracked between the pre-project survey and post-project survey.

3. 2 Pre-Project Survey

In September 2008 at the start of the course, the following overview was read to college students in the principles of macroeconomic courses:

> There are many issues which individuals go to the polls and make their decision to vote. These issues include moral reasons, international reasons, the war, etc. One issue could be the economy. Economic issues may or may not play a role in your voting decision in November. In this class, you will learn the macroeconomics model, Aggregate Demand- Aggregate Supply (AD-AS), and will use it to analyze the economic plans of McCain and Obama (listed in alphabetical order only). When you go to vote, you may choose to not consider economic issues in your decision. If you should choose to include economics in your decision, you will have the tools to analyze the economy. In this class there is an important distinction between positive and normative economics. Positive economics is "what is" and normative economics is "what should be." Economists agree on the measured unemployment rate of 6.0% (positive economics) but can disagree on where it should be and the best way to improve it (normative economics). Thus, this entire class using the same macroeconomic model should expect to have different voting choices based on your own individual preferences that are related to socioeconomic factors (income, gender, etc) and moral values (how you were raised, religion, etc.).

With this preface in mind, each student received one index card with the following instructions:
1) On one side of the index card, write which choice best describes your current preference in the presidential election: McCain, Obama, I don't know, not voting.
2) On the other side of the index card, write the main issue that is directing your vote at this time.
The sample size (n=37) of the preliminary survey was reduced due to student absences.

3. 3 Research Project

During the course, students were introduced to material which included the definitions and interpretation of four key economic indicators (Gross Domestic Product (GDP), Consumer Price Index (CPI), unemployment rate, and interest rates). Also, students were given instruction on how to construct and apply the standard macroeconomic Aggregate Demand-Aggregate Supply model. Prior to the completion of the research project, students were tested on their understanding of the above concepts.

In the research project, students were required to apply the concepts described in the previous paragraph. First, each student was required to evaluate the current conditions of the economy based on the most recent economic indicators. Second, each student was required to

read the economic plans of each candidate and evaluate components of each plan using the AD-AS framework. The full instructions for the research project are presented in Exhibit 1. The research project counted as 15% of the students' overall grade in the course.

Exhibit 1 Research Project

Project 1 Objective

Read the Economic Plan proposed by McCain and the Economic Plan proposed by Obama. These plans are available on Blackboard and are available on the related official presidential candidate's website. Examine the details outlined in each candidates plan and show where each item fits in the Aggregate Demand -Aggregate Supply Model. Your final document should be no less than five typed pages with an additional sixth page of at least six references. References may include further examination of each candidate's website as well as other journal articles on each candidate.

Part 1. (1-2 paragraphs)

Give an overall summary of the current conditions of the U.S. economy. Use the four key indicators (Real GDP, CPI, Unemployment rate, and short and long term interest rates) in your analysis.

Part 2.

Construct two separate Tables – one for McCain's Plan and one for Obama's Plan. In each row analyze the component of the candidate's plan. The first column includes an explanation of the component. The second column includes how it affects the AD – AS Model. (Refer to the Macro Map and the Table of non-price determinants that shift AD and AS.) Remember the items that shift AD include C, I, G and Xn and the components of AS are those items that affect production costs for businesses. In the third column list the benefits and costs of the plan. List the benefits and costs with respect to economic growth, stable prices and employment, pollution, and equity issues. (Use two separate Tables for each candidate – below is an example format.) Each Table should include <u>six</u> components of the respective candidate's plan. You may choose any six.

Obama's Plan Components	Component of AD or AS affected	Possible Benefits/ Costs
1.Example: Raise Social Security Cap	Example: This affects personal taxes. This will decrease/increase AD and/or AS.	Benefit: It makes a regressive tax more progressive which is more equitable. Cost: It could slow economic growth.
McCain's Plan Components	Component of AD or AS affected	Possible Benefits/ Costs
1.		

Part 3:

A summary paragraph should include the effects each presidential candidate's overall plan will have on the AD-AS model. Include a conclusion as to how each candidate's overall plan will address the current economic U.S. problems listed in Part 1.

Part 4: Reference Sheet

(Six references excluding Wikipedia.)

3. 3 Post-Project Presidential Voting Survey

The Project in Exhibit 1 was due November 3, 2008 (the day before Election Day). On November 3, 2008, a survey was distributed and collected from students who completed the research project. The sample size (n=32) of the post-project survey results was smaller due to student withdrawals and incomplete projects. The survey results were anonymous.

Throughout the course and project instruction, three points were emphasized:
1) Although the class will concentrate on the economic plans of each candidate, it is plausible that the economy is not the number one issue why someone will choose their candidate.
2) The candidate choice is irrelevant to grade determination and candidate selection is expected to vary based on differences in individual subjective views. Economists can agree on application of the principles of the model but may argue on the policies and outcomes desired and thus the presidential candidate.
3) The instructor's selection of presidential candidate was not indicated to the class before or after Election Day.
(See Exhibit 2 for the Post-Project Presidential Voting Survey.)

Exhibit 2: Post-Project Presidential Voting Survey

Presidential Voting Survey

After completing your analysis of the proposed economic plans from both John McCain and Barack Obama, which candidate will you vote for?

John McCain
Barack Obama

Has your voting selection for the next President changed based on your recent analysis of each candidate's economic plan?

Yes
No

Using just a word or short phrase, how would you complete the following sentences?

McCain's proposed economic plan is _____

_____

Obama's proposed economic plan is _____

_____

Overall, how would you rate each candidate's economic plans? (check one choice per candidate)

McCain's Economic Plan:

_____Very Weak
_____Weak
_____Neither Weak nor Strong
_____ Strong
_____Very Strong

Obama's Economic Plan:

_____Very Weak
_____Weak

_____Neither Weak nor Strong _____Strong _____Very Strong How likely are you to vote in the upcoming Presidential election? Definitely NOT Voting Somewhat Unlikely to Vote Somewhat Likely to Vote Definitely Voting

4 Analysis of Results

4.1 Pre-Project Survey

The preliminary survey (n=37) of the college students in early September 2008 found a group, like most Americans at that time, divided and undecided about the presidential campaign. In September, 30% of the respondents planned to vote for McCain and 30% of the respondents planned to vote for Obama. The remaining students did not know (35%) or did not plan on voting (5%). When asked to list the most important issue that determined their selection at the time, 22 of 37 students responded to the open-ended question. International issues received the most votes with economic issues placing second. Party identification and candidate ability were mentioned the least. (See Exhibit 3 for detailed raw responses.)

Exhibit 3 Pre-Project Survey Selected Raw Responses

How will you vote in the upcoming Presidential election? (n=37) McCain (11) Obama (11) I don't know (13) Not voting (2)
What is the most important issue on which you are making your decision? (n=22) International Issues (8): Comments included foreign policy, war, Iraq, military experience Economic Issues(5): Comments included economy, middle class, gas prices Moral Issues (4): Comments included human rights, pro-life, values, decent ideas Political Parties (3): Comments included conservative, Republican, bipartisan Candidate Ability(2)

4.2 Post-Project Presidential Voting Survey

In the post-project presidential voting survey, 32 students completed the project and survey on the due date, November 3, 2009 (the day before Election Day). After completing their analysis of the proposed economic plans from both John McCain and Barack Obama, 53% of

respondents selected McCain and 37.5% selected Obama with the remainder not choosing either. See Table 1 for comparison of pre-project and post-project voting results.

Table 1 Comparison of College Student Pre-Project and Post-Project Voting Results

	Pre-Project Survey (n=37)	Post-Project Survey (n=32)
McCain	11	17
Obama	11	12
I don't know	13	1* other/write in
Not voting	2	2
Absences/Withdrawals	3	8

In addition, after completing the project and survey analysis, 34% of respondents said that their voting selection for the next President changed based on their recent analysis of each candidate's economic plans. The respondents whose voting selection had changed were evenly divided between McCain (5) and Obama (6). In addition, the majority of students (87.5%) were "definitely voting" the next day. (See Exhibit 4 for raw responses to the Post-Project Presidential Voting Survey.)

Exhibit 4 Post-Project Presidential Survey Selected Raw Responses

Student Respondents (n=32)
After completing your analysis of the proposed economic plans from both John McCain and Barack Obama, which candidate will you vote for? McCain (17) Obama (12) Other (1) Not Voting (2)
Has your voting selection for the next President changed based on your recent analysis of each candidate's economic plan? Yes (11) No (20) No response (1)
Using just a word or short phrase, how would you complete the following sentence…? McCain's proposed economic plan is _____ lower taxes/ cut corporate taxes to use capital gain to better the economy in the long run geared more toward business manageable loans for home owners to spend money on military funding helping out the rich more than the middle/lower class republican find better resources for fuel and oil/ to increase the amount of energy that is made domestically and make it cost less based on economic growth and stability/ better for reviving the economy and helping decrease unemployment less government
Using just a word or short phrase, how would you complete the following sentence…? Obama's proposed economic plan is _____ detailed lower taxes for middle/low class and not clear ways of how to pay for these tax cuts/ targeted to middle class/ tax breaks for working Americans has more reform/ give people tax credits in hopes of stimulating consumer spending to spend money on "green" technology and cut small business taxes more government healthy and economy safe democratic
How likely are you to vote in the upcoming Presidential election? Definitely not voting (4) Somewhat unlikely to vote (0) Somewhat likely to vote (0) Definitely voting (28)

Similarly, the post-project survey also asked students to rate the economic plans of each of the presidential candidates. The results of the ratings were comparable to ratings of *The Economist* poll between September 18, 2008 and September 30, 2008. A total of 142 economists from the National Bureau of Economic Research (NBER) responded to the *Economist* survey. Among the economists surveyed, 46% self-identified as Democrats, 10% self-identified as Republicans and 44% self-identified as Independents (*The Economist,* 2008).

To assess whether the college students "think like economists" when evaluating the economic plans of the candidates, the ratings completed by the college students were compared to the ratings completed by the economists who self-identified as "Independent." (See Figure 1 and Figure 2.)

Figure 1 College Students' Ratings of McCain and Obama Economic Plans

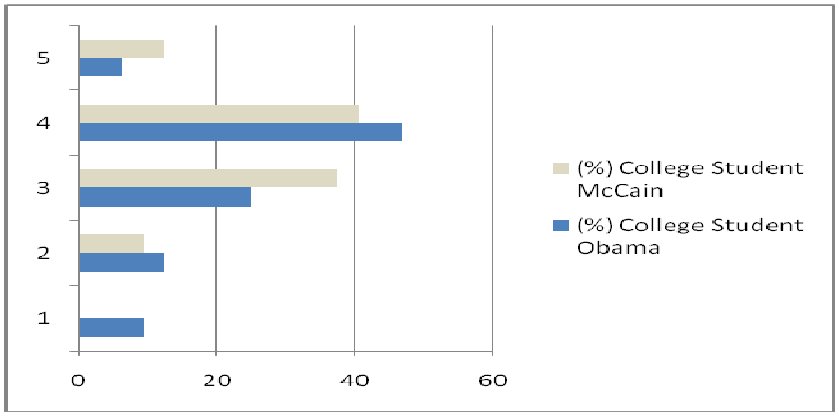
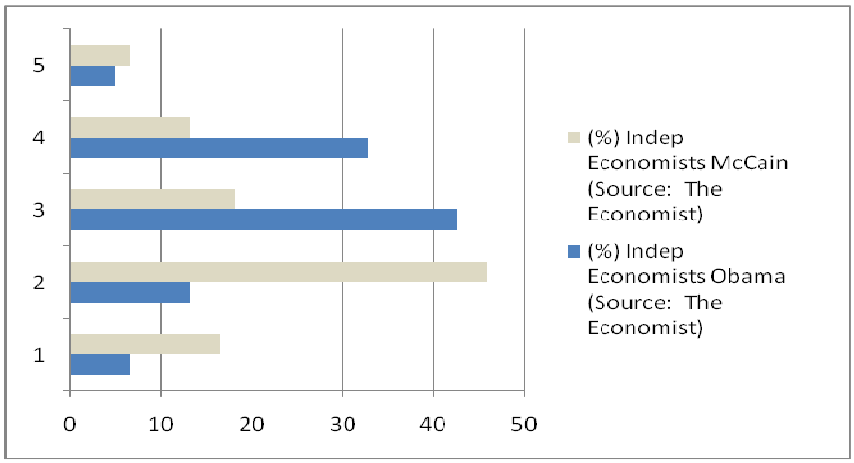


Figure 2 Economists' Ratings of McCain and Obama Economic Plans



Based on Chi-Square tests, the college students' mean rating (3.28) of Obama's economic plan was not significantly different from the economists' mean rating (3.16) of the same plan. (See Table 1.)

Table 1. Counts and Mean Ratings of Presidential Candidates' Economic Plans

Rating of Presidential Candidate's Economic Plan	Very Weak 1	Weak 2	Neither Weak nor Strong 3	Strong 4	Very Strong 5	I don't know	Mean	Response Count
McCain Plan								
College Student	0	3	12	13	4	NA	3.56	32
Economists (Independent)[a]	10	28	11	8	4	1	2.48	62
Obama Plan								
College Student	3	4	8	15	2	NA	3.28	32
Economists (Independent)[b]	4	8	26	20	3	1	3.16	62

[a] *The Economist poll of academic economists (n.d.)* retrieved January 12, 2009, from http://www.economist.com/ecsurvey/.

[b] *The Economist poll of academic economists (n.d.)* retrieved January 12, 2009, from http://www.economist.com/ecsurvey/

According to Chi-Square tests, the college students' mean rating of the McCain economic plan (3.56) was higher than the economists' mean rating of the McCain plan (2.48).

Within-group comparisons indicate that there was no significant difference between the mean rating college students assigned to the McCain's plan (3.56) versus the mean rating college students assigned to the Obama plan (3.28). Similar mean ratings for both plans may reflect an inability of the respondents to distinguish between the two plans or it may be characteristic of the plans themselves.

The ratings given by independent economists evidence a higher mean rating for the Obama plan (3.56) than the McCain plan (2.48). In a different survey, Scott Adams (creator of Dilbert) polled economists who are members of the American Economic Association. Results from Adams (2008, Press Release, para. 7) indicated that "among independents …54 percent [were] thinking that in the long run there would either be no difference between the candidates or McCain would do better."

5 Conclusion

5.1 Discussion

Several insights are evidenced in the survey of college students who were enrolled in a principles of macroeconomics course that required an analysis of the economic plans of both McCain and Obama. One key finding is that one in three college students indicated that the examination of the economic plans of both candidates changed their vote. The "changed" votes were evenly divided between the two candidates.

5.2 Limitations of Study

Although the mean ratings of the presidential candidates' economic plans were comparable to economists' ratings in *The Economist* survey, the results were limited in their use as stand-alone measures of the economic literacy of college students.

Future research should address some of the limitations of this study by increasing the sample size, matching student exam performance in the class with student variation in rating of economic plans, and track changes from the preliminary to post surveys. In addition, future research should include collection of data for control variables such as party affiliation and socioeconomic characteristics of the students.

5.3 Implications for Research

In conclusion, this study does address the initial question asked of whether a principles of macroeconomics course could have an effect on the college student vote. This study finds that one in three students changed their vote after analyzing the economic plans of each candidate. This research is inconclusive with respect to the second question as to whether a principles of macroeconomics course can teach students to "think like economists" when evaluating economic plans. This paper does, however, lay the ground work for initial discussions and future research which considers alternative assessment tools for economic literacy and economic education in general.

6 References

Adams, S. (2008 September). Dilbert Survey of Economists 09/16/2008. Retrieved January 12, 2009, from http://www.dilbert.com/blog/entry/dilbert_survey_of_economists/

Ansolabehere, J., Rodden, J., & Snyder J., Jr. (2006). Purple America. *The Journal of Economic Perspectives, 20*(2):97-118.

Caplan, B. (2008). What if the median voter was a failing student? *Economists' Voice, 5*(6):1-5.

The Economist poll of academic economists (n.d.) retrieved January 12, 2009, from http://www.economist.com/ecsurvey/

Farrell, E. & Hoover, E. (2004). Students voted at a higher rate than other young people, survey finds. *Chronicle of Higher Education, 51*(16):A28.

Feddersen, T. (2004). Rational choice theory and the paradox of not voting. *The Journal of Economic Perspectives, 18*(1): 99-112.

"Gen Y" or "the millennials" gets wake-up call with economic crisis. In *Economic Crisis and the Student Vote.* Retrieved January 10, 2009, from http://www.campuscompare.com/survey/economic/

Glaeser, E., & Ward, B., (2006). Myths and realities of American political geography. *The Journal of Economic Perspectives, 20*(2):119-144.

Koshal, R., Gupta, A., Goyal, A., & Choudhary, V. (2008). Assessing economic literacy of Indian MBA students. *American Journal of Business,* 23(2):43-51.

Lucas, R., Jr., Krueger, A., & Blank, R. (2002). Promoting economic literacy: panel discussion. *AEA Papers and Proceedings, 92*(2):473-477.

Lopus, J. (1997). Effects of the high school economic curriculum on learning in the college principles class. *Journal of Economic Education, 28*(2):143-154.

McConnell, C. & Brue, S. (2008). *Macroeconomics.* (17th ed.). New York: McGraw-Hill.

Roos, M. (2007). Nonexpert beliefs about the macroeconomic consequences of economic and noneconomic events. *Public Choice,* (132):291-304.

Smith, D. & Taylor, S. (2003). Presidential popularity: what matters most, macroeconomics or scandals? *Applied Economics Letters, 10*:585-588.

Tillman, E. (2008). Economic judgments, party choice, and voter abstention in cross-national perspective. *Comparative Political Studies, 41*(9):1290-1309.

Wood, W., & Doyle, J. (2002). Economic literacy among corporate employers. *Research in Economic Education, 33*(3):195-206.

*Young Voters in the 2008 Presidential Electi*on (2008, December 19). Retrieved January 9, 2009, from http://www.civicyouth.org/PopUps/FactSheets/FS_08_exit_polls.pdf

Using modern information technology during preservice teacher education practicum period to make training possible in authentic environment

Merja Meriläinen
Kokkola University Consortium Chydenius

Peter Johnson
Kokkola Education Department

Raine Valli
Kokkola University Consortium Chydenius

Abstract:

The Finnish education system has achieved very favorable results in international comparisons. For instance, the reading skills of Finnish school pupils are among the best in the world. Some explanations are found in the main principles for comprehensive education in Finland and among those principles stand highly qualified, autonomous teachers. For the first six years of comprehensive school, the children are taught by a class teacher, who generally teaches all or at least most subjects. Then, during the last three years of comprehensive school, the different subjects are taught by specialized subject teachers. Teacher education for primary and secondary schools was transferred to Universities in 1971. All the teachers for the comprehensive school take a master's degree of 300 ECTS cr (4-5 years).

Kokkola University Consortium Chydenius, in co-operation with the Faculty of Education at the University of Jyväskylä, arranges continuation courses leading to the degree of Master of Education and qualification as a primary school teacher. In the field of modern Teacher Education, the idea is to support the teacher's own professional development. Teaching practice for future teachers follows an experimental approach, in which teachers research their own work. Teaching sessions which follow the experimental approach provide a way for the students to form their own educational philosophy based on theory and practice.

This proposal will focus on How to Use Modern Information Technology in Preservice Teacher Education and Training to combine detailed theoretical studies to the final practicum period. In this proposal we will identify the key success features, which have made Kokkola University Consortium Teacher Education highly respected and well-known modern adult education centre in Finland. The main principles lying behind the teaching are the use of multiple study media and the development of student-centered, open learning environments on a networking basis.

Keywords: Finnish Education System, Adult Teacher Education, professional development, practicum period, Information Technology,

The main features of the Finnish Education system

All children living permanently in Finland are legally obligated to complete the compulsory education syllabus. The syllabus can be completed by either participating in basic education or by acquiring a corresponding education through some other means. Therefore, there is no compulsory school attendance in Finland. (http://www.oph.fi/english/)

Compulsory education, as we call it in Finland, basic education starts during the year when the child turns seven years old, and ends when the basic education syllabus is completed or when ten years have elapsed from the start of compulsory education. The guardian of a child of compulsory education age is responsible for ensuring that the pupil's compulsory education is completed. Almost all children (99.7%) complete the basic education syllabus. (http://www.oph.fi/english/)

Pre-School and Basic School Education in Finland

Pre-school education is intended for six-year-olds, who will start their compulsory education in the following year (6-7 years). Participation in pre-school education is voluntary, and it is provided in day care centres and in pre-school classes operating in connection with comprehensive schools. In the autumn of 2000, there were 11,000 pre-school pupils in comprehensive schools and 48,000 six-year-olds in day care centres. This accounts for 90 % of the entire age group. Pre-school teachers get a bachelor's degree in educational science, the extent of which is 180 credits (In ECTS, 60 credits represent the workload of an academic year of study. See Jakku-Sihvonen & Niemi, 2006a, 2006b). This degree qualifies to serve as a kindergarten teacher and as a pre-school teacher.

For the first six years of basic school, the children are taught by a class teacher, who generally teaches all or at least most subjects. Then, during the last three years of comprehensive school, the different subjects are taught by specialized subject teachers. Teacher education for primary and secondary schools was transferred to Universities in 1971. All the teachers for the comprehensive school take a master's degree of 300 ECTS cr (4-5 years). Figure 1 describes the Finnish Education System from Preschool to university level.

Figure1.The Education System of Finland (http://www.oph.fi/english/)

Key areas for development of the Finnish Education System

The proposed development of the Finnish education system is described in the government programme and is confirmed by the Government every four years in the Development Plan for Education and University Research. The objective of the development plan is to improve equitable and high-quality basic education. Schools and other educational institutions should feel secure in terms of the basic operational requirements and resources, and these should be targeted towards instruction and counselling. Special attention should be given to preventing the exclusion of children and young people with problems and providing them with adequate support.

Current key areas for development are: (http://www.oph.fi/english)The Information society

- Teaching mathematics and natural sciences
- Language teaching and internationalization
- Raising the quality and the education level
- Cooperation between education institutions and working life
- Basic and in-service training of teachers
- Lifelong learning

The Government is implementing an extensive Information Society Programme in all fields of administration. Finnish schools and educational institutions were equipped with computers and connected to information networks with the aid of increased state support in the 1990s. By and large, the technological objectives set earlier have already been achieved and the focus of development has shifted to content production, teacher training, and utilisation of information networks (Finnish National Board of Education, 2006).

Primary School Teacher education in Finland

The Finnish education system has achieved very favourable results in international comparisons. For instance, the reading skills of Finnish school pupils are among the best in the world. Table 1 describes the Finnish Comprehensive School Teacher Education system and teacher's qualification levels in different working areas.

Table 1. Basic School Teacher Education in Finland (See Jakku-Sihvonen & Niemi, 2006, 11-12)

Qualification	Degree	ECTS credits	Working area
Pre-school teachers	Bachelor of Arts	180	Pre-school
Classroom teachers	Master of Education	300	A classroom teacher and as a pre-school teacher. Qualified to teach grades 1-6, possible also in some cases to teach grades 7-9)
Subject teachers	Master of Arts, Master of Science (Master of Education) and teachers´pedagogical studies	300	Qualified to teach the subject in question in comprehensive school (usually grades 7-9/ or 1-9)
Special education	Master's degree in	300	A special education

teachers	education or special education	teacher in comprehensive school

Studies and degrees

Since 2005 studies and degrees in the university teaching in Finland has changed to the two-cycle degree system. In that system students first complete the Bachelor's degree, after which they may go for the higher, Master's degree. As a rule, students are admitted to study for the higher degree. Universities also arrange separate Master's programmes with separate student selection, to which the entry requirement is a Bachelor's level degree or corresponding studies (The Ministry of Education, 2006). Kokkola University Consortium has changed to the two-cycle degree system in 2006.

Kokkola University Consortium Chydenius and Teacher Education

Kokkola University Consortium is an independent university-level teaching and research unit located in the region of Central Ostrobothnia that is affiliated to the University of Jyväskylä that operates under the auspices of the universities of Jyväskylä, Oulu and Vaasa. It is devoted in particular to supporting the material and intellectual growth of its own region by means of education and research and to improving the inhabitants' access to university-level teaching, partly on a networking principle.

Kokkola University Consortium in co-operation with the Faculty of Education at the University of Jyväskylä, arranges continuation courses leading to the degree of Master of Education and qualification as a primary school teacher. These courses are particularly aimed at persons studying through the Open University, those contemplating a change of career and those changing the emphasis of their studies in education. Following the principles of life-long learning, the courses are constantly being developed to match the needs of individual students and the changing demands of society at large. The main principles lying behind the teaching are the use of multiple study media and the development of student-centered, open learning environments on a networking basis.

The Department of Education in Kokkola is the only permanent department in Finland which offers adult education for basic school class teachers. The students come from a large area, nowadays increasingly from West and South Finland. The education started as additional training in 1988, when its principal task was to reduce the national shortage of teachers. In addition to this, developing the teacher education curriculum and adult pedagogy became a central challenge. The educational programme became permanent in 1994, which was a significant acknowledgement from the University of Jyväskylä towards the development work done at Kokkola University Consortium (Valli & Meriläinen 2008).

The annual intake of adult students for training as primary school teachers is 35 persons. All the students are required to have prior university studies and teaching experience. That is why the average age of the students is about 30-33 years. The studies last for 2 to 2.5 years, depending on the agreed individual study plan. (ATE Curriculum 2009-2011) Figure 2 describes the Primary school Teacher Education study plan in Kokkola Teacher Education programme curriculum to years 2009-2012.

Paths towards freedom of choice and authenticity in teaching practice

The Primary School Teacher Education programme has developed new implementations for teaching practice periods which are suitable for adult education. The student has a chance to practice in different environments. It is seen important that graduating teachers have, in addition to giving lessons and mastery of subjects, also other professional abilities which help in different interaction situations and in facing problems which come up in school's everyday life. The student gets experiences of a teacher's work reality and of functioning in a work community already during the education. In case of a practice period done in one's own work and the developing of tutoring in such a practice period, it is a question of supporting the shift to work life, induction education.

The system of teaching practices enables the student to make individual choices, based on his or her own learning needs, concerning the practice environment and the content of the practice period. The subject studies and advanced studies of Educational Sciences include altogether 28 ECTS cr of teaching practice, out of which in more than half three is freedom of choice (Aaltola etc., 2004).

This proposal will focus on how to use modern information technology in primary school teacher education and training to combine detailed theoretical studies to the final practice period in class teacher studies. At the same time it will focus on one of the key success features, which have made Kokkola Teacher Education highly respected and well-known modern adult education centre in Finland. Educational strategic policy lines for the information society have consistently emphasised the importance of developing its citizen's information society skills in the spirit of "a learning citizenship society". Special attention has been paid to ensuring that all pupils and students have opportunities to gain the knowledge and skills they need to operate in the information society. This, in turn, presents great challenges for the education and training of educational staff (Jakku-Sihvonen & Niemi, 2006a).

In Kokkola University Consortium Teacher Training programme modern information technology is used without separating ICT use from training and studies. The purpose is to give the teacher students a variety of experiences and working tools to develop the use of modern information technology versatile way in their activities and daily school routines.

Practical training in authentic teacher's working environment - a reflecting return to real life

According to Valli and Meriläinen (2006), the final practising session in Teacher education model is called My Own Class Practice-period. This practicing period is unique in Finnish teacher education, where practicing is mainly organized in special training schools, owned by the universities. As mentioned in article (2006), the My Own Class Practise-period is a modern way to combine detailed theoretical studies to the practice period.

Practice with one's own class was more like working – real working. From the point of view of my own growth as a teacher it was most essential that I could do the practice period in a natural environment.

Beside the intensively tutored and in another teacher's class done practice periods, another unique way of practicing was developed inspired by a student's idea. In this way of practising, the student will deepen his or her skills by working as a full-time class teacher during at least one school term. The students do not need to "play" teacher, but they can be the one who best knew the pupils and are responsible for everything happening in the classroom. When learning on the job, the students are supported by teacher educators as well as by local trained tutors. Advanced teaching practice done in one's own class is a distance practice, in which the network environment is used as a tool both for tutoring and for co-operation between the students. In the network, students discuss and analyse the educational as well as the theoretical teaching and learning problems they meet in the teacher's work together with their tutors and with other students following the principles of case learning (Aaltola etc., 2004).

In my case, there was a certain teacher whose mental support became emphasised. I was always allowed to turn to her in any situation and she was as a link between me and other staff." "We both work on the same grade level, so co-operation was naturally necessary." "Discussions with one's equals in the network environment have been useful, because in them one was able to share experiences.(Female student4)

How to make students to interact with each other and with us, instructors, during the practising period, while they all work around Finland in their own schools and own classes? According to Valli and Meriläinen (2006) the answer lies behind the way the guidance system has been revised. Krokfors (1997) and Keiny (1994) has mentioned that the central principle in guidance is to support the process of the growth of teaching profession and own growth as professionals, which will begin during the teacher training. That is why the all time support and tutoring must be easily available to teacher students during the practising period (Figure 3).

Even though the schools, where the students are working during My Own Class Training period, are situated around Finland, the teachers, peer students and all the guidance is behind one button or Skype-video call. Finnish schools and educational institutions were equipped with computers and connected to information networks with the aid of increased state support in the 1990s. By and large, the technological objectives set earlier have already been achieved and the focus of development has shifted to content production, teacher training, and utilisation of information networks (The Ministry of Education, 2006). So may the schools be small and distances long, but the modern information technology has reached the schools in Finland. And

not only the schools, but all the new teachers from what ever teaching area, are skilled in working with modern information technology.

The structure of My Own Class Practise -period

My Own Class Practise -period (8 ECTS cr) begins with contact teaching where teacher students and their tutors together with the teacher educators get to know the aims and contents of becoming practising period. The tutors, who are qualified class teachers and will be working side by side with the teacher students, will be trained to their mission to help the teacher students to grow in their profession during that practising session (Valli & Meriläinen, 2006).

At the time, when the practising period begins, the students have already moved back to their home areas, where they have at least one term long contract with a local school. From year 2006 the tutors as well as those students who lived in Lapland, a long way from the university consortium, has been trained to use video conference-system, to make training easier and more comfortable to adult students and their tutors. The first experiences from this kind of video training have been very positive and all those university teachers, students and their tutors who has been involved the new kind of training session has been satisfied to the organization.

The whole term plan

After the first contact period, students, supported by their tutors, start to build the whole term plan, which consist the foundations of their teaching and education, aims and goals to their profession, the main curricula contents, working methods and evaluation. In the Own class training period this session is called *Individual working period with the tutor-teacher.* After finishing the whole term plan, students bring their output to the net based environment, where the university teacher will easily go deep into that plan. At the same time the students will describe their working environment, the pupils, other teachers, their first experiences etc. on the net based conversation area, where all the students are members and join actively conversation sharing their experiences. Describing the dialogue in the internet is called *Net based working with the university teacher and peer students.*

The short term plan

The teacher-student interaction and dialogue continues first in the net environment by commenting the plan, maybe asking for more details or explanations and after that either in mobile phone or using the net based Skype video Calls. After the long term plan is ready, the teacher student starts to work with the short term plan. The short term period will last three weeks and the plan will be more detailed that the long term plan described above. This three weeks period will be the final evaluated practising period during his/her teacher studies. The tutor teacher will be supporting and helping the student to cope with that work. The interaction and dialogue continues just the same way as described earlier. The students will bring their three weeks plan to the net based environment, where the university teacher will read and get to know it. At the same time the students will describe and share with the others one case or problem, which has been on their minds during these first weeks in their own class, on the net based conversation area. This case might concern about some difficult pupil, contacts with the parent,

problems in differentiating the teaching, etc. The conversation in the conversation area is usually very active and the experiences have been very supportive.

It helped me to get oriented to the training after a long summer holiday. It was important to me to have a possibility to discuss with peer student about the school, the feelings and my pupils.(Female student1)

A Day plan

The teacher-student interaction and dialogue continues again, first in the net environment and after that either in mobile phone or using the net based Skype video Calls. The daily work at the school continues and it's going to be time to invite the university teacher to visit the student and his/her class on place. The next plan the students will work with is called a Day plan, which is a detailed plan for one day placed somewhere in their three weeks plan. This day will be the one where the university teacher will be physically present.

When the Day plan is ready, the student will bring it to the net. Again the university teacher may ask for some details or give some comments online or the student may want to add something to the plan after their dialogue. After net based working the student will call the university teacher either using the phone or Skype video call and have a short conversation of the day where the university teacher will be present. The university teacher will stay one day in her/his student's class observing, helping and guiding him/her during that day. After the school day they will have a conversation face to face first with the tutor teacher with them and then later the student teacher and the university teacher together.

When the three weeks final practicing period is beyond, the teacher student will write a short summary of the practicing period and bring it to the web, where the university teacher is able to read it. The final contact with the university teacher will happen on the phone or with Skype video call. The last interaction, discussion, is an over all dialogue about the process during the practising period. In the Figure 3 you can see the structure of My Own Class-practice.

The Structure of My Own Class Practice in Kokkola University Consortium Teacher Education

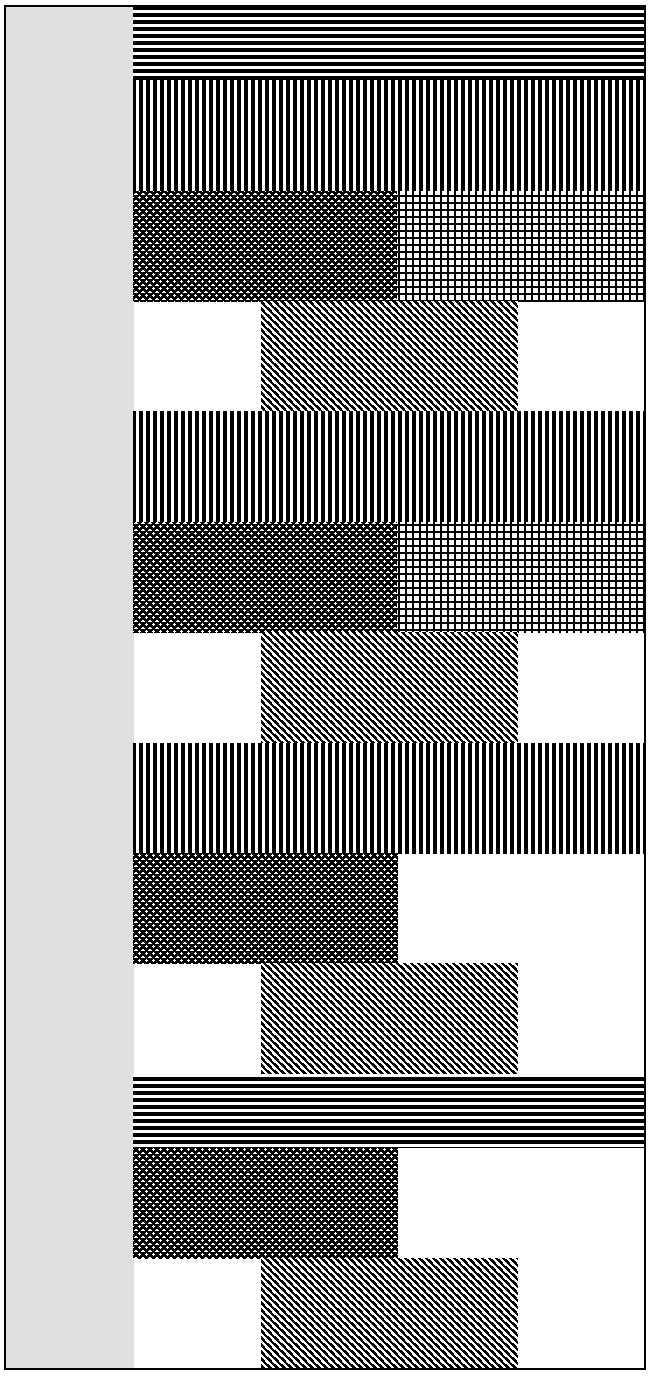


Figure 3. The structure of My Own Class Practicing –period in Teacher Education Programme (Valli & Meriläinen, 2006)

According to Valli and Meriläinen (2006) My Own Class Practise - period can be seen as a training session which really resembles the work teacher students will do as qualified teachers in

their own classes after finishing their studies. The support they will get during this practising period is directed to those questions and issues that teachers meet in their daily work during the school year. Using modern information technology in both making the training possible for all the participants and making support easy to reach, this practising period can offer our students the unique practice period in a very natural environment; an ordinary Finnish school with it's daily routines.

I find I have become more aware of my strengths as a teacher. I have tried to transfer my theory knowledge to my teaching and I believe quite successfully…(Female student2)

Teaching in the knowledge society (Hargraeves, 2003) requires teachers to have excellent skills in using ITC in teachers work. Having as a student good ITC experiences in teacher education and practical training periods will be key driver to teachers life long learning in knowledge society.

References

Aaltola, J., Aarnos, E., Isosomppi, L. &Leivo, M. (2004). Developing Teacher Education through meeting the challenges of adult pedagogy. Proposal for becoming the unit of High Quality Education 2004 – 2006.

Finnish National Board of Education, 2006. (http://www.oph.fi/english/page.asp?path=447,4699,4847)

Hargreaves, A. (2003). Teaching in the Knowledge Society. Education in the Age of Insecurity. New Your, NY: teachers College Press.

Jakku-Sihvonen, R. & Niemi, H. (2006a). Introduction to the Finnish Education System and Teachers´ Work.
In (Eds.) R. Jakku-Sihvonen & H. Niemi. Research-based Teacher Education in Finland. Reflections by Finnish Teacher Educatiors. Research in Education. Sciences 25, 7-13.

Jakku-Sihvonen, R. & Niemi, H. (2006b). The Bologna and its implementation in Teacher Education.
In (Eds.) R. Jakku-Sihvonen & H. Niemi. Research-based Teacher Education in Finland. Reflections by Finnish Teacher Educatiors. Research in Education. Sciences 25, 17-29.

Keiny, S. (1994). Constructivism and teachers professional development. Teaching and Teacher Education 10 (2).

Krokfors, L. (1997). Ohjauskeskustelu. Opetusharjoittelun ohjauskeskustelun toimintamallien tarkastelua. Helsingin yliopiston opettajankoulutuslaitoksen tutkimuksia 171. Helsinki: Hakapaino.

Ristimäki, E., Niemi, H., Tissari, V., Mikkola, A.& Jakku-Sihvonen, R. (2006). Promoting the Pedagogical use of ICT in Finnish Universities and Teacher Education Programmes. In (Eds.) R. Jakku-Sihvonen & H. Niemi. Research-based Teacher Education in Finland. Reflections by Finnish Teacher Educatiors. Research in education. Sciences 25, 123-150

Teacher Education Curriculum, (2006). The Chydenius-Institute – Kokkola University Consortium.

Teacher Education Curriculum, (2009-2011). Kokkola University Consortium Chydenius.

The Ministry of Education, 2006. (http://www.minedu.fi/OPM/Koulutus/yliopistokoulutus/opiskelu_ja_tutkinnot/?lang=en)

Valli, R. & Meriläinen, M. (2006). Class Teacher Education and Training in Natural Environment. In Crawford C.M. (Eds.) International Conference Annual. March 20-24. Orlando, Florida, USA, 4307-4312.

Valli, R. & Meriläinen, M. 2008. Modern information technology: a possibility to create a unique practicum period. E-Learn 2008. World Conference on E-Learning in Corporate, Government, Healthcare, & Higher Education. Association for the Advancement of Computing in Education. Las Vegas. USA.

The academic cost of being overweight: rural vs. urban area differences - a quantile regression approach

Christian Nsiah
Black Hills State University

Prathibha V. Joshi
Gordon College

Abstract

The number of overweight youth has more than doubled since the early 1970s. According to the Center for Disease Control, approximately 13 percent of children and adolescents are seriously overweight. Obesity among adolescents has been linked with behavioral and psychological problems, affecting adolescent socialization, self-esteem, and performance in all facets of life. Using data from the 1997 National Longitudinal Survey of Youth, we employ ordinary least squares, instrumental variables, and quantile regression models to investigate how being overweight can impact a youth's education performance measured as actual credit-weighted grade point average. Overall, we find a negative relationship between being overweight and GPA. We also find that the negative relationship is more pronounced in urban areas than in rural areas. The quantile regression estimate indicates that the magnitude of the relationship between youth's GPA and being overweight depends on the GPA quantile in question.
Keywords: Overweight, GPA, Quantile Regression, rural, urban, NLSY97.

Introduction

Obesity among Americans constitutes one of the most important growing public health concerns today. While the Center for Disease Control reported that in 1991 there were no states with obesity rates of 19% or more, in 2004 it reported that 33 states had obesity rates greater than 20%. Moreover obesity has become a phenomenon affecting not only adults but also children and teenagers. The rate of childhood obesity in the United States is growing rapidly for children of all ages.

These trends have made it necessary to understand the determinants of obesity as well as its medical, economic, and social consequences on American society. For example in determining the causes of the rapid growth of U.S. obesity rates, Rashad, Grossman and Chou (2006) use data on individuals from 1971-1994 to find that both growth in the number of restaurants per capita and higher cigarette taxes are associated with increases in body weight. Johnson, McInnes and Shinogle (2006) investigate obesity's effects by estimating the medical cost of childhood obesity, finding higher medical expenditures among overweight children.

Unlike studies that seek to discover the determinants of obesity, this study focuses on estimating the economic cost of being overweight. It differs from other similar work in that it investigates a specific dimension of this economic cost: the association between obesity and childhood educational performance. In particular we seek to determine if being overweight affects a child's academic success. The unique aspect of this inquiry stems from its consideration of rural and urban differences as well as the application of a quantile regression analysis. Quantile regression goes beyond OLS methodology to allow the exploration of the

entire range of conditional distribution. For this study, the quantile regression approach allows us to investigate if the relationship between being overweight and a student's GPA differs by a conditional quantile GPA distribution.

Literature Review

The literature on the economics of obesity consistently has shown linkages between obesity and negative educational attainment among the adult population. This literature argues that people with higher educational attainment tend to be less obese, meaning those who are obese tend to be less educated (Cutler et al. 2003). While the literature provides a disturbing picture of the effects of obesity on adults, more and more often researchers are realizing that obesity has an even worse impact on youth. As shown by Case et al. (2002), the relationship between an adult's health and economic outcomes such as education may be determined during childhood. Johnson, McInnes and Shinogle (2006) point out that obese children tend to become obese adults. It is thus possible that the negative relationship between an adult's low educational attainment and obesity occurs much earlier than previously thought. A link between obesity and low educational attainment might actually start during childhood.

Previous studies including Davidson and Birch (2001), Erickson et al. (2000), Freedman et al. (1999) and Power et al. (1997) indicate that childhood obesity may cause several health risks[1] and psychosocial outcomes such as low self-esteem and depression. However, Swallen et al. (2005) use the 1996 National Longitudinal Study of Adolescents Health to find a significant relationship between adolescents' BMI and physical health but not psychosocial outcomes. In their investigation of the relationship between cigarette smoking and body weight, Cawley, Markowitz and Tauras (2006) find that smoking cigarettes is less common among lighter adolescent girls, whether weight is measured by body mass index or weight in pounds.

The health risk coupled with the psychosocial effects of obesity can have a detrimental effect on all aspects of the life of youths, including academic performance as postulated by Datar et al. (2004). Obesity can lead to a loss of confidence in life, but especially in academics. Those who are obese may find themselves on the fringes of society, and may face less acceptance in middle and high school. They particularly can receive negative reinforcement from other students, which may prevent them from effectively participating in normal educational pursuits or even force them to abandon such pursuits entirely.

Despite this possibility, however, only a few studies have investigated the linkages between obesity and educational outcomes of children. Using data from the National Longitudinal Study of Adolescent Health, Sabia (2007) finds a consistent pattern across different models that shows a significant negative relationship between body mass index and grade point average (GPA) for white females aged 14-17. For nonwhite females and males, there is less convincing evidence of a causal link between body weight and academic performance. Yet using data on American kindergarten children, Datar et al (2004) indicates overweight children have significantly lower math and reading scores relative to children who are not overweight. Faulkner et al (2001) shows that overweight adolescents consider themselves to be worse students, whether that perception is true or not. A few studies have been done in other countries, including the Mo-suwan et al. study (1999) that uses data from Thailand to discover that being overweight significantly reduces academic performance from grades 7 to 9. They did not find similar results for children in grades 3 to 6, though. The study done by Li (1995) employs data on Chinese primary school children to find that obese children have a notably lower intelligence

quotient (IQ)[2] than non-obese children. This brief literature survey indicates that little has been done to explore the relationship between obesity and the academic performance of American teenagers on a comprehensive scale.

This study seeks to address that relationship by using the 1997 National Longitudinal Survey of Youth (NLSY97) data to examine exactly how being overweight and/or obese affects educational outcomes of American high school students. This study also investigates if the relationship between being overweight and a student's GPA differs by conditional quantile GPA distributions. Furthermore, the study seeks to examine whether the impact of obesity on educational outcomes is different in urban areas than in rural areas. We argue that being overweight does indeed have a negative influence on the academic performance of high school students, especially in urban regions of the country. The study is divided into the following sections: section 2 is about the empirical models, section 3 introduces the data, section 4 presents the estimation results, and the last section summarizes the study and provides some conclusions.

Empirical Models

IV Model

The relationship between obesity and educational attainment may be endogenous in that there may be unobserved individual, location, and/or family characteristics that are correlated with both being overweight and educational attainment. If this is the case, then ordinary least squares estimates of the relationship between being overweight and educational attainment may have an endogeneity and/or heterogeneity bias.

In addressing this issue of possible bias, a common method found in the literature (Sabia, 2007) is the use of instrumental variables.[3] Since this is a common practice, this study employs a system of two-stage least squares (2SLS) IV modeling approach where it jointly estimates equation 1, which calculates the educational attainment, and equation 2, which is the body weight equation.

$$E_{it} = \alpha_i + X'_{it}\beta + W_{it}\gamma + \varepsilon_{it} \quad (1)$$

where E_{it} denotes educational outcome of person i at time t, X denotes a vector of individual, family, peers, and location characteristics, B is a scalar vector of parameters, W is a measure of weight class.

$$W_{it} = \theta'_{it} + \epsilon_{it} \quad (2)$$

The reporting parents' BMI from the NLSY97 study is calculated from their self reported weight and height, and from this the study creates a variable that classifies them into overweight or normal weight. This variable is employed as the exclusion restriction for identification of the standard IV model.

Data

This study employs 4 year (1997-2000) panel data from the 1997 National Longitudinal Survey of Youth to analyze the relationship between being overweight and a youth's educational performance measured as actual credit-weighted grade point average. The NLSY97 consists of a nationally representative sample of approximately 9,000 youths aged twelve to sixteen on December 31, 1996 (Horrigan and Walker 2001, Michael and Pergamit 2001, Pergamit et al 2001). The respondents of NLSY97 have been interviewed on an annual basis since 1997. The

survey follows the lives of the respondents and looks at the important decisions they make. Although it primary focuses on labor market behavior, the NLSY97 provides information on a rich array of socioeconomic and demographic information that is relevant to the individuals' choice behavior. Further, the survey collects information on parents, siblings, children, and spouses of the respondents (Zietz and Joshi 2005).

Dependent Variable

The dependent variable used to proxy academic achievement is the Carnegie credit-weighted overall high school grade point average (GPA). The data on high school GPA comes from the transcript data of the NLSY97. The transcript survey data comes directly from high school transcripts secured from youths' high schools after respondents are no longer enrolled as students. This survey data presents information on various aspects of the students' tenure in high school, including grades for each course the respondents took per term of high school. This dependent variable indicates grade point averages across all courses on a 5-point grading scale. For each course, the quality grade is weighted by Carnegie credits. Previous studies in this area have used self reported grades as the dependent variable, which may be upwardly biased (Sabia, 2007). Our study does not have this limitation with our dependent variable because it does employ the more unbiased credit-weighted overall high school GPA.

Independent Variables of Interest

Similar to Cawley (2004) and Sabia (2007), we use two indicators of youth overweight status to measure the impact of being overweight or obese on academic performance. The first measure of overweight used in this study is a 0/1 clinically overweight status indicator variable (*COVW*). The variable is obtained by first calculating the youths' Body Mass Index (BMI) from their reported height and weight from the NLSY97 for each year. Then using the Center for Disease Control and Prevention (CDC) age and gender specific measures of obesity for children aged 2-20[4], we classify our sample into underweight, normal weight, overweight, and obese. For our study we collapse these classifications into three by combining students denoted as clinical overweight and obese together. The reference group is the youths with normal weight. Based on the CDC criteria described above, 2.55% of the sample can be classified as clinically underweight, 71.37% have normal weight, and 26.07% of the sample can be classified as either overweight or obese.

The second measure of overweight/obese status employed by this study comes from the youths' own perception about their weight status. In the NLSY97 study, students were asked to describe their weight. The possible choices presented to the respondents are 1 - very underweight, 2 - slightly underweight, 3 - about the right weight, 4 - slightly overweight, and 5 - very overweight. For the purpose of this study we combine classification 1 and 2 to form the underweight classification (*SUNW*), and we combine classification 4 and above into the overweight/obese group (*SOVW*). Thus we end up with 3 weight groups similar to that of the estimated weight classification presented above. The weight groups include underweight, normal weight, and overweight/obese. For our sample, 14.20% perceive themselves as underweight, 57.04% consider themselves as having a normal weight, and 28.77% perceive themselves as overweight or obese. The correlation between the measure for clinically overweight or obese and the measure for self perceived overweight or obese is 0.48, whereas the correlation between the underweight measures is 0.15.

Other Independent Variables

An interesting variable included in this study is the students' self reported health status (*HEALTH*). This variable is used to check if being overweight has other effects on educational outcomes (e.g. psychological) outside any health issues that may be caused by complications from weight problems. In essence, we expect students with good health to perform better. By comparing the results of a regression that controls for both health status and weight class to the estimation results from a regression that only controls for weight class, we can discern if being overweight does have other impacts on educational outcomes besides health issues.

In addition, a student's family background may influence their performance at school. We include parental annual income (*PINC*) and the highest grade completed by the parents (*PDEG).* High levels of parents' education and income are likely to be positively correlated to student achievement, possibly inducing students to aspire for better grades. Further, the study also controls for parental support of students. Regardless of the parents' education and income, if they are not active participants in a youth's life or education then the youth may not do very well in school.

There are a number of other variables that are used as controls and their inclusion is justified by many previous research studies. The study includes 0/1 indicator variables that identify nonwhites and females. Other control variables used includes a substance use index, annual hours of work by the student, percent of their peers who plan to attend college, percent of peers who play sports, 0/1 indicator variables for regions of residence, and a 0/1 indicator variable for residence in metropolitan statistical area (MSA). The data description and summary statistics are presented in Table 1.

Table 1. Data Description and Summary Statistics

Variable	Description	Mean	STD	Min	Max
GPA	Annual Overall Credit Weighted GPA (Actual Transcript Data)	2.862	0.681	0.000	4.210
COVW	0/1 indicator variable, 1 denotes overweight according to CDC Adolescent BMI percentiles category	0.329	0.470	0.000	1.000
CUNW	0/1 indicator variable, 1 denotes underweight according to CDC Adolescent BMI percentiles category	0.023	0.150	0.000	1.000
SOVW	0/1 indicator variable, 1 denotes overrweight according to respondent	0.497	0.500	0.000	1.000
SUNW	0/1 indicator variable, 1 denotes underweight according to respondent	0.016	0.124	0.000	1.000
FEM	0/1 indicator variable, 1 denotes female	0.488	0.500	0.000	1.000
NWHITE	0/1 indicator variable, 1 denotes nonwhite	0.418	0.493	0.000	1.000
HRSWK	Annual hours worked/10,000	0.439	0.652	0.000	6.468
SUBSU	Subs use index	1.080	1.113	0.000	3.000
PSUP	Inverse of parent supportive index [father + mother supportive index; (1='Very supportive' ,2='Somewhat supportive' 3='Not very supportive')]	0.408	0.111	0.167	0.500
PINC	Parent's own annual income/10,000	3.047	3.121	0.000	23.782
PDEG	Average Highest grade completed by parents	5.080	2.741	0.000	14.000
SPORTS	% Peers that play sports, or in clubs at school (1<10%, 2=25%, 3=50%, 4=75%, 5>90%)	3.689	1.048	1.000	5.000
PCOLL	% Peers that plan to go to college (1<10%, 2=25%, 3=50%, 4=75%, 5>90%)	3.569	1.077	1.000	5.000
HEALTH	Respondent's health (1 Excellent, 2 Very good, 3 Good, 4 Fair, 5 Poor)	1.953	0.921	1.000	5.000
MSA	0/1 indicator variable, 1 denotes respondent live in an MSA	0.369	0.483	0.000	1.000
NEAST	0/1 indicator variable, 1 denotes respondent live in the North East	0.174	0.379	0.000	1.000
NCENT	0/1 indicator variable, 1 denotes respondent live in the North Central	0.225	0.418	0.000	1.000
SOUTH	0/1 indicator variable, 1 denotes respondent live in the South	0.379	0.485	0.000	1.000
WEST	0/1 indicator variable, 1 denotes respondent live in the West	0.223	0.416	0.000	1.000
POVW	0/1 indicator variable, 1 if responding parent is overweight	0.238	0.426	0.000	1.000
RURAL	0/1 indicator variable, 1 denotes respondent live in a rural area	0.221	0.415	0.000	1.000
URBAN	0/1 indicator variable, 1 denotes respondent live in a urban area	0.779	0.415	0.000	1.000

Notes: The data used for this study is a panel data from the NLSY97 covering the years between 1997-2000

An important instrument used in our model is the overweight status of the parent(s) who also responded in the NLSY97 study, which is derived from the BMI calculated from their self reported height and weight. In our sample, 23.81% of the responding parents are classified as overweight or obese. Although this overweight measure is directly derived from the responding parent's BMI, the height and weight data used to calculate the BMI are self reported. This can be a problem if unobserved factors correlated with the parents assessment of their height and weight are also correlated with the youth's academic outcomes; thus we have to keep this plausible flaw in mind when interpreting the estimates.

Estimation Results

The estimation results of our model are presented in Tables 2 and 3, which differ by the indicator of overweight status used. Within each table there are three distinct groups of regressions representing the overall sample, rural residents, and urban area residents. Under each group there are two regression results, one that does not control for the youth's overall health and the other that includes the youth's overall health in the regression.

Columns 1 and 2 of Table 2 present the results of the overall sample, with column 2 controlling for the student's general health. The results from column 1 indicate that compared to students classified as having healthy weight, overweight/obese students attain a 0.326 lower mean GPA. When correcting for the students' general health, the results from column 2 indicate that overweight and obese students attain a 0.301 lower mean GPA than their healthy weight

colleagues, a reduction of 0.025 from the previous case. This finding indicates that aside from health related effects, being overweight and/or obese may have other negative impacts on educational outcomes.

Columns 3 through 6 of Table 2 present the results for rural and urban residents. The results indicate that overweight residents of urban areas attain a 0.481 lower mean GPA than their healthy weight counterparts when not controlling for students' health and a 0.456 lower mean GPA when controlling for it. This significant negative impact of being overweight is not seen in the sample for rural residents. The finding suggests that the dynamics of how being overweight can impact educational outcomes is different for urban and rural residents.

Table 2. Estimation Results with Actual Estimated Overweight Status.

Variable	Overall				Urban				Rural			
Constant	2.512	***	2.590	***	2.592	***	2.644	***	2.303	***	2.428	***
	(0.097)		(0.091)		(0.118)		(0.109)		(0.179)		(0.172)	
COVW	-0.326	**	-0.301	**	-0.481	**	-0.456	**	-0.095		-0.080	
	(0.145)		(0.151)		(0.199)		(0.213)		(0.213)		(0.216)	
CUNW	-0.062		-0.063		-0.091		-0.090		-0.022		-0.029	
	(0.071)		(0.071)		(0.087)		(0.087)		(0.128)		(0.127)	
FEM	0.140	***	0.147	***	0.096	***	0.101	***	0.224	***	0.236	***
	(0.026)		(0.027)		(0.034)		(0.036)		(0.042)		(0.043)	
NWHITE	-0.184	***	-0.183	***	-0.164	***	-0.164	***	-0.203	***	-0.201	***
	(0.032)		(0.031)		(0.039)		(0.038)		(0.070)		(0.070)	
HRSWK	0.021		0.021		0.023		0.023		0.004		0.002	
	(0.026)		(0.025)		(0.033)		(0.033)		(0.044)		(0.044)	
PSUP	0.519	***	0.482	***	0.530	***	0.505	***	0.538	***	0.476	**
	(0.107)		(0107)		(0.131)		(0.232)		(0.193)		(0.190)	
PINC	0.014	***	0.014	***	0.015	***	0.015	***	0.010		0.009	
	(0.004)		(0.003)		(0.004)		(0.004)		(0.007)		(0.007)	
PDEG	0.018	***	0.018	***	0.017	***	0.017	***	0.020	**	0.021	**
	(0.005)		(0.005)		(0.006)		(0.005)		(0.009)		(0.009)	
SPORTS	0.033	**	0.032	**	0.022		0.022		0.059	**	0.055	**
	(0.013)		(0.013)		(0.015)		(0.015)		(0.023)		(0.023)	
PCOLL	0.011		0.010		0.013		0.012		0.007		0.007	
	(0.013)		(0.013)		(0.016)		(0.015)		(0.022)		(0.022)	
MSA	0.038		0.035		0.041		0.039		0.282		0.230	
	(0.028)		(0.028)		(0.039)		(0.031)		(0.624)		(0.627)	
NEAST	-0.104	***	-0.105	***	-0.100	**	-0.100	**	-0.092		-0.095	
	(0.039)		(0.039)		(0.046)		(0.045)		(0.084)		(0.083)	
NCENT	0.057	*	0.055	*	0.065	*	0.063		0.083		0.080	
	(0.033)		(0.033)		(0.039)		(0.039)		(0.074)		(0.074)	
SOUTH	0.129	***	0.126	***	0.121	***	0.119	***	0.160	**	0.160	**
	(0.032)		(0.032)		(0.037)		(0.037)		(0.077)		(0.077)	
SUBSU	-0.084	***	-0.081	***	-0.084	***	-0.083	***	-0.079	***	-0.075	***
	(0.011)		(0.011)		(0.013)		(0.013)		(0.020)		(0.021)	
HEALTH			-0.036	**			-0.025				-0.054	*
			(0.017)				(0.022)				(0.029)	
Observations	2344		2370		1662		1622		708		708	
R-squared	0.127		0.134		0.120		0.125		0.148		0.158	
Wald-test	362.80	***	382.79	***	258.48	***	271.57	***	112.60	***	119.72	***

Note: Student overweight status is instrumented with respondent parent's weight-class

Table 3. Estimation Results with Student Perceived Overweight Status

Variable	Overall				Urban				Rural			
Constant	2.811	***	2.810	***	2.870	***	2.865	***	2.529	***	2.562	***
	(0.250)		(0.205)		(0.250)		(0.211)		(0.761)		(0.555)	
SOVW	-0.747	*	-0.746	*	-0.807	*	-0.810	*	-0.494		-0.457	
	(0.411)		(0.425)		(0.411)		(0.464)		(1.337)		(1.490)	
SUNW	-0.487	**	-0.486	*	-0.467	*	-0.468	*	-0.526		-0.510	
	(0.247)		(0.272)		(0.247)		(0.271)		(0.776)		(0.857)	
FEM	0.206	***	0.206	***	0.180	***	0.180	***	0.262	**	0.264	***
	(0.037)		(0.036)		(0.040)		(0.040)		(0.112)		(0.097)	
NWHITE	-0.207	***	-0.207	***	-0.195	***	-0.196	***	-0.217	***	-0.215	**
	(0.036)		(0.036)		(0.042)		(0.041)		(0.081)		(0.084)	
HRSWK	0.105	**	0.103	*	0.118	**	0.117	*	0.044		0.036	
	(0.053)		(0.057)		(0.056)		(0.060)		(0.130)		(0.141)	
PSUP	0.244		0.247		0.281		0.286		0.288		0.288	
	(0.199)		(0.186)		(0.198)		(0.188)		(0.752)		(0.682)	
PINC	0.017	***	0.017	***	0.019	***	0.019	***	0.012		0.011	
	(0.004)		(0.004)		(0.005)		(0.005)		(0.009)		(0.010)	
PDEG	0.016	***	0.016	**	0.016	**	0.016	**	0.018		0.019	
	(0.006)		(0.006)		(0.007)		(0.007)		(0.013)		(0.014)	
SPORTS	0.056	***	0.056	***	0.043	**	0.043	*	0.079		0.076	
	(0.021)		(0.022)		(0.022)		(0.022)		(0.062)		(0.075)	
PCOLL	0.011		0.011		0.017		0.017		0.006		0.005	
	(0.016)		(0.015)		(0.019)		(0.019)		(0.027)		(0.027)	
MSA	0.040		0.040		0.042		0.043		0.441		0.410	
	(0.034)		(0.035)		(0.038)		(0.038)		(0.918)		(1.036)	
NEAST	-0.134	***	-0.134	***	-0.151	**	-0.151	**	-0.068		-0.072	
	(0.048)		(0.048)		(0.059)		(0.060)		(0.120)		(0.128)	
NCENT	0.006		0.007		-0.005		-0.005		0.084		0.082	
	(0.048)		(0.049)		(0.058)		(0.059)		(0.085)		(0.082)	
SOUTH	0.115	***	0.115	***	0.086	**	0.086	*	0.200		0.195	
	(0.039)		(0.039)		(0.047)		(0.047)		(0.134)		(0.140)	
SUBSU	-0.077	***	-0.077	***	-0.080	***	-0.080	***	-0.077	***	-0.076	***
	(0.013)		(0.013)		(0.015)		(0.015)		(0.022)		(0.027)	
HEALTH			0.000				0.003				-0.021	
			(0.038)				(0.038)				(0.128)	
Observations	2344		2370		1662		1622		708		708	
R-squared	0.091		0.098		0.110		0.118		0.125		0.132	
Wald-test	239.71	***	251.92	***	170.89	***	178.13	***	91.29	***	100.04	***

Note: Student overweight status is instrumented with respondent parent's weight-class

Table 3 presents the estimation results for the relationship between perceptions of being overweight and GPA. The results indicate that students who do perceive themselves as being overweight attain a 0.747 lower mean GPA than their counterparts who perceive themselves as having a healthy weight. When controlling for the health of the students, there is not much of a difference in the relationship between the perception of being overweight and GPA. The results in Table 3 further indicate that similar to the findings in Table 2, the perception of being overweight has more of a significant negative impact on educational outcomes in urban areas than rural areas.

Quantile Regression Results

"Quantile regression allows the exploration of the entire range of conditional distribution versus just exploring relationships at the mean, as in the case of studies that employ OLS methodology in their estimations"(Koenker and Hallock *2001).* For this study in particular, the quantile regression approach allows us to investigate if the relationship between being overweight and student GPA differs by a conditional quantile GPA distribution. We run quantile estimates for the 10th through the 90th quantiles. We present results in Figures 1 and 2 for the variable of interest relevant to the discussion of the quantile regression analysis. The results show some variations across different points on the conditional distribution of student GPA as well as differences between urban and rural residents. The dotted lines denote the 90% confidence bound, whereas the solid lines are the quantile regression estimates.

Figure 1: Quantile regression results for overweight and GPA.

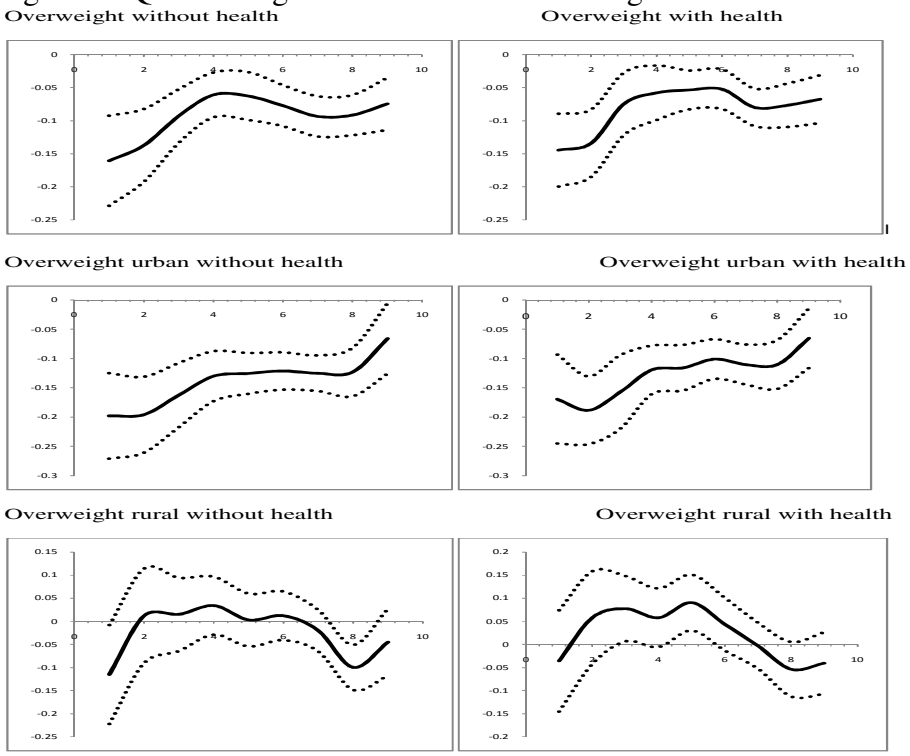


Figure 1 shows six quantile regression results for overweight and GPA using the overall sample. It is clear from Figure 1 that compared to healthy weight students, overweight students attain lower GPA's across all conditional quantiles of GPA. However, this negative relationship is more pronounced in the lower than in the middle and upper quantiles. This result suggests that low achievers are more affected by being overweight than high achievers. Even with the inclusion of the health variable, the results seem to be the same (the second figure on the right). In terms of the urban and rural characteristics, the results show a similar trend for urban residents as in the overall sample estimation, where being overweight impacts educational outcomes more severely in lower GPA quantiles. The estimation result for rural residents is quite different, though. In this situation, the relationship between being overweight and GPA is only negative in the 10th, 70th, 80th and 90th quantiles, whereas the rest of the quantiles show a small positive relationship.

Figure 2: Quantile regression results for Student Perceived Overweight Status and GPA.

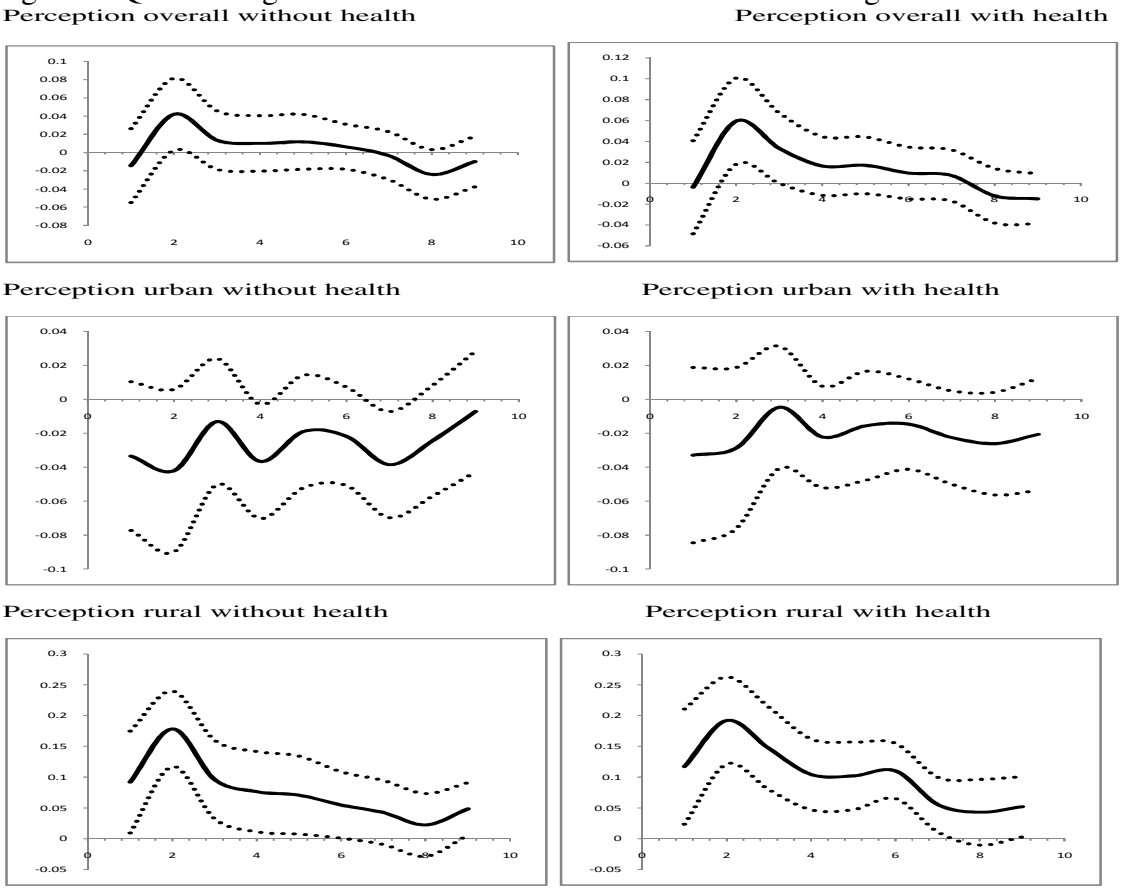


Figure 2 shows six quantile regression results for Student Perceived Overweight Status and GPA using the overall sample as well. It is clear from Figure 2 that students who perceive themselves as being overweight have a lower GPA than their counterparts who perceive themselves as having a healthy weight, especially across the 70th,80th, and 90th conditional quantiles of GPA. Thus this negative relationship is more pronounced in lower quantiles. This result suggests that students who perceive themselves as overweight are more harshly affected by that perception itself. Even with the inclusion of the health variable, the results appear similar (the second figure on the right). When evaluating the urban and rural characteristics, the results show that the impact of a perceived overweight status on educational outcomes is more severe in all the GPA quantiles. Overall, then, student perception in urban areas greatly affects their GPA. Yet the estimation result for rural residents does not show the same outcome. In this situation, the relationship between being students' perception of being overweight and GPA is positive at all quantiles levels. Hence students in urban areas are much more affected by their *perception* of being overweight than students in rural areas, indicating that perhaps students in rural areas do not believe that being overweight is a serious obstacle to a positive academic outcome and thus do not allow their own perceptions to impede their academic progress.

Summary and Conclusions

The goal of this study has been to investigate whether overweight students pay a price for their weight in terms of educational outcomes. It also explores if the magnitude of this price changes with different measures of obesity and type of educational outcome considered. Using both the youths' own perception of being overweight or not as well as the estimated clinical overweight status for each youth as measures of being overweight, we show that youths who are overweight generally achieve relatively lower educational outcomes. The effect of the youths' own perception of being overweight is slightly higher than when classified as clinically overweight, suggesting that the perception itself has more influence over the students' academic performance. Further, we find that the impact of being overweight on educational outcomes may depend on the conditional distribution of educational outcomes in question, with low achievers struggling more with their weight and its influence on their grades.

Our results also indicate that there is some difference in the dynamics of the relationship between weight status and educational outcomes in an urban or rural area. These results raise some interesting questions. Do rural students care less about their own weight than urban students? Do overweight rural students receive more acceptance from other rural students than do overweight urban students from the other urban students? Answers to these questions should prove to be complex and are beyond the scope of this study. Nevertheless, the difference between rural and urban areas in terms of why some overweight students find more or less acceptance deserves to be explored by additional studies.

The links between obesity and educational outcome identified in this study should provide some policy conclusions to educators, particularly in the health sector. Perhaps the most important policy would be to improve the primary health of children in order to help control the development of obesity at a very young age as well as to help improve the academic performance of these kids. To do this, it is necessary to educate parents and children about the consequences of obesity – the economic, social, health, and psychological problems that may affect the child at a relatively young age. School educators on their part, as is already seen these days in *some* schools, can provide a healthy diet in their cafeteria. Educators also may want to consider encouraging a positive climate that is focused on academic excellence regardless of weight.

Obesity is a growing problem not only among adults but also teen-agers and younger children. It is seen all around the world. This study describes the relationship between obesity and educational outcomes among American high school students. It leaves room for future research work to be conducted in this area.

Notes

[1] Including hypertension, dyslipidemia (for example, high total cholesterol or high levels of triglycerides), type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon).

[2] Note Datar et al. (2004) indicates that whiles IQ can serve as a measure of innate ability and likely affects educational attainment; it cannot necessarily be seen as educational attainment.

[3] If the identification assumptions underlying the IV model are satisfied, then this estimate will control for any reverse causality whereby educational attainment may cause changes in obesity.

[4] CDC website: www.CDC.gov. If an individual's BMI falls in the 5th percentile or lower in the age-sex specific BMI distribution, then the individual is clinically classified as underweight. If the individual's BMI falls in the 5th to 85th percentile the individual is classified as having a

normal body weight. An individual in the 85th to 95th percentile is classified as at-risk of being obese, whereas an individual in the 95th percentile or higher is classified as obese.

References

Case A., Lubotsky, D. and Paxson, C. (2002). Economic Status and Health in Childhood: The Origins of the Gradient. *American Economic Review*, 1308 -1334

Cawley J., Markowitz, S. and Tauras, J. (2006). Obesity, Cigarette Prices, Youth Access Laws, and Adolescent Smoking Initiation. *Eastern Economic Journal*, 149-170.

Cawley J. (2004). The Impact of Obesity on Wages. *Journal of Human Resources*, 451-474.

Cutler, M., Glaeser, D., Shapiro, L.E. and Jesse, M. (2003). Why Have Americans Become More Obese? *Journal of Economics Perspectives*, 93 –111.

Datar A., Sturm, R. and Magnabosco, J.L.(2004). Childhood Overweight and Academic Performance: National Study of Kindergartners and First-Graders. *Obesity Research*, 58-68.

Davidson K.K., and Birch, L.L. (2001). Weight Status, Parent Reaction, and Self-concept in Five-year-old Girls. *Pediatrics*, 46-53.

Erickson S, Robinson, K. and Cabral, H.J. (2000). Are Overweight Children Unhappy? *Archives of Pediatrics and Adolescent Medicine*, 931-935.

Falkner N.H., Neumark-Sztainer, D., Story, M., Jeffery, R.W., Beuhring, T. and Resnick, M.D. (2001). Social, Educational, and Psychological Correlates of Weight Status in Adolescents. *Obesity Research*, 32-42.

Freedman D.S., Dietz, W.H., Srinivasan, S.R. and Berenson, G.S. (1999). Relation of Overweight to Cardiovascular Risk Factors Among Children and Adolescents: The Bogalusa Heart Study. *Pediatrics*, 1175–1182.

Horrigan, M. and Walker, J. (2001). The NLSY97: An Introduction. *Monthly Labor Review*, 3-5.

Johnson, E., McInnes, M.M. and Shinogle, J.A. (2006). What is the Economic Cost of Overweight Children? *Eastern Economic Journal*, 171-187.

Koenker, R. and Hallock K.F. (2001). Quantile Regression. *Journal of Economic Perspectives, 143–156.*

Li X. (1995). A Study of Intelligence and Personality in Children With Simple Obesity. *International Journal of Obesity*, 355-367.

Michael, R.T. and Pergamit, M.R. (2001). The National Longitudinal Survey of Youth, 1997 cohort. *Journal of Human Resources*, 628-640.

Mo-suwan L, Lebel, L., Puetpaiboon, A. and Junjana, C. (1999). School Performance and Weight Status of Children and Young Adolescents in a Transitional Society in Thailand. *International Journal of Obesity*, 272-277.

Pergamit, M.R., Pierret, C.R., Rothstein, D.S., and Veum, J.R. (2001). Data Watch. The National Longitudinal Surveys. *Journal of Economic Perspectives*, 239-253.

Power C, Lake, J.K. and Cole, T.J. (1997). Measurement and Long-Term Health Risks of Child and Adolescent Fatness. *International Journal of Obesity*, 507–526.

Rashad, I., Grossman, M. and Chou, S.Y. (2006). The Super Size of America: An Economic Estimation of Body Mass Index and Obesity in Adults. *Eastern Economic Journal*, 133-148.

Sabia J. J. (2007). The Effect of Body Weight on Adolescent Academic Performance. *Southern Economic Journal,* 871-900.

Swallen, K.C., Reither, E.N., Haas, S.A. and Meier, A.M. (2005). Overweight, Obesity, and Health-Related Quality of Life Among Adolescents: The National Longitudinal Study of Adolescent Health. *Pediatrics*, 340-347 (doi:10.1542/peds.2004-0678).

Zietz, J. and Joshi, P. (2005). Academic Choice Behavior of High School Students: Economic Rationale and Empirical Evidence. *Economics of Education Review*, 297-308.

The male professor's attire and student perceptions of instructional quality

Angeline M. Lavin
The University of South Dakota

David L. Carr
The University of South Dakota

Thomas L. Davies
The University of South Dakota

ABSTRACT

This paper reports the results of a study conducted by the authors designed to address the question of whether the attire of male professors impacts the perceptions of male and female students differently as to the quality of instruction and their overall satisfaction with the academic program. Specifically, male and female students were surveyed using two different versions of a questionnaire which depicted a male model wearing casual, business casual, and professional clothing. Overall, in most cases the male instructor who was dressed more professionally was held in higher esteem by students of both genders. However, opposite results were found with respect to the male instructor's ability to relate course information to the real world as well as his willingness to answer questions and listen to student opinions. Further, female students did rate the instructor more positively in all cases, although in some cases the difference was not statistically significant.

Keywords: faculty attire, instructional quality, student perceptions, and gender perceptions

Introduction

Annual performance appraisals of employees are commonplace today no matter one's line of work, and academia is no exception. Whether white-collar or blue, workers typically are subject to review by their supervisors. Depending on the particular situation, much can be riding on obtaining a favorable evaluation – raises, promotions and especially in today's economy, even job retention. There are perhaps two twists that are present in the process where professors are involved. One, the ultimate awarding of tenure can be at stake, a factor that most faculty view as very significant. Two, a third party component, in this case student evaluations of the instructor's teaching prowess, often plays a substantial role in the faculty evaluation process.

The practice of using student evaluations to measure the quality or performance of teaching faculty raises a number of concerns and has been the subject of many research studies. Depending upon which particular study is being cited, opposite conclusions have been reached as to whether the evaluative tool being used is statistically reliable. No matter the findings, however, apprehension remains at least among many of those being reviewed, that student opinions may be biased or the process may be flawed. One concern is that student ratings are at best only slightly related to student learning (Marchese, 1997), which many instructors believe should be their primary objective. In addition, academicians may be worried that too much significance is being placed on the answer to perhaps as few as one question on the evaluation

form (Whitworth et al., 2002). In any event, studies have found that student ratings are frequently influenced by factors that have very little to do with teaching effectiveness (Bowling, 2008).

Despite the concerns, student evaluations continue to be used by most colleges and universities when evaluating the performance of faculty. Researchers have looked at how a number of factors impact student evaluations. These dynamics, to name just a few, include the ease of a class, the extent of technology usage, the professor's physical attractiveness, and gender – both instructor and student.

Various stereotypes have also been identified in academia that may impact the evaluation process. In general, stereotypes are beliefs about behavioral and other characteristics of individuals based upon some feature or trait such as gender, age or race. Obviously stereotypes are not limited to those engaged in the teaching profession, as they tend to exist in all aspects of life. For instance, Bokek-Cohen and Davidowitz highlight how beauty influences marriage, interpersonal relationships, legal matters, customer service, politics and employment (2008). In business, prior studies have shown that there is a perception that males make better managers than women, although there is some evidence to suggest that this opinion is changing (Duehr and Bono, 2006).

With respect to gender, Duehr and Bono (2006) cite studies that suggest men are stereotyped as being more agentic, while women are viewed as being more communal. Agentic traits are often associated with those found in leadership positions (Eagly and Karau, 2002), and include more ambitious, assertive and dominant tendencies. Individuals possessing communal characteristics tend to be more compassionate, kind, and helpful. Similarly, gender stereotyping also classifies certain traits as being more masculine or feminine (Bachen, et al., 1999). Masculine attributes, which are more frequently tied to males, include greater rationality, decisiveness, deliberation and control. In contrast, feminine traits, typically more closely aligned with women, include warmth, gentleness, understanding and sensitivity.

Freeman (1994) notes that college teaching has been viewed traditionally as a male-dominated occupation. Because of the growth in the number of female college professors and administrators, however, the impact of the gender of the instructor as well as the student has become the focus of considerably more research in recent years. Much of this effort has concentrated on the influence of female instructors and how they are perceived by students. However, as a natural byproduct of these studies, the issue of how male professors are perceived and evaluated by students of both genders has also gained attention. This paper reports the results of a study conducted by the authors designed to address the question of whether the attire of male professors impacts the perceptions of male and female students differently as to the overall quality of instruction and other program issues.

Prior Research

As mentioned, there have been a number of studies that have looked at student evaluations of male and female instructors. However, the results of these studies have been mixed. Basow and Silberg (1987) suggest that two variables are important in explaining the bias found when investigating faculty evaluations, including professor gender and gender typing. In his 1995 article, Tatro summarizes the findings of a number of now older studies. He reported that several studies (Doyle, 1975; Feldman, 1977; Centra, 1979) found that gender had little effect on faculty evaluations. In contrast, however, other researchers (Bray and Howard, 1980;

Harris, 1975) have found that female instructors receive higher ratings in general. Taynor and Deaux (1973) suggested that female faculty were more deserving than male faculty for the same level of performance because of the male-dominated environment in which they work. Other studies have found that female instructors are rated higher because they (1) are friendlier, have a more positive interpersonal style, and possess great charisma (Bennett, 1982); (2) create classroom environments that invite participation (Crawford and MacLeod, 1990), and (3) possess traits stereotypically attributed to women – warmth, support and concern (Bern, 1974).

A number of studies have also looked at whether the gender of the student biases faculty ratings, but again the results have generally been mixed. Basow and Howe (1982) as well as Ferber and Huber (1975) found that in general female students gave higher ratings then did male students. Basow and Silberg found that male students generally gave female instructors lower ratings as compared to male faculty (1987). In contrast, Bachen et al. (1999) found that male student evaluations did not vary according to the gender of the instructor, but female students gave instructors of their own gender higher ratings as compared to male teachers. Of interest, Basow (1995) found that certain questions resulted in more bias in the responses than did others. Specifically, male professors were perceived to be more knowledgeable and females were perceived as more sensitive and respectful of student ideas. Further, Basow found that overall ratings of male instructors appeared to be unaffected by student gender, while female professors typically received their lowest ratings from male students.

Many aspects of attire and its impact or influence have been examined in both educational and nonacademic settings. In general, studies of the effects of attire on the perceptions of observers have shown that formal or professional dress is the most positively perceived (e.g., Harris et al., 1983; Bassett, 1979). In academia, attire has been found to have different impacts on certain perceived educator traits. In some of these studies, photographs of instructors have been used to collect and measure observations while in others live models have been used. An earlier study by the authors added to the mix by analyzing differences in student perceptions of instructors and their own behavior resulting from connotations simply arising from the descriptive terms “professional” and “unprofessional” dress (Carr et al, 2009, 2009).

For professors, formal clothing tends to improve student perceptions of their credibility, intelligence and competence, but hurts observed perceptions of likeability and approachability (e.g., Leathers, 1992). In another study, teachers who dressed formally were viewed as being more organized, knowledgeable, and better prepared (i.e., having enhanced “cool” perceptions), while those wearing less formal clothing were seen as friendlier, flexible, sympathetic, fair and enthusiastic (i.e., better “warm” perceptions) (Rollman,1980).

Prior research reported in psychology literature shows that in general, men do not exhibit a preference for their own gender while women do. Of interest to academicians is the question of whether female and male students exhibit behavior that is consistent with these general findings regarding gender attitude, and whether the attire of the instructor influences student perceptions of the quality of instruction. In particular, this study examined whether the clothing choice of a male professor would impact male and female student perceptions of various aspects of his teaching prowess and overall program quality.

Present Study

Students taking select classes in a mid-sized Midwestern university were invited to participate in a research study by completing a questionnaire, the purpose of which was to assess

how a male professor's clothing choice in a classroom setting might impact student perceptions of the quality of instruction and related matters. The first page of the survey was a cover sheet that included three high quality color photos of the same male instructor wearing three different outfits representing professional, business casual and casual attire. The individual depicted was not an actual faculty member to prevent any bias based on familiarity with the model. Two different variations of the survey were used so as to change the order in which the attire was presented. In one case the instructor was depicted wearing casual, business casual and professional dress (Version 1) respectively, while in the second version the same instructor was depicted wearing professional, business casual and casual clothing (Version 2). Both variations of the survey were randomly administered in each class section to obtain a cross section of responses.

Students in the chosen classes were asked their opinion of how the professor's clothing impacted their perceptions in general with respect to several instructor and instruction-related questions. Survey questions were patterned after several different student evaluation forms previously or currently being used at the authors' institution. As part of the survey, it was stipulated that the instructor's attire was a matter of personal preference since the school had no prescribed dress code for faculty or students. Thus one's clothing choice could depend upon a number of factors including classroom conditions (e.g., heating, cooling and ventilation), the class setting (e.g., evening class, length of class session), delivery mode (e.g., face to face versus distance) and his individual preferences and comfort.

The survey instrument consisted of several parts including multiple substantive and demographic questions. Students were asked how the professor's various styles of dress would influence their perceptions of the instructor's qualifications and ability to teach, as well as the overall quality of the course, program and institution. Specific questions were as follows:

Q1. The level of the instructors' preparation for class.
Q2. The instructor's knowledge of the material (i.e., subject matter).
Q3. The instructor's ability to present information clearly and in an understandable manner.
Q4. The ability of the instructor to relate course material to the real world.
Q5. The instructor's ability to stimulate students to intellectual effort beyond what is typically required.
Q6. The instructor's concern for student learning.
Q7. The willingness of the instructor to answer questions and listen to student opinions.
Q8. The ability of the instructor to prepare students for a career.
Q9. The instructor's professionalism.
Q10. The instructor's credibility.
Q11. The student's overall evaluation of the course.
Q12. The student's overall evaluation of the instructor.
Q13. The reputation of the institution.
Q14. The value of the educational experience.
Q15. The student's level of preparedness for finding a job.
Q16. The student's ability to land the job of his/her choice.
Q17. The student's overall impression of the quality of his or her education.

In addition, students were asked a number of demographic questions, including whether they were graduate or undergraduate students, their program of study or major, and their year in

school (e.g., freshman, sophomore, etc.) as well as their grade point average, gender, age, and personality type.

In all, 21 instructors, including 12 male and nine female faculty members administered the survey in their classes. Classes chosen included several at the 100 (first year), 200 (second year), 300 (junior level), 400 (senior level) and graduate (700) level. In addition, courses were selected from almost all majors offered by the business school including accounting, economics, finance, and management at the undergraduate level as well as from the MBA and MPA (Master of Professional Accountancy) programs. The survey was also administered in several undergraduate mass communication, political science, and psychology classes, as well as two first year law school courses. In total, the survey was administered in 21 different courses, including multiple sections of several of the classes offered on the university's main campus and in a satellite location, resulting in 32 sections being studied.

The survey was administered near the midpoint of the fall 2008 semester. Since it was probable that there was some overlap in enrollment for these classes, students were asked to complete the same version of the survey only once as it was not designed to be course dependent. However it was possible for the same student to answer different versions of the same questionnaire (i.e., variation in order of presentation of the male model). Faculty members were asked to devote class time to allow students to complete the survey due to the expected positive impact on response rate. In total, 506 usable responses were obtained and the results, along with the statistical analysis, are discussed below.

Results

A summary of the demographic information is presented in Appendix A at the end of the article. The survey responses were fairly evenly split between male and female, with 265 (52.4%) female respondents and 241 (47.6%) male respondents. About 55% of the survey respondents were in the 19-21 year old age group, with 55.6% of the males and 54.3% of the females falling in that age range. Approximately 78% of the respondents in total and across gender characterized themselves as traditional students. Roughly 21% of the male respondents and 15% of the female respondents were graduate students. The majority of students from both genders had grade point averages above 3.0.

Table 1 below shows the overall mean responses for each of the substantive questions found in the two versions of the surveys. To aid in comparison, the results that are shown are based on casual ("C"), business casual ("BC") and professional ("P") dress for both versions, even though the actual ordering of the photos were reversed in the second version (i.e. the model was depicted wearing profession attire first, followed by business casual and then casual). For each question, students were asked to indicate how the professor's attire would impact their perception of the instructor, course or program, where 1 = significantly positive, 2 = somewhat positive, 3 = no difference, 4 = somewhat negative, and 5 = significantly negative. Thus, a lower mean would be reflective of a more positive perception of an attribute given a specific type of attire.

An examination of the results indicates that in many cases, students had a higher opinion of the model male instructor when he was depicted in professional attire. In two cases (questions 4 and 7) however, which dealt with the instructor's ability to relate material to the real world and instructor willingness to answer questions and listen to student opinions, the means suggest that students perceive business casual and casual dress more favorably than professional dress. For

these traits, more formal dress was viewed as somewhat of a negative indication of the instructor's ability, although the means were still positive (i.e., less than the "no difference" response of "3"). There was a slight difference in response for version 1 vs. version 2 with respect to question 6, which asks about concern for student learning. Both versions indicated that a male instructor dressed in business casual attire is most concerned with student learning, but the professional and casual attire averages were different for the two versions. Respondents were indifferent with respect to business casual and professional dress for question 3, which deals with the instructor's ability to present information clearly and in an understandable manner, as well as for question 5 in version 1, which asks about the instructor's ability to stimulate students to intellectual effort beyond what is typically required. The means were also identical for question 11, the student's overall evaluation of the course, except for version 1 which indicated that business casual and professional dress were associated with a slightly lower mean (more favorable) than the mean for casual attire or the means for version 2 for all three styles of dress.

A review of the results in Table 1 suggests that the order in which the photos were presented did not have a significant impact on the results; in many cases the means were almost identical irrespective of the survey version being reported. In only two cases (questions 4 and 11) did the means deviate in how they compared across the two versions of the survey.

In order to compare male and female perceptions of the attire worn by a male instructor, the 500 plus responses to the two versions of the survey were aggregated, and then the data was divided by gender of the respondent. Table 2 shows the overall mean responses for male students versus female students for each of the substantive questions in the surveys. Again, the results are shown based on casual, business casual and professional dress. For each question, male and female students were asked to indicate how the male professor's attire would impact their perception of the instructor or the course, using the same response schematic as previously identified Hence, a lower mean would again be reflective of a more positive perception of an attribute given a specific type of attire.

Table 1: Means for the Survey Questions by Version

	Version 1 (ordered casual, business causal and professional)			**Version 2 (ordered professional, business casual, and casual)**		
Question	**Casual (C)**	**Business Casual (BC)**	**Professional (P)**	**Casual (C)**	**Business Casual (BC)**	**Professional (P)**
1	3.0	2.2	1.9	2.9	2.1	1.9
2	2.9	2.4	2.2	2.8	2.3	2.1
3	2.8	2.5	2.5	2.7	2.4	2.4
4	2.5	2.5	2.6	2.3	2.4	2.6
5	2.8	2.4	2.4	2.7	2.4	2.3
6	2.7	2.4	2.5	2.5	2.4	2.6
7	2.4	2.5	2.9	2.2	2.4	2.8
8	3.1	2.3	1.9	3.0	2.1	1.8
9	3.2	2.1	1.6	3.2	1.9	1.5
10	3.0	2.3	2.0	3.0	2.2	1.9
11	2.8	2.6	2.6	2.8	2.8	2.8
12	2.9	2.5	2.4	2.9	2.5	2.4
13	3.1	2.3	2.1	3.0	2.2	1.9
14	3.0	2.5	2.4	3.0	2.4	2.2
15	3.0	2.4	2.2	2.9	2.4	2.2
16	2.9	2.5	2.3	3.0	2.5	2.2
17	2.9	2.4	2.2	3.0	2.4	2.1

An examination of the Table 2 results shows that most of the male and female responses are consistent with each other and consistent with the version 1 and 2 survey results shown in Table 1. Specifically, both male and female students tended to have a higher opinion of the male instructor (lower mean) when he was depicted wearing professional attire. However, opposite results were found for questions 4 and 7 which asked about the male instructor's ability to relate course information to the real world as well as his willingness to answer questions and listen to student opinions. Both male and female students perceive that more casually dressed male instructors are better at relating information to the real world and are more willing to answer questions and listen to student opinions.

It is also interesting to note that both male and female students perceive that instructors dressed in business casual attire are most concerned for student learning (question 6). However, the distinction between businesscasual and professional dress did not seem to matter to male students when evaluating the course or the instructor (questions 11 and 12) or to their female counterparts when evaluating the course (question 11). Male students also appear to be indifferent between business casual and professional dress when asked about the instructor's ability to present information clearly and in an understandable manner (question 3).

The t-statistic for the difference in means was used to determine whether the means of the two types of dress being compared (casual vs. business casual, casual vs. professional, and business casual vs. professional) were the same. The null hypothesis for each t-test is that the means of the two types of dress being compared are the same. The alternative hypotheses are that

business casual is preferred to casual, professional is preferred to casual and professional is preferred to business casual.

Table 2: Means for Both Versions of the Survey Grouped by Gender of the Respondent

	Male Respondents (Versions 1 & 2)			Female Respondents (Versions 1 & 2)		
Question	**Casual (C)**	**Business Casual (BC)**	**Professional (P)**	**Casual (C)**	**Business Casual (BC)**	**Professional (P)**
1	3.0	2.3	2.1	2.9	2.0	1.7
2	2.9	2.4	2.3	2.8	2.2	2.1
3	2.8	2.5	2.5	2.7	2.3	2.4
4	2.5	2.5	2.7	2.3	2.3	2.6
5	2.8	2.5	2.4	2.7	2.3	2.2
6	2.7	2.6	2.7	2.5	2.3	2.4
7	2.5	2.6	2.9	2.2	2.3	2.8
8	3.1	2.4	2.0	3.0	2.0	1.7
9	3.2	2.2	1.6	3.2	1.9	1.5
10	3.0	2.3	2.1	2.9	2.1	1.9
11	2.9	2.6	2.6	2.8	2.5	2.5
12	2.9	2.5	2.5	2.8	2.4	2.3
13	3.1	2.3	2.0	3.0	2.2	2.0
14	3.0	2.5	2.3	2.9	2.4	2.3
15	3.0	2.5	2.2	2.9	2.4	2.2
16	3.0	2.6	2.3	2.9	2.4	2.2
17	3.0	2.5	2.2	2.9	2.4	2.2

An examination of the t-statistics reported in Table 3 shows that many of the male and female responses are largely consistent with each other (i.e., all questions except 6 and 7), and provide evidence that male and female students share similar perceptions of male instructors with respect to those questions. Indeed, for 10 of the 17 questions (1, 2, 8-10, 13-17), male and female students agree that more "formal" or professional attire creates more favorable perceptions.

The two questions (6 and 7) where male and female responses seemed to differ slightly involved the instructor's concern for student learning and the instructor's willingness of the instructor to answer questions and listen to student opinions. The positive t-statistics for most of the questions suggest that both male and female students generally had a higher opinion of the model male instructor when he was depicted in more "formal" or professional attire.

It is important to note, however, that there were several questions that produced t-statistics that were not significant or were significant with a negative sign, which would suggest that casual attire is preferred to professional or business casual attire. For example, both male and female students perceive that male instructors who are dressed in business casual or professional attire are better able to present information clearly and in an understandable manner (question 3) and are better able to stimulate students to intellectual effort beyond what is typically required (question 5). However, neither male nor female students perceived a

difference between the ability of a male instructor dressed in business casual or professional attire to present information clearly or stimulate intellectual effort.

As suggested earlier in the discussion of Table 2, the responses to question 6 for male versus female respondents were interesting. Male students believe that male instructors dressed in business casual attire versus casual attire are more concerned for student learning. However, male students perceived no difference between male instructors dressed in casual versus professional or business casual versus professional attire with respect to a male instructor's concern for student learning. Female students agreed with their male counterparts that male instructors dressed in business casual attire versus casual attire are more concerned for student learning. But in contrast, female students perceived significant differences in all three comparisons, indicating that professional was preferred to casual attire but also that business casual was preferred to professional attire. In summary, it appears that female students view male instructors dressed in business casual attire as being most concerned for student learning.

Table 3: T-Statistics for Differences in Means Based on Male and Female Student Perceptions of Type of Dress

	Male Respondents (Versions 1 & 2)			**Female Respondents (Versions 1 & 2)**		
Question	**Casual vs. Business Casual (C vs. BC)**	**Casual vs. Professional (C vs. P)**	**Business Casual vs. Professional (BC vs. P)**	**Casual vs. Business Casual (C vs. BC)**	**Casual vs. Professional (C vs. P)**	**Business Casual vs. Professional (BC vs. P)**
1	9.39***	10.39***	2.24**	11.56***	13.72***	3.53***
2	6.69***	8.12***	2.03**	7.55***	9.01***	2.03**
3	3.15***	3.05***	0.22	4.48***	3.46***	-0.70
4	0.08	-1.47*	-1.67**	-0.53	-3.23***	-2.93***
5	3.84***	4.56***	1.10	5.48***	5.92***	1.03
6	1.92**	0.70	-1.09	3.58***	1.38*	-2.00**
7	-1.17	-4.56***	-3.84***	-1.60*	-7.03***	-5.95***
8	9.89***	13.11***	4.58***	12.77***	16.92***	5.00***
9	12.40***	17.05***	5.92***	17.10***	21.44***	5.98***
10	8.79***	10.73***	2.95***	10.64***	12.49***	3.03***
11	3.45***	3.79***	0.62	4.39***	3.94***	-0.19
12	5.71***	5.89***	0.60	6.14***	6.89***	1.10
13	9.63***	11.94***	3.65***	11.79**	12.87***	2.42***
14	6.89***	8.76***	2.53***	6.83***	8.33***	2.09**
15	7.79***	9.79***	2.93***	8.10***	9.83***	2.66***
16	6.78**	9.11***	3.20***	7.87***	9.71***	2.57***
17	7.42***	10.01***	3.57***	8.02***	10.12***	2.65***

*Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

The means reported previously in Table 2 suggested that both male and female students perceive that male instructors dressed in casual or business casual attire are better able to relate course material to real life situations than male instructors dressed in professional attire (question 4). That result is supported by the t-tests reported in Table 3 which suggest that male and female students perceive no difference (t-statistics were not significant) between male instructors

dressed in casual or business casual attire with respect to the ability to relate course material to the real world. In addition, male and female students perceive that male instructors dressed in casual and business casual attire are better able to relate material to the real world than a professionally dressed instructor as evidenced by the negative, significant t-statistics.

Question 7, which asked about the instructor's willingness to answer questions and listen to student opinions, also produced significant negative t-statistics and slight differences between the male and female respondents. Male students did not perceive a difference in a male instructor's willingness to answer questions or listen when the instructor was dressed in casual vs. business casual attire. Female students, on the other hand, perceive that male instructors dressed casually are more willing to answer questions or listen as suggested by the negative t-statistic significant at the 10% level. However, the t-tests for business casual vs. professional and casual vs. professional were significant at the 1% level, and the coefficients had a negative sign for both the male and female students. This suggests that both male and female students perceive that male instructors dressed in casual and business casual attire are more willing to answer questions and listen than a male instructor dressed professionally.

The t-statistics for questions 11 and 12 are consistent with the means for those questions presented in Table 2. Question 11 asks about the student's overall evaluation of the course and Question 12 was concerned with the overall evaluation of the instructor. The results suggest that both male and female students believe that male instructors dressed in business casual or professional attire offer better courses and are better instructors. Neither male nor female students perceive a difference between business casual and professional attire for either question.

Table 4: T-Statistics for Differences in Means between Male and Female Respondents for Both Versions of the Survey

Ho: Mean (female) - Mean (male) = 0, Ha: Mean (female) - Mean (male) < 0

	Male versus Female Respondents		
Question	**Casual (C)**	**Business Casual (BC)**	**Professional (P)**
1	-2.1510**	-4.2329***	-4.1255***
2	-1.9746**	-2.7413***	-2.2421**
3	-1.7158**	-2.9061***	-1.6046*
4	-2.8204***	-2.7060***	-1.2638
5	-1.7063**	-3.0955***	-2.4519***
6	-2.1700**	-4.0564***	-2.6145***
7	-3.0144***	-3.2979***	-1.1645
8	-1.6156*	-4.4789***	-3.2729***
9	-0.8487	-3.8910***	-2.0101**
10	-1.3722*	-2.7692***	-1.9928**
11	-1.4186*	-1.9697**	-0.9570
12	-1.1938	-1.2822	-1.5605*
13	-0.7757	-2.1698**	-0.3294
14	-1.4539*	-1.0888	-0.4348
15	-1.4685*	-1.5703*	-0.8490
16	-1.5451*	-2.3092**	-1.1187
17	-1.6199*	-1.8447**	-0.5606

*Significant at the 10% level

**Significant at the 5% level
***Significant at the 1% level

The t-statistic for the difference in means in Table 4 was used to test whether the male and female student perceptions of male faculty are statistically different. Specifically, the alternative hypothesis suggests that male students would perceive male faculty more negatively than female students; a negative coefficient suggests that female students had a more positive perception of the male instructor than did the male students. The results indicate that there were many significant differences between male and female student perceptions of male instructors dressed in casual and business casual attire and fewer significant differences between male and female students with respect to male instructors dressed in professional attire.

These findings (i.e., the negative coefficients) suggest that male students perceive male faculty more negatively than female students perceive male faculty. The fact that there were fewer significant t-statistics for professional dress suggests that male and female students are more similar in their perceptions of male faculty dressed in professional attire than male faculty dressed in casual or business casual attire. In addition, female and male students tended to be more consistent in their responses with respect to program-oriented questions 12, 13 and 14.

Summary

The results presented in this paper suggest that both male and female students generally had a higher opinion of the model male instructor when he was depicted in professional attire versus casual or business casual attire. However, there were a few cases where the opposite results were true. Specifically, professional dress was viewed as somewhat of a negative indication of the instructor's willingness to answer questions and listen to student opinions, as well as his ability to relate material to the real world. When the sample was split based on the gender of the respondents, there were significant differences in male and female student perceptions of male instructors dressed in casual and business casual attire. In contrast, the professional attire responses showed fewer significant differences between male and female respondents. These findings suggest that male students perceive male faculty more negatively than female students perceive male faculty. As a result, this study provides some support for previous research findings which suggest that female students to rate faculty more highly than male students do, even when the instructor is not of their own gender.

References

Bachen, C., McLoughlin, M. and Garcia, S. (1999). Assessing the role of gender in college students' evaluations of faculty. *Communication Education*, 48, 193-210.

Basow, S. (1995). Student evaluations of college professors: When gender matters. *Journal of Educational Psychology*, 87, 4, 656-665.

Basow. S. and Howe, K. (1982) Sex Bias in evaluations of college professors. Paper presented at the meeting of the Eastern Psychological Association. Baltimore, MD.

Basow, S. and Silberg, N. (1987). Student evaluations of college professors: Are female and male professors rated differently? *Journal of Educational Psychology*, 79, 3, 308-314.

Bassett, R. (1979). Effects of source attire on judgments of credibility. *Central States Speech Journal*, 30, 282-285.

Bennett, S. (1982). Student perceptions of and expectations for male and female instructors: evidence relating to the question of gender bias in teaching evaluation. *Journal of Educational Psychology*, 74 , 170--179.

Bern, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 42, 155-162.

Bokek-Cohen, Y. and Davidowitz, N. (2008). Beauty and teaching evaluation: A comparison between female and male college professors, 7, 15-30.

Bowling, N. (2008). Does the relationship between student ratings of course easiness and course quality vary across schools? The role of school academic rankings. *Assessment & Evaluation in Higher Education,* 33, 4, 455-464.

Bray, J. and Howard, G. (1980). Interaction of teacher and student sex and sex role orientations and student evaluation of college instruction. *Contemporary Educational Psychology*, 5, 241-248.

Carr, D., Lavin, A. and Davies, T. (2009). The impact of business faculty attire on student perceptions and engagement. *Journal of College Teaching and Learning*, 6, 1, 41-49.

Carr, D, Davies, T. and Lavin, A. (2009). The effect of business faculty attire on student perceptions of the quality of instruction and program quality. *College Student Journal*, 43, 45-55.

Centra, J. (1979). Determining faculty effectiveness. San Francisco, CA: Jossey-Bass, Inc.

Crawford, M. and McLoed, M. (1990). Gender in the college classroom: An assessment of the "chilly climate" for women. *Sex Roles*, 23, 101-122.

Dowling, W. (2008). The impact of faculty apparel in the classroom. *College Teaching Methods and Styles Journal*, 4, 1, 1-10.

Doyle, K. (1975) *Student evaluation of instruction*. Lexington, MA: D.C. Heath.

Duehr, E. and Bono, J. (2006). Men, women and managers: Are stereotypes finally changing? *Personal Psychology*, 59, 815-846.

Eagly, A., and Karau, S. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, 109, 573-598.

Feldman, K. (1977) Consistency and variability among college students in rating their teachers and courses: A review and analysis. *Research in Higher Education*, 6, 223-274.

Ferber, M. and Huber, J. (1975). Sex of student and instructor: A study of student bias. *American Journal of Sociology*, 80, 949 – 963.

Freeman, H. (1994). Student evaluations of college instructors: Effects of type of course taught, instructor gender and gender role, and student gender. *Journal of Educational Psychology*, 86, 4, 627-630.

Harris, M. (1975). Sex role stereotypes and teacher evaluations. *Journal of Educational Pyschology*, 67, 751-756.

Harris, M., James, J., Chavez, J., Fuller, M., Kent, S., Massanari, C., Moor, C. and Walsh, F. (1983). Clothing: Communication, compliance and choice. *Journal of Applied Psychology*, 13, 88-97.

Leathers, D. (1992). *Successful nonverbal communication*. New York: Macmillan.

Lukavsky, J., Butler, S. and Harden, A. (1995). Perceptions of an instructor: Dress and students' characteristics. *Perceptual and Motor Skills*, 81, 231-240.

Marchese, T. (1997) Student evaluations of teaching. *Change*, September/October, 4.

Rollman, S. (1980). Some effects of teachers' styles of dress. Paper presented at the Annual Meeting of the Southern Speech Communication Association, Birmingham, Alabama. Retrieved from the ERIC Database ED 184 191, Microfiche Edition, in November 2007.

Tatro, C. (1995). Gender effects on student evaluations of faculty. *Journal of Research and Development in Education*, 28, 3, 169-173.

Taynor, J. and Deaux, K. (1973). When women are more deserving than men: Equity, attribution, and perceived sex differences. *Journal of Personality and Social Psychology*, 28, 360-367.

Whitworth, J., Price, B., and Randall, C. (2002) Factors That Affect College of Business Student Opinion of Teaching and Learning. *Journal of Education for Business,* May/June, 282-289.

Appendix A: Demographic Information

	FEMALE		MALE	
Question: If you are a graduate student, which program are you in?				
	Count	Percent	Count	Percent
MBA	11	4.2%	17	7.1%
MPA	16	6.0%	13	5.4%
MBA-HSAD	2	0.8%	1	0.4%
OTHER	11	4.2%	20	8.3%
BLANKS	225	84.9%	190	78.8%
Total	265	100.0%	241	100.0%
Question: If you are an undergraduate student, what is your major?				
ACCOUNTING	27	10.2%	19	7.9%
ECONOMICS	3	1.1%	9	3.7%
FINANCE	14	5.3%	27	11.2%
HEALTH SERVICES	28	10.6%	8	3.3%
MANAGEMENT	26	9.8%	38	15.8%
MARKETING	15	5.7%	14	5.8%
BUSINESS UNDECLARED	19	7.2%	14	5.8%
NON-BUSINESS	97	36.6%	53	22.0%
BLANKS	36	13.6%	59	24.5%
Total	265	100.0%	241	100.0%
Question: If you are an undergraduate student, are you classified as a				
SENIOR	43	20.3%	40	16.6%
JUNIOR	59	21.1%	69	28.6%
SOPHOMORE	64	21.9%	54	22.4%
FRESHMEN	62	17.5%	29	12.0%
BLANKS	37	19.1%	49	20.3%
Total	265	100.0%	241	100.0%

Question: What is your overall grade point average?				
3.51-4.00	77	29.1%	75	31.1%
3.01-3.50	102	38.5%	89	36.9%
2.51-3.00	61	23.0%	51	21.2%
2.01-2.50	11	4.2%	14	5.8%
2.00 OR LOWER	1	0.4%	1	0.4%
BLANKS	13	4.9%	11	4.6%
Total	265	100.0%	241	100.0%
Question: What is your age?				
OVER 24	38	14.3%	37	15.4%
22-24	50	18.9%	60	24.9%
19-21	144	54.3%	134	55.6%
18 OR YOUNGER	33	12.5%	9	3.7%
BLANKS	0	0.0%	1	0.4%
Total	265	100.0%	241	100.0%
Question: Would you be considered a				
TRADITIONAL STUDENT	206	77.7%	190	78.8%
NON-TRADITIONAL STUDENT	56	21.1%	47	19.5%
BLANKS	3	1.1%	4	1.7%
Total	265	100.0%	241	100.0%
Question: Which of the following best describes your personality?				
COMPETITIVE	99	37.4%	85	35.3%
EASYGOING	154	58.1%	147	61.0%
BLANKS	12	4.5%	9	3.7%
Total	265	100.0%	241	100.0%

Margareta Sandström Kjellin
Mälardalen University, Västerås, Sweden

Niclas Månsson
Mälardalen University, Västerås, Sweden

Ove Karlsson Vestman
Mälardalen University, Västerås, Sweden

Abstract

A qualitative, quasi-experimental study is described that had the aim to illuminate, by focussing the classroom dialogue, the relation between student teachers' explicit and implicit values. Two groups of students participated in inquiries about the character of the classroom dialogue. The experimental group also participated in an intervention. The intervention implied that the students were taught to pay a lot of attention to those parts of the Swedish National Curriculum in which teachers' explicit and implicit democratic values are focused. The result was that during the intervention, the students changed their values, but not only in a direction desired by the project. A conclusion is that, besides the intervention, also the practical work at schools affected the students' understanding of the character of a desired classroom dialogue.

Key words: fundamental values; Goals to be attained; goals to aim for; teacher education

Introduction

The aim of this article is to report a study which illuminated student teachers' explicit values regarding the desired teacher-pupil communication in the classroom. By 'desired teacher-pupil communication is meant that the students (in the experiment group) of the study were influenced to embrace, both explicitly and implicitly, democratic values in their classroom teacher-pupil communication. Of course, the students in the control group were also taught to pay attention to the democratic values, but the students in the experimental group were influenced more specifically. 'Fundamental values' is an area of outspoken priority to the school in Sweden. However, fundamental values are not a new phenomenon; there has always been an expressed relation between knowledge and value in Swedish national curricula. Since the school goals involve certain aspects of learning how to live with others, the question of education cannot be reduced to *e. g.* learning how to read and write. It is through the educational system a human being learns, acquires and communicates the norms, values, attitudes, skills, and knowledge necessary to work and function in a social context (Lindensjö & Lundgren, 2000).

There are three main reasons why the questions of fundamental values were so highlighted in the educational debate during the last years of the 20th century: Sweden developed into a multicultural society, the Swedish society experienced a higher level of moral pluralism than ever before, and in the wake of this development there has been an increasing individuality (see for example SOU, 1992:94). The debate about the importance of fundamental values must be understood in the light of the social changes that the Swedish society has experienced the last three or four decades.

Empirical and theoretical studies carried out since the end of the 1970's show that a gradual cultural shift has taken place in the Occidental world, where religious and moral values have shifted in a direction towards individualism. Inglehart (1977, 1990) understands this change as a 'silent revolution', through which the basic value priorities of Western publics have shifted from materialistic values (where priority is given to physical sustenance, safety, and higher priorities to traditional religious and moral norms) to post-materialistic values. In comparison with older generations, post-Second World War generations that have never felt material insecurity tend to put heavier emphasis on values such as freedom, belonging, self-expression and the quality of life. And, as long as prosperity continues, each new generation will, much likely, be more post-materialistic than the generation before them.

In an article about this kind of cultural shift, Pettersson (1994), argues, that since Inglehart finds that there is a higher emphasis on traditional Christian values among the materialistic tradition, than among post-materialistic folks, the theory about a silent revolution can be viewed also as a theory of individualisation and secularisation. With the findings from The European Value Study it is possible for Pettersson to conclude that "both the European and the Scandinavian value systems are affected by a growing individualism, a decreasing commitment to Christian values, and a lessened support for civic virtues". (p. 205)

Studies about value changes in The United States of America, Europe, and the Scandinavian countries support the common assumptions that a kind of moral plurality permeates the Occidental world view, and a lack of a common conceptual scheme that can guide our actions. This common conceptual scheme that was once carried by the nation-state and the Christian church has been fragmented and diversified due to immigration, secularisation, globalisation and individualisation. A post-materialistic society is characterised by its wide range of different groups, with different conceptual schemes expressing different moral beliefs about how we ought to live, and why.

This development that has affected Sweden, together with its Scandinavian and European neighbours, is important not only for the society, but also for the school in general and teacher training specifically. This means that such matters are central to teacher training, not only from the student's personal standpoint and reflections on their future profession, but also from the perspective of the society and the official guiding documents. Besides, the matter is probably of interest in teacher education all over the world. Since it has been concluded that a change in values between generations is going on all over the world, the teacher-pupil relation as regards values seems not only interesting but also highly important to study. The students will, eventually as teachers, confront a classroom, characterised by its plurality of beliefs embedded in different religious and secular ethical traditions. For some teachers this environment will be looked upon as dynamic and enriched, to the school and to the society as a whole, some will connect the plurality with conflict or confusion, and hence see the problems rather than its possibilities.

Eurydice (2005) uses the term 'Responsible Citizenship' and concludes that the term 'citizenship' is mentioned in all the guiding documents for the school all over Europe. The term may have different connotations; in some countries it may merely indicate a judicial relationship between the citizen and the State, whereas other countries may refer to the term as the social role of coexisting in society. This study (Eurydice, 2005) examines *e. g*. how 'citizenship' is approached in official school curricula and if/how teachers may be supported on citizenship. It also gives example of how teachers themselves describe their practice in this respect. However, it does not go into details about how the citizenship is observed to be put into practice in the

teacher-pupil relation in the classroom. On the other hand, it does conclude that the matter needs to be studied further.

The goals for the school in Sweden

In Sweden there are two types of school goals defined in the National Curriculum, Lpo 94: Goals to be attained Goals to strive towards (Swedish National Agency for Education, 2006). In the Swedish National Curriculum the foundation for the Goals to strive towards is the set of 'fundamental values' outlined in the curriculum. These goals are intended to be the base for all work in Swedish schools and they denote the main goal for the school, to educate democratic citizens. The question is which type of dialogue the teacher offers the students in the classroom in order to reach these goals, *i. e.* if the teacher is able to reward all 'sorts' of students, both explicitly and implicitly. The Swedish National Agency for Education (2006) denotes that the teacher shall "openly present and discuss different values, ideas and problems" (p.11). To make this possible it seems necessary that the teacher has, to her/himself, made visible her/his own values and reflected over them. If the teacher has not made this reflection there seems to be a risk that the teacher in the instruction focuses on the Goals to be attained, and that the instruction, by that, stays on a far too basic level. The question is if the mentioned reflection is a prerequisite for the teacher's ability to talk about, to value and to reflect in a dialogue with the students so that the necessary conditions are created for them to work towards the Goals to strive towards.

Purpose of the reported study and research questions

The aim of the study was, by focussing the classroom dialogue, to find out if student teachers' explicit and implicit values coincided with the Swedish National Curriculum, and what influenced their values apprehension. Specific research questions were:

1. To what degree did student teachers' explicit values agree with the 'fundamental values' expressed in the National Curriculum in student teachers who did/did not received an intervention specifically aimed at illuminating this matter?

2. Was it possible to influence student teachers' explicit and implicit values in an intervention during a short period of time?

Theoretical frame

Values

It can be said that our values guide our actions. Certain actions, thoughts and views are regarded as self-evident and are not questioned; they are grounded in a central/fundamental value and these can be very hard, or even impossible to change. However, it seems possible to bring a person to the insight that values are not general, but cultural.

Hence, a theoretical point of department for this project is that a person's values, that guide his or her actions, are culturally inherited to one generation by the influences of the former generation. The most significant, and perhaps most effective, social institution that influences a human being to act in a certain way seems to be the educational system of a given society, since

it works as a "methodological socialization of the younger generation" (Durkheim 1956, p. 71). This theoretical standpoint expresses two things. Firstly, even if certain actions, thoughts and views are regarded as self-evident and grounded so deeply in our culture that our conduct seems impossible to change, man is destined to experience changes. Secondly, since teachers will in their profession pass on and communicate their own values (consciously or subconsciously) to their pupils, it is important to find out which values student teachers embrace and if the students´ values may change or develop during the course of their studies.

Ödman (1998) points to the fact that teachers´ values are reflected in their attitude towards different pupils. Ödman calls this different 'mentalities'. Many researchers touch upon this phenomenon in different terms. Bourdieu (1993) uses the concept 'habitus' and refers to similar phenomena when discussing that, as humans, we have different opinions of moral, sense of responsibility, duty *etc.* Heath (1983) claims that, when accounting for school success, we have to pay regard to the interaction pattern between teacher and student and that these patterns vary with the social class that the child belongs to; if the teacher and the child belong to the same social class, the interaction pattern is favourable to the student and vice versa. Not only social class, but also different ethnical culture may complicate the teacher-pupil interaction. Ogbu (1997) uses the concept 'speech community', and means that people who share a common language also share a common theory of how we speak and follow cultural rules for speaking. Ogbu points out that, in order to succeed academically at school, it is important to participate in the speech community. A speech community is characterized by both verbal and non-verbal communicative codes, such as *e. g.* gestures, facial expressions, intonation, distance to others, deodorants and odours. This is an example that unconscious values guide one's actions and thoughts. The same argument goes for the moral language that a group of people speaks (Stout 1988). Since people live in a plural and multi-cultural society, many moral languages are used at the same time, each with its own assumptions about the world, expressed in a distinctive way of life. Since all people do not speak the same moral language there will be moral disagreement, and since moral disagreement might be painful or difficult to handle, they will lead to confusion about how the members of a given society are supposed to live together. But people's capacity of living together peacefully depends upon their ability to converse in an understandable and reasonably coherent way with other human beings, even if, as Stout (1988) puts is, "this ability is weakened by the very difference that make it necessary" (p. 3). It is not an easy task for a teacher to face all the moral languages that might be articulated in a multi-cultural class-room, but in order to be able to talk to, and to understand, the inhabitants of a certain classroom she must be aware of the plurality of moral languages and the power of her own moral language, since her language will most certainly be connected with the authority of a certain social institution. Therefore, it seems important to make teachers aware of the power of values.

Learning as internalization or learning as appropriation

Vygotsky (1978) claimed that the interaction between the teacher and the student is of fundamental importance for the student's linguistic and cognitive development. His theory of the zone of proximal development, ZPD, is applicable to all students; the teacher must be able to stimulate the child within his/her ZPD and not only on a level already reached by the child. Vygotsky maintained that in that way learning is internalized in the child; it is transformed from the socio-cultural environment to the child. However, Aukrust (2003) means that Bakhtin's

notions of 'appropriation' and 'previous voices' offer better explanations of the individual's learning related selectivity than Vygotsky's notion of internalization.

Bakhtin (1986) meant that in all utterances it is possible to 'hear' previous social and cultural connections; this implies that your own voice is immersed by the voices you hear around you. The child, for instance, makes a choice between the voices he/she hears and appropriates new knowledge by selectively rendering other voices his/her own. In the classroom two qualitatively different ways of learning can be discerned: either by internalization or appropriation.

The 'Goals to be attained' in the Swedish school system for the subject Swedish are, to a large extent described as if they can be reached by activities that promote learning by internalization, since these goals mainly describe fundamental reading and writing skills (which can be assumed, to some extent, to be transferred from one person to another). The 'goals to aim for' are, on the other hand, described as if they can be reached through appropriation, since they describe for example the ability to "use experiences, thinking and language skills to form and maintain their knowledge" (Skolverket, 2001, p. 82); these skills can not be easily transferred from one person to another. In order to reach such a goal you must appropriate, since you must make a choice between the voices you hear/have heard and then formulate your own knowledge. For a teacher to be able to take into consideration a child's 'previous voices' (Bakhtin, 1986) it is demanded that the dialogue that is offered in the classroom is, at least to some extent, horizontal.

Vertical and/or horizontal communication

Frønes (1995) uses the concepts 'horizontal' and 'vertical' communication; by horizontal communication he means that the two parties are equal, and by vertical communication he means that one party is above the other. An adult-child relation is by necessity to some extent vertical. However, Janson (2002) has the opinion that it is possible to make a distinction as regards horizontality in certain respects and distinguish between structure, relation, perception and interaction. Janson defines 'structure' by saying that the institutional role is implicit, and that 'relation' is a lengthy phenomenon. 'Perception' has to do with what can be apprehended with the senses, and 'interaction' means a mutual exchange of what happens here and now, both verbally and non-verbally. Janson thinks that communication between an adult and a child is always vertical as regards the structure and the relation, but the adult may be horizontal towards the child as regards the perception and interaction. In such a vertical-horizontal communication the child's experience of the world is just as interesting as the adult's and this can be expressed both verbally and nonverbally in the communication. Such communication could be described as promoting work towards Goals to strive towards.

The focus in this project of the school's 'fundamental values'

The meaning, and the practical use, of new concepts can be hard to comprehend. "Fundamental value" seems to be such a concept. Ever since it came into being, at least in an educational setting, in the work of the new curriculum for Swedish schools in 1992 (SOU 1992:94), there has been a discussion about its different or possible meanings and intentions, and its practical use. The 'fundamental values' are described as "the inviolability of human life, individual freedom and integrity, the equal value of all people, equality between women and men and solidarity with the weak and vulnerable are all values that the school should represent and

impart" (Ministry of Education and Science in Sweden, 2002, p. 5). In practice 'fundamental values' is interpreted either as a social community of values or value pluralism (by emphasizing the right to express one's points of view) (Lindgren, 2003). 'Fundamental values' has by some researchers been interpreted as a 'community of values' and, thus, problematic in a world of plurality (Månsson, 1999). Other researchers have interpreted 'fundamental values' as offering different alternatives of action, and, thus, a prerequisite for pluralism (Liljestrand, 1999). Due to this confusion as regards the implication of 'fundamental values' it is interesting to find out student teachers' interpretation of the notion. In this project both the student teachers' initial interpretation of the concept (as regards the character of the classroom dialogue), will be studied and also if their interpretation changes during the teacher training.

In Sweden the curriculum goals are to permeate the syllabus goals. Fundamental values should permeate "all teaching in each subject" (National Agency for Education, 2001, p. 6). However, since the syllabus goals have not been precisely defined for different subjects there is an obvious risk that teachers find it easier to work towards the Goals to be attained than towards the Goals to strive towards. Thus, it is not only a matter of educating democratic citizens; the link between fundamental values and the two kinds of goals and the grades makes it even more interesting to find out more about student teachers' attitude in this respect.

It is stated that the teacher should "together with the pupils develop rules for working and participating in the group" and also "openly present and discuss different values, ideas and problems" (Ministry of Education and Science in Sweden, 2002, p.11). According to Frånberg (2004) student teachers have not, during their teacher training, been made aware of the necessity for a teacher to be able to talk about, to value and to reflect in a dialogue with the students so that the necessary conditions are created for them to *e. g.* be able to deal with ethical dilemmas; this fact makes it interesting also to find out student teachers' attitude towards the desired character of the teacher-pupil dialogue.

In this project the focus of the 'fundamental values' is on the dialogue in the classroom. The standpoint is taken that it is not possible to educate without mediating values. Also Lindgren (2003) expresses that discontinued or implicit values mediation is also values mediation. The question is to what extent the student teachers are able to deal with this in the manner expected by the Ministry of Education in the wordings of Lpo 94 (Ministry of Education and Science in Sweden, 2002, p.11). Fjellström (2005) emphasizes that future teachers "will have to act as moral subjects, who will have to take responsibility in situations that are often ethically unclear and problematic, where for example students' interest are contrary to parents', where parents' interests are contrary to the school's, or where there is a conflict between individual interest and what the class or the Board of Education would claim" (p. 77, my translation).

Practice-based evaluation at school

It seems indisputable that teachers/student teachers mediate values. In this project the focus is on how student teachers reflect upon their own practice as regards 'fundamental values'; their reflection of this can be performed in three ways, according to Alexandersson (in Karlsson, 2003): by self-reflection (you ransack yourself), by dialogue (you ask for other people's opinions and adopt them) and by research (you examine systematically and structure observations). The student teachers in this study reflect upon their practice by ransacking themselves and by dialogue, and the researchers examine their practice systematically and structure observations.

Method

The study is a qualitative, quasi-experimental study. Two groups of altogether 107 student teachers, attending a regular course in teacher training at a university in Sweden, were offered to participate in the study. 50 of them agreed to participate; 21 of them constitute an intervention group, group A, and 29 serve as a comparison group, group B. The intervention aimed at delivering the message that it is not possible to educate without mediating values and that the classroom dialogue needs to be rather horizontal or else the curricular goals of educating democratic citizen will not be accomplished.

Procedure

The study started with all 50 student teachers answering an inquiry (inquiry I) where they were to consider statements from the National Curriculum as regards the classroom dialogue. This was performed during the first week of the course. Then group A took part in the intervention described below.

(1) Group A were asked to perform an instructional situation in which they were to pay regard to what they had concluded about the realization of 'fundamental values' as regards the teacher-pupil communication in the classroom. The instructional situation was observed by two fellow students. The observations were guided by a form in which the dialogue between the teacher and the students was classified as being horizontal or vertical (The observers classified if the children were allowed to start conversations and if their retorts were paid attention to, or not).

(2) After the observations, the student teachers in group A who had observed the lesson made a short interview with the teacher student performing the observed lesson; the aim of this interview was mainly to validate if the observations made by the two fellow students was in accordance with the teacher student's own apprehension of the lesson. The observations and interviews were carried out during week 5-10 of their course.

(3) Group A also performed other activities aimed at affecting their values in the desired direction, such as discussions and self-reflections. The results of all these activities are not reported as results in this study, since it would make it badly arranged.

At the end of the course both groups A and B answered the same inquiry as they answered initially (inquiry II); this was carried out after 18 weeks of the course.

Data analysis and trustworthiness

By comparing the student teachers' answers in the two inquiries, their awareness of their implicit values in relation to their explicit values is judged. It is also judged if their values agree with the 'fundamental values' expressed in the National Curriculum. The students were asked if they agreed with the statement that a teacher should develop rules for the work and the time together in the classroom in cooperation with the children and that a teacher should openly present and discuss his/her opinions openly in the classroom. Inquiry I and II were analysed quantitatively.

As regards the intervention, in the observations a categorization was made of the character of the observed activities, *i.e.* if the dialogue between the teacher and the students was horizontal or vertical. A sign of horizontality was marked if the teacher took an interest in a pupil's answer instead of simply stating a pupil's answer as 'correct' or 'wrong'; another sign of horizontality was if the pupils started a conversation at least as often as the teacher; inversely, a sign of verticality was marked if the teacher simply stated that a pupil's answer was 'correct' or 'wrong'. The correspondence between the two observers was estimated; it was not possible to indicate with a figure the inter-rater-reliability between the two students performing the

observations, since all of the students had not followed the instructions completely about how to do this. For this reason only those results are reported, of which there was complete agreement between the two students coding these data.

The interviews that were made in connection with the observations serve as validation of the observations, since the observed teachers were asked if the observed phenomena were in accordance with the student teachers' own experience of the observed lesson. The interviews were analyzed qualitatively by two researchers.

Ethical aspects

Informed consent was collected from the student teachers. They were informed that the participation was voluntary and could be terminated at any time. It was made clear that the gathered information would not be used for any other purpose than research. A risk-benefit analysis revealed that the benefit, both for research and for the student teachers, is that the study illuminates an area that is essential in their education. In the inquiries the student teachers were known (as a number) by the researchers; this was necessary, since the intention was to compare if the teacher student developed as regards their awareness of 'fundamental values'; they were informed about this fact. The observations were made anonymously, which minimizes the risk of stigmatization the student teachers may experience from participating in the study.

Results

First inquiry I is accounted for, and then the intervention (the observations plus the interviews connected to the observations). Finally the result of inquiry II is reported.

Pre-test. Inquiry I

50 students answered inquiry I. As regards the question about *rules for the time together in the classroom*, the two groups' answers were very similar. In group A, the intervention group, 77 % of the students agreed with the opinion that 'The teacher should develop rules for the work and the time together in the classroom in cooperation with the pupils'. In group B 76% agreed with this statement.

As regards the question about *values discussions in the classroom,*30% of the students in group A agreed with the opinion that 'The teacher should declare and discuss her/his opinions openly in the classroom'. In group B 24,5 % agreed.

Intervention. Observations of lessons and interviews with student teachers performing lessons

15 of the 21 students in group A performed lessons that were observed by two fellow students. (Six students in group A did not want to perform this part). Four of the fifteen groups of children that were observed consisted of pre-school children; eleven of the groups consisted of children aged 7-10 years. The result was that 73 % of the observed lessons displayed horizontal teacher-pupil dialogue. A respondent validation (made in the interview) showed that 87 % of the observed students verified that the observations were in complete accordance with their own experience of the observed lesson, and 13 % verified that the observations were 'at large' in accordance with their own experience of the observed lesson. Additionally, the interview

revealed that 87 % of the observed students thought that the observed lessons had turned out as they had planned; 93 % of the students thought that they had learnt something from the exercise.

Post-test. Inquiry II

All 50 students answered inquiry II. As regards the question about *rules for the time together in the classroom*, In group A, the intervention group, 86 % of the students agreed with the opinion that 'The teacher should develop rules for the work and the time together in the classroom in cooperation with the pupils'. In group B 76 % agreed with this statement. This means that in group A the number of students agreeing with the statement increased. This was a desired effect of the intervention. In group B the number of students agreeing with the statement did not increase.

As regards the question about *values discussions in the classroom,* 19 % of the students in group A agreed with the opinion that 'The teacher should declare and discuss her/his opinions openly in the classroom'. In group B 17,5 % agreed. This means that in both groups the number of students agreeing with the statement decreased. This was *not* a desired effect of the intervention.

More detailed comparison of the results from inquiry I and inquiry II

The results from the two inquiries were compared more in detail. 67 % of the students in the intervention group held on to the answer they gave in inquiry I, and in the comparison group 76 % of them did. This means that the intervention group changed their view to a higher extent than the comparison group.

Discussion

The student teachers' explicit values in relation to the Swedish National Curriculum

The explicit values of group A, as measured by their willingness to discuss rules for the work in the classroom, agreed more with the National Curriculum in the end of the course than in the beginning of the course. The explicit values in group B did not change during the course. This means that the intervention was successful as regards the student teachers' willingness to discuss rules for the work and the time together in the classroom with the children.

The explicit values of both groups, as measured by their willingness to discuss their own opinions openly in the classroom, decreased from the beginning of the course to the end. This was not a desired effect of the project and it leads to the conclusion that something else, outside of the project affected the students. During discussions in class the explanation given by the students was that, during their teacher education, they had not been taught about the practical implications of 'fundamental values'; they had only been taught how to "give the correct answer in theory". This raises the suspicion that the students had not got the kind of education, expressed as 'schooling of the heart' by Fjellström (2005).

Consequently, those who changed their answers from inquiry I to II, changed both in accordance with the intentions of the project and *not* in accordance with the project. Some desired changes were shown more clearly in group A, the intervention group; this is an expected result, but some undesired changes were also shown. How should this be understood? Is it a

question of a reluctance from the representatives from the practice (the teachers they met during their school practice) to adapt to the curriculum? In that case it can be understood as 'hidden fundamental values' (Lindgren, 2003), and it can be assumed that the student teachers in this study may have been influenced by this during their practice. If this is the case, such 'hidden fundamental values' may, in the long run, imply that the dialogue in the classroom is more vertical than horizontal (Frønes, 1995; Janson, 2002); this may imply that the work in the classroom is more oriented towards the Goals to be attained (since they concern the mastering of basic skills) than towards the Goals to strive towards. This is not surprising, but it points towards a dilemma situation; the teachers are supposed to make all pupils achieve the Goals to be attained. But with a vertical classroom dialogue, the Goals to strive towards (which postulate a horizontal, democratic classroom dialogue) can not be approached; the Goals to be attained can still be reached without a democratic classroom dialogue.

Influence on the student teachers' implicit values

It proved possible to influence the implicit values of the students in group A. The task of performing a lesson with a horizontal dialogue was successful, since a majority of the students in group A performed a lesson with a completely horizontal dialogue and the rest of them performed a lesson that was at least partly horizontal. This was of course an 'artificial example' of living up to the wording in the curriculum as regards a horizontal classroom dialogue, but the aim was to see if this was possible, and it proved to be so. However, not all students in group A chose to take part in this intervention. All of those who did participate were future teachers for younger children; all of the student teachers who were being educated to become teachers for older children chose not to participate.

Overall discussion

The result showed that the student teachers had the opinion that they were taught about their fundamental values in theory, but not in practice. This could also be expressed by saying that, during their education their explicit values were more affected than their implicit values.

The dilemma situation for teachers consists in the fact that they have to see to it that all pupils reach the Goals to be attained, but at the same time they are to promote a horizontal classroom dialogue and that all pupils approach the Goals to strive towards. Vygotsky's theory of ZPD (Vygotsky, 1978) implies that knowledge is transformed from the socio-cultural environment and internalized in the individual; this can be fulfilled with the pattern that appeared in this study: that the teacher always lets the children influence rules in the classroom, but is more restricted when it comes to discussion of values.

Bakhtin's notion of 'appropriation' (Bakhtin, 1986), on the other hand, presupposes a horizontal classroom dialogue; if you do not offer this kind of dialogue you will not be able to pay attention to 'previous voices' (Bakhtin, 1986) and the knowledge that the pupils appropriate will not be founded in a concern with the pupil's previous voices. Following this philosophy involves teachers' allowing and promoting values discussion in the classroom. It is natural that a reluctance to allow and encourage values discussion will affect those students more, who are not from the same social class as the teacher, the ones with a similar 'habitus' (Bourdieu, 1993) or with similar 'mentality' (Ödman, 1998) or belonging to the same social class as the teacher

(Heath, 1983) or the same 'speech community' (Ogbu, 1997) or speak the same moral language (Stout, 1988).

The result points towards a necessity to provide space in the teacher training for a proficiency that can be expressed in different ways: a schooling in vertical-horizontal communication, as expressed by Janson (2002), a new role for the teacher, a "schooling of the heart", as expressed by Fjellström (2005, p. 77).

The National curriculum (Ministry of Education and Science in Sweden, 2002) expects teachers both to discuss rules in the classroom and to "openly present and discuss different values, ideas and problems" (Lpo 94, 2002, p. 11); the result in this study points in a direction that the future teachers are not ready to follow the theory in practice. The results do indicate the need of integrating democratic, social and ethical aspects of teaching and learning in the teacher programme. Without taking value-ridden questions about the teacher's role in the classroom seriously it will be, if not impossible, at least hard for students to embrace and, eventually embody the virtues of the good teacher, who understands the importance of horizontal communication.

Considering what has been said above about the relationship between student teachers' and the school's fundamental values, it goes with out saying that democratic, social and ethical aspects of teaching and learning must be integrated in the teacher programme. Since teaching methods are not neutral, and a teacher's conduct in the classroom is not neutral, there is no choice but to make a serious effort to introduce values in teacher education in order for the student to make sense of her own values that are transmitted by her own educational praxis, even if such an agenda might challenge the view of the traditional teacher, and the traditional view of the making of the teacher.

Limitations

It is not possible to draw conclusions from this study, due to the restricted number of participants, but the tendency that appears in the study is worth paying attention to and studied further: is there a 'hidden curriculum' in schools as regards teachers' 'fundamental values' and, if so, does this apply more to upper/secondary school teachers than to primary school teachers?

Suggestions for future research and conclusions from similar studies

A suggestion for future studies is to continue the study on a more qualitative basis (or conduct a new, more qualitative study), *e.g.* to interview teachers, student teachers and pupils (individually or in focus groups) about values mediation in the classroom. Studies have been performed, using focus group dialogues in teacher teams, showing that the method was useful for identifying a school's developmental needs and since it allowed teachers to participate without being singled out (Sandström Kjellin, 2008). Case studies have been performed in five European countries, showing that in the cases where the classroom dialogue was horizontal the pupils seemed more for the duration of the lesson than in those in the 'vertical' classrooms (Sandström Kjellin & Stier, 2008a). However, one study (Sandström Kjellin, 2008b) revealed that even in a European collaborative group of teacher educators with the explicit focus to develop classroom dialogue to become more horizontal, the dialogue among the project group was not at all altogether horizontal. Probably it is important to remember the truth in the old finding made by Argyris & Schön (1974) that we do in practice does not always coincide with what we think that

we do. This is worth studying more closely. At this it seems fruitful to bring in theories of intercultural communication. Thus, specifications of mechanisms that work when we communicate, interculturally as well as intraculturally, can probably add to explanations of *why* our theories-in-use do not coincide with espoused theories (Argyris & Schön, 1974).

References

Argyris, C. & Schön, D. A. (1974). Theory in Practice: Increasing Professional Effectiveness. San Francisco: Jossey-Bass.

Aukrust, V. G. Klassrumssamtal, deltagarstrukturer och lärande [Classroom conversation, participation structure and learning; in Swedish] in O. Dysthe (Ed.). (2003). *Dialog, samspel och lärande* . Lund: Studentlitteratur.

Bakhtin, M. M. (1986). *Speech Genres and Other Late Essays.* Austin TX: University Press.

Bourdieu, P. (1993). *Kultursociologiska texter* [Sociocultural texts; in Swedish]. Stockholm/Stehag: Brutus Östlings bokförlag Symposion.

Durkheim, Émile (1956). *Education and Sociology*. New York: MacMillian.

Eurydice. (2005). *Citizenship Education at school in Europe. Eurydice. The information network on education in Europe.* Cambridge University Press. 2005

EVS (2001). 2001. *The European Values Study: A Third Wave. Source Book of the 1999/2000 European Values Study Surveys*. [compiled by Loek Halmna in collaboration with Anthony M. Abela, Helmut Anheier and Stephen Harding and 53 others]. Tilburg: European Values Study.

Fjellström, R. (2005). *Läraren som fostrare* [The teacher as fosterer – a shift of character in Sight; in Swedish] in Utbildningsvetenskap 2005 – resultatdialog och framåtblick. Stockholm, Sweden:Vetenskapsrådet.

Frånberg, G-M. (2004). *"Man måste börja med sig själv …" Värdegrunden i den nya Lärarutbildningen* [You have to start with yourself …" Fundamental values in the new Teacher training; in Swedish]. Umeå. Sweden: Värdegrundscentrum, Umeå universitet.

Frønes, I. (1995). *Among peers. On the meaning of peers in the process of socialization*. Oslo: Scandinavian University Press.

Heath, S. B. (1983). *Ways with words. Language, Life and Work in Communities and Classrooms.* Cambridge: Cambridge University Press.

Inglehart, R. (1977). *The Silent Revolution. Changing Values and Political Styles among Western Publics*. Princeton: Princeton University Press.

Inglehart (1990). *Culture Shift in Advanced Industrial Society*. Princeton: Princeton University Press.

Janson, U. (2002). Aspects of Social Competence in Preschool Interaction between Children with and without Disabilities, in M. Karlsson Lohmander (Ed.) *Social Competence and Communication.* Göteborg University: Researching Early Childhood, vol. 4. Centrum för kunskap om barn.

Karlsson, O. Behovet av praktikbaserad utvärdering [The need of practice based evaluation; in Swedish] in C. Thors Hugosson (red). (2003). *Värdera och utvärdera. Pedagogiska magasinets skriftserie nr 2.* Lärarförbundet. Stockholm, Sweden: Lärarförbundets förlag.

Liljestrand, J. (1999). Fostran mot bestämda värden och värdepluralism – två oförenliga teman I Lpo 94? [Education towards fixed values and value pluralism in Lpo 94?; in Swedish] i *Utbildning och demokrati 1999:1*, 127-137.

Lindensjö, Bo & Lundgren, Ulf P. (2000). *Utbildningsreformer och politisk styrning* [Educational Reforms and Political Governing; in Swedish]. Stockholm: HLS förlag.

Lindgren, J. (2003). *Värdegrund i skola och forskning 2001* [Fundamental values in school and in research; in Swedish]. Umeå universitet: Värdegrundscentrum. Umeå, Sweden.

Ministry of Education and Science in Sweden (2002). *Curriculum for the compulsory school system, the pre-school class and the leisure –time centre, Lpo 94*. Stockholm, Sweden: Fritzes.

National Agency for Education (2001). Syllabuses for the compulsory school. Stockholm, Sweden: Fritzes.

Månsson, N. (1999). Sökandet efter ett moraliskt metaspråk (?) [Searching for a moral meta language (?); in Swedish] . *Utbildning och demokrati 1999:1*, 113-126.

Ogbu, J. Speech Community, language identity and language*,* in A. Sjögren (Ed.) (1997). *Language and Environment – A Cultural Approach to Education for Minority and Migrant Students.* Botkyrka, Sweden: Mångkulturellt Centrum.

Pettersson, T. (1994) 'Culture Shift and Generational Population Replacement.

Individualization, Secularization, and Moral Value Change in Contemporary Scandinavia', in Pettersson, T. and Riis, O. (eds) *Scandinavian Values. Religion and Morality in the Nordic Countries*, pp. 197-212. Uppsala: Uppsala universitet.

Sandström Kjellin, M. (2008). Focus group dialogues as a method for identifying a school's developmental Needs. *European Journal of Teacher Education,31:4,*379 — 388

Sandström Kjellin, M. & Stier, J. (2008a) 'Citizenship in the classroom: transferring and transforming transcultural values', *Intercultural Education, 19:1,* 41 - 51

Sandström Kjellin, M. & Stier, J. (2008b). Practice what you preach? Managing Cultural (Un)awareness in a Multi-Cultural Collaborative Project. *The Learning Teacher Journal*.

Skolverket (2000). *Grundskolan. Kommentarer till kursplaner och betygskriterier* [The Compulsory School. Comments on Syllabuses and Assessment Criteria; in Swedish].

Stockholm, Sweden: Skolverket och FritzesSkolverket (2001). *Syllabuses for the compulsory school*. Stockholm, Sweden: Skolverket och Fritzes.

SOU 1992:94. Betänkande av läroplanskommittén. *Skola för bildning* [School for Cultivation; in Swedish]. Stockholm, Sweden: Allmänna förlaget.

Stout, J. (1988). *Ethics after Babel. The Languages of Morals and Their Discontents.* Boston: Beacon Press.

Swedish National Agency for Education (2006). *Curriculum for the compulsory school system, the pre-school class and the leisure-time centre Lpo 94.* Stockholm, Sweden: Fritzes.

Vygotsky, L. S. (1978). *Mind in society. The Development of Higher Psychological Processes.* Cambridge. Massachussetts: Harvard University Press.

Ödman, P. J. (1998). *Kontrasternas spel* [The play of contrasts; in Swedish] Stockholm, Sweden: Prisma.

Are we preparing doctoral students in the art of teaching?

Richard L. Utecht
University of Texas at San Antonio

Raydel Tullous
University of Texas at San Antonio

ABSTRACT

More than half of all business doctoral students will seek employment in colleges and universities. Some new faculty may naturally excel in the classroom, but for others, the road is more difficult. Many doctoral students who entered academia did not feel that they were adequately equipped to manage the class and provide the appropriate learning environment. Various researchers have expressed concern about the need for doctoral students to receive some preparation for their role as teachers. This paper discusses studies that address doctoral students and describes a current doctoral teaching seminar. The impact of this teaching seminar has resulted in first time teaching doctoral students beginning the teaching component of their career pursuing higher order teaching skills. The course instills confidence in the first time teachers by enabling them to implement active learning techniques to motivate and engage students.

Keywords: Self-efficacy, learning styles, active learning, teaching preparation.

Introduction

The Bureau of Labor Statistics of the U.S. Department of Labor reported that approximately 1.7 million postsecondary teachers were employed in educational institutions in 2006 (*Occupational Outlook Handbook*). The Bureau estimates that number will grow by 23 percent between 2006 and 2016 due in part to the expected increases in college enrollment. Most of the current postsecondary teachers are employed in 4-year universities and colleges or in 2-year community colleges, and they are organized into departments or discipline-based areas.

According to the "Survey of Earned Doctorates (SED)," the majority of the graduating doctoral students seek employment in colleges and universities (Hoffer, et al., 2006). The percentage of those students who had definite postgraduate employment commitments in higher education varied across fields of study. Humanities had the highest percentage (85.2 percent) while engineering had the lowest percentage (14.9 percent). For those with postgraduate commitments in any area, 39 percent identified their main work activities as teaching, and 37 percent identified research and development as their main work activities. The work activities followed a similar pattern with respect to variation across fields of study. Engineering had the highest percentage (77.4 percent) expecting to work in research and development, and humanities doctorates had the highest percentage expecting to teach (74.7 percent).

Most future faculty will not find positions at the research institutions since only around 6.4 percent of the U. S. universities and colleges are considered research institutions according to the Carnegie Classification of Institutions of Higher Education (Carnegie Foundation, 2005). Thus, it is obvious that most new faculty members will be involved in teaching to some extent. Since the early 1990s the interest in preparing doctoral students to teach as well as to conduct

research has grown. However, despite evidence that providing training in teaching for postsecondary teachers enhances the teaching experience and boosts self-confidence (Burton, Bamberry, & Harris-Boundy, 2005), many university doctoral programs still do not emphasize the importance of preparing doctoral students to teach.

Since it is inevitable that new doctorates will be teaching some classes as they enter academia, it will serve doctoral programs well to help these students prepare for the teaching component of their academic careers. This preparation also can benefit the research component. That is, if the students are better prepared to teach, more time can be devoted to research, and they will be better prepared to communicate the knowledge gained from their research.

This paper discusses some of the statistics regarding doctoral students, challenges facing doctoral programs, Ph.D. training, and business doctoral programs. Also included is an explanation of a new course introduced in the summer of 2006 in the College of Business at the University of Texas at San Antonio along with an overview of the course design and content.

A Brief Glimpse into Doctoral Programs

Certainly there is a keen interest in recruiting and educating individuals for doctoral programs, particularly in the sciences and engineering. This is evidenced by a number of studies and surveys conducted by various agencies and institutions. For example, the Survey of Earned Doctorates (SED) is funded by several U.S. government agencies, and the first survey was conducted for the 1957-58 academic year. The results from the latest survey showed that 45,596 research doctorates were awarded during the 2005-2006 academic year. This represented a 5.1 percent growth over the previous year. The SED focuses on collecting data on the education and characteristics of individuals seeking doctorates as well as their postgraduate plans. Highlights of the survey are provided in the Summary Report including the statement that 54 percent of those doctorate recipients with firm commitments for employment planned to work in educational institutions.

An earlier national survey of doctoral students was conducted in 1999. Approximately 4,000 students in 11 arts and sciences disciplines from 27 universities were surveyed regarding their doctoral education and career preparation (Golde & Dore, 2001). The authors stated that their goal was to identify practices that worked or did not work in doctoral programs. One of their findings revealed that the respondents in the study did not believe that their doctoral programs prepared them for the jobs they took. Although the students felt they were reasonably well prepared to conduct research, they did not feel they were as prepared to teach.

Golde (2004) reported that many of the arts and sciences doctoral students felt that they had been inadequately prepared for their academic careers. Although it is accepted that doctoral programs emphasize research, some conflicts arise among academicians as to the need to train doctoral students about the art of teaching. While Gale and Golde (2004) indicated that universities were beginning to offer pedagogical preparation for future faculty, there still exists a need for graduate programs to offer instruction in the scholarship of teaching and learning.

Departments/disciplines place different emphases upon preparing doctoral students as teachers. Most doctoral students are given intensive work in narrowly defined subject areas and are conscientiously trained in the technical skills required for conducting research in those subject areas. Although most universities and search committees seeking new faculty focus on the candidate's research capabilities, some express concern about the teaching abilities of the graduates.

Another issue important in selecting new faculty is the ability to communicate. It is obvious that communication skills are important for academic careers. Professors must be able to teach, make presentations to peers, and publish their research. Frequently the communication skills are ignored in doctoral programs. The issues are not just those of accent and grammar, but the need for writing and speaking skills. A number of universities are reexamining their priorities and objectives in their doctoral programs.

The National Association of Graduate-Professional Students (NAGPS) conducted an online survey in 2000. The survey was designed to assess student perception of doctoral programs, and more than 32,000 current and recent doctoral students participated. The study indicated that 81 percent of the students were satisfied with their programs overall, but only 45 percent were satisfied with their preparation for teaching (2000 National Doctoral Program Survey).

Jean Forray (1996) asked the question "How should we select and train doctoral students as teachers?" to a group of six management faculty members with varying degrees of experience. At the end of the interviews she had additional questions, but concluded that the "design of doctoral student training is clearly embedded in a larger discussion of professional values" (p. 69).

Hershey, Gargeya and Eatman (1996) conducted a survey of recent doctoral business graduates (i.e., "no more than four full years of teaching experience at the current institution"). The survey consisted of twenty-four statements regarding teaching competency. The respondents were asked to indicate the importance of each of the areas, and to rate the amount of preparation they had received in their graduate programs. The statement receiving the most important rating was "Developing teaching-presentation skills." Interestingly, the students felt they were least prepared in this area. Two other areas receiving the next most important ratings were: "planning an existing course and appropriate content coverage" and "motivating students."

Members of the Task Force on Teaching and Career Development at Harvard suggested a change of emphasis in higher education institutions by considering teaching and student learning as important as excellence in scholarship. They appealed to the Dean of the Faculty of Arts and Sciences to give equal weight to teaching and research when making rewards. Another one of their recommendations was to provide new funds for innovative classroom approaches and training junior faculty and doctoral students. (Task Force, Harvard, 2007).

While educational institutions expect faculty to be effective teachers, competent researchers, and an active partner in the university and community, a debate continues regarding the perception that doctoral programs focus on research with minor concern about preparing students to enter the classroom. Many academicians believe that specialized study is adequate preparation for postsecondary teaching. While this may be a reasonable expectation for graduate programs, it is likely to prove inadequate for undergraduate programs. Characteristics of undergraduate students (e.g., age, experience, etc.) are different and require different perspectives. Some researchers also believe that doctoral students should be enlightened as to their other university roles such as advisors (Kupfer, 2007).

Magner (2000) also indicates that the debate continues on Ph.D. training. She suggested that the attendees at the conference on "Re-envisioning the Ph.D." felt there were issues not addressed by doctoral programs. Although many suggestions were brought forward, no clear cut guidelines were fashioned. Meacham (2002) sampled approximately fifty faculty members and administrators and concluded that they did not believe that there was a match between the qualities generated by most doctoral programs and those qualities sought in new faculty.

In most universities a faculty member's primary role is a teacher. Many articles and texts have been written on the subject of teaching, but how many doctoral students are given assignments which require their reading of this subject matter. Many universities may provide some sort of training for prospective postsecondary teachers, but they vary across departments, disciplines, and colleges. A teaching intern program began in the summer of 1990 at Georgia Tech. Norris (1998) conducted a survey of former students, department chairs at universities where former interns were currently teaching, and other faculty participants. She reports that results of the survey indicated that the program had been effective and that a required seminar was being added to the Ph.D. curriculum.

A report entitled "Reshaping the Graduate Education of Scientists and Engineers (1995) by the National Academies of Sciences and Engineering, recommended that doctoral programs should be changed to include preparation in teaching as well as preparation in non-academic settings. Some believe that improvements in the quality of education can be expedited by changing campus and disciplinary cultures (Applegate, 2002).

Business Doctoral Students

The number of business doctoral students is small relative to the total number of doctorates awarded each year. In many of the national surveys business doctoral students, if included in the survey, are grouped under "other categories" with communications and unclassified fields (e.g., SED). So, how do business school doctoral programs prepare students for teaching? Are they focusing on the same models as the other disciplines? Alutto (1993) identified three categories of schools (teaching-focused, research-focused, and balanced). The balanced represents the largest number of schools with respect to business. Alutto also suggested two models that could be applied to the three categories, but he emphasized that each doctoral institution should identify the needs of their customers (i.e., which type of colleges or universities will be the recipients of the institution's doctoral students). Understanding the needs of their customers will be important in ensuring that the doctoral students meet the criteria of prospective colleges. The third category (balanced) probably represents the largest number of schools with respect to business.

Since business schools have a variety of disciplines, it is necessary that the doctoral students are accomplished in their specific discipline. However, because of the need to address strategic as well as tactical issues of an organization, there is a need for integration of disciplines. Thus, it is important that business doctoral students be broadly trained in the core disciplines and their application to practical problems in order for them to communicate to their students how the functional areas are incorporated. Frequently, the integration of the disciplines only occurs in a "capstone" course. It is not unusual that some faculty believe that specializing in a narrow area of research prepares doctoral students to teach. Moreover this type of thinking may result in mismatches between the needs of the hiring institutions and the preparation of the doctoral students.

Harvey Brightman (1995) challenged faculty to join him in increasing their efforts to prepare doctoral students to teach. Although numerous members of the faculty believe that research is assigned a higher value than teaching, Brightman suggested that champions and top management support (i.e., not lip service but real incentives and rewards for excellent teaching) could pave the way for renewed interest in teaching and learning.

In a survey of faculty members, over 50 percent felt that they should focus on research, but only 10 percent believed their main emphasis should be teaching (Porter & McKibbin, 1988). Their report was based upon 300 interviews with administrators and faculty members and over 8,000 surveys from students and alumni. One of the authors' criticisms was that business schools had become complacent and that few examples of major changes were being considered. They also contended that the emphasis on research appeared to be more about increasing the quantity than its actual impact on business issues. Lyman Porter (1997) looked for changes a decade later. He found numerous positive changes such as trying some innovations and a lessening of a herd mentality. He also noted that a stronger practicum and project emphasis was occurring. However, he noted that doctoral education seemed stagnated; that is, the preparation of doctoral students appeared to be about the same as it was in the 1960s, 1970, and 1980s.

In the late 1950s business schools were criticized as having sub-standard faculty qualifications, course work and research (Gordon & Howell, 1959; Pierson, 1959). An AACSB study in 1988 indicated changes had occurred, but that the business schools had moved too far to the pure research side and neglected the applied side. Thus, the traditional debate between teaching and research emphases spread through the business schools. As noted earlier only 6.4 percent of colleges and universities are classified as research institutions, but they produce around 34 percent of the undergraduates in the U.S. Some state legislators began to mandate teaching loads (Weber & Russ, 1997) in part because they felt that some researchers were overpaid and underused in the teaching component of universities (Winkler, 1992).

Assessment of Doctoral Programs

As noted in this paper most Ph.D. programs emphasize preparing doctoral students for research in their respective disciplines. Assessment of doctoral education has typically focused on a variety of metrics, such as completion rates. Some programs have developed criteria for attainment of learning outcomes for graduate programs. For example, direct assessment of learning objectives may include completion of a doctoral dissertation, passing comprehensive examinations, presenting papers at conferences, and so on. Indirect assessment may include positions attained and placement rates, post-graduate employer surveys, and self-assessment of learning after graduation. However, regardless of whether assessment was direct or indirect, the focus was on the disciplinary scholarship of discovery not on how pedagogically prepared they were to begin their teaching careers.

Although there appears to be a shift for universities to offer some form of assistance in developing pedagogical training, little research has been published that assesses how well these courses, workshops, seminars, etc. are succeeding. Some programs offer teaching certificates [University of Pennsylvania through their Center for Teaching and Learning] which includes several workshops and observations of the graduate students in the classroom. The University of Tennessee at Knoxville [business school] offers a course for doctoral students to develop their teaching skills. Georgia Tech [mechanical engineering] offers a doctoral seminar on teaching.

Thus, as one begins to develop a course or program to help prepare doctoral students for a successful teaching experience rather than one of mere survival, an extensive search for studies on what works and what does not work was disappointing. Thus, the question of how to assess the teaching curriculum to ensure students are receiving adequate preparation remains unanswered. In the remaining sections of this paper a preliminary critique of one doctoral

teaching seminar and some of the teaching and learning concepts on which the course was based are presented together with suggestions for future research on assessing the course.

Teaching and Learning

Three general perspectives regarding teaching may be considered when developing a teaching philosophy. Teaching may be thought of as an interaction between a teacher and a student conducted in such a way as to (Barr and Tagg, 1995; McKeachie & Svinicki, 2006):

- Provide the student with the opportunity to learn. This focuses on the role of the teacher being a knowledge generator and source, a role model, and a mentor. Thus, the faculty member would continually gain expertise through research and communicate this to the students.
- Enable the student to learn. Under this perspective the teacher still must be a source of knowledge while being able to create an environment conducive to learning. The faculty member would develop interactive skills that create interest and motivate students to learn.
- Cause the student to learn. Under this case the teacher has the primary responsibility for student learning. Faculty members are considered to be more effective the higher the test scores on some prescribed examination.

Unfortunately, this third perspective has become popular with the public and legislators under the umbrella of accountability. While it is all well and good for students to score high on examinations, learning to be a citizen of the world is more than testing. Thus, if we consider that we can help doctoral students prepare to teach, we need to understand they will not all follow a cookie-cutter approach. They are different, and how they teach will vary. However, there is some agreement that some proficiency in teaching can be transferred through workshops, courses, seminars, internships, mentors, etc. This is thought to be true in several broad dimensions of teaching (Lowman, 1999; McKeichie & Svinicki, 2006):

- Content expertise. Knowing the subject matter being taught.
- Teaching philosophy. Developing a way of thinking about teaching.
- Instructional delivery skills and characteristics. Presentation of the subject matter in a manner that would encourage students to learn.
- Instructional design skills. Designing active learning instructional activities in such a manner to ensure student engagement.
- Course Management Skills. Managing a course, grading, arranging for guest lecturers and facilities, and so on.

Although mastery of the subject matter has been one of the four most frequently mentioned characteristics of an effective college teacher for many years (Crawford & Bradshaw, 1968; French, 1957; Gadzella, 1968), and as noted in several of the surveys, most students believe they are receiving the necessary training and tools in their field of study. With the exception of encouraging doctoral students to let their enthusiasm for their subject be spontaneous, a teaching preparation course should focus on the other dimensions.

In addition to the above, the doctoral seminar was structured around five critical drivers (CDs), which are essential for a successful teaching-learning experience (Connect, Concern, Competence, Clarity of Impact, and Conduct the Class Fairly). These CDs are reinforced with every class meeting and assignment throughout the course.

- Connect. The doctoral students are encouraged to connect with their students by learning their names and creating a comfortable atmosphere which results in motivating students and improving attendance.
- Concern. Helping the students learn how to learn is the essence of the "scholarship of teaching," and caring about student performance is another motivating factor.
- Competence. The instructors must be knowledgeable in their fields and be able to convey an applied emphasis to which students can understand and relate.
- Clarity of Impact. Structure and organization of a course is imperative to enabling the students to conceptualize the material by making connections to a relevant frame of reference. Presentation styles from lecture to discussion to collaborative techniques need to reinforce the overall conceptualization of the course in the students' minds.
- Conduct the Class Fairly. Student assessment of assignments must be reasonable and relevant. This critical driver can void all of the other critical drivers if assessment is perceived as unfair.

A Look at One Doctoral Teaching Seminar

In 2002 UTSA began offering a Ph.D. in Business Administration with concentrations in accounting, finance, information technology, and organization and management studies. In the summer of 2006, a new course was developed (GBA 7103, Doctoral Teaching Seminar) to help the graduates prepare for academic careers. The course is organized into ten class sessions of four hours each.

Teaching skills are derived from activities that enhance student learning, and the methods used in this course are based upon active learning methods. While the class is not a lecture course, a considerable amount of reading is required. Two relevant teaching textbooks (Lowman's *Mastering the Techniques of Teaching* and *McKeachie's Teaching Tips*) are required as are numerous articles that provide a variety of viewpoints relevant to teaching and learning styles.

The students are assigned readings for the first day of class and expected to participate in discussions. Although all of the students may not know or be able to express their feelings about teaching the first day, they are asked to answer several questions (which by the end of the course, they should be able to answer):

- What is your philosophy of teaching?
- How do you intend to position your career as a college professor?
- What constitutes exemplary teaching?
- What kind of teacher do you want to be?

For the second class, the students are to prepare a reflective paper based upon their entire education. There are two parts to the paper:

Part I. Who were your best teachers? Why? What did they do that was most effective? Do they serve as a role model for your teaching style? What characteristics of their teaching style do you want to incorporate into your teaching style? What characteristics do these teachers have in common? Which teacher(s) had the greatest influence on your life? Why?

Part II. Who were your worst teachers? Why? What did they do that was most ineffective? What characteristics of their teaching style do you want to avoid? What characteristics do these teachers have in common? Do you think they felt they were ineffective?

During the second class they also begin to discuss teaching styles and classroom dynamics. For the third class, they are conducting a workshop on student learning styles and discussing the connection between teaching and learning styles. By the fourth class, course design and development of relevant assignments are discussed. These elements will provide the basis for the course design project that they will complete before the end of the semester. For the next class, they are asked to consider their specific disciplines (i.e., accounting, finance, and so on) and prepare a discipline conceptualization paper. The paper includes a taxonomy/overview/framework for a "principles" course in their field that could serve as a teaching platform for the principles course as well as other courses in their discipline. This paper along with the development of the relevant assignments and syllabus will serve as the basis for the teaching video assignment required on the last day of class. Other classes focus on student motivation, learning objectives, assessment, student concerns and time management. Numerous presentations, discussions, and critiques are part of each class. The final paper for the course is a description of their teaching philosophy and what teaching style(s) they plan to use. They are encouraged to interview and observe faculty, and they must include a literature review of the teaching style(s) they will be using.

Another dimension not mentioned in the five broad dimensions is related to the comfort level an individual feels when beginning to teach. Some degree of self-confidence may help allay some of the fears that new faculty face when they are entirely on their own in the classroom for the first time. Their perception that they have something to offer the students can be reassuring to them. Esenc Balam (2006) found a significant relationship between professors' efficacy beliefs and professors' teaching effectiveness. One's perceived self-efficacy is usually defined in terms of how one perceives their capabilities of producing effects (Bandura, 1994). Thus, "teaching efficacy" refers to one's confidence in their ability to affect student performance. Burton, et al. (2005) reported that new doctoral students who were involved in teaching preparation (e.g. instructional techniques, seminars, workshops, practice, and interaction with experienced instructors) demonstrated an improvement in their sense of personal teaching efficacy. In addition, they hypothesized that teaching seminars would have different effects based upon an individual's personal characteristics and found that the teaching seminar was more effective for those individuals with high levels of positive affectivity. Gist and Mitchell (1992) reported that self-efficacy influenced activities such as goal level, effort, and persistence. Believing that one has the necessary skills to perform successfully may help them develop the confidence to actually provide a better learning environment. It is hoped that this course will play an important part in the students developing a sense of self-confidence in their ability to help other students learn. It is also hoped that the course will help them see themselves as college professors who are a part of the entire university community and that while research is important, there are other rewards to be gained from teaching.

During the year that the course described in this paper was being developed decisions about what should be included in the course became a central focus. While some issues may seem trivial, it was imperative to consider how much time to give to teaching and learning styles, how much time to lecture, how much time for in-class presentations, how to assess their assignments, and so on. Certainly, as with any course, the professor can expect to make modifications to the course material and presentation. One adds new materials and culls less effective materials.

Central to the course are the five CDs. The CDs (connect, concern, competent, clarity of impact and conduct class fairly) are emphasized to help the graduate students engage in active learning and student motivation and create an effective teaching/learning environment. Since these drivers are included in the instruction, they are applied in teaching the seminar. One of the assignments in the first class was a "course design" project, and the intent of the assignment was an in-depth preparation of a principles course for their respective discipline. The emphasis of the assignment was to avoid the pitfalls of being a chapter ahead of the class and reading PowerPoint slides prepared by a book publisher.

Most of the students have been in the doctoral programs for two years and will begin to teach their first principles course in the fall semester. Thus, this course is offered in the summer to prepare students for the fall semester. Typically, planning a new course should take about three months (McKeachie & Svinicki, 2006).

Initially a student would turn in a syllabus and present it to the class as if it were the first day of class. The other doctoral students would role play as undergraduates asking abundant questions and presenting obstacles. The syllabus had to have a schedule with everything planned out for each day of the semester. However, a problem occurred regarding the schedule on the syllabus. The instructor could not verify that a true lesson plan and topic existed for each day on the schedule. For some students, it appeared that the schedule mirrored a table of contents from the textbook.

Since one of the critical drivers, clarity of impact, did not appear to be clear for this assignment, the assignment was amended for future classes. Instead of presenting the syllabus as the "first day" presentation, a student would present the syllabus for ten to twenty minutes or until the instructor was satisfied. The instructor would stop the student and randomly pick a day in the future from the syllabus, allow the student to leave the classroom and review their notes for 10 to 15 minutes, return and conduct the class based upon that specific class day. Although the students were anxious about the assignment when they were preparing it, for those teaching in the fall semester, they indicated that it was the single best "thing" they did to prepare them for their first course. This was true not only from a time, structure and organizational perspective but also from a self confidence perspective.

However, it was not until the end of the second time the course had been offered that assessment of the learning outcomes of the course became prominent. This is the current stage of this study. During the summer of 2009 another seminar will be conducted, and the learning objectives will be reexamined and modifications to embedding assessment will be included.

Suggestions for Future Assessment

As noted previously some universities are including teacher preparation courses, seminars, internships, and workshops in their doctoral programs, but formal assessment, either direct or indirect, of the specific pedagogical preparation has been lacking. The survey conducted

by Hershey, Gargeya and Eatman (1996) asked about the recent doctoral graduates about their teaching preparation, but their answers were not linked to any specific courses. Rather they were asked about how their doctoral programs helped prepare them for teaching. However, Norris and Palmer (1998) surveyed former student and faculty participants in the Georgia Tech internship program and found that a majority of the interns felt that participation in the program was beneficial. This course described in this paper is still in the early stages of development, and modifications to the course have been based upon student feedback at the end of the course and through assessments embedded in the class assignments.

Approximately 40 doctoral students have completed the course and have taught at least one semester. As a first step in assessing the effectiveness of this doctoral course, during the summer of 2009, each of these students will be contacted at their respective colleges and requested to complete a survey regarding their perception of the how the course impacted their first teaching assignment, what were the most worthwhile and least worthwhile assignments, and what modifications they would suggest.

Although the course initially was met with some skepticism, the feedback from participants has been positive, and other graduate business students who were not required to take the course have requested permission to audit the course. Students who completed the course over the past three summers and are currently teaching undergraduate courses continue to stay in contact with the instructor and provide feedback about their experiences in their courses. Their feedback also is helpful in learning what course components helped them the most and modifying or emphasizing key points for the next iteration of the course.

References

Alutto, J. A. (1993). Whither doctoral business education? An exploration of program models. *Selections,* 9(3), 37-43.

Applegate, J. L. (2002, January). Engaged graduate education: Seeing with new eyes. Washington Association of American Colleges and Universities, and Washington Council of Graduate Schools, PFF Occasional Paper Series.

Balam, E. M. (2006). Professors' teaching effectiveness in relation to self-efficacy beliefs and perceptions of student rating myths. Unpublished doctoral dissertation, Auburn University.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (ed.), *Encyclopedia of Human Behavior*, 4, 71-81.

Barr, R. B., & Tagg, J. (1995). From teaching to learning—A new paradigm for undergraduate education. *Change*, 27, 195-199.

Brightman, H. J. (1995, December/January).Training doctoral students in the art of teaching. *Decision Line*, 26(5).

Burton, J. P., Bamberry, N., & Harris-Boundy, J. (2005). Developing personal teaching efficacy in new teachers in university settings. *Academy of Management Learning & Education*, 4(2), 160-173.

Carnegie Foundation (2005). 2005 Carnegie classifications. National Center for Education Statistics, IPEDS Fall enrollment (2004).

Crawford, P. L., & Bradshaw, H. L. (1968). Perceptions of characteristics of effective university teachers: a scaling analysis. *Educational and Psychological Measurement*, 28, 1079-1085.

Forray, J. M. (1996). Doctoral education and the teaching mission: a dialogue with Jean Bartunek, Lee Burke, Craig Lundberg, Jane Giacobbe Miller, Pushkala Prasad, and Chris Roberts. *Journal of Management Education*, 20(1), 60-69.

French, G. M. (1957). College students' concept of effective teaching determined by an analysis of teacher ratings. *Dissertation Abstracts*, 17, 1380-1381.

Gadzella, B. M. (1968). College student views and ratings of an ideal professor. *College and University*, 44, 89-96.

Gale, R., & Golde, C. M. (2004, Spring). Doctoral education and the scholarship of teaching and learning. *Peer Review*, America Association of Colleges & Universities, 8-12.

Gist, M.E. & Mitchell, T. R. (1992). Self-efficacy: a theoretical analysis of its determinants and malleability. *Management Academy Review*, 17 (2), 183-211.

Gordon, R. A. & Howell, J. E. (1959). *Higher Education for Business*, Columbia University Press, New York.

Golde, C. M. (2004, Spring). Responsibility of doctoral programs for the career preparation of future faculty. *Peer Review*, American Association of Colleges & Universities, 26-29.

Golde, C. M., & Dore, T. M. (2001). At cross purposes: what the experiences of doctoral students reveal about doctoral education," A report prepared for The Pew Charitable Trusts, Philadelphia, PA.

Hershey, G. L., Gargeya, V. B., & Eatman, J. (1996, Autumn). Are business doctoral graduates prepared to teach? *Selections*, 12(1), 17-26.

Hoffer, T. B., Hess, M, Welch, Jr., V., & Williams, K. (2006). Doctorate Recipients from United States Universities Summary Report 2006, Chicago, IL: NORC at the University of Chicago.

Kupfer, M. M. (2008, January). Preparing doctoral students for their future roles as academic advisers: how doctoral programs can assist students' preparation. *The Mentor: An Academic Advising Journal*, The Pennsylvania State University, Retrieved August 3, 2008, from www.psu.edu/dus/mentor

Lowman, J. (1999). *Mastering the Techniques of Teaching (Second Edition)*, Jossey-Bass.

Magner, D. K. (2000, April 28). Critics urge overhaul of Ph.D. training, but disagree on how to do so. *The Chronicle of Higher Education*, A19-20.

McKeachie, W. & Svinicki, M. (2006). *McKeachie's Teaching Tips*, Houghton-Mifflin.

Meacham, J. (2002). Our doctoral programs are failing our undergraduate students," *Liberal Education*, 88.

National Academy of Sciences (1995). National Academy of Engineering, Institute of Medicine, Reshaping the Graduate Education of Scientists and Engineers, National Academies Press, Retrieved August 5, 2008, from http://www.nap.edu/catalog/4935.html

National Association of Graduate-Professional Students (2000). 2000 National Doctoral Program Survey, Retrieved August 1, 2008, from http://survey.nagps.org/

Norris, P. M. & Palmer, S. C. (1998, July). Effectiveness of the Woodruff School Doctoral Teaching Intern Program. *Journal of Engineering Education.*

Pierson, F. C. (1959). *The Education of American Businessmen,* McGraw-Hill, New York.

Porter, L. W. (1997, Winter), A decade of change in the business school: from complacency to tomorrow. *Selections*, 23 (2), 1-8.

Porter, L. W. & McKibbin, L.E. (1988). *Management Education and Development: Drift or Thrust into the 21st Century?* McGraw-Hill, New York, 1988.

Task Force on Teaching and Career Development (2007, January). A compact to enhance teaching and learning at Harvard. Harvard University, Retrieved August 1, 2008, from www.fas.harvard.edu/ /home/news_and_events/releases/taskforce_01242007.pdf

U.S. Department of Labor, Bureau of Labor statistics (2006), Teachers—postsecondary. *Occupational Outlook Handbook*, Retrieved August 1, 2008, from www.bls.gov/oco/ocos066.htm.

Weber, M. J. & Russ, R. R. (1997). Scholarship assessment: perceptions of human sciences administrators and faculty in higher education. *Journal of Family and Consumer Sciences*, 89(4), 2-7.

Winkler, A. M. (1992, July/August), The faculty workload question. *Change*, 36-41.