Active and Problem Based Learning and Student Persistence

Laura Foltz
The University of Tennessee at Martin
lfoltz@utm.edu

Charles B. Foltz
The University of Tennessee at Martin
foltz@utm.edu

ABSTRACT
This research replicates and extends earlier work focusing on the pedagogical practices of active and problem based learning and student outcomes including student institutional commitment, social integration, persistence, and student’s perception of institutional commitment to student welfare.

KEYWORDS: Active Learning, Problem based learning, Institutional commitment, Student retention

INTRODUCTION
What happens in the classroom matters to student success (Braxton J. M., 2006). Curricular experiences and faculty pedagogical practices influence student outcomes including social and academic integration, institutional commitment, and persistence (Terenzini & Reason, 2005; Reason, 2009; Braxton J. M., 2006; Braxton, Jones, Hirschy, & Hartley III, 2008; Braxton, Milem, & Sullivan, 2000). This study examines two pedagogical practices and their impact on student institutional commitment, social integration, persistence, and student’s perception of institutional commitment to student welfare.

LITERATURE REVIEW
Tinto (1975) posited a sociological and interactional theory of student persistence which recognized the importance of what the students brought to the university in terms of personal characteristics, traits, experiences, and commitment (Tinto, 1975). Examples of these student attributes include parental educational level, parental income, gender, racial/ethnic identity, and high school achievement (Tinto, 1975; Braxton, Jones, Hirschy, & Hartley III, 2008). The individual also brings a level of institutional commitment (Braxton, Hirschy, & McClendon, 2004; Braxton, Jones, Hirschy, & Hartley III, 2008).

Tinto (1975) emphasized social integration, the degree to which the student integrated (“fit”) academically and socially (Tinto, 1975). Terenzini & Reason (2005) and Reason (2009) suggest that the student’s pre-college characteristics and experiences meet with an organizational context consisting of internal structures, policies, and practices; academic curricular and co-curricular programs, and faculty culture. Within this structure, the student finds a peer environment in which the student has classroom experiences, out-of-class experiences, and curricular experiences (Terenzini & Reason, 2005; Reason, 2009). This interactional model then determines the outcome of whether or not the student persists (Terenzini & Reason, 2005; Reason, 2009).
Faculty curricular practices influence social integration and provide a foundation for student retention (Terenzini & Reason, 2005; Reason, 2009; Braxton, Jones, Hirschy, & Hartley III, 2008). Braxton et. al (2008) explains that practices that enhance student knowledge and content understanding can lead to an increase in perception of the commitment of the institution to the welfare of its students and utilizes this rationale for examining active learning (AL) (Braxton, Jones, Hirschy, & Hartley III, 2008). Students who perceive they have more active learning (AL) experiences such as class discussion, role playing, and debates perceive that their university is more committed to its students’ welfare and report higher social integration and thus, influence the student’s academic persistence (Braxton, Jones, Hirschy, & Hartley III, 2008; Braxton, Milem, & Sullivan, 2000).

Problem based learning, a second curricular practice that encourages faculty-student contact, encourages cooperation among students, provides prompt feedback, spends time on task, and respects the diverse talents and ways of knowing (Terenzini & Reason, 2005; Zhang, 2014; Reason, 2009). PBL begins with a complex or messy problem that motivates students and engages their prior educational and personal experiences (Albanese & Mitchell, 1993; Antepohl & Herzig, 1999; Kelson & Distlehorst, 2000; Zhang, 2014). Because PBL also encourages faculty-student contact, it is plausible that a perception of more PBL will also lead to an increase in perception of the commitment of the institution to the welfare of its students and subsequent retention. (Terenzini & Reason, 2005; Zhang, 2014; Reason, 2009)

THEORETICAL MODEL

This study seeks to replicate and extend the work of Braxton, Milton and Sullivan (2000) and Braxton et. al (2008). Braxton, Milton, and Sullivan (2000) found a positive link between AL and subsequent institutional commitment, and the study by Braxton et. al (2008) found a positive link between AL and persistence (Braxton, Milem, & Sullivan, 2000; Braxton, Jones, Hirschy, & Hartley III, 2008). These studies were conducted with freshmen at religiously affiliated institutions and highly selective institutions and did not examine the applicability to public regional comprehensive institutions. The pedagogy in these studies was limited to AL and did not examine other pedagogies such as PBL.

Unlike earlier research, this project will examine both AL and PBL within private and public institutions. Responses will be gathered from upper division college students. This research will utilize intention to persist rather than the actual measures utilized in (Braxton, Jones, Hirschy, & Hartley III, 2008); this approach has been used extensively in higher education research (Bean J., 1980; Bean J. P., 1983; Pascarella, Duby, & Iverson, 1983; Voorhees, 1987; Cabrera, Castaneda, Nora, & Hengstler, 1992; Braxton, Jones, Hirschy, & Hartley III, 2008).

HYPOTHESES

This theoretical framework suggests the following directional hypotheses. Because this provides a replication of an earlier study, H1, H2, H5, and H6 are very similar to hypotheses identified by (Braxton, Jones, Hirschy, & Hartley III, 2008). These hypotheses will be examined for just the public university and also in combination with the religiously affiliated private university.

H1: Students that perceive that faculty members are using AL in their courses are more likely to perceive that their college or university is committed to the welfare of its
students (Braxton, Jones, Hirschy, & Hartley III, 2008; Braxton, Milem, & Sullivan, 2000).

H2: Students that perceive that faculty members are using AL processes in their courses have a greater degree of social integration. (Braxton, Jones, Hirschy, & Hartley III, 2008; Braxton, Milem, & Sullivan, 2000)

H3: Students that perceive that faculty members are using PBL processes in their courses are more likely to perceive that their college or university is committed to the welfare of its students

H4: Students that perceive that faculty members are using PBL in their courses have a greater degree of social integration.

H5: The student’s degree of social integration is directly proportional to that student’s level of subsequent commitment to the college or university. (Braxton, Jones, Hirschy, & Hartley III, 2008).

H6: The student’s degree of commitment to the college or university is directly proportional to his or her likelihood of persistence in that college or university. (Braxton, Jones, Hirschy, & Hartley III, 2008).

METHODOLOGY

This study uses a paper survey administered to upper division business classes at a public regional-comprehensive university and a private religiously-affiliated university near mid-term. The upper division courses provide a large, convenient sample of upper division students that might have experienced AL and PBL at the universities.

Utilizing the theoretical framework, seven sets of variables were operationalized as key constructs based upon survey items from prior works (Braxton, Jones, Hirschy, & Hartley III, 2008). Table 1 displays how these variables were operationalized.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Student gender (male = 0; female = 1)</td>
</tr>
<tr>
<td>Underrepresented</td>
<td>Student racial/ethnic identity in comparison to the student population of institution attended (majority = 0; underrepresented = 1)</td>
</tr>
<tr>
<td>High School Grades</td>
<td>Self-reported high school cumulative grade point average (below C = 0, C = 1; C+ = 2, B- = 3, B = 4, B+ = 5, A- = 6, A = 7, A+ =8)</td>
</tr>
<tr>
<td>Parental Income</td>
<td>Student-reported estimated parental income (less than $6,000 = 1; $6,000 - $9,000 = 2, $10,000 - $14,999 = 3, $15,000 - $19,999 = 4, $20,000 - $24,999 = 5, $25,000 - $29,999 = 6, $30,000 - $39,000 = 7, $40,000 - $49,999 = 8, $50,000 - $59,000 = 9, $60,000 - $74,999 =10, $75,000 - $99,999 = 11, $100,000 - $149,999 = 12, $150,000 - $199,999 =13, $200,000+ = 14)</td>
</tr>
<tr>
<td>Parental Education</td>
<td>Level of parental educational attainment (grammar school or less for both parents = 2; graduate work for both parents = 16). Composite variable is sum of two items: father’s level of</td>
</tr>
</tbody>
</table>
educational attainment and mother’s level where grammar school =1, some high school =2, high school graduation =3, some college = 4, associate degree = 5, bachelor’s degree = 6, post-bachelor’s =7, graduate degree = 8

Initial Institutional Commitment

Ranking of student’s college choice (fourth choice or more = 1; first choice = 4)

Active Learning

Composite of five items that measure active learning as any classroom activity that “involves students in doing things and thinking about the things they are doing.” 1 = never, 2 = occasionally, 3 = often, 4 = very often.

These five items focus on the frequency that instructors

- Engage in classroom discussion or debate of course ideas and concepts,
- Ask students to point out any fallacies in basic ideas, principles, or points of view presented in the course,
- Ask students to argue for or against a particular point of view,
- Require students to defend an argument in a course paper or research project, and
- Require students to propose a plan for a research project or experiment.

Problem Based Learning

Composite of five items that measure problem based learning as any classroom activity in which “the learning that results from the process of working towards the understanding of, or resolution of, a problem.” 1 = never, 2 = occasionally, 3 = often, 4 = very often.

These five items focus on the frequency that instructors

- Ask students to solve problems that are complex or messy,
- Ask students think about how to solve a problem,
- Require students to find additional resources to solve a problem,
- Apply what students have learned by proposing or completing hands-on projects,
- Document or defend, or explain how students solved a complex problem or chose a particular course of action.

Institutional Commitment to the Welfare of Students

Composite of nine items measuring student perceptions that the institution is committed to the welfare of students. Strongly disagree = 1, somewhat agree = 2, agree = 3, strongly agree = 4.

- Most student affairs staff members (Student Affairs, Student Life, Dean of Students, Student Activities, Housing) are genuinely interested in students.
- Most other college/university staff (for example, registrar, student accounts, financial aid) are genuinely interested in students.
- The student has experienced negative interactions with faculty members (reverse scored).
- The student has experienced negative interactions with
The student has experienced negative interactions with other college/university staff (reverse scored).

- Faculty members treat students with respect.
- Student services staff treat students with respect.
- Other college/university staff treats students with respect.
- The student knows where to go if need more information about a policy.

Social Integration Composite of seven items measuring the degree of a student’s integration into campus social system. Strongly disagree = 1, somewhat agree = 2, agree = 3, strongly agree = 4.

- Interpersonal relationships with other students have had influence on intellectual growth.
- The student has developed close personal relationships with peers.
- Peer relationships have had influence on personal growth, values, and attitudes.
- The student has had difficulty making friends (reverse scored).
- Few peers would listen to personal problems (reverse scored).
- Peer friendships have been satisfying.
- Student’s attitudes and values differ from peers’ (reverse scored).

Subsequent Institutional Commitment Composite of two items measuring degree of subsequent institutional commitment to college of enrollment. Strongly disagree = 1, somewhat agree = 2, agree = 3, strongly agree = 4.

- It is not important to graduate from this college (reverse scored).
- The student made the right decision in choosing to attend this college.

Persistence Composite of two items measuring student response to intent-to-reenroll (recoded strongly disagree or disagree = 0; agree or strongly agree = 1), reversed coded.

Institutional type (dummy variable used in analyses) One variable was added to each survey result by the researchers to indicate the type of institution from which the survey came. 1 = public regional comprehensive university; 0=private religiously affiliated institution

*Since this is a replica, many of the survey items are from Braxton, Jones, Hirschy, & Hartley III, (2008); Braxton, Milem, & Sullivan, (2000).

DATA COLLECTION AND ANALYSIS

Data collection and analyses are anticipated for Fall 2015.

REFERENCES


