

Student Involvement as a Mediator of the Relationship of Peer Leaders in First-Year Seminars to Academic Achievement and Persistence



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PURPOSE OF STUDY

- To examine the relationship between peer leaders in First-Year Seminars (FYS), student involvement, end-of-first-year GPA and second-year persistence.

INTENDED CONTRIBUTIONS

- Augment limited literature on the effects of peer leaders in FYS

INTRODUCTION

- Postsecondary enrollment rates are rising in the U.S.
- Between 2002 and 2012, enrollment increased 24%.
- Large numbers of students arrive at college unprepared.
- High attrition and low graduation rates

INTRODUCTION

- 30% first-year students will not return next year
- Six-year graduation rate: only 58% at public institutions
- A major concern

(National Center for Education Statistics, 2015b; Schneider, 2010)

FIRST-YEAR SEMINARS (FYS)

- A program designed to increase first-year college students' academic achievement and persistence through equipping new students with the knowledge, skills, and abilities.

(e.g., Goodman & Pascarella, 2006; Hickinbottom-Brawn & Burns, 2015; Jenkins-Guarnieri, Horne, Wallis, Rings, & Vaughan, 2015; Keup, 2006; Klatt & Ray, 2014; Miller & Lesik, 2014; Permzadian & Credé, 2015; Sidle & McReynolds, 2009; Young & Hopp, 2014).

FIRST-YEAR SEMINARS (FYS)

- FYS have existed in the United States for over 100 years.
- Almost 90% of American colleges and universities offer some type of FYS.
- Peer leaders as an important component.

(Barefoot, 2002; Kenedy & Skipper, 2012; University 101 programs).

PEER LEADERS IN FYS

- Students who have been selected and trained to offer educational services to their peers.
- Co-instructors in FYS
- Link among the students, the teachers and the university

(Colvin & Ashman, 2010; Kenedy & Skipper, 2012; Latino & Ashcraft, 2011; n.d.Long, 1997; "University 101 programs").

PEER LEADERS IN FYS

- Selected through an application and interview process
- Both graduate and undergraduate students can serve as FYS peer leaders
- Are required to attend training
- Have regular meetings with FYS co-instructors

(Keup, 2014; Latino, & Unite, 2012: "University 101 programs").

RESEARCH ON PEER LEADERS

- Over the past decades, research has demonstrated the positive roles of peer leaders in various campus settings.
- Peer leaders are effective in promoting FYS students' academic achievement and persistence.

(Hamid, 2001; Kenedy & Skipper, 2012; Latino & Ashcraft, 2011; Schwitzer & Thomas, 1998).

LIMITATIONS IN FYS PEER LEADER RESEARCH

- Most studies regarding the effects of peer leaders are descriptive in nature.
- Previous studies did not explain why peer leaders are effective.
- Call for research that is longitudinal, rigorous in study design, and theoretically grounded.

(Jacobi, 1991; Nora & Crisp, 2007).

THEORETICAL FRAMEWORK

- Astin's theory of student involvement for higher education (1984, 1993, 1996)
- Tinto's interactive theory of departure (1993)

ASTIN'S THEORY OF STUDENT INVOLVEMENT

- Involvement as “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1984, p.518).
- Three most powerful forms: academic, faculty, peer involvement
- Student involvement as a mediator

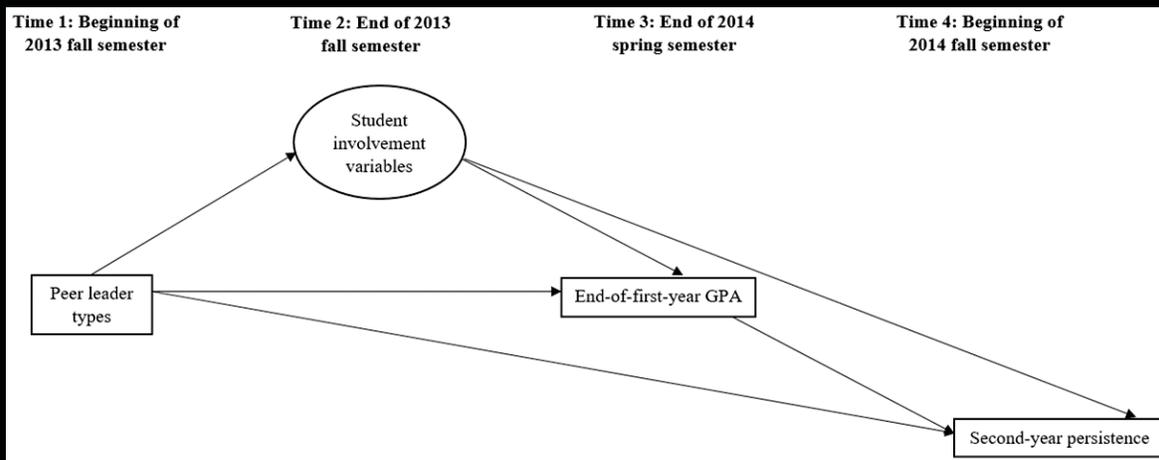
ASTIN'S THEORY OF STUDENT INVOLVEMENT

- Focus on the behavioral aspects of student involvement, not perceptual aspects.
- Does not explore the link between GPA and persistence over time.

TINTO'S INTERACTIVE MODEL OF STUDENT DEPARTURE (1993)

- Explains the longitudinal process of students leaving colleges.
- Academic and social involvement impacts persistence.
- A temporal link between academic achievement and persistence.
- Both behavioral and perceptual aspects of involvement are important.

HYPOTHESIZED PROCESS MODEL



Method

PARTICIPANTS

- Data was provided by a FYS program at a large university located in the southeastern region of the U.S.
- Final analytic sample:
2,407 first-year students dispersed across 213 FYS classes

PARTICIPANTS

Sample students were primarily:

- female (64.4%),
- Caucasian (83.6%),
- lived on campus (96.3%),
- had medium scores on SAT/ACT tests (64%, SAT 961-1290/ACT 20-27),
- had parents with a college education (84.6%),
- did not spend time working at a paid job (83.4%),
- received scholarships or grants (70%).

PARTICIPANTS

- Students' average end-of-first-year GPA was 3.49
- 91% of the students returned to the university at the beginning of the second year

PEER LEADERS

Of all the students in the sample:

- 70% had an undergraduate peer leader (n=1,698),
- 20% had a graduate peer leader (n=478),
- 10% did not peer leaders (n=231).

DEPENDENT VARIABLES

- School records of FYS students' end-of-year GPA (end of 2014 spring semester)
- Second-year persistence (October of 2014, fall semester)

COVARIATES

Student level	
Gender	A categorical variable (male; female)
Race	A categorical variable (Caucasian; non-Caucasian)
Parent education	A categorical variable
Residence	A categorical variable (on-campus living; off-campus living)
Financial aid	A categorical variable (scholarships/grants; student loans; no financial aid)
SAT/ACT score	A categorical variable (low; medium; high)
Work hours	Treated as a continuous variable
Class level	
Teacher education level	A categorical variable (doctorate, masters, other degrees)
Teacher gender	A categorical variable (male, female)
Teacher classification	A categorical variable (classified staff, faculty, unclassified administrators, others)

STUDENT INVOLVEMENT

- Students' responses to the First-Year Initiative survey
- A subset of 34 items that reflected FYS students' academic, faculty, and peer involvement

STUDENT INVOLVEMENT

Behavioral academic involvement:

- Study hours outside of classes (one item).

Perceived academic involvement:(1="not at all", 7="significantly"):

- Perceived improvement on academic skills (three items),
- Academic services (three items),
- Time management (three items),
- Stress management (four items),
- Study strategies (seven items),
- Perceived level of effort in FYS classes (one item)
(1="little effort", 7="considerable effort").

STUDENT INVOLVEMENT

Perceived faculty involvement:

- Perceived connection with faculty (two items)

Perceived peer involvement:

- Perceived connection with peers (four items)
- Perceived Engagement in student activities (three items),
- Perceived social integration (three items).

ANALYTIC APPROACH

- Exploratory factor analysis (EFA)
- Confirmatory factor analysis (CFA)
- Structural equation modeling (SEM)
- Software: Mplus

ANALYTIC APPROACH

- Missing data: Full-information maximum likelihood estimation in Mplus.
- WLSMV, a robust weighted least squares estimator
- TYPE=COMPLEX
- Bootstrapping

Results

MODEL FIT

- The model with both a measurement and a structural model yielded good model fit :

$\chi^2(1,144) = 2099.938, p < 0.001, CFI = 0.953, TLI = 0.947,$
RMSEA= 0.019.

- With bootstrapping, the model had a good fit: RMSEA of 0.02.

COVARIATES AND GPA

End-of-first-year GPA:

- Students with high SAT/ACT scores had higher GPAs than students with medium scores ($b= 0.08, se= 0.03, p< 0.05$).
- Males had lower GPAs than females ($b= -0.05, se= 0.02, p< 0.05$).
- Students who received student loans had lower GPAs than students who received scholarships/grants ($b= -0.09, se= 0.03, p< 0.001$).
- None of teacher characteristics significantly related to end-of-first-year GPA.

COVARIATES AND PERSISTENCE

Second-year persistence:

- No covariates had significantly direct relationship with it.

STRUCTURAL PATHS

- Peer leaders did not have significantly direct effects on end-of-first year GPA and second-year persistence.
- Study hours had a significantly positive relationship with end-of-first-year GPA ($b= 0.03$, $se= 0.01$, $p< 0.05$).
- End-of-first-year GPA was the only significant predictor to second-year persistence ($b= 0.64$, $se= 0.04$, $p< 0.001$).

R-SQUARES

% explained by the model:

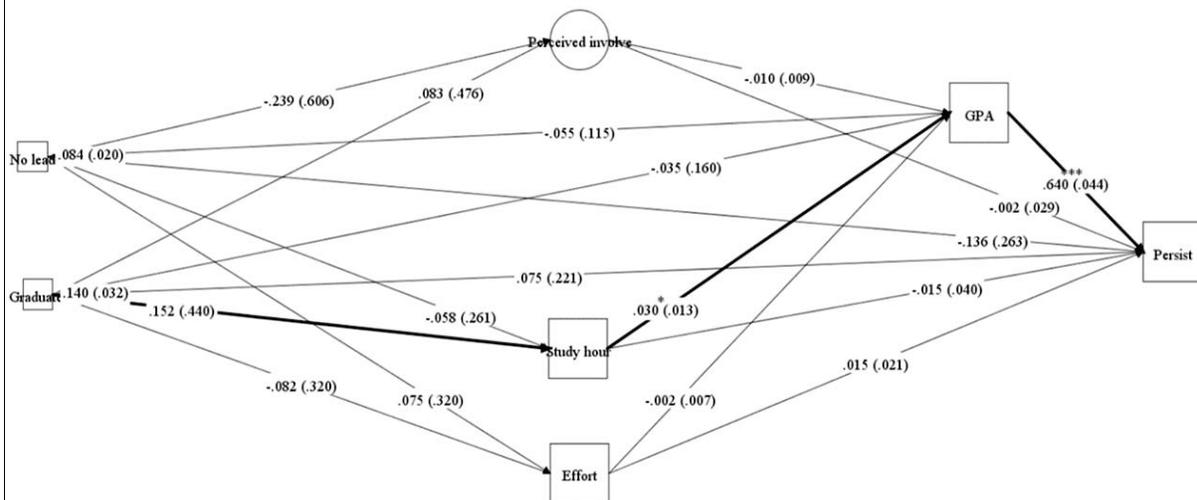
- 13.9% in second-year persistence
- 2.2% in end-of-first-year GPA

MEDIATION ANALYSES

Path	Direct effect	Indirect effect (95% C.I.)	Total effect
GPA			
Study hours			
Graduate leader	-0.035	0.005 (0.000 to 0.075)	-0.035
Persistence			
GPA			
Study hours			
Graduate leader	0.075	0.003 (0.000 to 0.046)	0.075

Note. All estimates are unstandardized, and the 95% confidence interval for the indirect effect was obtained using the bootstrapping function in Mplus.

STRUCTURAL MODEL WITH ESTIMATES



Discussion

END-OF-FIRST-YEAR GPA

GPA

- Females, students with high SAT/ACT scores had higher GPAs. Consistent with previous research (e.g. DeBerard, Spielmans, & Julka, 2004)
- Students who received student loans had lower GPA than students who received scholarships/grants. Consistent with previous research (e.g. Dowd & Coury, 2006).
- Teacher characteristics were not significantly related to GPA. Inconsistent with previous studies (e.g., Subedi, Reese, & Powell, 2015).

STUDY HOURS AND END-OF-FIRST-YEAR GPA

- Study hours had a significantly positive relationship with end-of-first-year GPA.
- Confirmed previous research findings (e.g., Thibodeaux, Deutsch, Kitsantas, & Winsler, 2017).

SECOND-YEAR PERSISTENCE

- End-of-first-year GPA was a significant predictor of second-year persistence. Consistent with previous research (e.g., DeBerard, Spielmans, & Julka, 2004).
- None of the student- and teacher- level characteristics were directly related to second-year persistence. Consistent with the previous research (e.g., Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008).

PEER LEADERS AND STUDENT OUTCOMES

- Peer leaders did not have significantly direct effects on end-of-first-year GPA and second-year persistence.
- Consistent with Astin (1984) that the implementation of any educational program does not directly lead to positive student outcomes.
- Disconfirmed findings from research that suggested the direct relationship (e.g., Schwitzer & Thomas, 1998).

MEDIATIONAL RELATIONSHIPS

- Study hours significantly mediated the relationship between graduate peer leaders and end-of-first-year GPA. Supported Astin's (1984) assumption regarding the mediating role of involvement.
- Study hours as a behavioral form of academic involvement supported Astin's (1984) emphasis on the importance of behavioral aspects.
- Did not find students' perceived involvement as significant mediators suggested by Tinto (1975, 1993).

MEDIATIONAL RELATIONSHIPS

- Study hours and end-of-first-year GPA co-mediated the relationship between graduate peer leaders and second-year persistence.
- This finding was important because Astin (1984) did not specify the longitudinal relationship between students' academic achievement and persistence.

PEER LEADER TYPES

- Compared to undergraduate peer leaders, graduate peer leaders had significantly higher indirect effects.
- The indirect effects did not differ significantly between undergraduate peer leaders and no peer leaders.
- Little attention has been given to the effects of different peer leader types on student outcomes (Brown, 2016).

IMPLICATIONS

Promoting understanding

- (1) The significant role of effort and study time in GPA and persistence.
- (2) Students' personal and teacher characteristics may not have direct effects on student persistence.
- (3) Having a peer leader does not guarantee academic success.

IMPLICATIONS

The use of graduate peer leaders

- (1) Consider expanding the use of graduate peer leaders.
- (2) Further identify what specific practices that graduate peer leaders have been using.
- (3) Promote communication between graduate and undergraduate peer leaders.

LIMITATIONS AND FUTURE RESEARCH

- Examined only persistence from the first to second year of college.
- Students dropped out of college permanently or just transferred to another college.
- Students' perceptions about their involvement. Study hour is the only behavioral measure.

LIMITATIONS AND FUTURE RESEARCH

- Only one variable used to provide peer leader information. Qualitative studies needed.
- A relatively homogeneous sample.
- Students were not randomly assigned.

CONCLUSIONS

- Peer leaders are effective, in an indirect way.
- Having a peer leader in FYS did not guarantee academic success.
- The first in the literature to test the indirect effects of FYS peer leaders.