

Comparing Linked and Traditional Courses for Academic Performance and Retention

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Abstract – Linked courses were examined to determine their effectiveness in increasing persistence and performance in an introductory psychology course. A traditional psychology course was compared with a psychology course that was linked to a developmental reading course that was required for freshmen with a reading deficiency. Although students in the linked class were less academically prepared than those in the traditional class, no statistically significant differences were found in their academic performance or persistence rates. Instructor perceptions found positive benefits of linking the classes.

Keywords – Developmental Reading, Higher Education, Linked Courses, Persistence, Retention.

I. INTRODUCTION

Persistence and completion rates can be low, particularly among students who are academically underprepared [1]-[2]. While we know that there are clear economic benefits to graduating from college, it is important to remember that the vast amount of students who begin, but do not complete college, have a huge gap in lifetime earnings [3]. “But as access has more than doubled from nearly 9 million students in 1980 to almost 20 million in 2011, overall college completion rates have increased only slightly, if at all. Barely more than one-half of all 4-year college students in the United States earn their bachelor’s degrees within six years from their initial institution” [1, pp. 1-2]. Universities are trying numerous interventions to increase persistence rates [4]-[5]. One of the interventions that has been tried is linked courses.

Linked courses are two courses with the same students, or, as in the case of this study, connecting a content course with an applied course. The instructors work collaboratively to develop the curriculum; one instructor teaches students a skill, while the other reinforces that skill through the content of the course.

Linked classes have been around for decades, but the literature has been inconsistent in showing the extent to which the interventions have been successful in increasing persistence rates. It seems obvious that students in linked courses would benefit in increasing peer and faculty interaction and in creating connections among courses to support higher-level thinking skills [6] and [7]. Several studies find benefits for linking classes [8]; however, few of these studies randomly assigned students to sections. In a study that did employ random assignment, the authors concluded that linked classes did not have a meaningful impact on students’ academic success. Specifically, students in the linked classes were no more likely to return to college the following two semesters than those in the control group [6].

With university support, two department chairs at an open enrollment public regional state institution in Oklahoma collaborated to link an introductory psychology course with a developmental reading course in an effort to increase performance and persistence of at risk students. The purpose of this study was to determine the extent to which linking these classes would increase academic performance and the persistence rate of freshmen in an introductory psychology course.

II. DESIGN OF STUDY

In the fall semester of 2015, one instructor taught multiple sections of an introductory psychology course at an open enrollment university in Oklahoma, including a linked class and a traditional class. Both sections had identical assignments and examinations. Final grades were calculated in the same manner for both sections. Student academic preparedness, course performance, persistence rates, and subjective experiences from the instructor were compared among the two sections.

III. METHODS

A. Participants

Fifty-seven students were enrolled in one of two sections of an introductory psychology course taught by the same instructor in the fall semester of 2015. Thirty-five of these students were college freshmen and were included in the analysis. Demographic information was available for 30 of the college freshmen. The majority of the college freshmen were female ($n = 24$; 80%); over half of the freshmen reported they were White ($n = 16$; 53.33%). Four (13.33%) of the students identified themselves as Black, four as Hispanic, and four as other. One student self-identified as Native American; another as White and Hispanic. Ages ranged from 18 to 53 with an average of 20.60 years ($s = 6.78$). All data were routinely collected as part of teaching the courses.

B. Materials and Procedures

Linked Class Section

The 17 freshmen students enrolled in the Linked Class section were also enrolled in a Developmental Reading course section that met immediately before the psychology course. No other students were enrolled in either course. The Developmental Reading course is a zero-level course required for incoming freshmen who scored below 19 on the Reading subtest of the ACT. Students do not receive college credit for completing the course, but the course must be completed during the first 24 hours of college study. The instructors for the psychology and

Developmental Reading courses met weekly, oftentimes with the authors of this paper, to discuss the material that would be covered in the upcoming week. Both in-class and out-of-class assignments in the Linked Developmental Reading course were modified so that they used sections of the textbook used in the introductory psychology course rather than a sampling of readings taught in other sections of the Developmental Reading course. The introductory psychology course instructor often referred to topics and highlighted examples of concepts covered in the Developmental Reading class.

Traditional Psychology Section

The traditional section had a total of 40 students in the course, 19 of whom were freshmen. One of the freshmen was a high school student who was concurrently enrolled. Only the 18 college freshmen were included in the analyses.

IV. RESULTS

A. Student Academic Preparedness

ACT scores were available for many of the college freshmen in the two sections. Analyses of variance were used to compare the freshmen in the Linked and Traditional introductory psychology courses for academic preparedness using the ACT subtests for English, Reading, Math, and Science, and the Comprehensive ACT scores. Statistically significant differences were found between the courses in English, Reading, and the Comprehensive Score. College freshmen in the Traditional psychology section scored statistically significantly higher than students in the Linked section on each measure except the math and science ACT subtests, for which there were no differences.

Table I. Comparing Sections of Psychology Linked Courses with Sections of Traditional Psychology Sections

	Linked Section n = 14		Traditional Psychology Section n = 15		F-Value
	M	s	M	s	
ACT – Comprehen-sive	16.38	1.71	18.73	2.69	8.50**
ACT – English	14.07	2.89	18.67	3.29	15.86**
ACT – Reading	16.71	1.33	20.47	5.73	5.70*
ACT – Math	17.21	2.91	17.00	3.18	.04
ACT – Science	17.93	3.15	19.73	2.79	2.68

*p < .05 **p < .01

B. Academic Performance

Given that the freshmen in the Linked section were not as academically prepared as those in the traditional section and given that academic preparedness predicts academic performance [1], one would expect fewer of the students in the Linked class to successfully complete the introductory psychology course than those in the traditional section. However, a chi square analysis failed to show performance differences, $\chi^2(1) = 1.40$, $p > .05$. In addition, analyses of variance performed with the midterm grade and final grade failed to show significant differences in academic performance between the two sections $F(1, 33) = .12$, $p > .05$ and $F(1, 33) = .06$, $p > .05$, respectively.

Table II. Midterm and Final Grades in Psychology Linked Courses and Traditional Psychology Courses

	Linked Section n = 17		Traditional Psychology Section n = 18	
	M	S	M	S
Midterm Grade*	1.88	1.32	2.06	1.63
Final Grade*	2.06	1.14	1.94	1.51
	Number	%	Number	%
Successful (A, B, C, D)	15	88.24	13	72.22
Unsuccessful (F, W, AW)	2	11.76	5	27.78

*A = 4, B = 3, C = 2, D = 1, F, W, AW = 0

C. Student Persistence

Given that the freshmen in the Linked section were not as academically prepared as those in the Traditional Psychology section and given that academic preparedness predicts academic persistence [1], one would expect fewer of the students in the Linked class to return to the university. However, chi square analyses revealed no statistically significant differences in persistence among the two sections, $\chi^2(1) = 1.59$, $p > .05$ for Spring 2016, $\chi^2(1) = .02$, $p > .05$ for Fall 2016, and $\chi^2(1) = .02$, $p > .05$ for Spring 2017.

Table III. Persistence Rates among Linked Psychology Courses and Traditional Psychology Courses

	Linked Section n = 17		Traditional Psychology Section n = 19	
	Number	%	Number	%
Return Spring 2016	11	64.71	15	83.33
Return Fall 2016	8	47.06	8	44.44
Return Spring 2017	8	47.06	8	44.44

D. Instructor Perceptions

Interviews with the instructors of the linked courses revealed that the students in the Linked section built stronger relationships with one another and were a “more cohesive group” than those in the Traditional section. Both instructors had positive comments about the instructional experience and believed that the students benefited both academically and socially from having the courses linked.

E. Administrator Perceptions

The department chairs who collaborated to offer the linked sections noted several obstacles in scheduling the linked courses. From the pool of students required to enroll in Developmental Reading, only those interested in also enrolling in an introductory psychology course and who were available during the time the psychology course was offered were able to enroll. This limited the number of students enrolled in the linked section of the psychology course. In addition, although the introductory psychology courses usually allow 40 students to enroll in them, the Linked section was limited to the cap of 20 students allowed in the Developmental Reading course. These two forces led to only 17 students enrolling in the linked section of the introductory psychology course compared with 40 students in the traditional section. Naturally, this is a concern for department chairs who are under increasing pressure to

increase credit hour production. In addition, the chairs noted the increased demand on the instructors' time as they met weekly to discuss the Linked class. This is an additional concern for department chairs as they increasingly ask their faculty members to do more with less.

V. DISCUSSION AND IMPLICATIONS

The purpose of this study was to determine the extent to which linking an introductory psychology class with Developmental Reading would increase the academic performance and the persistence rate of college freshmen in an introductory psychology course. The same instructor taught both sections of an introductory psychology course and used identical assignments and examinations. Student academic preparedness, as measured by ACT scores, indicated that freshmen in the traditional course were more academically prepared than students in the linked course on the comprehensive ACT and on the Reading and English subtests. Therefore, one would expect that the performance of the students in the linked courses to be worse than those in the traditional section. However, neither the midterm grades, final grades, nor the persistence rates differed among the two sections indicating that the Linked class might have been successful in improving performance in the psychology course. This is consistent with the subjective experiences of the course instructor, who believed that the students in the linked section were more cohesive than those in the traditional section. The scheduling of the two linked courses may have aided in this. The courses were taught consecutively and the Reading instructor indicated that the students in the Linked class were more accountable to one another. She remembered more than one instance in which one student collected work for another who was absent due to illness. However, the chairs of the departments housing the linked courses did recognize some of the costs of offering linked courses.

VI. CONCLUSION

From the literature, we already knew that linked courses were valuable in building community among students [9]. Although the students in the linked classes were underprepared, they performed equally well as those in the traditional psychology course. In addition, faculty reported greater satisfaction in teaching in this fashion and found the linked courses valuable in both scheduling formats and in the students learning to apply information, in this case, reading to learn, from one course to another. It also allowed students to apply knowledge from a course for zero-credit to a course that counted as a required general education course, which added value for students in that they could view the relevancy of their learning and how it applied to other areas of their college experience. Future research should focus on a larger, randomized sample study to determine if there are long-term effects of linked classes over time in terms of persistence and completion.

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