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Linked Courses Across the Curriculum

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Abstract

In this article, we describe an undergraduate writing course and psychology course which were linked together by requiring concurrent enrollment. The link was designed to enhance student performance, prevent attrition, and to build a learning community. Students were concurrently enrolled in two courses: Writing Effectively and Abnormal Psychology. Students in an unlinked section of Abnormal Psychology were used as a comparison group. Student grades, evaluations, and attrition rate suggest that linking courses can improve writing, exam scores, and reduce attrition of students.

Linked Psychology and Writing Courses Across the Curriculum

Linked courses--sometimes referred to as learning communities--are courses from different disciplines or interdisciplines that are connected in content, purpose, and organization. Linked courses generally refer to two courses in which students are concurrently enrolled. These courses have become a mainstay of higher education (Brunner & Daley, 1983; Domel et al., 1996; Gammill, 1992; Levine, 1999; Mlynarczyk & Babbitt, 2002; Nutting, 2001; O'Donnell, 1974; Smith, 1991; Weber, 2000; Whatley & Canalis, 2002) and are designed to provide students with an integrative and collaborative learning environment. Linked courses use a range of methods and approaches and share the assumption that students benefit from links.

The linked-course concept emerged from the Learning Community (LC) movement of around the mid-eighties. Learning communities aim to enhance student achievement, reduce attrition rates, provide a collaborative social and intellectual undergraduate cohort, increase student and faculty enthusiasm, address complex contemporary issues through an interdisciplinary lens, offer faculty development opportunities, and create a more coherent, less fragmented curriculum (Brittenham et al., 2003; Hill, 1985; Klein, 1998; Levine, 1999; Mackay, 1996; Minkler, 2002; Mlynarczyk & Babbitt, 2002; Nutting, 2001; Raymond, 1999; Smith, 1991; Tinto & Goodsell, 1994). In addition to linked courses, LC models include learning clusters, freshman interest groups (FIGs), coordinated studies, and federated learning communities (Gabelnick, MacGregor, Matthews, & Smith, 1990; Kellogg, 1999; Levine, 1999; Smith, 1991; Tinto & Goodsell, 1994). Virtual learning communities have also been explored in LC scholarship (Berg, 1999; Goldenberg, 1999).

Linked courses reflect the assumptions of the Writing Across the Curriculum (WAC) programs that started in the mid-seventies (Goddard, 2003; McLeod, Miraglia, Soven, &

Thaiss, 2001)). WAC programs promote interdisciplinarity in the teaching and learning of writing; they also design faculty development workshops in hopes of creating more intellectually coherent curricula and helping students ask similar questions across the disciplines. Linked courses are sited variously across higher education curricula: Coordinated Studies Programs, first-year writing programs, at-risk or basic or developmental programs, disciplinary and interdisciplinary departments. The links feature a range of course and curricular designs: some are thematically linked (Domel et al., 1996; Weber, 2000); some feature team-teaching; some connect a "content" course with an "applied" course (Kellogg, 1999). Linked courses also develop in response to specific institutional challenges of student attrition and academic achievement: links aim to assist students who are multilingual, first-generation, or immigrant (Chaves, 2003); nonresidential (Brittenham et al., 2003; Raymond, 1999); urban (Klein, 1998); underrepresented (Mackay, 1996); high-risk (Fitch & Kirby, 2000); and academically underprepared (Brittenham et al., 2003; Levine, 1999). Course and curricular designs reflect LC aims and local goals.

The achievements of linked courses have received more scholarly attention than their problems and challenges (Klein, 1998; Minkler, 2002; Mlynarczyk & Babbitt, 2002; Perin, 1998; Raymond, 1999; Weber, 2000). In some cases, the link has not been isolated from other determinants for student success. Too, research tends to focus on student experience, perceptions, and experience, as well as institutional markers of success, bypassing faculty. Lastly, while there is ample linked course literature on teaching and learning theory, linked courses have not been extensively studied in broader interdisciplinary and cultural contexts.

Calhoun and Selby (1979) made a compelling call to the discipline to develop more courses which specifically focuses on writing in psychology. While some educators have answered this call (Dunn, 1994; Goddard, 2002, 2003) the practicalities of managing a

curriculum often mean that it can be difficult to develop and staff courses that aren't perceived to be an essential part of the curriculum, however beneficial such classes might be. Often non-traditional programs such as the Evergreen State College or Hampshire College are in better positions to implement more innovative curricula. One solution to such limitations is to link courses across the curriculum and across departments so that they operate in tandem and achieve more than the sum of their parts.

In the winter academic quarter of 2004, we linked Writing Effectively, an upper division composition course, with Abnormal Psychology, an upper division clinical psychology course, requiring concurrent enrollment in both. In short, Writing Effectively was the "treatment" for linked course students studying Abnormal Psychology. In Writing Effectively, the students worked on mastery of APA style, argument and research for their Abnormal Psychology papers, and peer review of research paper drafts.

In evaluating the linked courses, we were interested in answering the following questions: 1) Do students in linked courses perform better academically than students in the same, unlinked courses? 2) Are students in linked courses less likely to drop out of the course(s) before the end of the quarter? 3) Do students in linked courses report greater satisfaction of their learning experiences?

Method

Participants

This was a quasi-experimental field study in which the experimental group consisted of students in the two linked courses, that is, they were concurrently enrolled in Writing Effectively and Abnormal Psychology (n=25), and which the comparison group consisted of students enrolled in another, unlinked section of Abnormal Psychology (n=34) during the Winter 2004 academic quarter at a small, upper-division campus of a state university in the

Pacific Northwest. The same psychology faculty member taught both the linked and unlinked sections of Abnormal Psychology to ensure that content, student assessment, and teaching methods would be the same across conditions. All student work from both Abnormal Psychology courses was coded and graded blindly so that it was not possible to identify from which section a student paper was. There were no prerequisites, other than upper-division standing, for enrolling in either course. Because we could not randomize groups, there was an imbalanced composition across the two groups. Overall, students who enrolled in the linked courses had fewer previous psychology courses and were more junior in their academic classification than students in the unlinked, control class. As at most universities, psychology classes, and especially Abnormal Psychology are very popular, and thus difficult to get into. On our campus, often students with registration priority (i.e., senior psychology majors) are the only students able to get in. The limited degrees of freedom imposed by concurrent enrollment (i.e., students' schedules had to accommodate both course times and they could not have already taken either one of the courses previously), excluded a great number of prospective students for the experimental group and thereby opened more spaces in the linked classes to juniors and non-psychology majors.

Many of the students who enrolled in the linked courses were brand new to the university, whereas the students in the unlinked control group had more college experience, more psychology classes, and more previous psychology classes with the professor teaching Abnormal Psychology. Many of the students in the unlinked, control group had also had previous writing classes. Thus overall, the participant sample was heterogeneous and imbalanced across the two groups with regard to previous college experience and prior exposure to writing and psychology courses, with the experimental group far less experienced than the control group. Once we saw the difference in composition across the

two groups we expected that "treatment" effects would be less robust, given that based upon previous experiences alone, the control group should have outperformed the experimental group – the opposite of our intended effect.

Course Content

Writing Effectively fulfilled university requirements for an upper-division composition course and Abnormal Psychology fulfilled either core degree requirements for psychology majors or elective requirements for non-psychology majors. To prepare students for the experience of taking two linked courses, the following information was provided to them through academic advisors prior to enrollment and on the course syllabi:

> Linking Abnormal Psychology to Writing Effectively creates a learning community that allows you to deepen your knowledge of both course subjects. Such links improve learning and retention, while also creating a richer study environment. Students who have taken earlier links tell us, in anonymous end-of-term assessments, that they relished the experience and recommend it.
>
> This particular link is loose: two syllabi, two course descriptions, two final grades. The reading and writing assignments differ but overlap in content. You'll spend time in Writing Effectively working on the paper for Abnormal Psychology. Professor Cargill and I confer on your progress through the courses. (If you send one of us an email, assume the other may read it.) The same twenty-five students take each course.
>
> In the writing half of the link, writers learn to write analytically, making interpretive claims based on textual evidence rather than on generalities, opinions, or experience. Readings in the interdisciplinary field of Abnormal Psychology offer subjects and models. Students learn methods for gathering ideas; giving and receiving intelligent, constructive feedback; and producing fully developed essays with complex assertions and discussion. Class sessions include discussion, workshop, small groups, individual work, and lecture. Expect to use technology as a tool for learning.

Teaching methods in the Abnormal Psychology course included daily quizzes, a midterm exam, a ten page research paper that demonstrated mastery of APA style, and a cumulative final exam. Required texts for the course included Comer's *Abnormal Psychology*

(2003) and Sattler and Shabatay's *Abnormal Psychology in Context (1998).* The *Publication Manual of the American Psychological Association* (2001) was an optional text, also available to students on reserve in the library. Teaching methods in the Writing Effectively course, which effectively constituted the intervention under evaluation are described below.

Writing Effectively provided an intellectual, pedagogical, and social link to Abnormal Psychology. In the writing class, students wrote a short personal narrative on health, illness, or difference; read interdisciplinary articles on psychology; discussed writing as an interdiscipline comprised of psychology, linguistics, and composition; discussed ways to apply their growing knowledge of the writing process to their work in Abnormal Psychology; and analyzed the assigned psychology readings in five one-page treatments and four papers (ranging in length from four-five to six-to-eight pages). They also discussed the ten-page final paper assigned in Abnormal Psychology. Lastly, they wrote rough drafts of the Abnormal Psychology final paper and participated in substantial, in-class, small-group peer review of those drafts a week before the final version of the paper was due. Those are the chief ways in which Writing Effectively linked to Abnormal Psychology.

Evaluation Methods

The Institutional Review Board granted a waiver of consent given that all evaluation data was anonymous and was data that would be routinely collected as part of teaching either class. For data analysis, we used student grades on papers and exams, attrition rate, and qualitative data collected from student evaluations at mid-quarter and the end of the course.

Results

Because students were not randomly assigned to groups and we were concerned that the two groups were imbalanced in terms of preparedness, we ran several independent two tailed t-tests, using exam grades, paper grades, and final course grades, to determine whether

there were any significant differences between groups with respect to previous psychology courses, previous writing courses, and overall previous college experience. On Exam 1 there was a slight difference, $t(54) = -1.54$, $p = 0.13$, between students who had had previous courses with the psychology instructor, but this difference disappeared on all assigned grades after the first exam. No other t-tests revealed differences between groups.

The second set of analyses examined whether or not enrollment in the linked or unlinked course predicted exam grades, paper grades, or final course grades. Because the students who had previously had the psychology instructor tended to do better and those in the linked class were less likely to have had the instructor, a regression analysis was used to examine the effect of the linked class while controlling for any confounding due to the effect of previous class exposure. The regression coefficients indicated that students in the linked psychology and writing courses performed better on Exam 1 score (B=6.2, p=.04), Exam 2 score (B=17.8, p=.013), blindly graded papers (B=19.4, p=.006), and final grades (B=14.0, p=004). Final grades included some grades that were used in the other analyses, and also included daily quiz grades and other small assignments, thus the analysis of final grades was somewhat redundant, but we wanted to examine overall performance in the class to make general interpretive statements.

We also conducted a chi-square test to determine whether there was a difference across groups on attrition rate. Results of this analysis, $\chi^2(2)=3.89$, $p< .0$, revealed that students in the linked course were less likely to drop out before the end of the academic quarter than students enrolled in the unlinked Abnormal Psychology class. No students enrolled in the linked courses withdrew, whereas five students in the unlinked Abnormal Psychology class withdrew from the class.

On anonymous, end-of quarter evaluations, most of them said that reading and writing about interdisciplinary psychology scholarship in the writing half of the link supported their learning, giving them more knowledge of Abnormal Psychology. Many students also said that peer-reviewing a rough draft of the psychology paper in the writing class also taught them a lot. Students talked about the ways that the linked courses helped them adjust to upper-level undergraduate work on a new campus. The links "provided an easy transition from full-time work to full-time student," wrote one new student and recommended linked courses to students at all levels of undergraduate work. The learning was "deeper and richer," said another student, and provided "a stable environment to learn in...to build intimate relationships with classmates." "It was nice to have the same people in both classes....you build strong relationships so you don't feel embarrassed to ask a student for help," wrote a third. The link, wrote many, made them feel more "comfortable" at the university and with each other: "it allowed me [to] make good friendships. Now I am sad that I won't see them every Tues. & Thurs!"

Discussion

This evaluation provides evidence that linking writing and psychology courses can be a valuable method to improve student performance, increase student retention, and build learning communities. As indicated by the between groups differences of Abnormal Psychology exam and paper scores, students who were concurrently enrolled in Writing Effectively and Abnormal Psychology outperformed students who were enrolled in only Abnormal Psychology. In taking the two courses together, students were better able to master and retain the content from Abnormal Psychology and were perhaps simply more motivated and/or invested in their exam performance. It may also be that the social and intellectual relationships they formed with other students promoted study groups and

partnerships which were less likely to occur for students in the unlinked control group. Another possibility is that the creation of a learning community though the link served to reduce test anxiety and generate a sense of overall comfort in the university classroom environment that can be a challenge for first-semester students. In short, students may have not only performed better because the content was reinforced through the concurrent enrollment, but also because the link created a support group of sorts, that fostered adjunct conditions conducive to better academic performance.

Overall, students in the linked courses were less likely to drop the course and self-reported higher satisfaction, engagement, and feelings of academic belongingness. Whereas five students in the unlinked control group withdrew before the end of the term, none of the students in the linked course condition withdrew. This may be a secondary function of the higher performance, in that students who are performing at higher levels are less likely to drop a course. The other possibility is that students were simply more invested because they had more meaningful social and intellectual ties in the linked course condition. We believe, both from the data and from our experience as educators, that there was simply more accountability built into the linked course condition.

Recall that when we initially saw that the composition of the linked experimental group and the unlinked control group were different, i.e., students in the linked courses were generally less experienced at college and had fewer previous writing or psychology courses, we expected that this imbalance would obscure any between group differences. In other words, by traditional measures, the students in the linked course weren't *supposed* to outperform the control group. In spite of their relative lack of experience, however, students in the linked courses performed significantly better than students in the unlinked control group, making these findings even more noteworthy.

Taken together, these findings demonstrate that linking courses across the curriculum and across departments is one way to strengthen writing instruction, build learning communities, foster student engagement, reduce student attrition, and to respond to the historical assumption in higher education that teaching writing is the exclusive domain of English departments. We believe that it will be important to replicate these findings with a larger sample size and to further refine which components of the link were most effective. We consider this a nascent area of research and encourage those involved in linked course pedagogy to embark on outome studies which could further identify why and how such linked courses are effective.

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