LINKED COMPOSITION COURSES: EFFECTS ON STUDENT PERFORMANCE

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When Oglethorpe University initiated a Writing-Across-the-Curriculum Program in 1986, writing across the curriculum was already a well-established national movement. The goals for our project followed those generally advocated for cross-curricular writing programs, based on the notion that writing, in Janet Emig's often-quoted phrase, constitutes "a unique mode of learning" (122). Writing can serve as a means for exploring academic subject matter as well as students' own perceptions of and relations to that subject matter, thereby enhancing understanding. At the same time, writing can serve another purpose: it can provide students with a means for examining discourse itself, enabling them to gain a greater awareness of—and thus control over—various discourse conventions. As Mike Rose explains, critical thinking about the structure of academic discourse can help students to enter "the academic club" (141). The combination of greater understanding of subject matter and greater awareness of discourse conventions should lead to improved performance in an academic context, but the extent to which this has been achieved is difficult to evaluate. The data reported here represent one approach to assessing

empirically whether the goals of writing across the curriculum are being met,

Like other institutions, Oglethorpe developed a program consisting of two components: writing-intensive courses across the curriculum, and composition classes linked to base courses in the disciplines. The use of writing in the content areas has become an important feature of our general education program; the linked course structure was explored on an experimental basis, and we are still in the process of assessing its effectiveness. The many advantages of writing-intensive courses have been discussed by a number of researchers (see, for example, Davis, Scriven, and Thomas; Fulwiler, "How Well"; Schudi; Witte and Faigley). As Stephen Schudi has argued, writing projects in the disciplines can provide a variety of benefits, from freeing blocked writers to encouraging a fuller understanding of discourse conventions. Since there is an extensive literature concerning the effectiveness of writing-intensive courses, we will not address this issue here. Instead, we provide an evaluation of linked courses, which have received little empirical assessment, although several recent descriptions of such programs examine the assumptions behind linked courses and suggest areas for further investigation (such studies include Kiniry, Strenski, and Rose; Kirsch; Magnotto; Marx; Moore and Peterson; Sills; Walter).

Although the model for linked courses varies from university to university—everything from a developmental composition class linked with an introductory psychology course, to an advanced writing workshop linked with a Women's Studies seminar—the goals for such programs remain relatively consistent. A primary goal is to give composition students a fully-developed context for their writing. As Caryl K. Sills asserts, "Only sustained experience with the conventions and texts of a discipline empowers us to articulate its propositions and perspectives" (62). Such "sustained experience," Sills goes on to argue, is more effectively achieved in the linked course structure than in free-standing composition courses with an interdisciplinary approach or in writing-intensive courses in the disciplines. In the first alternative, students are exposed only briefly to the conventions of any particular discipline, and the writing instructor may end up attempting to present some

generalized version of "academic discourse"—which, as Peter Elbow has recently asserted, does not exist as a unified entity. In the second alternative, students lose the critical distance on disciplinary discourse that can be provided by a composition instructor. Patricia Bizzell points out that successful initiation into academic discourse may be useful only to the extent that it fosters "a productive critical distance on the social processes whereby knowledge is generated and controlled" (197). If students are encouraged merely to imitate discourse conventions without understanding them, they will not be "writing to learn"; they will simply be writing to generate a product. In this context, composition instructors can offer a useful "outsider" perspective by calling attention to the problems and possibilities of disciplinary discourses. Thus the instructors of linked composition courses transcend the role of "tutor" or "teaching assistant" for the base courses; they do not merely lead students through the conventions of writing in the disciplines, but rather encourage a critical understanding of these conventions.

In the linked course program at Oglethorpe, we attempted to initiate students into the conventions of academic discourse and to encourage critical awareness of this discourse, while at the same time promoting student success in the particular disciplines. Our program was designed to fit the curriculum in which it was embedded: that of a small liberal arts college with a broad set of mandatory core courses and a two-semester freshman composition requirement. In the first two years of operation, approximately half of the second-semester composition sections were linked to a base course. Base courses included surveys of sociology, philosophy, political science, European history, art history, psychology, economics and biology.

All students in the composition class were also enrolled in a section of the base course, but not all students in the base course concurrently took the composition class. Students in both courses received three units of academic credit for each. Many composition instructors attended the base course regularly, although some took other approaches to keeping up to date with course materials: following the base course instructor's class notes or meeting together in private

conferences. Such arrangements allowed the composition instructor to focus writing assignments on current content in the base course and to aid the base course instructor in using writing effectively to enhance classroom learning. All instructor pairs required one or more joint papers, which students submitted for credit in both courses but which were marked independently by the two instructors. Instructors often developed paper topics collaboratively, and discussed their expectations for student papers. Students in the composition classes received guidance in paper-writing through a variety of preparatory exercises, as well as feedback on drafts from composition instructors and peers.

Assignments, kinds of feedback, and extent of collaboration differed, of course, from instructor to instructor. For example, in a link with General Biology, students worked on four discursive lab reports; after a series of prewriting exercises, drafts, peer critiques, instructor critiques, and revisions undertaken in the composition class, the reports were finally graded only by the biology professor. In an art history link, on the other hand, two required research papers—after going through several stages of drafting in the composition class—were graded independently by both instructors. Students who were not in the linked composition course could receive help on papers if they solicited it from the base course instructor or the student-staffed Writing Center.

Further assignments in the composition class were related—sometimes closely, sometimes not so explicitly—to the base course materials. As students examined experiments on conformity and obedience in a psychology course, they discussed broader questions raised by such research in the composition class, using a range of writing exercises—including reading logs, free writing, and research papers—to enhance their understanding of empirical data while also connecting this understanding to larger social, political or ethical issues. In the process, the composition instructor encouraged students to reflect on the different modes of discourse they encountered, assessing what each could and could not do and why. Such reflection often resulted in moments of epiphany, when the usually fragmented nature of the course-by-course curriculum suddenly cohered. Most linked course instructors could provide

anecdotal evidence for such moments: for example, the student in the biology/composition link who, while preparing an oral presentation on radiotherapy as a cancer treatment, realized that the vocabulary and structures of expression he had learned in his chemistry class enabled him to convey concepts he had learned in his biology class in a manner intelligible to his peers in the composition class. Such moments of insight serve multiple purposes: they provide students with a new understanding of disciplinary discourse conventions, they help students to achieve greater academic success within the bounds of these conventions, and they give students some control over their educational experiences, enabling them to make meaning out of what often appears to the college freshman as a rather incoherent experience—all of which are the very purposes most practitioners of writing across the curriculum hope their programs will serve.

Such claims for the value of linked courses have been made by many proponents of writing across the curriculum. James Walter and Caryl Sills, for example, both assert that linked programs are effective in improving students' thinking skills and, consequently, their academic success. But their evidence for enhanced academic performance is, like that presented above, largely personal, informal and anecdotal. Because of the lack of clear assessment of linked course programs, we have been especially interested in methodically investigating whether Oglethorpe's linked courses have in fact achieved their goals, and so we launched a study of our program aimed at evaluating its effectiveness. As Toby Fulwiler has underscored, "quantitative measures of either writing or learning ability are difficult to achieve" (63). Indeed, it would be virtually impossible to quantify the extent to which we have achieved one rather complex goal of our linked course program: the development of a "productive critical distance" on disciplinary discourse through the perspective offered by the composition instructor. Another purpose of our program, however, involved greater academic success as a result of student initiation into academic discourse. To assess the extent to which success in academic performance has been achieved, we have one obvious mode of measurement at hand: grades.

The possibility of using grades to evaluate the effectiveness of

linked programs has been suggested by Michael Marx, who asserts that a psychology/composition link can enhance performance in the psychology course, as evidenced by higher grades. Of course, students' grades do not necessarily measure the extent to which they have achieved deep understanding of subject matter; there are too many factors at work in the grading process to lead to a simple equation between grades and mastery of discipline. Nevertheless, grades *can* serve as a measure of the extent to which students have learned to succeed academically, to find their place in the "academic club." And so we decided to take a closer look at the grades students in linked courses received on individual papers as well as in their composition and base courses.

We were hoping to explore three specific questions regarding the potential effectiveness of our program. The first was whether grades assigned to the same papers independently by a base course instructor and a composition instructor would be essentially the same. That is, would a paper receive a grade of "B" from the composition instructor also be given a "B" by the base course instructor? As Leslie Moore and Linda Peterson have noted, many writing instructors avoid teaching writing in other academic disciplines because they fear that their lack of expertise in a field impedes their ability to teach writing within it. Consistent grades from the two instructors might suggest that composition instructors, although novices themselves, are indeed able to teach and evaluate discipline-specific discourses. The second question focused on whether students in linked composition classes would receive higher grades on papers from the content course instructor than nonlinked peers. From the point of view of the composition instructor, one would certainly hope this would be the case. Students in the composition class worked on drafts of papers with the explicit goal of improving their writing within discourse conventions, as well as deepening their understanding of the subject matter. Such work would certainly result in higher grades if the two instructors had similar criteria for evaluation. The third question concerned whether final grades in the base course were affected by taking the linked composition course. The third question is, of course, related to the second one. If writing enhances learning, then students who were writing more

extensively in their composition course about content in the base course should have learned the subject matter more fully than nonlinked students; at the same time, they should have gained greater awareness of and control over discourse conventions. Thus, we generally presumed that they would receive higher course grades.

As we tried to provide empirical answers to these questions, we began to examine data we had collected from the instructors of base courses and linked composition classes at the end of each of our first two years with the program. Instructors had submitted copies of all joint paper grades and final course grades. Eight linked composition courses were offered during the period of data collection. In order to summarize the data statistically, it was sometimes necessary to convert letter grades to a numerical scale (e.g. A+ = 100, C = 75, F = 55).

The first question we were investigating was whether papers submitted in both linked classes would receive comparable grades from the two instructors. Three instructor pairs from our sample required two joint papers and the rest required one. A summary of average paper grades and grading variability in all linked courses is presented in Table 1.

Table 1. Average Paper Grades in Base and Composition Courses for all Students in Linked Courses.

Instructor	Paper #	n	Base Course Mean Paper Grade (SD)	Comp. Course Mean Paper Grade (SD)	Difference
One	1	27	85.96 (6.39)	82.22(6.95)	+3.74
Two	1	17	80.70 (7.94)	83.47 (8.87)	-2.77
Three	1	16	82.00 (6.92)	81.69 (7.85)	+0.31
Four	1	32	80.28 (6.83)	79.75 (5.65)	+0.53
	2	29	80.55 (6.02)	79.97 (5.85)	+0.58
Five	1	18	82.11 (5.97)	83.88 (8.22)	-1.77
	2	17	83.71 (6.07)	81.59 (8.93)	-2.12
Six	1	11	80.64 (7.38)	76.36 (9.52)	+4.28
	2	11	83.18 (7.44)	84.27 (9.47)	-1.09
Seven	1	27	85.89 (7.51)	81.56 (7.96)	+4.33
Eight	1	16	89.50 (7.02)	78.00 (9.72)	+11.50

In general, average paper grades were similar both across courses and across paired instructors, suggesting similar overall paper-grading standards for all the instructors. Composition instructors tended to assign lower grades than base course instructors (this occurred on 8 out of 11 possible comparisons) and to show greater variability in grading (9 out of 11 possible comparisons). This suggests that composition instructors both judge papers more critically and are willing to assign extremely high or extremely low grades more frequently. These observations may be explained by the hypothesis that composition instructors (who are trained and practiced in evaluating writing) are more attuned to writing problems and more comfortable in designating papers as "excellent" or "inadequate."

Correlation coefficients were calculated to evaluate the relationship between grades given by the two instructors. The correlation coefficient measures the degree to which one instructor's grade "corresponds" to the other's; the closer the number to 1.00, the closer the correspondence. Correlations for the single-paper courses' paper grades were .48, .68, .68, .72, and .76. Correlations for grades in the courses that required two papers were .65 and .71, .62 and .89, .50 and .82 for the first and second papers respectively. One procedure for evaluating correlation coefficients is to determine whether, based on the value of the coefficient and the number of students, the coefficient is significantly different from zero, i.e. is sufficiently strong that it is unlikely to have occurred by chance. By this criterion, all but one of the coefficients are significant. But this is a relatively weak standard for measuring inter-instructor agreement, because it simply indicates that there is a greater agreement than might have been expected if instructors assigned grades at random. We decided to follow the general rule of thumb of most social science researchers, who would consider correlation coefficients above .80 to indicate good reliability, those between .70 and .80 to indicate adequate reliability, and below .70 inadequate reliability. By these criteria, slightly less than half of the pairs graded papers reliably.

An encouraging aspect of the correlational data was that the two highest correlations were for the second set of papers

in a course that required two papers, and that in all three courses requiring two papers, correlations were higher for the second set. Instructors in these courses attribute the greater consistency in second paper grades to close collaboration in defining the paper topic and grading criteria, in part as a result of grade discrepancies on the first paper which the instructors subsequently sought to resolve or explain to each other and to students. For anyone concerned about whether composition instructors and experts in a discipline can learn a shared set of values for introductory writing within the discipline, this should be good news.

The second question we hoped to address was whether the papers of students taking the linked composition course, who thus received extra guidance on paper drafts, would be judged by the base course instructor as better than those written by students who were not in the linked composition class. This question is relatively complicated to answer because of the small numbers of students in our classes and because individual differences in writing skills and experience may vary systematically between students who were and were not in the linked composition class. In order to minimize biases in evaluating papers, base course instructors had been requested to grade papers "blind," that is, without knowing whether a given paper had been written by a student in the linked composition class. This was usually done by identifying writers with social security numbers only. Year in school (freshman, sophomore, junior, senior) and individual differences in writing skills seemed to be the two most serious potential differences between students who were and were not in the linked composition classes. Since composition students are almost exclusively freshmen, relevant comparisons have been limited to freshmen in the base course but not the linked composition course vs. freshmen in both courses. As a measure of writing skills and general preparation for academic discourse, students' grades in the first semester composition courses (Comp. I) were used. Comparisons based only on freshmen who took Comp. I at Oglethorpe often involved very small numbers, and averages based on small numbers are generally less reliable than those based on large numbers. It is important, therefore, to examine the overall patterns in the grading, rather than trying to

determine the statistical significance of specific comparisons.

Three of the base courses included a sufficient number of linked and nonlinked freshmen to permit comparisons of paper grades among students matched on their grades in Comp. I. These comparisons are presented in Table 2.

Table 2. Average Grades Assigned by Three Base-Course Instructors to Papers by Freshmen Matched on Composition I Grades.

	Linked Students			Nonlinked Students			
Instructor	Comp. I Grade	n	Mean Paper Grade (SD)	Comp. I Grade	n	Mean Paper Grade (SD)	Linked Advantage
One	A	8	90.38 (3.46)	A	6	86.50 (3.02)	+3.88
	B	15	85.47 (5.30)	B	4	77.25 (11.76)	+8.22
	C	4	79.00 (8.76)	C	4	77.25 (9.07)	+1.75
Two	A	7	84.57 (5.97)	A	2	82.00 (2.83)	+2.57
	B	2	83.00 (15.56)	B	5	74.40 (7.67)	+8.60
	C	8	76.75 (6.67)	C	6	68.67 (7.00)	+8.08
Three	A	5	87.80 (7.09)	A	0		
	B	5	83.40 (4.16)	B	4	80.00 (2.94)	+3.40
	C	4	74.50 (2.89)	C	6	74.17 (5.91)	+0.33

These data demonstrate two interesting trends. First, Comp I. grades are consistently good predictors of paper grades in base courses, suggesting that they are a relevant measure of academic writing skills. This also suggests that base course instructors may have been responding to some of the same aspects of student writing as Comp. I instructors, since they seemed to agree on who "wrote well" and who didn't. Second, each of the eight possible matched-grade comparisons shows higher grades for students who took the linked composition class than for those who did not, with an average difference of 4.60 points on a 100-point scale.

The remaining five base courses included too few nonlinked freshmen to allow similar grade-matched comparisons, but we can make overall comparisons of paper grades and Comp I grades. Relevant data are presented in Table 3. Average grades in Comp. I. were calculated on the standard 4-point scale.

Table 3. Average Composition I Grades and Grades Assigned by Five Base-Course Instructors to Freshman Papers

	Linked Students			Nonlinked Students			
Instructor	Comp. I Grade	n	Mean Paper Grade (SD)	Comp. I Grade	n	Mean Paper Grade (SD)	Linked Advantage
Four							
Paper 1	2.68	31	80.00 (6.81)	2.86	7	78.00 (8.31)	+2.00
Paper 2	2.67	29	80.55 (6.02)	2.86	7	77.71 (10.45)	+2.84
Five							
Paper 1	3.00	18	82.11 (5.97)	3.14	7	81.43 (13.58)	+0.68
Paper 2	3.00	17	83.71 (6.07)	3.00	7	83.29 (9.81)	+0.42
Six							
Paper 1	2.40	11	80.64 (7.38)	2.57	7	77.29 (12.50)	+3.35
Paper 2	2.40	11	83.18 (7.44)	2.57	7	79.43 (5.86)	+3.75
Seven	2.74	23	85.61 (7.61)	3.00	4	84.25 (7.14)	+1.36
Eight	2.75	12	89.17 (6.46)	2.67	3	91.67 (8.50)	-2.50

The grades assigned by Instructors Four, Five, Six and Seven indicate a consistent pattern. In each case, freshmen in the linked composition class had received Comp I. grades equal to or lower than those received by nonlinked students. Yet in every case, average paper scores were higher for the linked students, with a mean advantage of 2.06 points out of 100. The grades assigned by Instructor Eight show an opposite trend, but the small number (3) of nonlinked freshmen increases the likelihood that average scores were influenced by unusual or chance factors. The overall pattern of results provides strong evidence that students in the linked composition courses received higher paper grades than comparable peers.

The third question was whether linked students would receive higher overall grades in the base course than non-linked peers. Data relevant to this question are presented in Table 4.

Table 4. Average Course Grades for Freshmen in Base Courses on a 4-Point Scale					
	Linked Students		Nonlinked Students		
Instructor	n	Mean(SD)	n	Mean (SD)	Linked Advantage
One	27	2.81 (1.04)	15	2.60 (1.12)	+0.21
Two	17	2.12 (1.05)	17	1.88 (1.11)	+0.24
Three	16	2.94 (.57)	12	2.25 (.62)	+0.69
Four	31	2.61 (.72)	10	2.30 (1.06)	+0.31
Five	11	2.73 (1.10)	7	2.43 (.98)	+0.30
Six	18	2.78 (.81)	10	2.20 (1.55)	+0.58
Seven	27	2.74 (1.06)	4	3.00 (.82)	-0.26
Eight	14	2.71 (1.14)	5	2.60 (1.52)	+0.11

Linked freshmen received higher average grades than nonlinked freshmen in seven of the eight base courses. The course in which nonlinked freshmen achieved higher average grades had the smallest number of nonlinked freshmen (4), which increases the likelihood that this sample is not representative. Thus, the comparison suggests that being in the linked class was an advantage. Since paper grades were a component of the overall grade, this advantage may reflect self-selection into linked courses based on interest, or it may be due to learning sparked and fostered by the composition instructor. Linked composition instructors frequently focused additional writing assignments on base course materials, and their assignments often required students to analyze, evaluate, and apply concepts from the base course. The inevitable outcome was that, in some sense, composition classes served to enhance performance in the base courses—testimony to the premise that writing is learning.

The data reported here suggest that our linked course program has been successful in helping students to improve their academic performance within specific disciplines. Students who took the linked composition courses tended to receive higher paper grades and higher course grades in the base course than peers who did not. Whether this was in fact a result of deeper learning of subject matter or whether it was due to critical awareness of discourse conventions—or both—may be impossible to determine. Nevertheless, it seems clear that our goals of improved academic success as well as initiation into the conventions of academic discourse were met.

Several changes in the program as initially devised might help us to meet our goals even more effectively. First, base course and composition instructors must engage in greater collaboration in the development of grading criteria for joint papers, perhaps by discussing their responses to a small sample of papers before beginning the individual grading. This should increase grading reliability and provide students with some assurance that good writing can be evaluated consistently by instructors with differing backgrounds. Second, whenever possible, students who are not enrolled in a linked composition class should not have to compete, in a base course, with those who are. Ideally, there should be a one-to-one correspondence between students in the base course and those in the linked composition class. This would allow a stronger partnership between the two instructors, who could then better coordinate writing and other activities in the two courses. With such coordination, our linked courses could bring students to a clearer realization of the relationships between writing, thinking, learning, and successful performance in the academic discourse community—and isn't this what writing across the curriculum is all about?

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