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# Learning Outcomes in Intensive Courses

by  
Sheila R. Caskey

In the early 1970s, the Carnegie Commission on Higher Education called upon colleges and universities to "increase accessibility of higher education for those to whom it is now unavailable because of work schedules, geographic location, or responsibilities in the home" (1971, 20). Simultaneously, higher education was in the midst of exploring alternative delivery of instruction through modular systems which advocated one credit hour per week as an organizing principle rather than the number of credit hours taken during a quarter or semester. Thus, experimentation with short courses and intercessions was fostered and reported in the literature (Kuhns, 1974; Mims, 1983).

It seems ironic that two decades after the Commission report, directors of summer sessions and continuing education are still defending the respectability of courses which do not fit the traditional quarter or semester models. The problem, of course, is that little systematic research has been conducted to establish whether or not student learning in traditional versus shortened courses is comparable.

Sampson (1990) has clearly articulated the need to move beyond experiential evidence to research which focuses on one or more of four areas of study; inputs; classroom experience; outcomes; and a category he labels "optimizing variables" which includes course type, student characteristics, and instructional strategies. Cullivan (1990), in her study of the January interim, has taken a step toward providing objective data with an analysis of grades earned in short (14 days) courses as compared with those earned in traditional length courses. Cullivan's finding that students in interim courses earn significantly higher grades than those in semester long courses is in general agreement with Scott and Conrad's (1991) review of the literature on intensive courses. Moreover, this systematic approach represents the direction that higher education must take if we are to serve nontraditional students by offering the best possible instructional delivery systems.

Yet, several questions arose from Cullivan's (1990) study, two of which form the basis for this research. Based on the interim experience, faculty cited a long list of courses which they believed were not suitable for short sessions. Among these were mathematics courses and courses that are part of a sequence. These types of courses are of particular interest since many institutions provide summer session courses in quantitative areas as a means of assuring access for students for whom the traditional semester is not a viable option. The questions to be addressed in the current research were:

1. Are students' class grades in short courses significantly different than those in a traditional semester model?
2. Do students who completed the prerequisite course in an intensive format perform significantly differently in a sequential course from those students who completed the pre-requisite in a traditional format?
3. Are there any significant differences between students who enroll in intensive courses and those who enroll in traditional length courses with respect to age and overall grade point average?

## Methodology

Two content areas were selected to provide data for the study, accounting and algebra. Accounting was of particular interest as it is sequential, and on the researcher's campus all students in Accounting I take the same examinations regardless of instructor, format, or course location. Algebra was of interest both because of the results of the Cullivan (1990) study, and because students who are not ready for enrollment in college algebra must enroll in a developmental or intermediate algebra class based on test scores. Therefore, students in each class, regardless of format, should be relatively homogeneous with respect to their ability in the content area. Typically, adult students must enroll in one of the pre-college algebra courses.

Random samples for both content areas included equal numbers of students who had successfully completed a prerequisite course in an intensive format and students who had completed it in a semester long format. Groups of thirty subjects in each category in the algebra sequence and forty-five subjects each in accounting who had completed the next course in the sequences comprised the subject pool. Two-tailed t tests were used to analyze the data.

While the methodology addressed the issue of random selection which is missing in many of the prior studies (Scott and Conrad, 1990), the following factors were not controlled:

1. Instructors varied.
2. Length of time between course one and course two ranged from one semester to two years.
3. The data did not reveal "drop" patterns.

## Results

As shown in Table 1, although students successfully completing the semester length Accounting I course earned a slightly higher mean grade point average, the difference was not statistically significant, suggesting that each group had met the learning objectives at parity. The analysis of their respective performance in the second accounting course suggests that while the mean grade point average for Accounting II was again somewhat different, that difference was not statistically significant.

Overall grade point average was tested to ascertain whether or not overall ability was a factor. As shown in Table 1, the slight difference in mean grade point average was not significantly different. The one factor which was significant at the .004 level was age. Students who elected to take the initial accounting course in an intensive format tended to be older than those who elected the traditional mode.

Table 1

### Accounting Students

	Accounting I <u>Intensive</u> Average	Accounting I <u>Traditional</u> Average	t	Prob
Accounting I g.p.a.	2.71	2.84	.92	.360
Accounting II g.p.a.	2.13	2.33	.79	.434
Overall g.p.a.	2.69	2.83	1.26	.215
Age	23.02	20.86	-3.06	.004

Tables 2 and 3 illustrate the same type of data for students who elected to enroll in either developmental or intermediate algebra in an intensive format and subsequently completed the next course as compared to students who elected to take the prerequisite course in a traditional format. Again, the data indicate no significant differences between the groups in prerequisite courses although, again, students in traditional formats earned a higher average course grade point average. Once again, the students were comparable in their general ability as indicated by overall grade point average. The one factor which yielded a significant difference at greater than .001 probability was age. Students who elected to take the algebra pre-requisite courses in an intensive format were, on the average, over six years older than students who elected the traditional semester format.

**Table 2**

**Algebra Students Developmental To Intermediate**

	Developmental Algebra <u>Intensive</u> Average	Developmental Algebra <u>Traditional</u> Average	t	Prob
Developmental Algebra g.p.a	.233	2.60	1.07	.293
Intermediate Algebra g.p.a.	1.53	1.83	1.06	.300
Overall g.p.a.	1.96	1.86	-.65	.522
Age	26.03	19.83	-5.80	.000

**Table 3**

**Intermediate Algebra To College Algebra**

	Intermediate Algebra <u>Intensive</u> Average	Intermediate Algebra <u>Traditional</u> Average	t	Prob
Intermediate Algebra g.p.a.	2.66	2.90	.94	.354
College Algebra g.p.a.	1.93	2.06	.51	.614
Overall g.p.a.	2.48	2.52	.30	.765
Age	24.43	18.70	-5.44	.000

### Conclusions and Discussion

The data collected and analyzed for this study run counter to the faculty opinions expressed in Cullivan's (1990) study of interim sessions, that mathematics and prerequisite courses are ill-suited to intensive formats. From the data presented, it can be concluded that students, particularly older students, can achieve in an intense format and perform as well in subsequent courses as students who elect traditional formats.

If one of the purposes of offering intensive courses is to allow students to accelerate their degree plans or work courses of short duration into a work or family schedule, then evidence in this study suggests that adult students are taking advantage of this opportunity. Intuitively, one would expect that compressed courses in other disciplines would show the same pattern and, indeed, Scott and Conrad's (1991) review of the literature suggests this is true. Since both samples selected for this research involved quantitative skills, the researcher identified a small sample of students (twenty-four) who had completed a developmental English and as English composition I course in either an intensive or traditional format. While the number of subjects was too small to support meaningful statistical analysis, Table 4 allows the readers to draw their own conclusions.

**Table 4**  
**English Composition**

	Developmental English <u>Intensive</u> Average	Developmental English <u>Traditional</u> Average
Overall g.p.a.	2.44	2.44
Age	27.00	20.40
Developmental English g.p.a.	2.66	2.83
English composition I g.p.a.	2.50	2.42

There is a need for adult student advocates to pursue these types of studies. Similar studies need to investigate learning outcomes in evening courses versus courses which are spread over three class periods. The relationship between achievement in courses taught on campus and those offered off campus can provide additional data, to ensure that as we provide classes at times and in formats attractive to adult students, we also provide the best possible educational experience. Continuous analysis is needed. Because these studies were limited to students who successfully completed both prerequisite and subsequent courses, a study of failure and withdrawal rates in intensive versus traditional courses is needed to add to the knowledge base.

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