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ABSTRACT

This report of the evaluation of the Office of Instructional Resources Teaching Center at the University of Florida describes an approach to the problem of assessing an instructional program developed for students who do not meet the admission requirements of the state university system. The program evaluation design not only provides a model to study the evolution of the program but also describes the application of formative evaluation to program development. Since the conduct of the entire evaluation is influenced by dissemination requirements, communication problems and their resolution are also treated. The evaluation addresses four areas of the teaching center's activities: the management system, tutor effectiveness, test-item quality, and client satisfaction. (Author/MSE)

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THE OFFICE OF INSTRUCTIONAL RESOURCES

TEACHING CENTER:

'SPECIAL PROGRAMS FOR SPECIAL STUDENTS'

By

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THE OFFICE OF INSTRUCTIONAL RESOURCES
TEACHING CENTER
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INTRODUCTION

One of the greatest educational experiments to grow out of the ferment of the 1960's has been the opening of the college and university admissions to all those who seek post-secondary education. Many of those who have pursued opportunities in higher education have been different from the traditional college-bound student, different in educatibnal preparedness, in socio-economic strata and in attitudes towards themselves as learners.

This report of the evaluation of the Office of Instructional Resources Teaching Center describes an approach to deal with the problems of assessing an instructional program developed in 1972 for students who did not meet the admission requirements of the State University System. The evaluation design not only provides a model to study the evolution of a program, but it also describes the application of formative evaluation to program development. The conduct of the entire evaluation is influenced by the dissemination requirements. Therefore, this paper also addresses problems in communication and provides concrete examples of their resolution.

ESSENTIAL COMPONENTS OF THE PROGRAM

The Teaching Center is an academic, instructional unit serving the students and faculty of the special course sections. Recruiting of these students is done by the Office of Admissions; orientation to the University is conducted by the Special Services Program; financial aid is made available through the Financial Aid Office and the Special Services Program. Support services such as health care, academic, career and personnel counseling and career placement are made available through regular university agencies.

The specialized components of the Teaching Center include:

Multiple Achievement Testing and Feedback. Instructors divide course content into units and write a bank of test questions in multiple-choice or short-answer format for each unit which are stored in the computer. A student, when he feels he is ready, comes to the Teaching Center for testing, is administered a computer-generated test and has it scored by a laboratory assistant immediately. If he has met the criterion set by the instructor, he has completed that unit. If he fails, he is given additional help and attempts the test again, responding to different items from the item bank stored in the computer. In addition, the Registrar has established an "H" grade which allows a student an additional three weeks at the close of the quarter to complete work without penalty.

Tutoring. A tutor is assigned to each course taught through the Center. He works closely with the instructor, attends class and is responsible for contacting and tutoring every student in the course. Tutoring is done on an individual and group basis, both before and after testing, depending upon the preference and needs of the students.

Score Reporting. Each day test results are stored in the computer. From this data, weekly progress reports are generated for each student and each course section, and are made available to instructors, tutors, and the director of the Center. Thus it is possible at all times to monitor the progress of any individual student or the progress of an entire class on any particular unit of work.

During the two years a student may enroll in special sections he also enrolls in regular courses of the University. As his performance scores on tests increase, he is encouraged to enroll in more non-Teaching Center courses so that his transition to the academic mainstream is successful.

In addition, instructors are encouraged to use essay-type examinations and writing assignments as part of their instructional activities. Writing instructors at the Teaching Center work with students on these assignments, so they may develop academic writing skills that are essential in upper division work.

FORMATIVE EVALUATION

The formative evaluation encompassed four areas of the Center's activities. The four areas identified for study were the management system, tutor effectiveness, item quality, and client satisfaction. The entire population of students using Teaching Center services during the fall quarter, 1976 has been included in this analysis.

Results

1) Management system: testing times. It was clear that some students in most courses took an inordinately long period of time to complete the tests. The distributions of testing times were generally positively skewed which indicated that the majority of the testing times were less than the average testing time with a few extremely long times.

Management system: grading times. Wide variability in grading times characterized most courses.

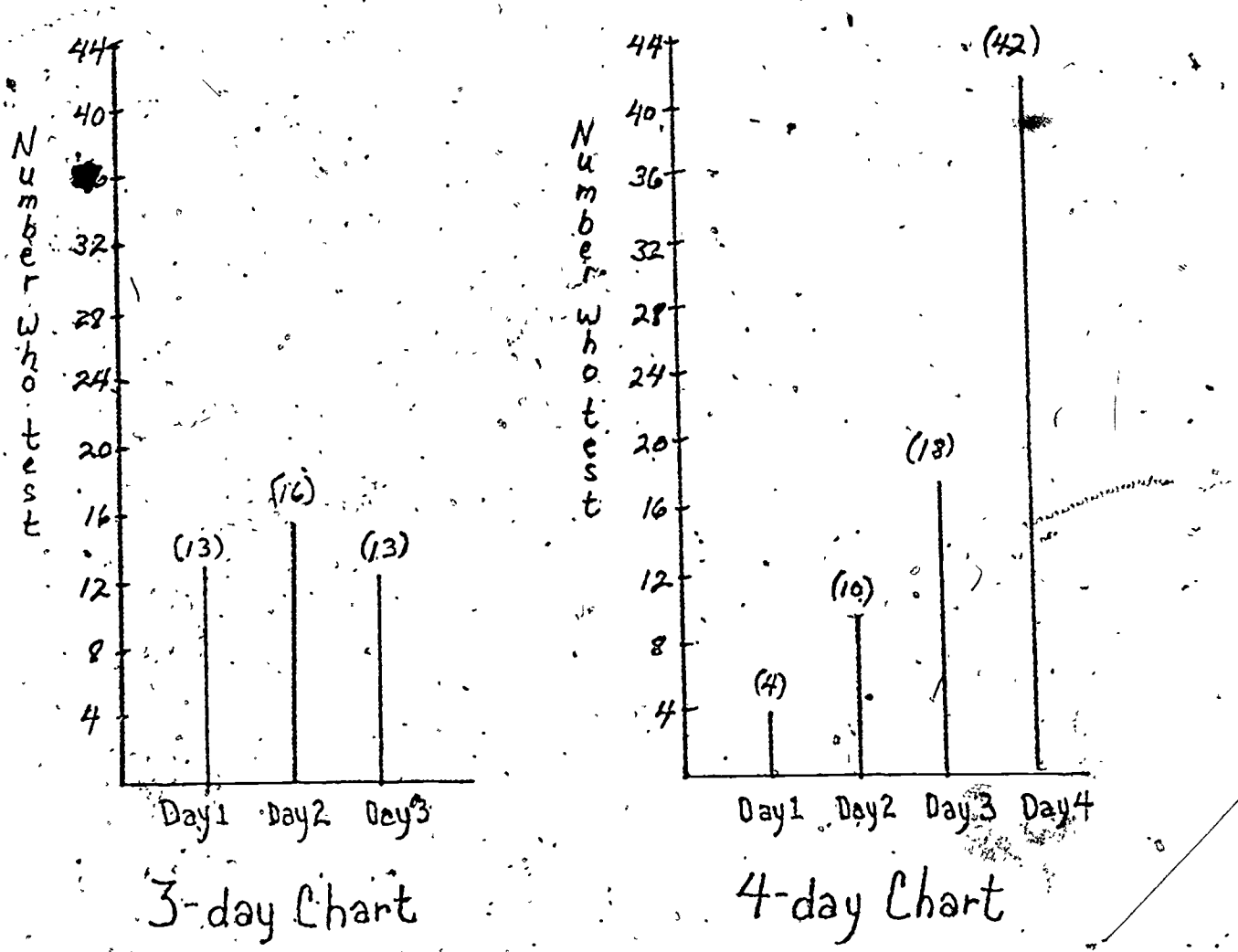
Grading time should be at a minimum with little variability. This goal was intended to reduce the pressure on graders and to increase the interaction between students and tutors. The data does not indicate that the goal was successfully achieved.

Management system: student flow. On the basis of the information gathered, it was clear that Mondays and Fridays were the heaviest testing

days. The heaviest weeks were the fourth and eleventh weeks. The busiest time periods were 10:30 a.m. and 1:30 p.m.

Management system: testing deadlines. Charts were prepared to document the pattern of test taking behavior affected by the establishment of different deadlines for unit tests. The question was concerned with whether or not a greater number of days in which a student was allowed to take a unit test would affect the flow of traffic in the Center. It was found that testing longer than three day periods resulted in the same pattern; the students tended to wait until the last day regardless of how many days were initially allowed (see Fig. 1).

Fig. 1. Testing Deadlines



Management system: repeat testing on the same day. Another problem in directing the student flow in the Center appeared to be related to the practice of repeating the same test on the same day. An analysis of the scores for those students who did repeat tests on the same day found that fifty-five percent of the time the practice did not benefit the student (see Table 1).

TABLE 1. REPEAT TESTING ON THE SAME DAY
FALL 1976

Improved Scores	Nonimproved Scores
	Fail Twice N = 110; % = 25
Fail - Pass N = 112 % = 25	Pass - Fail N = 27; % = 6
Improved Pass N = 89 % = 20	Pass - Decline N = 48; % = 11
	Pass - No Change N = 60; % = 13
Total Improved N = 201; % = 45	Total Nonimproved N = 245; % = 55

Management system: repeat testing over time. This question was concerned with the optimum number of attempts to allow for any given unit test. The Center policy was to allow repeat testing. However, it was felt that a maximum number of attempts should be established based upon information which would indicate that further attempts were not beneficial to the student and were contributing to congestion in the Center. Data from the fall quarter 1976 testing sessions were analyzed, and a matrix of average percent correct scores was prepared for students who retested the same unit test (see Table 2).

TABLE 2. MATRIX OF SCORES FOR STUDENTS WHO REPEAT THE SAME TEST: FALL 1976

Number of Times Tested	Average Percent Correct 1	2	3	4	5	Number of Students
1	62.0					570
2	57.8	68.4				716
3	51.1	57.8	67.1			333
4	43.9	51.4	55.1	55.8		44
5	43.0	53.2	55.6	47.1	59.5	10
6	47.5	40.0	70.0	35.0	70.0	1

The matrix revealed that students who took the same test twice increased their scores from 57.8 to 68.4 percent correct. Students who took a test three times increased their scores from 51.1 to 67.1 percent correct. Students who retested more than three times failed to improve beyond the third attempt. While students who took a test only once received the highest initial scores, those students who retested twice or three times received the highest final scores.

2) Tutor effectiveness. The data from the tutor activity records revealed that great variability existed in the number of tutoring sessions within subject areas as well as across subject areas. The number of sessions appeared to be related more to particular tutors rather than differing course requirements.

While more tutoring occurred in the physical science and mathematics areas than in the humanities and social science fields, it was not established that these differences were subject related.

An additional criterion for judging the success of the tutoring program was the academic success of the students who were tutored. The following

table lists the distribution of grades in the courses taught through the Center in the fall 1976. The average number of tutoring sessions for each grade revealed a positive relationship between the number of sessions and the grade received for students who were tested (see Table 3).

TABLE 3. DISTRIBUTION OF GRADES BY NUMBER OF TUTORING SESSIONS

Grade	Total Number	Total Number Tutored	Total Number Sessions	Average Number Sessions	Range in Sessions
A	69	36	216	6	1 - 30
B	99	60	348	5.8	1 - 24
C	115	74	320	4.3	1 - 18
D	35	29*	109	3.7	1 - 12
E	30	16	40	2.5	1 - 8

*One student received a "D" with 30 tutoring sessions and was deleted from the analysis.

3) Item analysis. Item analyses were run for all unit tests in the physical science courses. Item difficulties were computed and the distribution of responses to item foils was examined. A meeting was held with the instructor from physical science to explain the role of item analysis in item construction. The results of the analyses along with input from the tutor for the course were used in the revision of items for that course. Additional meetings with the other instructors were planned.

4) Client satisfaction. The questionnaire solicited responses to items about: the management of the Center, the Center's role in the students' educational improvement, the attitudes toward the tutors, and whether or not the students like coming to the Center (see Table 4).

TABLE 4: ATTITUDE QUESTIONNAIRE RESPONSES

	Positive		Neutral		Negative	
	N	%	N	%	N	%
(1) Management function	1157	55%	604	29%	346	16%
(2) Educational betterment	151	24%	321	51%	159	25%
(3) Tutoring attitudes	505	63%	213	27%	78	10%
(4) Like coming to Teaching Center	69	32%	93	44%	51	24%
"General Attitude" (Totals)	1749	54%	1018	32%	457	14%

Students were strongly favorable toward the testing and grading procedures. The only areas of weakness pinpointed were the privacy of the grading area and the setting of deadline dates.

Generally no opinion was expressed about the extent to which the Center contributed toward educational betterment. Some students felt that they might have trouble adjusting to regular courses, because those courses did not allow for multiple testing and tutoring.

The tutoring component received the greatest proportion of the favorable responses. A majority preferred individual tutoring sessions; only twelve percent preferred group sessions.

The social value of the Center was assessed by asking the students if they liked coming. The largest category of responses was neutral. When the questionnaire was administered, the Center was located in a temporary building which was in poor repair. Subsequently, the Center was moved to a more attractive location, and a follow-up questionnaire showed a substantial shift toward favorable responses on this item.

SUMMATIVE EVALUATION

The Registrar maintains a computer-based data file on students which dates back to 1972. This data base provided records for the study. The design provided for a longitudinal analysis of the success of the five groups of special admission students admitted from 1970-1975. Criteria for success was measured by retention, grade point average, passing related non-Center courses, and choice of major. The relationship between grade point average and Florida Twelfth Grade Test scores was also examined.

Results

Retention. Retention was determined by grouping the special admission students by the year in which they enrolled as freshmen. Retention rates increased each year. For example, twenty percent of the 1972 students had graduated by 1976 (see Table 5).

TABLE 5. ANALYSIS OF WITHDRAWALS 1972-1976*
High Achievers and Center Students

	Graduated	Withdrew	Still Enrolled
High achievers 424	N = 110 % = 26	N = 163 % = 38	N = 151 % = 36
Center students 118	N = 24 % = 20	N = 45 % = 38	N = 49 % = 41

*A four year study (1972-1976) followed a group of students with CLEP credit and a comparison group of students with equal ability to determine their patterns of academic achievement. The figures for the high achievers in Table 5 were retention rates for the comparison group in the CLEP study.

Forty-one percent of the students were still enrolled, and thirty-eight percent had withdrawn. Of those students who withdrew, slightly more than

half were in academic difficulty. The principal difference between the special admission students and a group of high achieving students for which retention data was available was the reason for withdrawal. Thirty-six percent of the high achieving students who withdrew were in academic difficulty compared to sixty-two percent of the special admission students who withdrew. More of the high achieving students had graduated, but more of the special admission students were still enrolled.

Grades. Grades for special admission students approximated the average grade points for all freshmen. Grades earned in Center courses were higher than those earned for other courses, perhaps because of the multiple testing opportunities offered in the Center.

Do Center courses predict success in related courses? The problem was defined as the relationship between the last course in a subject area taken through the Center and the first course taken outside the Center. Passing rates for the social sciences were uniformly high regardless of whether or not the students had taken courses through the Center. Passing rates for biological science were uniformly low. In physical science courses, passing rates increased from 1970 to 1975 for students who took previous courses in physical science through the Center. Similar increases were not found for students who did not enroll first in Center courses in physical science.

Major fields. The greatest number of special admission students declared majors in social science, with education second and business third. Enrollment in education declined and increased in health-related fields.

Florida Twelfth Grade Test and grade point average. When all special admission students were ranked from low to high on the Florida Twelfth Grade Test along with their freshman and sophomore grade point averages, no pattern was apparent. Achievement test scores did not predict the retention of students in the special admission category.

DISSEMINATION

The evaluation produced data related to management efficiency and program accountability. However, some deficiencies in communication between the Center and the students, faculty and other administrative units were evident. These deficiencies were due not only to the failure to share information, but also to the difficulty in identifying the appropriate offices with which to share the data. In a large university, considerable effort should be expended in locating those persons with whom a communality of interest exists.

The process of identifying the audience to receive the reports has a direct effect upon the type of information collected and upon its delivery system. Reports tend to vary in purpose, form, and in the amount of detail included depending upon the intended audience. The evaluation project data had to be reworked to meet the requirements of the Teaching Center staff, the federal government, students, administrators, and other universities interested in the program.

When the purpose of a report was to provide data for the development of efficient management, formal evaluation models were used and extensive detail was included. However, federal reporting requirements were different. These reports necessitated the development of particular data in the form specified by the Office of Health, Education, and Welfare. A third type of report, for students, was written in a question and answer format and was related to problems raised by the students. Finally, reports to administrators summarized accountability data and made policy recommendations. These reports were most effective when they were short and concise.

The first task undertaken to improve communication within the Center was the development of a technical manual in which the duties of the staff and the policies and procedures were delineated. Even though the manual required constant revision, it did provide a record of the development of the Center which was useful in the evaluation and was a reference point for all decision making. The manual helped to insure that some continuity was preserved during the development stage of the Center. The technical manual later became available as a reference for other institutions who were seeking information on the operation of programs for special admission students.

A major obstacle to communication within the University was the scarcity of available data on the target population of students. Even with a computer-based information system at the University, it was difficult and expensive to retrieve information on the success of a particular group of students. The duplication of effort and the inaccessibility of data at times resulted in conflicting reports generated on the same students. The creation of a data base for the Teaching Center evaluation provided the opportunity to meet the needs of other university agencies. Meetings were held with all interested administrative units in order to insure that the new data base would meet their reporting requirements. The coordination made possible by the maintenance of a common data base made communication between units a natural process because it was mutually beneficial.

Procedural problems with the faculty and students were often directly related to poor communication. Therefore, a faculty newsletter was distributed quarterly. The newsletter gave feedback from the evaluation on the effects on grades due to repeat testing, and any procedural problems which had emerged. In addition, information about related programs in reading and writing skills

development or other services was transmitted. Weekly reports on student progress were also sent to faculty, the athletic department and DSSSP.

In order to keep students well informed, posters and graphs were displayed in the Center. For example, a flow chart was color keyed to represent test deadlines in course sections. In this way, students were encouraged to avoid testing during peak use periods. Leaflets were also prepared to respond to questions or problems students raised on the client satisfaction questionnaire. Feedback to students from client satisfaction data was expected to improve the quality of the responses to future questionnaires as well as provide an evaluation of student attitudes toward the Center.

Finally, quarterly progress reports have been distributed within the University which detail accountability information. The reports include data on the number and type of course sections using the Center services, the number of students enrolled in the Center sections, and the academic progress of the students. Accurate information disseminated throughout the University has been invaluable in counteracting suppositions incorrectly held about special students.

SUMMARY AND CONCLUSIONS

The formative phase of the evaluation of the Teaching Center was designed to provide information to be used in the development of policies. The data indicated that streamlining of the testing and grading procedures would alleviate some of the congestion at peak use periods. In particular, limits on the amount and frequency of repeat testing were warranted.

The overall effectiveness of the tutoring program was established. However, the tutoring program was not uniformly strong in all courses. A tutor training program was recommended in order to provide a more uniform quality of

instruction. Finally, the analyses of the item banks did reveal a need for further improvement of the quality of the items.

The summative evaluation indicated that Center students did academically survive at the University, and this success was not related to achievement test scores.

The ultimate success of the Center depends upon the satisfaction of its clients, the students and the faculty. The on-going evaluation effort promotes a continuous assessment of the Center's activities. The interchange of information resulting from the evaluation raises questions about policies, procedures, and even the evaluation itself. The assumption upon which the staff operates is that evaluation and dissemination promote the questioning which is the key to the development of a program satisfying to its clients.