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ABSTRACT

This study reviewed the organization and operations of the University Tutoring Program at the University of Louisville (Kentucky) through the 1986-1987 academic year. The study also described the demographic and academic characteristics of the year's tutoring population and analyzed the outcomes of the use of tutoring services. A database for the 970 students who received tutoring was created and subjected to descriptive statistical analysis. Of the 970 students, most (57.8%) were female; 37% were minority (31% black); and of the black students, 71% were female. The student pool represented nearly all academic/enrollment units, with a large number being freshmen and sophomores. Black female students, academically under-prepared students, and transfer students all were present in significant numbers. Analysis of outcomes of using tutoring services found that students most often earned passing grades in the course for which they received tutoring and their academic performance correlated positively with frequency of tutoring attendance. Students with lower standardized testing scores benefitted more, while average and above average students derived substantial though less significant benefit. Appendices list courses for which tutoring was requested, and present data on the relationship between college admission test scores, tutoring attendance, and grades. (JB)

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The University of Louisville Tutoring Program
1986-1987 Operations and Outcomes

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Preparatory Division
University of Louisville

February 12, 1988



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I. Introduction

The Preparatory Division was established in July, 1982, by action of the University of Louisville Board of Trustees on a set of recommendations included in the "Report of the Steering Committee on Long-Range Planning and Priorities." Among the recommendations with special significance to the future of the Division was one concerning the need to unify all academic support services provided to University undergraduates.

The approval and subsequent implementation of this recommendation resulted in the administrative and budgetary consolidation, under the Preparatory Division, of the tutoring programs formerly housed in the Office of Minority Affairs (OMA), the West Louisville Educational Program (WLEP) and Educational Advancement Programs (EAP). Since the OMA program had served for several years as the University's tutoring program, the creation of a consolidated program transferred this role and function to the Tutorial Services unit of the Division.

As the University Tutoring Program, the Tutorial Services unit assumed the mission of providing short-term academic support to students encountering difficulty in college-level courses. Since Fall 1982, the primary service population of the Program has consisted of freshmen and sophomores, although upperclassmen have been accommodated as a lower priority group. Students have been referred or, most often, referred themselves to tutoring. Tutorial assistance has been offered on an individual and small group basis using, when appropriate, a variety of technological aids. More than five thousand requests for tutoring have been received since the Preparatory Division became responsible for this University-wide service.

Since the impact of tutoring may be more coincidental than causative or contributory, evaluative research must attempt to establish a substantive and statistically meaningful relationship between the use of tutoring and academic performance. This study will review the organization and operations of the University Tutoring Program through the 1986-1987 academic year, describe the demographic and academic characteristics of the 1986-1987 tutoring population, and analyze the outcomes of the use of tutoring services.

II. Data Sources and Methodology

Students seeking to schedule tutoring appointments must complete a detailed intake/application form on which personal information must be entered and on which tutoring attendance records are maintained throughout that particular semester. Using these internal records, a list was prepared which included all documented requests submitted for tutoring during Fall 1986, Spring 1987 and Summer 1987. This list was forwarded to the Office of the Registrar in October, 1987, and a "Counseling Report", containing official academic background and performance records, was obtained for each student in the population. These primary sources of information were merged to create a master data-base which was subjected to descriptive statistical analysis.

Approximately one hundred students were excluded from this study due to incomplete or unavailable records. Students who received only short-term assistance (e.g., answering a question) were excluded as well. Thus, the population under study must be viewed as a large and representative majority of the 1986-1987 tutoring population.

Many students in this study population also requested tutoring for more than one course in a given semester. To control for duplicated headcount, these students were treated as individuals, regardless of the number and type of their tutoring requests, in all analyses of demographic characteristics and academic background. However, all requests for tutoring were included in the analyses of tutoring operations and outcomes.

Tests of statistical significance are not reported. However, it is reasonable to assume that, given a population of this size, small differences between percentages and/or averages (means) are likely to be statistically significant. Moreover, comparable studies are not numerous, tend to be more descriptive than analytical, and often focus on smaller programs serving relatively homogeneous target populations. Where appropriate, references will be made to earlier research conducted on the WLEP Tutoring Program (1975-1982) and information distilled from Division evaluative studies.

III. Organization and Operations

Tutoring is perhaps the most traditional of all types of academic support, having a history as long as that of education itself. In the modern school or university, educating students in groups presumes a degree of uniformity with respect to student background, ability, motivation and learning style that seldom exists. While most students can adjust to and thrive in this "homogenizing" academic environment, some cannot---and many who normally thrive may experience occasional problems. For some of these students, tutoring is an effective form of short-term compensatory support designed to supplement in-class instruction. 93

While the goal of any tutoring program must be to "connect" students needing support with tutors capable of providing that support, the manner in which such a program is organized seems to contribute far more to its success or failure than is the case with other forms of academic assistance. Many programs appear to "do things right", but fail to reach and serve students because of not "doing the right things." 71

Tutoring programs are usually organized consistent with one of two basic models. In one model, tutoring is an extension of an academic department, closely related to a discipline or set of disciplines, and loosely organized around some sort of facility in which a faculty or part-time staff member supervises students' use of learning aids (e.g., computers) or a small contingent of tutors (often graduate assistants or advanced students in the same department). In the other model, a staff or faculty member serves as a kind of "broker" between a pool of potential tutors and students seeking assistance. This "broker" refers students to tutors or tutors to students, monitors activity to varying degrees and authorizes payment for work done (if the students do not pay the tutors directly); otherwise, the student and tutor make their own arrangements with respect to time, place and frequency of tutoring sessions. Each model has its history, its strengths and weaknesses, and its limitations---depending largely on the available resource base, the size of its target population and how well it "fits" the particular institutional environment in which it is set.

In an urban, commuter institution, an effective tutoring program must serve a diverse and extremely fluid student population. Virtually all University of Louisville students are either older than traditional college age, working, or attending part-time---with many commitments and demands on their time. The fluidity and heterogeneity of this population require that the tutoring program, insofar as is possible, accommodate itself to the students it is intended to serve---rather than expect students to accommodate themselves to an arbitrarily imposed model. Such a program must be organized and administered in a manner that not only facilitates the provision of high quality services, but maximizes flexibility of scheduling and student choice as well.

In an attempt to resolve these often conflicting factors, a "third" model was developed in WLEP and implemented experimentally in Fall 1975. Of special significance were the following innovations:

- 1) The Tutoring Program would be administered as an academic support unit, with a student-centered orientation, by a student personnel professional. A tight interface between Tutoring and other support services (e.g., counseling), on one hand, and between Tutoring and the University's academic departments, on the other, would be maintained in the referral and cross-referral of students, and in the selection of tutors.
- 2) All tutors and graduate assistants would be scheduled to work at specific times throughout each week. Overlapping staff schedules, based on tutors' areas of expertise, would then insure that one or more tutors in all high demand areas would be available at virtually all times. In addition, a set schedule for tutors and graduate assistants would make it possible to serve most students requiring short-term help immediately.

This model blended these somewhat unusual features with more typical practices designed to govern the scheduling of students and to enhance administrative control. The resulting program achieved its goals and, after many refinements, remains the prototype of the University Tutoring Program.

Among the unanticipated benefits of this approach were the creation of a tutoring "center" which could be designed as "sub-environment" conducive to learning and study, the creation of a tutoring staff which interacted and functioned as a staff, and the capability of serving walk-in and short-term students expeditiously. Moreover, in contrast to the other two common models, this model proved to be sufficiently elastic (or expandable) to accommodate a University-wide population.

Finally, it is important to distinguish between the perceived need for tutoring, which results in students initiating contact with the Program, and the actual need for tutoring. The University Tutoring Program attempts, within fiscal and space limitations, to provide as much tutoring as undergraduate students want---which is a reflection of students' perceived need for the service. However, a great many students have an actual need for assistance, but may be unaware of that need, or of the Program, or may simply choose not to seek support. Given this context, the tutoring population must be understood as only a subset of the larger population of students who could benefit from tutorial support. To meet the actual need for tutoring, the University would need to commit far more resources (since the perceived need cannot now be met) and require that students, who would not do so otherwise, avail themselves of the service (which would, in turn, require an elaborate policy and administrative apparatus).

IV. The 1986-87 Tutoring Population

A total of 970 students requested tutorial assistance in one or more subjects during the 1985-1987 academic year. Nearly half of these students, 493, (or 50.8%) sought help in Fall 1986, 384 (or 39.6%) in Spring 1987 and 93 (or 9.6%) in Summer 1987. This "50:40:10" proportion is consistent with the distribution of students requesting tutoring since Fall 1982.

As depicted in Table I, the tutoring population was predominantly female (57.8%); the percentage of minority students (36.6%), primarily blacks (30.7%), was nearly four times as high as their percentage of the University's enrollment. While white male and female students requested assistance in roughly equal numbers (48.1% and 51.9%, respectively), the vast majority of requests from black students came from females (70.5%).

Table I.

Race and Sex Composition
(Column %)

	Male	%	Female	%	Total	%
Black	88	21.5%	210	37.4%	298	30.7%
White	285	69.7%	308	54.9%	593	61.1%
Other	30	7.3%	24	4.3%	54	5.6%
No Record	6	1.5%	19	3.4%	25	2.6%
Total	409		561		970	

Most students seeking assistance graduated from a high school in Jefferson County (622, 64.1%) or a contiguous county (171, or 17.6%). Their distribution across the University's academic/enrollment units (Table II) shows a heavy concentration of students "home-based" in three units: the College of Arts & Sciences (54.4%), Speed Scientific School (16.5%) and the Preparatory Division

(15.9%). Moreover, since use of the Tutoring Program was promoted strongly in the Preparatory Division, it is useful to note that 118 (14.5%) of the students enrolled in academic units other than the Division were former Division students, with 108 of these students enrolled in A&S (i.e., 20.4% of all A&S students requesting tutoring). Thus, while familiarity with the Program may not result in the use (or need) of services during students' tenure in the Division, there seems to be some carry-over as students progress through their academic careers in degree-granting units.

Table II.

Enrollment Unit Distribution
(Column %)

Academic/Enrollment Unit	N	%
Graduate School	9	.9%
Arts and Sciences	528	54.4%
Preparatory Division	154	15.9%
Speed School	160	16.5%
Business	36	3.7%
Education	19	2.0%
Nursing	22	2.3%
Continuing Studies	11	1.1%
Other	23	2.4%
No Record	8	.8%
TOTAL	970	

The 1986-87 tutoring population was more evenly distributed across academic classification categories (Table III) than was the case in the 1982-1985 period.

A third of all students were freshmen and more than half were junior division level---consistent with the Program's emphasis on assisting students in mastering general education courses and the first courses in their majors. However, the percentage of more advanced students seeking academic support has gradually increased.

Table III.

Academic Classification
(Column %)

Classification	N	%
Freshman 0 - 29 hours	323	33.3%
Sophomore 30 - 59 hours	184	19.0%
Junior 60 - 89 hours	192	19.8%
Senior 90+ hours	138	14.2%
Post-Bac/Grad.	23	2.4%
No record	110	11.3%
TOTAL	970	

While the ACT sub-test and composite scores reported for this population ranged from three (3) to thirty-three (33), the mean scores (Table IV) are indicative of a group of students with marginal tested abilities. This score profile is not surprising given the number of current and former Preparatory Division students in the group. However, ACT scores were available on only 602 (62.1%) of the 970 students requesting tutoring and broad generalizations as to the academic ability of these students should be approached with caution.

Table IV.

ACT Score Profile (N = 602)

ACT Score	Mean
English	15.93
Mathematics	14.07
Social Science	14.79
Natural Science	18.42
Composite	16.10

Since all students admitted to the University are required to take the ACT, with the exception of students admitted through Continuing Studies, the "missing ACT scores"---along with the increase in senior division students seeking tutorial support suggest a gradual, but significant, increase in the number of transfer students using the service. It is possible that as many as one third of the 1986-87 tutoring population transferred to the University from another institution. Moreover, these inter-university transfer students requested help during their first or second semester at the University, i.e., while they were still adjusting to a new institution. This shift in the tutoring population is worthy of further study.

Most students in this group had limited financial resources and multiple demands on their time as noted in Section III. Approximately 60% of these students worked at least part-time (Table V) and 51.8% received some form of financial aid (Table VI).

Table V.
Work Status

Work Status	N	%
Working	584	60.2%
1 - 10 hrs./wk.	63	
11 - 20 hrs./wk.	253	
21 - 30 hrs./wk.	146	
31+ hrs./ wk.	99	
Hours not indicated	23	
Not Working	379	39.1%
No Record	7	.7%
TOTAL	970	

Table VI.
Financial Aid Status

	N	%
Receiving Financial Aid	502	51.8%
Not Receiving Financial Aid	461	47.5%
No Record	7	.7%
TOTAL	970	

Based on these data, the 1986-87 tutoring population was a cross-section, in many respects, of the University's undergraduate student body. Virtually all academic/enrollment units were represented. The majority of students under examination were freshmen and sophomores. Most students resided in Jefferson County or nearby. A large number were working and/or receiving financial aid. However, there were also several important differences between this group of students---in the aggregate---and University undergraduates in general. Black students, particularly black females, were vastly over-represented in the tutoring population---contributing in large measure to the over-representation of female students. Academically underprepared students, or students who may have been categorized as academically underprepared when they were admitted, were over-represented to a lesser degree. In addition, the tutoring population contained a significant number of inter-university transfer students.

Thus, viewed together, the selected student characteristics considered above suggest that the resemblance between the tutoring population and all University undergraduates was somewhat superficial. In essence, the tutoring population seems to be a more non-traditional sub-set of the enrollment populations of the University's major academic/enrollment units.

V. The Use and Outcomes of Tutoring

Nearly two-thirds of the students seeking tutorial assistance in 1986-87 had not used the service in the past (Table VII). This figure is consistent with records maintained since Fall 1982 and indicates that students used the services of the Program appropriately, i.e., as a means to help them deal with a specific academic problem and not as a long-term "crutch".

Table VII.

Previous Use of Tutoring

	N	%
Received Previous Tutoring	331	34.1%
Received No Previous Tutoring	634	65.4%
No Record	5	.5%
TOTAL	970	

As indicated in Table VIII, most requests for tutoring were received within the first four weeks of the semester (the Summer term is excluded). However, the number of requests did not decline significantly until after the "mid-term examination/last day to withdraw" period.

Table VIII.

Timing of Tutoring Requests
(excluding Summer 1987)

Week(s) During which Tutoring was Requested	N	%
1	339	34.0%
2 - 4	329	33.0%
5 - 8	244	24.4%
9 - 15	76	7.6%
No Record	10	1.0%
TOTAL	998	

The list of different courses for which tutoring was requested is far too long for inclusion as a table and follows the narrative section of this study as Appendix A. Table IX, however, represents the broad subject areas for which tutoring was requested. It is important to note that 69% of all tutoring requests were for assistance in Business, Engineering, Natural Science and Mathematics courses---at all levels.

Table IX.

Subject Areas in which Tutoring was Requested

Subject	N	%
Business	148	13.5%
Engineering	160	14.6%
English	53	4.8%
Foreign Languages	134	12.2%
Humanities	13	1.2%
Mathematics	260	23.7%
Natural Sciences	192	17.5%
Social Sciences	93	8.5%
Other	44	4.0%
TOTAL	1097	

This longstanding pattern suggests the disturbing, although not surprising, conclusion that University of Louisville students are most often desirous of pursuing the major programs for which they have the least preparation. The difficulty presented by these mathematics and mathematics-dependent courses also suggests the likelihood of a significant increase in requests for tutoring as a result of the implementation of a University-wide mathematics requirement.

It is also worthwhile noting that the "high risk" general education courses in the humanities and social sciences (e.g., History 101-102, Psychology 201) generated comparatively few requests for tutoring. Students may not have perceived their problems in these courses, or did not consider tutoring as a potential solution to the problems they may have encountered. However, for whatever reasons, students in difficult mathematics and science courses tended

to seek tutoring support and students in difficult social science and humanities courses did not.

Once contact with the Program was established, the vast majority of students attended no more than ten (10) tutoring sessions (Table X). A significant minority of students (269, or 24.7%) never attended an actual tutoring session. Of this number, 166 (15.2%) students could not be scheduled due most often to lack of resources. Another 103 students (9.5%) were scheduled, but never attended for a variety of reasons, e.g., early withdrawal from the course in question (see Table XI).

Table X.

Tutoring Attendance

Frequency of Attendance	N	%
Never Attended*	269	24.7%
1 - 5 times	486	44.7%
6 - 10 times	213	19.6%
11 - 15 times	101	9.3%
16+ times	19	1.7%
TOTAL	1088	

*: 103 students (9.5%) were scheduled, but never attended; the other 166 students (15.2%) could not be scheduled due to resource limitations, e.g., time, facilities, budget.

The distribution of grades received in courses for which tutoring was requested (Table XI) indicates that most students (591, 61.1%) earned passing grades. In fact, when "W's" were excluded, the non-failure rate among students who completed their courses was 74.3%.

Table XI.

Grades Received in Courses for which Tutoring was Requested

Grade*	N	%
A	57	5.9%
B	124	12.8%
C	243	25.1%
D	141	14.6%
F	199	20.6%
AU	19	2.0%
I	6	.6%
P	7	.7%
W	171	17.7%
TOTAL	967	

*: No grades were received for 131 students who requested tutoring in preparation for the CTBS or for repeating a course they had previously failed (and planned to re-take).

When tutoring attendance records are crosstabulated with grades (Table XII), it becomes clear that grades earned were, to an appreciable extent, a

function of tutoring attendance. The more frequently students utilized the services, the more likely they were to earn passing grades. Conversely, the students who failed seldom, or never, met with a tutor. This relationship between performance and service utilization was identified in the WLEP studies of a decade ago---and confirms that the vast majority of students who sought tutoring had a real need for assistance (not a desire to earn an "A" instead of a "B") and that, the more they used the service, the better they performed academically.

Table XII.

Tutoring Attendance and Grades
(Column %)

Attendance	Grades Earned					
	A	B	C	D	F	W
0*	14	25	49	25	61	59
%	24.6%	20.2%	20.2%	17.7%	30.7%	34.5%
1 - 5 times	19	46	108	56	101	93
%	33.3%	37.1%	44.4%	39.7%	50.8%	54.4%
6 - 10 times	9	37	52	35	30	13
%	15.8%	29.8%	21.4%	24.8%	15.1%	7.6%
11 - 15 times	13	12	30	22	6	6
%	22.8%	9.7%	12.3%	15.6%	3.0%	3.5%
16+ times	2	4	4	3	1	0
%	3.5%	3.2%	1.6%	2.1%	.5%	0.0%
TOTAL	57	124	243	141	199	171

*: Includes students who could not be scheduled or who never attended.

The WLEP studies also analyzed the relationship between tutoring attendance, grades and academic ability as measured by the ACT---and supported, as their most significant conclusion, that frequent tutoring attendance had little impact on the performance of students with ACT composite scores below 10, was crucial to the performance of students with ACT scores between 10 and 18, and had little impact on the performance of students with ACT scores above the national mean. By applying the same analysis (see Appendix B and Table XIII) to the 1986-87 tutoring population, it is possible to isolate and better understand the impact of the Program.

Table XIII.

Grades and ACT Score Range
(Column %)

Grade	ACT Score Range					
	Below 10	10-12	13-15	16-18	19-21	Above 21
A	0	3	5	7	1	11
%	0.0%	2.6%	4.2%	8.0%	1.2%	8.1%
B	3	11	12	10	13	23
%	2.9%	9.5%	10.1%	11.5%	15.1%	16.9%
C	26	32	31	26	28	32
%	25.0%	27.6%	26.1%	29.9%	32.6%	23.5%
D	16	21	20	16	12	22
%	15.4%	18.1%	16.8%	18.4%	14.0%	16.2%
F	36	24	29	16	18	35
%	34.6%	20.7%	24.4%	18.4%	20.9%	25.7%
W	23	25	22	12	14	13
%	22.1%	21.6%	18.5%	13.8%	16.3%	9.6%
TOTAL	104	116	119	87	86	136

Students with lower ACT scores tended to earn somewhat lower grades; the lower their ACT scores, the more often students needed to attend tutoring in order to earn passing grades. However, these data also indicate that, contrary to the WLEP studies, the interaction between these factors was reasonably strong and positive for students in the higher ACT score ranges as well.

A student's degree of difficulty in a given course is, after all, a relative measure---reflecting a "lack of fit" between that student's ability (or preparation) and the demands of the course. This "lack of fit" can be as pronounced for an underprepared student in an introductory course as with senior college student, with an exemplary academic record, in an especially difficult course in his/her major. Thus, students with very different characteristics and levels of achievement can find themselves in quite similar circumstances with respect to their need for assistance. In 1986-87, the Program was effective in serving groups of students at both apparent extremes of this continuum.

Table XIV reveals that most students tended to maintain or improve both their academic status and grade point averages after their use of tutoring. The number of students with "No Status" included first-time students who withdrew from the University during their first semester (or, in a few cases, failed all of their courses) and never re-enrolled.

Table XIV.

Academic Status Distribution

Status*	Before Tutoring		Tutoring Semester		Current	
	N	%	N	%	N	%
No Status (new or transfer)	358	32.6%	115	10.5%	101	9.2%
Good Standing	565	51.5%	681	62.0%	662	60.3%
Probation	163	14.8%	249	22.7%	260	23.7%
Dismissal	12	1.1%	53	4.8%	75	6.8%
TOTAL	1098		1098		1098	
MEAN GPA	2.44		2.26		2.61	

To summarize, the 1986-87 tutoring population was composed predominantly of students who had had no previous involvement with the University Tutoring Program. These students most often sought help during the first half of the semester. They requested assistance in nearly 200 courses; the requests were concentrated most heavily in the Business, Engineering, Natural Science and Mathematics areas.

Students, in general, attended no more than ten tutoring sessions in a particular semester; a significant minority could not be accommodated due to lack of resources. Students most often earned passing grades in the courses for which tutoring was scheduled and their academic performance was highly (and positively) correlated with their frequency of tutoring attendance. While

students with lower ACT scores seemed to benefit more from the frequent use of tutorial assistance, students in the average and above average ACT ranges also derived substantial, albeit less significant, benefit from frequent use of the Program's services.

VI. Conclusion

Neither the characteristics of the students who used the University Tutoring Program in 1986-87 nor the outcomes of tutorial service utilization appear to be unusual. The student population was similar in many respects to the University's undergraduate student body, although with a somewhat weaker academic profile. Students who received additional assistance with their more difficult courses should be expected to perform reasonably well---and more frequent assistance should have resulted in generally better performance. However, predictable results are seldom achieved in education and a great deal of educational research is devoted to explaining discrepancies between the predictable and the actual outcomes of various programs and practices. In particular, the role of service utilization (i.e., tutoring attendance) as a mediating factor between academic ability and grades emerges so clearly and predictably as to seem unusual.

Although this study did not address the impact of the Program on the retention rate University undergraduates, the academic records examined indicated that a large majority of the 1986-87 tutoring population had either graduated or had enrolled for Fall 1987. The Program should continue to have such an impact. Moreover, given the expandability of its model, the University Tutoring Program could evolve to play a major role in an institution-wide retention effort.

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Appendix A.

Subjects for which Tutoring was Requested

Subject	Number of Requests	%
Accounting (201-500)	79	7.2%
Biology (102-360)	41	3.7%
Business Statistics	24	2.2%
Chemistry (101-343)	87	7.9%
Chem. Engineering	3	.3%
Commercial Law	2	.2%
Communications (111-350)	3	.3%
Criminal Justice	2	.2%
CTBS Test preparation	22	2.0%
Economics (201-431)	25	2.3%
EDFD 600	1	.1%
Electrical Engineering (220-320)	10	0.0%
EMCS (101-360)	107	.9%
English (099-522)	53	9.8%
ESC (102-220)	8	4.8%
ETEC (110-231)	3	.7%
ETEC (110-231)	3	.3%
Finance (301-433)	10	.9%
French (121-321)	44	4.0%
Geography 256	3	.3%
Geology (105-201)	4	.4%
German (121-322)	14	1.3%
H.Ed. (184-303)	3	.3%
History (101-212)	14	1.3%
ICD 603	1	.1%
IDSP (101-210)	15	1.4%
Latin 101	1	.1%
Modern Languages	1	.1%
Mathematics (075-560)	260	23.7%
M.C. 421	1	.1%
Mechanical Engineering (206-540)	9	0.0%
Mechanical Engineering (206-540)	9	.8%
Management (099-401)	7	.6%
MTEC 101	1	.1%
Marketing 341	1	.1%
Music 112	1	.1%
Music History 204	2	.2%
Nursing 395	5	.5%

Subject	Number of Requests	%
Philosophy (205-311)	6	.5%
Physics (111-300)	60	5.5%
Political Science 201	14	1.3%
Psychology (201-317)	18	1.6%
Reading (098-099)	3	.3%
Russian (121-463)	13	1.2%
Sociology (201-636)	44	4.0%
Spanish (121-221)	61	5.6%
Social Work 697	1	.1%
T.C. (100-201)	8	.7%
TAS 207	1	.1%
TOTAL	1096	

Appendix B.

The Relationship between ACT Scores, Tutoring Attendance
and Grades

I. Students Earning "A" Grades (Column %)

Attendance	ACT Score Range					
	Below 10	10-12	13-15	16-18	19-21	Above 21
0 times %	0	1 33.3%	0 0.0%	1 14.3%	0 0.0%	6 54.5%
1-5 times %	0	1 33.3%	1 60.0%	2 28.6%	0 0.0%	2 18.2%
6-10 times %	0	0 0.0%	0 0.0%	0 0.0%	1 100.0%	1 9.1%
11-15 times %	0	1 33.3%	1 20.0%	4 57.1%	0 0.0%	1 9.1%
+16 times %	0	0 0.0%	1 20.0%	0 0.0%	0 0.0%	1 9.1%
TOTAL	0	3	5	7	1	11

II. Students Earning "B" Grades

Attendance	ACT Score Range					
	Below 10	10-12	13-15	16-18	19-21	Above 21
0 times %	0 0.0%	4 36.4%	2 16.7%	0 0.0%	2 15.4%	8 34.8%
1-5 times %	3 100.0%	3 27.3%	3 25.0%	3 30.0%	6 46.2%	8 34.8%
6-10 times %	0 0.0%	3 27.3%	7 58.3%	4 40.0%	5 38.5%	4 17.4%
11-15 times %	0 0.0%	1 9.1%	0 0.0%	3 30.0%	0 0.0%	3 13.0%
+16 times %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
TOTAL	3	11	12	10	13	23

III. Students Earning "C" Grades

Attendance	ACT Score Range					
	Below 10	10-12	13-15	16-18	19-21	Above 21
0 times %	9 34.6%	7 21.9%	5 16.1%	5 19.2%	4 14.3%	4 12.5%
1-5 times %	7 26.9%	14 43.8%	13 41.9%	14 53.8%	16 57.1%	14 43.8%
6-10 times %	5 19.2%	7 21.9%	7 22.6%	3 11.5%	6 21.4%	9 28.1%
11-15 times %	4 15.4%	4 12.5%	6 19.4%	4 15.4%	2 7.1%	5 15.6%
+16 times %	1 3.8%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
TOTAL	26	32	31	26	28	32

IV. Students Earning "D" Grades

Attendance	ACT Score Range					
	Below 10	10-12	13-15	16-18	19-21	Above 21
0 times %	4 25.0%	5 23.8%	2 10.0%	4 25.0%	3 33.3%	3 13.6%
1-5 times %	9 56.2%	11 52.4%	9 45.0%	3 18.8%	3 25.0%	8 36.4%
6-10 times %	1 6.2%	0 0.0%	8 40.0%	5 31.2%	5 41.7%	8 36.4%
11-15 times %	1 6.2%	5 23.8%	1 5.0%	3 18.8%	0 0.0%	3 13.6%
+16 times %	1 6.2%	0 0.0%	0 0.0%	1 6.2%	1 8.3%	0 0.0%
TOTAL	16	21	20	16	12	22

V. Students Earning "F" Grades

Attendance	ACT Score Range					
	Below 10	10-12	13-15	16-18	19-21	Above 21
0 times %	14 38.9%	6 25.0%	10 34.5%	3 18.8%	5 16.7%	10 28.6%
1-5 times %	14 38.9%	14 58.3%	14 48.3%	9 56.2%	10 55.6%	18 51.4%
6-10 times %	4 11.1%	4 16.7%	5 17.2%	4 25.0%	3 16.7%	6 17.1%
11-15 times %	4 11.1%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 2.9%
+16 times %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
TOTAL	36	24	29	16	18	35

VI. Students Earning "W" Grades

Attendance	ACT Score Range					
	Below 10	10-12	13-15	16-18	19-21	Above 21
0 times %	10 43.5%	5 20.0%	6 27.3%	3 25.0%	6 21.4%	4 30.8%
1-5 times %	11 47.8%	17 68.0%	15 68.2%	8 66.7%	8 57.1%	6 46.2%
6-10 times %	2 8.7%	3 12.0%	0 0.0%	1 8.3%	0 0.0%	2 15.4%
11-15 times %	0 0.0%	0 0.0%	1 4.5%	0 0.0%	0 0.0%	1 7.7%
+16 times %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
TOTAL	23	25	22	12	14	13