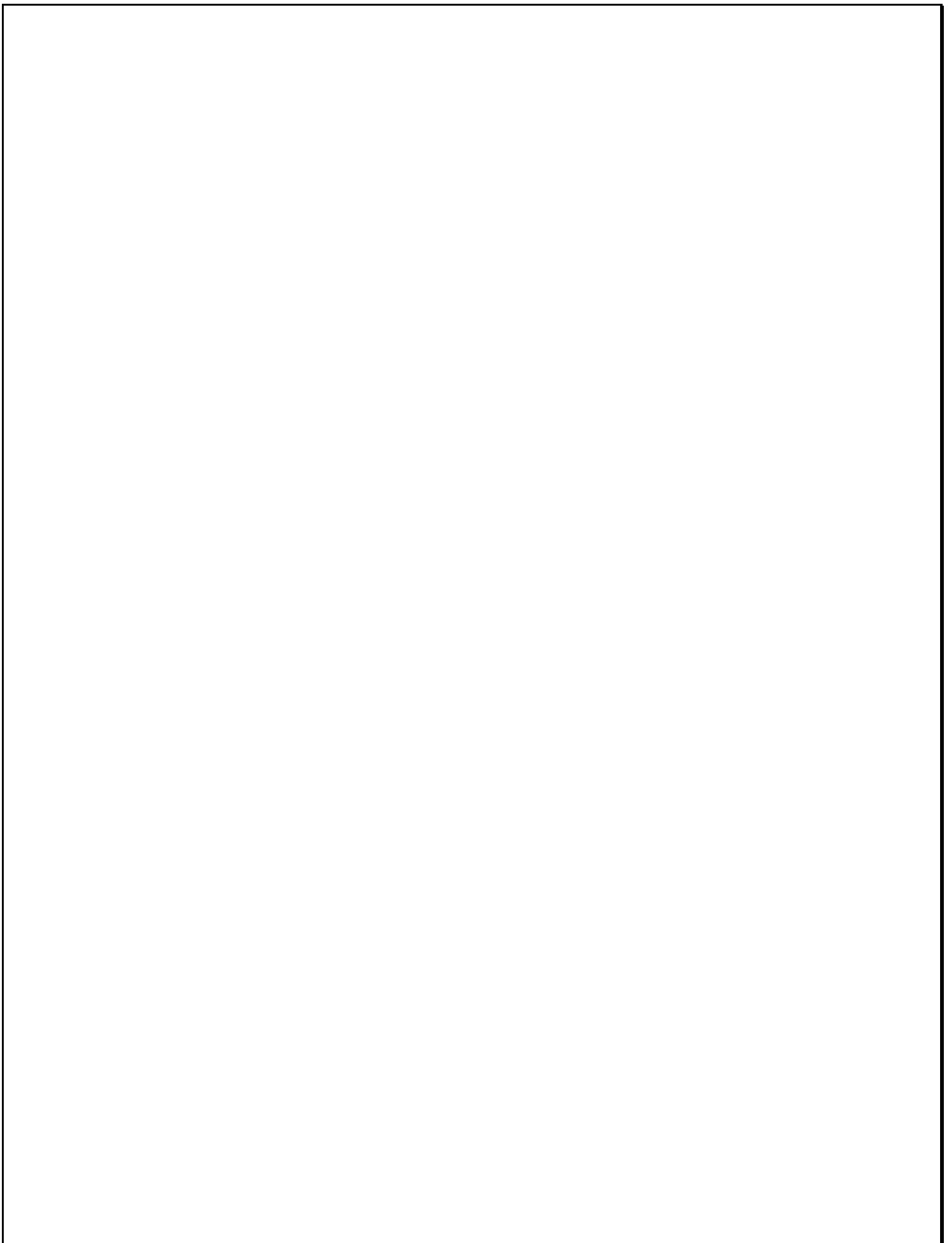


**Tutoring Center  
Impact of Tutoring Services**

**Fall 2006**

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## Introduction

As part of its ongoing improvement efforts, the Tutoring Center at Harper College was interested in investigating the impact of its services on students. Specifically, the Tutoring Center was interested in how often students had used tutoring services, and how this usage was related to:

- ACT scores,
- Final class grades, and
- Demographic characteristics.

The Tutoring Center provided a list of 2,315 students that had been tutored during the fall and spring of FY06 in specific classes (students tutored in more than one class appear in the database multiple times, resulting in 3,330 data records). The report is organized into an Introduction, a Results and Discussion Section that analyzes impact based on how often the students had been tutored, and a Summary section that highlights key findings.

## Results and Discussion

Information on the students' usage of tutoring services and final class grades was obtained from the Tutoring Center's records. Information on students' ACT scores and demographic characteristics was obtained from Harper's Regent system.

In Tutoring Center records, students' usage of tutoring services was recorded as the number of visits and the number of hours the students spent at the Center being tutored in a specific class. Table 1, below, shows the levels of usage for fall and spring FY06.

**Table 1: Students' Usage of Tutoring Services**

Usage	N	%
Number of Visits		
1 to 5 visits	2,498	75.0%
6 to 15 visits	596	17.9%
More than 15 visits	236	7.1%
Number of Hours		
1 to 5 hours	2,383	71.6%
6 to 15 hours	634	19.0%
More than 15 hours	313	9.4%

As shown in Table 1, the majority of students visited the Tutoring Center five times or less for a specific class and spent less than five hours at the Center. A minority of students visited the Center more than 15 times (7.1%) and spent more than 15 hours (9.4%) being tutored in a specific class.

## Relationship between Usage and ACT Scores

The average ACT scores of the tutored students are shown in Table 2. Tables 3 and 4 shows the average ACT scores based on level of usage of tutoring services. Note that fewer than half of the 2,315 students in the database had ACT scores on file.

**Table 2: ACT Scores for Students Tutored During Fall-Spring FY06**

ACT Component Test	N	Mean	Standard Deviation
ACT Composite	1,005	18.83	3.94
ACT English	1,091	18.27	5.05
ACT Reading	1,083	19.16	5.23
ACT Math	1,089	19.78	4.57
ACT Science	1,004	19.47	3.83

**Table 3: ACT Scores and Usage of Tutoring Services: Number of Visits**

ACT Component Test	1 to 5 visits			6 to 15 visits			More than 15 visits		
	n <sup>a</sup>	Mean	SD	n	Mean	SD	n	Mean	SD
ACT Composite <sup>b</sup>	698	19.03	3.97	196	18.41	3.81	111	18.25	3.80
ACT English <sup>c</sup>	762	18.63	4.98	209	17.61	5.16	120	17.17	5.07
ACT Math	757	19.86	4.61	210	19.57	4.69	122	19.63	4.11
ACT Reading <sup>d</sup>	696	19.47	5.18	207	18.54	5.68	120	18.33	5.20
ACT Science	688	19.59	3.87	197	19.34	3.74	111	18.93	3.78

<sup>a</sup> Number of visits is tracked separately for each class in which a student is tutored. For the purposes of this analysis, number of visits was aggregated to an annual total for each student.

<sup>b</sup> ACT Composite score was significantly different based on number of visits ( $F=3.39$ ,  $df=2$ ,  $p<.05$ ).

<sup>c</sup> ACT English score was significantly different based on number of visits ( $F=6.11$ ,  $df=2$ ,  $p<.01$ ).

<sup>d</sup> ACT Reading score was significantly different based on number of visits ( $F=3.98$ ,  $df=2$ ,  $p<.05$ ).

As shown in Table 3, students with higher ACT scores generally made fewer visits to the Tutoring Center than those with lower ACT scores. Students in the “1 to 5 visits” category had, on average, higher ACT scores than students in the other categories. The differences in ACT scores were statistically significant for ACT Composite, English, and Reading scores. Although the differences in ACT scores were statistically significant (students with 5 or fewer visits have, on average, higher ACT scores than those with more visits), they are also rather small in terms of absolute magnitude.

**Table 4: ACT Scores and Usage of Tutoring Services: Number of Hours**

ACT Component Test	1 to 5 hours			6 to 15 hours			More than 15 hours		
	n <sup>a</sup>	Mean	SD	n	Mean	SD	n	Mean	SD
ACT Composite <sup>b</sup>	671	19.06	3.99	207	18.41	3.90	127	18.28	3.62
ACT English <sup>c</sup>	734	18.62	5.02	220	17.75	5.15	137	17.24	4.87
ACT Math	728	19.94	4.63	222	19.29	4.64	139	19.70	4.10
ACT Reading <sup>d</sup>	729	19.49	5.21	217	18.78	5.28	137	18.01	5.09
ACT Science	669	19.64	3.90	208	19.12	3.73	127	19.15	3.62

<sup>a</sup> Number of hours is tracked separately for each class in which a student is tutored. For the purposes of this analysis, number of hours was aggregated to an annual total for each student.

<sup>b</sup> ACT Composite score was significantly different based on number of visits ( $F=3.38$ ,  $df=2$ ,  $p<.05$ ).

<sup>c</sup> ACT English score was significantly different based on number of visits ( $F=5.02$ ,  $df=2$ ,  $p<.01$ ).

<sup>d</sup> ACT Reading score was significantly different based on number of visits ( $F=4.59$ ,  $df=2$ ,  $p<.01$ ).

Table 4 shows the relationship between ACT scores and the number of hours students spent in the Tutoring Center being tutored in a specific class. Students with higher ACT scores generally spent fewer hours in the Tutoring Center than those with lower ACT scores. Students in the “1 to 5 hours” category had, on average, higher ACT scores than students in the other categories. Consistent with the results reported for number of visits (see Table 3), the differences in ACT scores were statistically significant for ACT Composite, English, and Reading scores. As with the relationship with number of visits, it is important to note that these differences were quite small in absolute magnitude despite their apparent consistency.

### Relationship between Usage and Final Course Grades

Table 5 shows the final grades students earned in the courses for which they were tutored.

**Table 5: Tutored Students’ Final Grades**

Grade	N	%
A	639	19.5%
B	899	27.4%
C	784	23.9%
D	239	7.3%
F	225	6.9%
H (audit)	4	0.1%
P	1	0.0%
W	459	14.0%
X (incomplete)	28	0.9%

As shown in Table 5, the majority (70.8%) of tutored students in FY06 earned a passing grade of C or better in their class. Nearly half (46.9%) earned a grade of A or B.

**Table 6: Students' Final Grades and Usage of Tutoring Services: Number of Visits**

Final Grade	1 to 5 visits		6 to 15 visits		More than 15 visits	
	n	%	n	%	n	%
A	462	18.8%	136	23.1%	41	17.4%
B	645	26.3%	168	28.6%	86	36.6%
C	585	23.8%	142	24.1%	57	24.3%
D	176	7.2%	44	7.5%	19	8.1%
F	192	7.8%	26	4.4%	7	3.0%
H	3	0.1%	1	0.2%	0	0.0%
P	1	0.0%	0	0.0%	0	0.0%
W	370	15.0%	68	11.6%	21	8.9%
X	21	0.9%	3	0.5%	4	1.7%

Table 6 shows that students' final grade was apparently related to the number of visits they made to the Tutoring Center. In general, a greater number of visits to the Tutoring Center appears related to a greater likelihood of passing the class with a C or better (68.9% for students with five or fewer visits, 75.8% for students with six to fifteen visits, and 78.3% for students with more than fifteen visits). Traditional statistical significance tests were not appropriate in this analysis<sup>1</sup>, but visual inspection suggests that the number of visits to the Tutoring Center did have an impact on students' final grades.

**Table 7: Students' Final Grades and Usage of Tutoring Services: Number of Hours**

Final Grade	1 to 5 hours		6 to 15 hours		More than 15 hours	
	n	%	n	%	n	%
A	448	19.1%	136	21.8%	55	17.7%
B	615	26.2%	172	27.6%	112	36.0%
C	555	23.7%	152	24.4%	77	24.8%
D	169	7.2%	46	7.4%	24	7.7%
F	178	7.6%	37	5.9%	10	3.2%
H	2	0.1%	2	0.3%	0	0.0%
P	1	0.0%	0	0.0%	0	0.0%
W	356	15.2%	74	11.9%	29	9.3%
X	19	0.8%	5	0.8%	4	1.3%

Similar to the results for number of visits, Table 7 shows that students' final grade appeared related to the number of hours they spent in the Tutoring Center. In general, spending more hours in the Tutoring Center appears related to a greater likelihood of passing the class with a C or better (69.0% for students with five or fewer hours, 73.8% for students with six to fifteen hours, and 78.5% for students with more than fifteen

<sup>1</sup> Tests of statistical significance assume independent observations (i.e., each case is a unique occurrence and is not systematically related to any other case). Observations in this analysis are not independent because some students were tutored in multiple classes; their final grades (the observations) are not independent because factors specific to the student (e.g., ability, motivation, etc.) influence their final grades in all classes.

hours). As noted above, traditional significance tests were not appropriate but visual inspection suggests that the number of hours spent in the Tutoring Center has an impact on final grade.

### Relationship between Usage and Demographic Characteristics

**Table 8: Tutored Students' Demographic Characteristics**

Demographic Characteristic	N	%
<b>Racial/ethnic Group</b>		
Asian/Pacific Islander	490	21.2%
American Indian/Alaskan Native	4	0.2%
Black	125	5.4%
Hispanic	243	10.5%
White	1,226	53.0%
Other/Unknown	227	9.8%
<b>Gender</b>		
Female	1,365	59.0%
Male	950	41.0%
<b>Age Group</b>		
18 or under	29	1.3%
19 to 24	1,490	64.4%
25 or older	796	34.4%

The majority of students using the Tutoring Center's services during fall and spring of FY06 were White (53.0%), female (59.0%), and between the ages of 19 and 24 (64.4%). Comparing these proportions to those of all Harper credit students (*Fact Book 2005*, Tables 36, 38, and 39), it appears that a greater proportion of Asian students and students age 19 to 24 use the Tutoring Center.

**Table 7: Demographic Characteristics and Usage of Tutoring Services: Number of Visits**

Demographic Characteristic <sup>a</sup>	1 to 5 visits		6 to 15 visits		More than 15 visits	
	n	%	n	%	n	%
<b>Fall Semester</b>						
<b>Racial/Ethnic Group<sup>b</sup></b>						
Asian/Pacific Islander	204	64.6%	73	23.1%	39	12.3%
American Indian/Alaskan Native	3	100.0%	0	0.0%	0	0.0%
Black	63	79.7%	11	13.9%	5	6.3%
Hispanic	101	72.7%	27	19.4%	11	7.9%
White	569	75.3%	136	18.0%	51	6.7%
Other/Unknown	105	75.0%	27	19.3%	8	5.7%
<b>Gender</b>						
Female	627	74.1%	161	19.0%	58	6.9%
Male	418	71.2%	113	19.3%	56	9.5%
<b>Age Group</b>						
18 or under	11	73.3%	4	26.7%	0	0.0%
19 to 24	705	74.5%	165	17.4%	76	8.0%
25 or older	329	69.7%	105	22.2%	38	8.1%
<b>Spring Semester</b>						
<b>Racial/Ethnic Group</b>						
Asian/Pacific Islander	205	64.7%	70	22.1%	42	13.2%
American Indian/Alaskan Native	1	100.0%	0	0.0%	0	0.0%
Black	50	70.4%	17	23.9%	4	5.6%
Hispanic	110	71.9%	28	18.3%	15	9.8%
White	496	72.5%	127	18.6%	61	8.9%
Other/Unknown	100	73.5%	21	15.4%	15	11.0%
<b>Gender</b>						
Female	551	70.7%	159	20.4%	69	8.9%
Male	411	70.5%	104	17.8%	68	11.7%
<b>Age Group</b>						
18 or under	16	72.7%	3	13.6%	3	13.6%
19 to 24	627	72.1%	159	18.3%	84	9.7%
25 or older	319	67.9%	101	21.5%	50	10.6%

<sup>a</sup> Number of visits per class was summed to the total number of visits over the course of the semester in order to create an unduplicated database.

<sup>b</sup> Number of visits was significantly related to racial/ethnic group ( $\chi^2=19.73$ ,  $df=10$ ,  $p<.05$ ).

The number of visits students made to the Tutoring Center over the course of a semester was generally unrelated to their demographic group. In fall semester FY06 the number of visits was only related to students' racial/ethnic group ( $\chi^2=19.73$ ,  $df=10$ ,  $p<.05$ ), while in spring FY06 the number of visits was unrelated to students' demographic characteristics.



**Table 8: Demographic Characteristics and Usage of Tutoring Services: Number of Hours**

Demographic Characteristic <sup>a</sup>	1 to 5 hours		6 to 15 hours		More than 15 hours	
	n	%	n	%	n	%
<b>Fall Semester</b>						
<b>Racial/Ethnic Group</b>						
Asian/Pacific Islander	197	62.3%	73	23.1%	46	14.6%
American Indian/Alaskan Native	3	100.0%	0	0.0%	0	0.0%
Black	63	79.7%	11	13.9%	5	6.3%
Hispanic	99	71.2%	26	18.7%	14	10.1%
White	544	72.0%	146	19.3%	66	8.7%
Other/Unknown	100	71.4%	28	20.0%	12	8.6%
<b>Gender</b>						
Female	602	71.2%	168	19.9%	76	9.0%
Male	404	68.8%	116	19.8%	67	11.4%
<b>Age Group<sup>b</sup></b>						
18 or under	10	66.7%	4	26.7%	1	6.7%
19 to 24	694	73.4%	162	17.1%	90	9.5%
25 or older	302	64.0%	118	25.0%	52	11.0%
<b>Spring Semester</b>						
<b>Racial/Ethnic Group</b>						
Asian/Pacific Islander	192	60.6%	71	22.4%	54	17.0%
American Indian/Alaskan Native	1	100.0%	0	0.0%	0	0.0%
Black	49	69.0%	15	21.1%	7	9.9%
Hispanic	105	68.6%	28	18.3%	20	13.1%
White	469	68.6%	133	19.4%	82	12.0%
Other/Unknown	99	72.8%	19	14.0%	18	13.2%
<b>Gender<sup>c</sup></b>						
Female	523	67.1%	166	21.3%	90	11.6%
Male	392	67.2%	100	17.2%	91	15.6%
<b>Age Group</b>						
18 or under	17	77.3%	2	9.1%	3	13.6%
19 to 24	599	68.9%	163	18.7%	108	12.4%
25 or older	299	63.6%	101	21.5%	70	14.9%

<sup>a</sup> Number of hours per class was summed to the total number of hours over the course of the semester in order to create an unduplicated database.

<sup>b</sup> Number of hours was significantly related to age group ( $\chi^2=15.07$ ,  $df=4$ ,  $p<.01$ ).

<sup>c</sup> Number of hours was significantly related to gender ( $\chi^2=7.08$ ,  $df=2$ ,  $p<.05$ ).

Similar to the number of visits, the number of hours students spent in the Tutoring Center over the course of a semester was also generally unrelated to their demographic group. In fall semester FY06 the number of hours was related to students' age group ( $\chi^2=15.07$ ,  $df=4$ ,  $p<.01$ ), while in spring FY06 the number of hours was related to their gender ( $\chi^2=7.08$ ,  $df=2$ ,  $p<.05$ ). However, there did not appear to be any consistent relationship between number of hours and students' demographic group membership.

## Summary

In fall 2006, the Tutoring Center made available a database of 2,315 students who had used tutoring services during the fall and spring of FY06. This database contained 3,330 records; each record corresponded to a specific class in which a specific student was tutored. The database included information about the students' final grade in their class as well as the number of visits and the number of hours they spent in the Tutoring Center for that class.

Most students (approximately 70 to 75%) spent five hours or less at the Tutoring Center in five or fewer visits for one class. ACT scores (especially the ACT Composite, English, and Reading scores) tended to be slightly higher for students with fewer visits and fewer hours spent at the Tutoring Center. This difference, while apparently consistent, was quite small in practical magnitude. For example, the average ACT Composite score was 19.03 for students with five or fewer visits, 18.41 for students with six to fifteen visits, and 18.25 for students with more than fifteen visits to the Tutoring Center.

Most students visiting the Tutoring Center (approximately 70%) earned a grade of C or better in the class in which they were tutored. Nearly half (47%) earned an A or a B. Students who made greater use of the Tutoring Center (more visits or more hours spent) tended to earn better grades in their class. The passing rate was 69% for students with five or fewer visits, 76% for students with six to fifteen visits, and 78% for students with more than fifteen visits.

The students who use the Tutoring Center appear more likely to be Asian and between the ages of 19 and 24 than Harper's general student body. There did not appear to be any consistent relationship between students' demographic characteristics and their level of usage of the Tutoring Center (number of visits or number of hours).

In summary, most students who use the Tutoring Center make five or fewer visits for help in a specific class. Students who use the Tutoring Center are more likely to be Asian and traditional age (19 to 24) than Harper's general student body. Students with higher ACT scores appeared to use the Tutoring Center less intensively (fewer visits and hours spent) than those with lower ACT scores, but the differences in ACT scores were minor. More than 70 percent of students visiting the Tutoring Center passed their class with a C or better. Students who used the Tutoring Center more intensively (more visits and hours spent) appeared to be more likely to pass their class than students who made less use of tutoring services (78 percent of the most intensive users passed their class with a C or better).