

# Testing Methodology Alters Student Responses On Course and Instructor Evaluation

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## Abstract

*Students tested via traditional midterm and final exams rated the instructor and a course in animal anatomy and physiology higher than students tested in the mastery learning methodology. Both groups participated simultaneously in the same classroom and laboratory presentations and had access to identical teaching aids. Collectively the traditional group received "above average" grades and rated the course and instructor "above average." The composite mastery group received "average" grades and rated the course and instructor "average."*

*It is concluded that student evaluations of the course and instructor were affected by student attitudes relative to how hard they thought they had to work on their own and the grade they expected to receive for those efforts.*

## Introduction

Undergraduate students in a sophomore level course in basic principles of anatomy and physiology in domestic animals were subjected to a "mastery learning" type of testing and evaluation program on an experimental basis. Their performance was compared with a second group of students that received simultaneous instruction in the same manner but were tested via the traditional midterm and final written examinations.

Student evaluations of the course and instructor and student attitudes concerning the two testing methodologies were compared near the end of the semester.

## Methods

Two groups of students received simultaneous instruction via lecture/demonstration/laboratory exercises.<sup>1</sup> 2 One-half of students, hereafter called the traditional group, were tested and evaluated in the traditional manner which consisted of 4 midterm written examinations and a comprehensive written final examination. The other half, hereafter called the mastery group, were evaluated by completion of 8 written examinations, each covering a body system, and a comprehensive written final examination. The students in the mastery group had the privilege of retaking exams over similar material until they received a grade satisfactory to them, with the exception of the final exam which was taken only once. They were allowed unlimited time in which to complete each examination and could complete the exams in any order except that all systemic exams were required to be completed prior to taking the final examinations. In event all

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exams were not completed by semester's end an incomplete (I) grade was awarded, giving the student 1 additional year to complete the course or the grade would automatically convert to a failing grade (E). A pretest and post test were administered to each group, but the results were not used to compute the grade awarded at the completion of the course. These scores were used solely for comparing the groups with respect to their entry and exit level skills.

Students in the course completed a Course and Instructor Evaluation Questionnaire (CIEQ) near the end of the semester (during which they received instruction).<sup>3</sup> Both objective observations and subjective comments were anonymously recorded and forwarded directly to the Office for Instructional Research and Development (IRAD) for statistical analyses of the objective portions. Results were given to the instructor after grades were awarded at the end of the semester.

## Results

Pretest scores for both groups were almost identical. Group size was 31 for the mastery group and 34 for the traditional group. The self-paced mastery group quickly fell behind in timely test taking and at the conclusion of the 7th week of class only 4 students were "on schedule" and remained so to complete all examinations within the semester's time frame. An additional 6 students, although behind schedule for the entire semester, completed all examinations before the end of finals week and were awarded a letter grade for the semester. Although this latter group had performed at approximately the same level, gradewise, as the "on schedule" students during the early part of the semester their performance diminished greatly during the few remaining days of the semester as they rushed to complete all examinations. The remaining 21 students in the mastery group received a grade of I (incomplete) in the course.

During the year's grade period 14 of the 21 students who received the grade of I were awarded a letter grade by completion of necessary examinations. The **Table 1: Distribution of grades awarded to students tested in the traditional and mastery methods. Subgroups under mastery include the on time and late finishers and their composite distribution. Numbers are rounded percentages.**

Grade Awarded	Mastery			
	Traditional	On Time	Late	Composite <sup>1</sup>
A	15	20	0	6.5
B	35	70	29	35.5
C	26.5	10	57	29
D	18	0	14	6.5
E	5.5	0	0	22.5 <sup>2</sup>

<sup>1</sup> Includes the entire mastery group.

<sup>2</sup> 68% of the class received a grade of I at semester's end. This figure represents those students who received an automatic E after a year's grade period because of non-completion.

remaining 7 students received an automatic letter grade of E. Table 1 shows the distribution of grades for the two groups of students with a subdivision of the mastery group into on time and late-finishers and a composite of the two. Latefinishers had 1 letter grade lower average scores (5.5 to 10.1 percentage points) than on-time finishers. This was not a penalty but represented the students' performance and their willingness to accept the scores in lieu of reexamination. Collectively, the 21 finishers in the mastery group completed 260 examinations and those in the traditional group finished 155 examinations.

CIEQ evaluations from the mastery group were consistently lower than those from the traditional group as shown in Table 2 below.

**Table 2.** Decile ratings for course and instructor from the traditional and mastery groups of students. Decile ratings 0 through 3 are inseparable, as are deciles 4 through 6 and 7 through 9. A 3-decile change is considered significant. Deciles 0 through 3 are "below average," 4 through 6 are "average" and 7 through 9 are "above average."

Category Measured	Traditional Group Ratings	Mastery Group Ratings	Remarks
1) Student attitudes concerning the course and instructor	8	7	
2) Methodology	8	4	Significantly different
3) Course content	7	6	
4) Student and instructor interest	8	6	
5) Instructor	8	5	Significantly different
6) Total or overall evaluation	8	5	Significantly different

Of the 21 individual items which made up the first 5 categories in Table 2 only 3 items received the same decile ratings from both groups. These items were 1) "the course material seemed worthwhile," 2) "the instructor demonstrated a thorough knowledge of the subject matter" and 3) "some things were not explained very well." One item received a decile rating of 0. It was "the course material was too difficult." The overall mastery group rating placed the course and instructor in the "average" category whereas that of the traditional group placed them in the "above average" category as in previous years' ratings.

### Discussions and Conclusions

Apparently student achievement, as reflected in the grades earned for completion of the course, was not influenced by differences in the entry-level qualifications of the two groups but by other variables. The traditional group was secure with the methodology and their evaluations were in keeping with similar groups that previously rated the course and instructor. The mastery group did not perform as well academically and rated the course and instructor lower overall. Written subjective comments from individuals within this group in-

dicated their dissatisfaction with the testing and the amount of work expected of them in completing 9 examinations.

The high failure rate for the mastery group was contrary to the philosophy behind the mastery approach, namely that all students with adequate background knowledge can learn the same material if given sufficient time and ancillary learning aids with which to do so. As long as grades continue to be the accepted measure of knowledge or performance it is unlikely that students will embrace the mastery concept and instructors who try to facilitate learning in that manner may have to suffer the consequences in student evaluations.

### References

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## Application Fees At US Universities

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Charging fees for accepting applications from prospective students seeking admission to undergraduate and graduate schools in universities in the United States is widespread, but not universal. In addition to helping finance the ever-increasing costs of administration, application fees tend to discourage students from applying indiscriminately and simultaneously to many universities — a practice that tends to create a high attrition rate on attendance because each student applying for admission to many schools will be attending only one school. When an application fee is charged, students tend to look a bit more carefully before submitting an application.

As a rule, Kansas State University currently does not charge domestic or foreign students fees for applying for admission to either graduate or undergraduate studies. Recently, however, the State Board of Regents authorized individual departments to charge application fees.

As chairman of the Food Science Graduate Program at Kansas State University, I routinely handle all applications to that program. Because of the large number of applications received, especially from foreign countries, and the high percentage of attrition and incomplete files, along with the high cost of

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**Table 1. Application fees (by states) for admission to U.S. universities, based on a survey of university catalogues on file at Farrell Library, Kansas State University, Manhattan, 1982.**

State	No. with charge*	No. with no charge	Uncertain	Average fee
Alabama	13/15	1	1	\$11.90
Alaska	2/2			13.50
Arizona	3/3			10.00
Arkansas	4/9	5		31.30
California	28/29	1		21.80
Colorado	6/6			10.80
Connecticut	7/7			20.00
Delaware	1/1			20.00
District of Columbia	7/7			17.90
Florida	12/12			17.50
Georgia	5/6	1		16.00
Hawaii	2/3		1	15.00
Idaho	2/3	1		10.00
Illinois	10/18	7	1	19.00
Indiana	10/12	2		15.50
Iowa	6/6			13.30
Kansas	3/9	4	2	13.00
Kentucky	1/8	7		15.00
Louisiana**	11/12	1		9.00
Maine	3/3			11.70
Maryland	4/5		1	17.50
Massachusetts**	10/11		1	21.50
Michigan	10/13	2	1	15.00
Minnesota	9/9			11.00
Mississippi**	3/9	5	1	8.30
Missouri	5/7	2		15.40
Montana	2/2			20.00
Nebraska**	3/3			11.00
Nevada	1/1			5.00
New Hampshire	1/1			20.00
New Jersey	7/7			17.10
New Mexico	5/6		1	12.00
New York	22/22			18.60
North Carolina	13/14		1	12.30
North Dakota	2/2			12.50
Ohio**	22/22			18.50
Oklahoma**	6/15	9		15.30
Oregon	7/7			18.60
Pennsylvania	16/16			17.20
Rhode Island	2/2			22.50
South Carolina	2/2			15.00
South Dakota	3/3			13.30
Tennessee	10/11		1	8.00
Texas**	13/33	15	5	15.80
Utah	3/3			15.00
Vermont	2/2			20.00
Virginia	14/14			13.60
Washington	5/10	5		15.00
West Virginia	1/3	2		15.00
Wisconsin	2/3	1		15.00
Wyoming	0/1	1		0.00
50 States + D.C.	341/430	72	17	\$16.00
	(79%)			Average

\* The first number indicates universities changing fees for applying for admission; the second, for total universities surveyed from the state.

\*\* One university out of each of these states charges extra for international or out-of-state students. The average fee in these instances is \$22.50.

operating the program (expenses for stationery, postage, secretarial services, and miscellaneous items), we decided to consider establishing an application fee. To determine the appropriate charge, as well as to have an idea of how many universities levy a fee, I surveyed the current application practices of universities across the nation. The purpose of this report is to share this information with other university administrators who might want to consider an application fee.

The information was obtained from the entire current stock of university catalogues housed in the Kansas State University Library. The data presented in Table 1 are tabulated according to states, number of universities charging an application fee, number of universities not charging an application fee, and the average charge for each state; the "uncertain" designation indicates that no information could be found on application fees.

According to Table 1, a majority of the U.S. universities surveyed (79 percent) charge application fees, and the average is \$16.00. Seven of those universities also charge higher fees for out-of-state students and/or international students.

Although an application fee has direct benefits, the potential negative impact is fewer applications to each university. The problem of foreign currency exchange might discourage foreign students from applying to a particular university. The time and energy necessary to administer the fund should also be taken into consideration.

Each administrator needs to weigh the pros and cons of this issue for the benefit of the institution. As a result of this survey, I am recommending that a \$15.00 fee be charged to those applying for admission to the Food Science Graduate Program at Kansas State University.

#### Acknowledgements and Comments

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