Graduate Study in Agriculture

Elmer Gray

Abstract

A survey of 58 departments in the agricultural colleges of the Land-Grant Universities determined that during the past two to three years most admission committees have not changed the value placed on various admission criteria. Those departments which increased emphasis on admission criteria gave greater weight to undergraduate GPA and basic science and mathematics courses. They also more strongly considered letters of recommendations, GRE scores, and work experience.

Over the past three or four years changes in certain internal and external campus forces have strongly influenced graduate education. The value of admission criteria, including undergraduate grades and letters of recommendations, may have been diminished. Average grades have spiraled upward making it more difficult to identify academically superior students. Jacobson[2] studied the undergraduate grade point averages of students at a large number of colleges and universities and found that the grade point average increased steadily from 1965 through 1974. Jacobson described this "grade inflation" as a phenomenon resulting from relaxed grading practices and occurring throughout the country. He found a slight drop in grade point average for 1975, which may represent either a change in the 10-year trend or simply a one-year fluctuation. The Family Educational Rights and Privacy Act of 1974 gave college students the right to review their own educational records. Unless the student voluntarily waives the right of access to letters of recommendation, he or she may read them. This privilege, plus the fear of being held liable, may have caused authors of letters of recommendation to be less candid in their evaluation of students.

Changes in external forces that have influenced graduate education include greater reluctance on the part of the public to provide financial support for graduate education, reduced financial support due to economic inflation, heightened state control of graduate programs, and shifts and decreases in job opportunities for holders of graduate degrees.

But the worldwide shortage of food and fiber has focused new attention on agricultural science and technology. The continuous increase in population along with publicity about the decrease in basic agricultural resources may have contributed to an enhanced emphasis on graduate study in agriculture.

In 1972, Gray[1] reported on the utilization of letters of recommendation, transcript information, standardized test scores, and personal interviews in the evaluation of students for graduate study in agronomy. The present study attempted to update those findings. Objectives were to determine whether there have been recent changes in the emphasis on graduate admission criteria in agriculture, to assess the relative quality and quantity of students seeking admission to graduate programs in agriculture, and to ascertain the future outlook for graduate study in agriculture.

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Procedure

During the winter of 1976-77 a questionnaire was developed and sent to department heads in the agricultural colleges of the Land-Grant Universities of the 48 contiguous states. Since only agronomy and related departments (plant science, crops, and soils) were included in the previous study[1], such departments were included in the present study more frequently (31 questionnaires) than were other departments. Other departments and numbers of questionnaires were as follows: animal science (9), dairy science (2), agricultural economics (8), agricultural engineering (3), entomology (5), plant pathology (2), food science (2), and agricultural education (4). Although no systematic sampling procedure was used, results appeared random. Of the 66 questionnaires mailed to departments, 58 were completed and returned. Below is a copy of the questionnaire.

Questionnaire

During the past 2-3 years, has your emphasis on the various admission criteria, as well other general criteria, reflected change? Please check the appropriate column.

ADMISSION CRITERIA	Increased	Decreased	Remained Same
Undergraduate grade point average	____	____	____
Graduate Record Examination scores	____	____	____
Letters of recommendation	____	____	____
English & communication courses	____	____	____
Basic science & mathematics courses	____	____	____
Major area coursework	____	____	____
Work experience	____	____	____
OTHER CRITERIA			
Number of students admitted	____	____	____
Quality of students admitted	____	____	____
Personal optimism toward graduate education in your program	____	____	____
Graduate assistantship support	____	____	____

COMMENTS:

Results and Discussion

Respondents' replies to the questionnaire section titled Admission Criteria are presented in TABLE 1.

Undergraduate Grade Point Average

Approximately one half of the respondents indicated that emphasis on undergraduate grade point average has remained the same. Of those departments reporting change in emphasis, approximately five times as many reported increased emphasis on grade point

Table 1 Emphasis on Various Admission Criteria for Graduate Study in Agriculture

Criteria	How has the emphasis changed during the past two or three years? Increased	Decreased	Remained Same
	per cent of respondents		
Undergraduate grade point average	44.8	8.6	46.6
Type of undergraduate courses			
English and communication	17.2	3.4	79.3
Basic science and mathematics	41.4	0.0	58.6
Major area	17.2	8.6	74.1
GRE Aptitude Test score	32.8	1.7	65.5
Letters of recommendation	29.3	10.3	60.3
Work Experience	27.6	5.2	67.2

average as reported decreased emphasis. Some respondents commented that grade inflation is indeed a problem and that grade point requirements for admission have been increased to compensate for inflation. In some programs the grade inflation problem has been surmounted by requiring that students be in a specified upper portion of the graduating class to qualify for admission to a graduate program or for the awarding of an assistantship. In the 1972 study, Gray[1] found that undergraduate grade point average was rated as the second most important criterion for predicting academic success at the master's level.

Undergraduate Courses

Information on the importance of English and communication courses, basic science and mathematics courses, and major area courses was compiled. Most of the departments have not changed the emphasis on English and communications courses during the past two or three years. Of those departments reporting change, the percentage that increased emphasis was approximately five times greater than the percentage that decreased emphasis. Approximately 58 percent of the departments have not changed their emphasis on undergraduate preparation in basic science and mathematics. All remaining departments have increased the emphasis on basic science and mathematics as preparation for graduate study in agriculture. The importance given to major area coursework at the undergraduate level has remained the same for approximately three-fourths of the departments. For those departments in which the value placed on major coursework has changed, a majority of the departments increased the weight.

Gray[1] found that undergraduate courses which a student had taken were considered the single most valuable criterion for predicting success at the graduate level. Lannholm[3], in a special report, stated that the undergraduate transcript was the most important admission criterion. This information plus the findings of the present study indicate that prudent advising by the faculty and willingness of the student to follow the prescribed program could greatly enhance the student's likelihood of being admitted to a graduate program in agriculture.

Graduate Record Examination Scores

There has been a pronounced shift toward greater reliance on the Graduate Record Examination (GRE) score. About one-third of the respondents reported that the GRE was being used more as an admission criterion now than in the past. In his 1972 study, Gray[1] found that admission committee in departments of agronomy placed less emphasis on the GRE than on any of the other admission criteria. In the present study, some respondents indicated that the added emphasis placed on the GRE was to compensate for the inflationary effect of undergraduate grades and the greater difficulty of getting candid letters of recommendation.

Letters of Recommendation

About 40 percent of the respondents indicated that their admission committees have changed the emphasis on letters of recommendation as an evaluative criterion. Only in approximately 10 percent of the departments has the emphasis on letters of recommendation decreased. Respondents suggested that the open records law has resulted in less candid and, thereby, less useful letters. But about 29 percent of the respondents reported they were placing greater value on letters of recommendation. Form letters, in which the student has the prerogative of waiving the right to see the contents, are being used in some departments. Other respondents reported that final selections were based upon information obtained via telephone conversations.

Work Experience

Although about two-thirds of the respondents reported no change in the consideration being given to work experience, about one-fourth indicated that more attention is being given to work experience as an admission criterion. This new emphasis may be a reaction to changes in applicants — more foreign students, more women, and more graduates of science programs other than agriculture. Previous work experience may prove valuable when the graduate degree holder seeks employment.

Other Criteria

Number and Quality of Students Admitted

When respondents were asked to compare the number of students that have been admitted during the most recent two- or three-year period with a previously comparable period, the responses for the recent period were 63.8 percent more, 13.8 percent fewer, and 22.4 percent about the same. Several respondents indicated that their program is receiving more applications now than at any time in the past. The additional applications are coming from foreign students and women students, as well as from the more traditional United States male student. Those departments reporting a decrease in enrollment cited decreased financial support for graduate assistantships as a reason.

In comparisons of quality of students presently being admitted with that of students admitted earlier, the responses for present students were 62.1 percent increased, 12.1 percent decreased, and 25.9 percent about the same.

The increase in quality of the students admitted was credited to increased attention given to the selection of applicants. The number of applicants had increased proportionally more than had the number admitted. Some of the respondents who reported a decrease in quality of graduate students mentioned their committment to education of foreign students and their failure to be competitive with financial support of students.

Graduate Assistantship Support

Approximately one-third (32.8 percent) of the respondents reported increases in financial support of graduate assistantships. Most of the increases were used for raising stipends to counteract the effect of inflation rather than for awarding additional assistantships. Some respondents indicated that their stipend increases had failed to keep pace with inflation. About one-fifth (22.4 percent) of the respondents reported a decrease in the level of financial support of assistantships. In those departments in which assistantship funds have remained the same (44.8 percent), the funds are either being used for fewer assistantships to permit an increase in stipends, or the number and level of stipends have remained the same. In the latter case, the value of the assistantship to the student has decreased because of inflation. Several respondents reported a need for additional financial support and asserted that financial support of students and programs was the greatest deterrent to growth of enrollment in graduate agricultural programs. The effect of limited financial support of graduate students appears to be more critical at the doctoral than at the master's level. One respondent stated that their doctoral program was dropped because of an anticipated lack of funding.

Optimism for Graduate Education in Agriculture

Respondents were optimistic about the future of graduate education in agriculture. In view of the recent changes in the milieu of agriculture and education, 67.2 percent of the respondents expressed increased optimism for graduate study in agriculture. This outlook was supported by references to more and better applicants and to improved job opportunities. One applicant reported that the job opportunities for holders of bachelors degrees in agriculture were so good that recruitment of graduate students was difficult. Only 1.7 percent of the respondents reported a decrease in enthusiasm for graduate study in agriculture. The other respondents (21.0 percent) apparently found the recent influences on graduate study in agriculture to be counterbalancing and to cause them to maintain about the same level of optimism.

Summary

This study of 58 departments in Land-Grant Agricultural Colleges determined that during the past two to three years most admission committees have not changed the value placed on the various admission criteria. For those departments in which the value has changed, the trend has been to increase rather than to decrease the emphasis on the admission criteria. Those criteria that have been given pronounced increases in weight include the undergraduate grade point average and basic science and mathematics courses. Also, letters of recommendation, GRE scores, and work experience have been given stronger consideration.

The increase in number of applicants has been great enough to permit admission committees to be more selective for quality while increasing the number of students admitted.

Approximately two-thirds of the respondents reported an increased level of optimism for graduate study in agriculture.

Acknowledgements

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Literature Cited

[1]Elmer Gray. "Evaluation of criteria being used in the selection of students for graduate study in agronomy. *The Journal of the National Association of College and Teachers of Agriculture.* Vol. XVI, No. 4, pp. 99-102, 1972.

[2]Robert L. Jacobson. "Undergraduate averages dip for the first time in a decade." *The Chronicle of Higher Education.* Vol. XIII, No. 1, September 7, 1976.

[3]Gerald V. Lannholm. "The use of GRE scores and other factors in graduate school admissions." *Graduate Record Examinations Special Report,* Number 68-4, 1968.

An "Examination" Model Of Instructional Development

Richard L. Holloway

Abstract

Teaching and instructional development are systematic processes which should be examined at critical points. The examination model described outlines the critical points as (1) a preliminary evaluation to assess where you are, (2) examination of alternative design approaches, (3) examination of implementation strategies, and (4) evaluation/revision.

Instructional development is a process which many of us undertake with the clear intention of being as precise and systematic as possible. However, the models which we use to develop a unit of instruction are often too theoretical to offer operational guidelines. Procedural models are needed to facilitate this process. The following model of instructional development suggests that there are critical points of examination during the development of a course: A preliminary evaluative examination to assess where you are and where you want to go, an examination of alternative design approaches, an examination of implementation strategies, and an evaluation/revision. The term "examination" is used because we constantly examine portions of our learning units as we develop them. Hopefully, this examination approach will call closer attention to the process and content of instructional development.

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