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## ABSTRACT

Four approaches to measuring quality in graduate education are reviewed, and the approach used at the graduate school at Ohio State University is assessed. Four approaches found in the literature are: measuring quality by reputation, by scholarly productivity, by correlating reputation and scholarly productivity, and by multiple measures. Ohio State University uses a multiple measures approach to assess quality. Graduate school representatives judge doctoral examinations and report to the graduate school dean about the fairness of the examination, the quality of the examination, and the quality of the student's performance. The judgments are tabulated and presented as quantitative and qualitative indicators of quality. Quantitative data are derived from the General Examination Evaluation Forms. The graduate school representatives rate from one to seven (poor to excellent) the appropriateness of the oral questions, the level of difficulty of the oral questions, and the candidate's performance. Qualitative data are derived from written comments made by the graduate school representatives. Quantitative and qualitative data are also derived from the Final Oral Examination. The graduate school representatives' evaluations are added to other internal and external quality measures to help programs identify their strengths and weaknesses. These evaluations have been useful in helping program faculty change their examination procedures, the content of doctoral examinations, and perceptions that have contributed to the suspension of graduate admissions in a field of specialization. A bibliography and ratings of graduate school representatives on graduate examinations are appended. (SW)

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Assessing Quality in Graduate Programs:  
An Internal Quality Indicator

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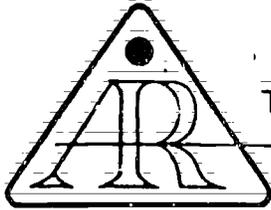
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Mary Corcoran  
University of Minnesota  
(Editor, AIR Forum Publications)

## Abstract

Many approaches are used to measure quality in graduate education. In this study, the literature related to four approaches is reviewed: measuring quality by reputation, by scholarly productivity, by correlating reputation and scholarly productivity, and by multiple measures. This study represents a multiple measures approach to assessing quality and describes and analyzes internal quality indicators for doctoral examinations in the Graduate School at Ohio State University. Graduate School Representatives judge doctoral examinations and report their judgments to the Dean of the Graduate School. The judgments are tabulated and presented as quantitative and qualitative indicators of quality. How these judgments are converted to useful data and how these data are presented and used are emphasized.

Blackburn and Lingenfelter (1973) have said that the consideration of quality in any setting provokes controversy. Their remark is especially pertinent to the assessment of quality in higher education. The Carter Reports (1966, 1977), for example, drew a flurry of negative reaction. Breneman (Options, 1977), for one, objected to the inherent subjectivity of the studies and called them codified gossip, giving current meaning to Dr. Johnson's observation that "a compendium of gossip is still gossip." More recently, a request to participate in a reputational study compelled one faculty member to write:

. . . I urge that all those who are sent this questionnaire, and all others who have interest in the quality of education, resist being used by professional pollsters as pawns in superficial surveys (Rice, 1980, p. 77).

Studies attempting to assess quality in graduate education have been a matter of controversy ever since the first one was published in 1925 (Hughes, 1925); apparently, they continue to be.

Despite the diversity of opinion over the methods, the uses, and the abuses of studies about quality, research in this area continues. It is not surprising then to learn that the Conference Board of the Associated Research Councils (1978) has planned and is now conducting a national study of quality in research doctorate programs. No doubt there will be others. This paper concerns the assessment of quality at the program level in a single institution and limits its focus to doctoral programs. Therefore, the literature to which this research relates includes scholarship aimed at measuring quality in graduate education.

The most comprehensive reviews of the literature assessing quality in graduate education have been conducted by Blackburn and Lingenfelter (1973) and by Lawrence and Green (1980). Blackburn and Lingenfelter devoted their analysis entirely to doctoral education; Lawrence and Green reviewed the literature related to quality in graduate education, professional education, and undergraduate education.

#### Quality Measures

Many approaches are used to assess quality in graduate education. Attempts have been made to measure quality by reputation, by scholarly productivity, by seeking relationships between reputation and scholarly productivity, and by employing multiple measures. These approaches do not represent a rigid classification scheme; it is quite possible that a particular study will use more than one method. Instead, they form a general framework to aid in understanding how quality assessments in graduate education can be differentiated.

A number of studies have used reputational ratings to attempt to measure the quality of a broad range of academic areas in graduate education: Hughes, 1925, 1934; Keniston, 1959; Cartter, 1966, 1977; Magoun, 1966; Ewell, 1966; National Science Foundation, 1969; Roose and Andersen, 1970; Petrowski, Brown, and Duffy, 1973; Margulies and Blau, 1973; Blau and Margulies, 1974-1975; and Morgan, Kearney, and Regens, 1976. Fewer have sought to judge the quality of a particular field of study. Among the fields that have been studied are political science (Somit and Tanenhaus, 1964), library science (Carpenter and Carpenter, 1970), educational administration (Gregg and Sims, 1972), business administration ("The Top 15," 1975), law ("The Popular Vote," 1976), and medicine (Cole and Lipton, 1977).

Scholarly productivity is held by some to be an objective way to attempt the assessment of quality in graduate education. Typically these studies seek to measure faculty output by devising productivity indices based on scholarly publications, honors, and presentations. Clark, 1957; Crane, 1965; Pelz and Andrews, 1966; Bayer and Folger, 1966; Cole and Cole, 1967; Creager, 1967; Myers, 1970; Stallings and Singhall, 1971; Jauch and Glueck, 1975; and Cox and Catt, 1977 use scholarly productivity indices to measure quality. Some studies (Perkins and Snell, 1962; Bowker, 1965; Jordan, 1963; and Eells, 1960) used productivity indices based on variables other than faculty output; typical variables are faculty size and degrees produced.

Yet another attempt to measure quality in graduate programs is by seeking relationships between reputation and scholarly productivity. Berelson, 1960; Carter, 1966; Lewis, 1968; Wispe, 1969; Knudsen, 1969; Crane, 1970; Shichor, 1970; Hagstrom, 1971; Elton and Rose, 1972; Blackburn and Lingenfelter, 1973; Drew, 1975; Hartnett, Clark, and Baird, 1976; Adams and Krislov, 1978; Guba and Clark, 1978; and Muffo, 1979 are examples.

A departure from most of the efforts to assess quality can be found in the work of Mary Jo Clark and her associates (1974a, 1974b, 1976a, 1976b, 1976c, and 1977). They have used the "multiple measures" approach and believe that judgments of quality based on many indicators have four advantages: 1) multiple measures are more fair, 2) multiple indicators are more useful, 3) multidimensional procedures reduce the "halo" problem, and 4) multidimensional assessments focus on process (1976a).

The research described here is a multiple measures approach. It involves using ratings of internal processes -- in this case doctoral examinations -- to generate measures of quality in graduate programs.

In 1976, Paul Dressel wrote; "It is sound practice to require that the dean or member of graduate council sit in on oral examinations, thereby placing both the student and the faculty on warning that this is more than a social occasion" (Dressel, 1976, p. 322). Embedded in his assertion is an academic policy designed to maintain a level of performance on these examinations. The policy is essentially a quality control device, and that is its value. Where such a policy exists, then, the dean or faculty representatives of the dean's office are in a position to judge one aspect of graduate education.

#### The Graduate School Representative

That policy has existed in the Graduate School at Ohio State since 1911 and has led to the generation of valuable information about doctoral examinations. The procedures for implementing the policy have changed over the last seventy years, but the philosophy has remained intact. Initially, the entire body of twelve Graduate Council members joined each student's dissertation committee and were full voting members at the oral defense of every dissertation. In the twenties the procedure was modified to require that only three Graduate Council members be present. Currently, for each examining committee, the Dean of the Graduate School appoints a Graduate School Representative authorized to advise doctoral students to serve on each doctoral examination for the General Examination -- known elsewhere as the Ph.D. candidacy, qualifying, or preliminary examination -- and for

the Final Oral Examination -- commonly known as the defense of the dissertation. The Graduate School Representative, like the other examining committee members, votes on the outcome of the examination and, in addition, reports to the Graduate School Dean about the fairness of the examination, the quality of the examination, and the quality of the student's performance.

The Graduate School logs information about each doctoral examination. The log contains the type of examination, the date of the examination; the names and fields of the student; the adviser; and the Graduate School Representative; the outcome of the examination; the student's cumulative point hour ratio and number of credit hours earned; and the Graduate School Representative's evaluation of the examination. It is possible to analyze one or any combination of the data categories logged. How the Graduate School Representatives' evaluations are analyzed and used will be described.

When programs offering graduate degrees begin program review, their graduate studies committee receives standard sets of descriptive information about that graduate program, including data about doctoral examinations. The doctoral examination data include tabular displays of the Graduate School Representatives' evaluations and copies of the evaluation forms complete with written comments. The tables are prepared by type of examination.

The General Examination Evaluation Forms yield quantitative and qualitative data. The quantitative data are derived from the three items each Graduate School Representative rates from one to seven (poor to excellent) on a Likert scale. The items are : 1) The appropriateness of the oral questions; 2) The level of difficulty of the oral questions; and 3) How do you rate the candidate's performance? (the italicized words appear in

Figures 1, 3, 5, and 7 and refer to the corresponding items). From the ratings quantitative data about perceived quality are generated. Qualitative data are derived from written comments the Graduate School Representatives make:

The rated items are expressed as mean ratings and are displayed to show a program's ratings in the context of the mean ratings for its College and for the University. These ratings are presented in tabular form as seen in Figure 1. Figure 1 is the General Examination Table for a particular degree program. Program ratings are taken out of the College ratings and College ratings are subtracted from University ratings.

(Figure 1 here)

The Final Oral Examination forms provide quantitative and qualitative data. The quantitative data are derived from the seven items each Graduate School Representative rates from one to seven (poor to excellent) on a Likert scale. The items are: 1) The candidate's dissertation problem, 2) Soundness of the research approach and application of research techniques (method), 3) Organization and style of the dissertation (document), 4) The student's defense of dissertation, 5) The appropriateness of the oral questions, 6) The level of difficulty of the oral examinations, 7) Your general impression of the candidate's competence (the italicized words appear in Figures 2, 4, and 6 and refer to the corresponding items). Seven items appear on this form because the Final Oral Examination is qualitatively different from the General Examination. From the ratings quantitative data about perceived quality are generated. Qualitative data are derived from written comments the Graduate School Representatives make.

Figure 2 is the Final Oral Examination Table for a particular degree program. For the Final Oral Examination, too, program ratings are taken out of the College ratings and College scores are subtracted from University ratings.

(Figure 2 here)

#### University Perspective

Figures 1 and 2 represent the quantification of perceived quality for doctoral examinations in particular degree programs and are presented in the context of their Colleges and the University. Graduate School Representatives' evaluations can be subjected to even finer levels of analysis within programs. Later, intraprogram possibilities will be considered. But first, mean ratings for doctoral examinations will be viewed from a wider angle.

Figures 3 and 4 display the mean ratings for the General and Final Oral Examinations by outcome; pass or fail. The Graduate School Representatives do perceive differences between the passed and failed examinations. Analysis of variance using repeated measures was conducted for both examinations. The F ratios were significant beyond the .01 level.

The performance of students who passed these examinations was rated dramatically higher than those who failed (see figure 3; item 3 and figure 4, items 4 and 7) The difference in the mean ratings for these items is from 2.6 to 3.4 points. The difference in mean ratings for items about the committee (see figure 3; items 1 and 2 and figure 4, items 5 and 6) range from no difference to .6. For items involving both the student and the committee (see figure 4, items 1, 2, and 3); the difference in mean ratings is from 1.2 to 2.0. These data show that Graduate School

Representatives observe common standards being applied to examinations by examining committees regardless of whether students pass or fail. They also perceive a large difference in student performance.

(Figures 3 and 4 here)

Figures 5 and 6 compare the mean ratings for the General and Final Oral Examinations by Graduate School Representatives from inside and from outside of the students' colleges. A Graduate School Representative cannot be appointed from the student's program but only from a program inside or outside a student's college. For example, an English professor may not serve as a Graduate School Representative on an English examination but may serve on a classics examination inside the college or on a physics examination outside the college.

Again, analysis of variance using repeated measures was conducted for both examinations. The F ratio was not significant at the .01 level in either case. Thus, we found no evidence of a significant difference between how Graduate School Representatives rate examinations conducted inside their own colleges compared to their ratings of examinations outside their own colleges. These results suggest that faculty members have some common perceptions about the quality of doctoral examinations, regardless of discipline. Viewed from this perspective, notions like "paradigm development" and the "halo effect" may not operate as strongly as some would have us believe.

(Figures 5 and 6)

#### Intraprogram Perspective

It is possible to present intraprogram configurations of Graduate School Representatives' evaluations. Figure 7 shows a program with two

major fields of specialization in its graduate program: Field 1 and Field 2. The faculty in this program wanted to compare the Graduate School Representative' evaluations in the two Fields. Ratings for each Field are shown in Figure 7.

(Figure 7 here)

Some faculty in the program expected mean ratings for Field 2 would be much lower than the mean ratings for Field 1. The mean ratings for the two Fields show only slight differences; and the differences are not all in one direction. In this case, the evidence helped to expose myth and to enhance the stature of one group of faculty members within the program.

In another case a program chairman submitted a proposal to the Graduate School requesting that a new field of specialization be added to the graduate program. At the time, the program had two fields of specialization. One new faculty position was requested for the proposed field. The remaining faculty would come entirely from one of the other two fields. In considering the program's proposal, the Graduate School analyzed the Graduate School Representatives' evaluations for the program and for the faculty group designated in the proposal. The mean ratings for the faculty group, the program, the College, and the University were compared. The program was rated lower than the College and the faculty group was rated lower than the program.

To this portrait, other information was added: Data comparing the distribution of advisees for the faculty group, the program, the College, and the University were analyzed. These data showed that the faculty group

had high advisee loads. A profile of the faculty group emerged showing them to have low Graduate School Representatives' evaluations and to have high advisee loads. The profile was given to the program chairman.

The response indicates that the data had an influence. First of all, the faculty remained committed to pursuing the new field of specialization. Secondly, they decided to close admissions for both doctoral and masters applicants in the field of specialization in which the faculty group teach. This was done, they said, to bring the advisee load per faculty member in that field more closely in line with their College and with the University. Finally, they stipulated that the new faculty member requested would be assigned advisees from the new field of specialization only.

#### CODA

We have described how qualitative judgments about doctoral examinations in the Graduate School at Ohio State are quantified and have shown ways to array and use these data. The Graduate School Representatives' evaluations are internal indicators of quality; but they are somewhat different from the internal indicators described by Clark (1977). Clark discusses internal indicators of quality in the context of judgments and perceptions of students, faculty, and alumni from within a program and about that same program. Graduate School Representatives' evaluations are internal indicators of quality generated from within the University by faculty members who are outside the programs of the examinations they judge. Another difference between the two types of internal indicators concerns comparative data. Clark's indicators focus solely on individual programs where the Graduate School Representatives' evaluations show a program in relation to its College and the University.

Have the Graduate School Representatives' evaluations been useful? The answer is: they have. Program faculty have changed their examination procedures as a result of the ratings and the comments made by Graduate School Representatives. Some have changed the substance of their doctoral examinations. We noted above that the ratings have influenced changes in perceptions among program faculty and that they have been partly responsible for the suspension of graduate admissions in a field of specialization. Finally, many faculty have said that the evaluations give them one more way of knowing about their programs, which in itself is an occasion for program improvement.

Like Clark, we believe there is value in using multiple measures to assess quality in graduate education. The Graduate School Representatives' evaluations are added to other internal and external quality measures to help programs identify their strengths and weaknesses. Once strengths and weaknesses are identified, program improvement is possible.

Programs at Ohio State have the opportunity to consider and to reflect upon multiple quality measures and a variety of other data during program review. Information from a program's students, faculty, and alumni and input from the Office of Academic Affairs, the Graduate School, and the College office are considered in the Self-Study phase of review. Experts from outside the University conduct a study of the program in the External Review phase of program review. The sole aim of program review is to improve programs. Therefore, the information collected before and during review forms the basis for a searching examination which can lead to improvement.

Quality is not an absolute and cannot be expressed in absolute terms. There is no ruler to measure quality in graduate education. Therefore, it is important that institutions establish many devices for determining how well their programs perform. Having faculty members who are experts in conducting doctoral examinations judge doctoral examinations is one device that works at Ohio State. It may work elsewhere. Regardless, where the assessment of quality is concerned, more measures are better than one!

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**FIGURE 1**  
**General Examinations**  
**Mean Rating of Graduate School Representatives' Evaluations**  
**(Autumn 1976-Spring 1980)**

Mean Rating	Items		
	Appropriateness 1	Difficulty 2	Performance 3
7.0	Coll OSU/Prog	Coll Prog OSU	Coll OSU/Prog
.8			
.6			
.4			
.2			
6.0			
.8			
.6			
.4			
.2			
5.0			
.8			
.6			
.4			
.2			
4.0			
.8			
.6			
.4			
.2			
3.0			
.8			
.6			
.4			
.2			
2.0			

<u>Unit</u>	<u>Number of Evaluations</u>
Program	50
College	53
OSU	2170

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**FIGURE 2**  
**Final Oral Examinations**  
**Mean Rating of Graduate School Representatives' Evaluations**  
**(Autumn 1976-Spring 1980)**

Mean Rating	Items						
	Problem	Method	Document	Defense	Questions	Difficulty	Competence
	1	2	3	4	5	6	7
7.0							
.8							
.6							
.4							
.2							
6.0							
.8							
.6					OSU/Prog		Prog
.4							OSU
.2	OSU/Prog	OSU/Prog		OSU/Coll/ Prog	Coll	OSU/Coll	Coll
5.0	Coll		OSU				
.8			Prog			Prog	
.6		Coll	Coll				
.4							
.2							
4.0							
.8							
.6							
.4							
.2							
3.0							
.8							
.6							
.4							
.2							
2.0							

<u>Unit</u>	<u>Number of Evaluations</u>
Program	45
College	23
OSU	1697

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**FIGURE 3**  
**General Examinations**  
**Mean Rating of Graduate School Representatives' Evaluations**  
**(Autumn 1976-Spring 1980)**

Mean Rating	Items		
	Appropriateness 1	Difficulty 2	Performance 3
7.0	Pass/Fail	Pass	Pass
.8			
.6			
.4			
.2			
6.0			
.8			
.6			
.4			
.2			
5.0	Fail	Fail	Pass
.8			
.6			
.4			
.2			
4.0			
.8			
.6			
.4			
.2			
3.0	Fail	Fail	Fail
.8			
.6			
.4			
.2			
2.0			
.8			
.6			
.4			
.2			

Unit

Number of Evaluations

**Examinations:**

Passed	2099
Failed	174
<b>Total</b>	<b>2273</b>

DD/JG/WP

4/16/81

**FIGURE 4**  
**Final Oral Examinations**  
**Mean Rating of Graduate School Representatives' Evaluations**  
**(Autumn 1976-Spring 1980)**

Mean Rating	Items						
	Problem	Method	Document	Defense	Questions	Difficulty	Competence
	1	2	3	4	5	6	7
7.0							
.8							
.6							
.4							
.2							
6.0							
.8							
.6					Pass/Fail		
.4	Pass	Pass	Pass	Pass		Pass	Pass
.2							
5.0							
.8							
.6						Fail	
.4							
.2							
4.0	Fail						
.8							
.6							
.4							
.2		Fail					
3.0			Fail				
.8							
.6							
.4							Fail
.2							
2.0				Fail			

Unit

Number of Evaluations

Examinations:

Passed	1753
Failed	12
Total	1765

DD/JG, WP  
4/16/81

**FIGURE 5**  
**General Examinations**  
 Mean Rating of Graduate School Representatives' Evaluations  
 (Autumn 1976-Spring 1980)

Mean Rating	Items		
	Appropriateness 1	Difficulty 2	Performance 3
7.0			
.8			
.6			
.4			
.2			
6.0			
.8	In/Out Coll		
.6			
.4			
.2			
5.0			
.8		In Coll Out Coll	
.6			
.4			
.2			
4.0			
.8			In/Out Coll
.6			
.4			
.2			
3.0			
.8			
.6			
.4			
.2			
2.0			

Unit

Number of Evaluations

**General Examinations Rated By**

Graduate School representatives inside the students' college	674
Graduate School representatives outside the students' college	1599
<b>Total Exams</b>	<b>2273</b>

DD/JG/WP  
 4/16/81

**FIGURE 6**  
**Final Oral Examinations**  
**Mean Rating of Graduate School Representatives' Evaluations**  
**(Autumn 1976-Spring 1980)**

Mean Rating	Items						
	Problem 1	Method 2	Document 3	Defense 4	Questions 5	Difficulty 6	Competence 7
7.0							
.8							
.6							
.4							
.2							
6.0							
.8					In Coll Out Coll		
.6							
.4	In Coll Out Coll			In Coll Out Coll			In/Out Coll
.2		In Coll Out Coll				In/Out Coll	
5.0			In/Out Coll				
.8							
.6							
.4							
.2							
4.0							
.8							
.6							
.4							
.2							
3.0							
.8							
.6							
.4							
.2							
2.0							

Unit

Number of Evaluations

Final Oral Examinations rated by:

Graduate School representatives inside the students' college	526
Graduate School representatives outside the students' college	1239
Total Examinations	1765

**FIGURE 7**  
**General Examinations**  
**Mean Rating of Graduate School Representatives' Evaluations**  
**(Autumn 1976-Spring 1980)**

Mean Rating	Items		
	Appropriateness 1	Difficulty 2	Performance 3
7.0			
.8			
.6			
.4			
.2			
6.0			
.8			
.6			
.4			
.2			
5.0			
.8			
.6	Field 1		
.4	Field 2		
.2			
4.0		Fields 1 & 2	
.8			
.6			Fields 1 & 2
.4			
.2			
3.0			
.8			
.6			
.4			
.2			
2.0			

Unit

Number of Evaluations

Fields of Specialization:

Field 1	45
Field 2	10

DD/JG/WP

4/16/81