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# Qualityof an MIS Doctoral Program--Can We Measure It?

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**Abstract**

The state board of higher education or similar agencies in many states have been looking at institutions of higher education with intense scrutiny to potentially reduce program duplication, and to improve both quality and productivity. Internal and external program reviews are ways to assess effectiveness of degree programs. Accreditation of schools, for example AACSB accreditation, is seen by some as a measure of quality of programs offered at various schools. Many assessments of higher education quality in the past have totally excluded the teaching function as part of the overall quality assessment. Prestige is often confused with quality. A component of program reviews consists of comparison between them. The purpose of this paper is to look at some existing MIS doctoral programs in the United States and Canada; to highlight the similarities and differences among these programs; and to generate some ideas on ways to potentially measure the quality of an MIS doctoral program. It is emphasized that any assessment of MIS doctoral program quality incorporate the teaching function as a part of the overall quality assessment. Further, it is suggested that enterprises such as the ISWorld Net could potentially be utilized to improve the quality of MIS doctoral education.

## Introduction

There are currently many outstanding, well established, and highly reputable MIS doctoral programs in North America andelsewhere. There are other programs, however, which are not as well established. Are there ways that these programs could improve their standing and reputation by learning from the experiences and utilizing the resources of the more well established programs? What are the factors which generally contribute to the quality of an MIS doctoral program? There are some obvious factors, such as the quality of faculty and students, educational resources, etc. Are there ways to measure adequacy of these resources? Is there a standard, for example, for an effective faculty/doctoral student ratio? Is there a standard for the number and variety of courses MIS doctoral candidates are expected to take?

A relatively recent special report of the Carnegie Foundation (Boyer, 1990) includes scholarship of teaching as one of the four categories of scholarship (the other three are discovery, integration, and application). This report states that "The work of the professor

becomes consequential only as it is understood by others. Yet, today, teaching is often viewed as a routine function, tacked on, something almost anyone can do." Are the MIS doctoral candidates gaining any teaching training or experience especially for teaching graduate level MIS courses? Are they prepared to teach MIS graduate level courses upon completion of the doctoral degree? Should the programs granting doctoral degrees require that all doctoral candidates have the full responsibility of teaching a few graduate and undergraduate courses prior to the completion of the degree?

Some of the problems cited in evaluating doctoral programs in other disciplines, in science and engineering, for example,include "the training of new Ph.D.'s is too narrow, too campus-centered, ..." and "in many fields of physical science and engineering such as electronics, telecommunications, and computing the importance of academic research results is decreasing," (Armstrong, 1994).

**Assessment of Program Quality**

A problem with the assessment of program quality is due to the word "quality" and understanding what to assess to determine program quality. As Melvin George (George, 1982) puts it: "Academic quality [is] a concept difficult to define." A program's reputation is often mistaken with its quality. Further, a program's reputation may lag behind its current quality.

Quality is often cited as a measure of effectiveness (Caruso, 1985). Further, quality should be looked at as a relative term. We often talk about programs with higher or lower quality. Qualitative and/or quantitative measures are needed to evaluate quality. Quantitative measures are often concerned with numbers and are easier to deal with. Qualitative measures, on the other hand, which are not as specific and deal with measuring the quality of faculty and students, for example, are much harder to define and assess.

Several studies of higher education quality have been conducted since the early 1900's: (Hughes, 1925 and 1934), (Keniston,1959), (Roose and Andreson, 1970), and (Lawrence and Green, 1980). A well known publication among these is the 1934 Hughes study, which classified 59 universities in 35 fields as "distinguished" or "adequate." This classification was based on the assessment of faculty and facilities for the preparation of doctoral candidates. A survey was conducted in 1961 (Cartter,1966) in which 106 institutions were ranked in 29 disciplines by about 4,000 respondents. The respondents were asked to rate each doctoral program in their own field. This rating was based on quality of graduate faculty and effectiveness of the doctoral program. The respondents could rate the faculty quality as "distinguished," "strong," "good," "adequate," "marginal," and"not sufficient". The alternatives for program effectiveness were "extremely attractive," "attractive," "acceptable," and "not attractive."

Most of the studies cited above are reputational type studies and several biases have been associated with them. The "alumni effect" (Lawrence and Green, 1980) occurs when high marks are assigned by the raters to their alma maters. This problem may be further

exaggerated by large institutions who produce a larger number of doctorates and subsequently a larger number of potential raters. The age of the institution may also create a bias in reputational ratings.

Another criticism of the above studies is that they did not include professional programs. Two studies (Margulies and Blau,1973), (Cartter and Solmon, 1977) were conducted to remedy this problem. In the Margulies and Blau study, 17 professional fields were rated by the professional school deans based on the number of times that they named an institution among the top five in their field. An interesting finding of this study was that an institution's library size was found to be highly correlated with its reputation. In the Cartter and Solmon study, programs in law, education, and business were rated by deans and faculty members.

A major problem with the quality assessments cited above is that "...research and scholarly productivity are emphasized to the exclusion of teaching effectiveness, community service, and other possible functions,..." (Lawrence and Green, 1980).

**Methodology**

Program reviews are often used to assess the quality and effectiveness of a degree program (Caruso, 1985). To assess program quality, (George, 1982) suggests a three step process:

i) program goals identification;

ii) program goals process and resource establishment; and

iii) program goals variable measurements determination.

In other words, a "practical" approach to quality assessment is to compare the appropriate goals of an academic program with its actions and determine the degree of correlation between them.

Although many institutions indicate in their publications that their objective is to prepare the doctoral candidates for careers in teaching and research, it is a lot harder to assess quality of this preparation for the teaching part compared to research. Often departments require and expect publications prior to graduation. There is no specific requirement or training for the teaching component of the doctoral candidates' careers. Therefore, for step i; goals identification, we concentrate on the granting of the doctorate degrees. Other goals could include scholarly activities of faculty and students.

Information technology has revolutionized business functions and operations. Its use in delivery of higher education has been limited despite recent encouraging findings such as: "the final test grades of the group of students who were exposed to GDSS-supported collaborative learning were significantly higher than those of the other group of students who participated in the experiment" (Alavi, 1994).

For step ii; process and resource establishment, we suggest to concentrate on processes such as teaching methodology and admission policies. For the resources, we concentrate on human resources, such as faculty, and material resources such as library size.

A number of reports: (George, 82) and (Lawrence and Green, 1980), have identified various variable measurements. These are classified under "material resources" such as: institution size, library size, available research funds, size of endowment,and condition of physical plant; "human resources" such as: number and qualifications of faculty, and background and qualifications of students; and "educational experience indicators" such as: faculty interpersonal relations, alumni ratings of their dissertation experiences, and the academic climate of the institution.

For step iii; variable measurements, we concentrate on quantitative variables such as number of degrees granted, and the number of faculty.

**Data Collection and Analysis**

Data is collected for this study from various university publications. Telephone interviews with the director of doctoral programs were conducted when needed, to verify and clarify published data.

A total of 90 programs in the United States and Canada are currently listed in the MIS faculty directory (DeGross et al., 1995) which offer a doctoral program. Although the majority of these degree programs are Ph.D.s in MIS, some variations exist in the titles of the degree programs. The titles of these programs are shown in Table 1.

Characteristics of the 90 doctoral granting programs vary greatly. As an example, the number of faculty listed in the 1995 and 1992 directories of MIS faculty (DeGross, et al., 1995, 1992) varies from 3 to 17 and from 2 to 18, respectively. Table 2 shows the number, rank, and field of study for these program faculty.

Over the 5year period (1990-1994) a total of 558 MIS doctoral dissertations were completed in the United States and Canada(Hamilton, et al., 1990-1994). Table 3 shows the distribution of these completed dissertations by year for each institution. These numbers for the five year period vary from zero to 26. Figure 1 shows the total number of dissertations completed in the U.S. and Canada over the years 1990-1994. Note that these numbers jumped from 73 in 1993 to 155 in 1994, while the number of faculty at these institutions was relatively stable. Table 4 correlates the number of completed dissertations with the number of faculty for the top 10 largest MIS doctoral granting institutions. It should be pointed out that to more accurately determine the faculty/doctoral student ratio, we should look at the number of doctoral candidates at each institution rather than the degrees granted. As an example, two institutions had granted a total of 2 and 3 doctorate degrees over the last 5 years, yet the number of MIS doctoral candidate applicants in the 1994 ICIS placement directories for these 2 institutions were 6, and 5,respectively. The total number of faculty for the year 1995 and 1992 for these 2 institutions were 11, 13, and 7, 6, respectively. To better see the picture,

Table 7 correlates the number of completed dissertations with the number of corresponding program faculty and the number of MIS doctoral candidate applicants for the years 1992 and 1994 for a selected number of institutions.

Tables 5 and 6 summarize the admission policies and degree requirements for a selected number of programs, respectively. Similarities and differences among these requirements are emphasized.

**Conclusion**

It is apparent that a good amount of variations exist among some of the doctoral granting institutions in regard to admission policies, degree requirements, faculty/doctoral student ratio, and the number of degrees granted. In some institutions, the size of faculty is quite small compared to the number of doctoral candidates and/or degrees granted.

Despite the importance of the teaching function, it seems that the MIS doctoral granting institutions are placing a lot more emphasis on scholarly productivity of their faculty and doctoral candidates. Although information technology has changed many products and services, it has not been used significantly, with some exceptions, in the education and training of the doctoral candidates. In many instances, the MIS doctoral candidates are educated similarly to the way they were five or even ten years ago.

The teaching function should be incorporated into any quality assessment of doctoral granting programs. Information technology could be utilized in proven ways to improve the quality of the doctoral education. Enterprises such as the ISWorld Net could serve as an excellent vehicle for this purpose.

By the year 2000, the size of library holdings, for example, should not be as highly correlated with an institution's rank or reputation as it was in the 1970s. Various resources of well established institutions, including their distinguished faculty, could potentially be tapped by other institutions using information technology. Collaborative learning seems to have lots of potential.

**References**

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(Tables, figures, and the complete list of references available from the author on request)