**Ranking of Doctoral Programs of Health Education**

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**Abstract:**

This study ranked doctoral programs of health education based on the productivity of the faculty and the scholarly activity of doctoral students. The methodology, unique to ranking studies, uses a multiple set of variables weighted by scholars and leaders in the field of health education. Variables were articles published, citations received, journal editorships, external funding for research, student activity, student/faculty ratio, mentoring and placement, and student support. An overall ranking is provided as well as the ranking for each of the eight individual variables. Twenty-eight of the 44 doctoral programs of health education participated in this study (a response rate of 64%). Twenty-six programs had at least one variable ranked in the top 10 programs, and all programs had at least two variables ranked in the top 20. Correlation analysis of the eight variables provided additional insights. Interestingly, the four variables related to the faculty were not related to the four student variables. Implications of the ranking for administrators, faculty, students, and the health education profession are provided.

**Article:**

**Introduction**

Academic quality rankings are not available for doctoral programs of health education. The present study appears to be the first effort in the field of health education to rank programs based on the productivity of the faculty and indices on the activity of program doctoral students. The ever-increasing popularity and use of academic rankings makes this study timely as it establishes a weighted ranking system for doctoral programs of health education, with the respective weights being established by identified scholars and leaders in the field.

Rankings are available for a number of other disciplines or fields of academic study. Currently, there are two rankings that garner the most attention. *U.S. News and World Report* publishes an annual ranking of "America's best graduate schools" (Zuckerman, 1997). Its main focus are the fields of law, business, medicine, engineering, and education, which are ranked by a set of variables. The report also ranks a number of other disciplines simply by reputation. The second major work is from the National Research Council, which ranked over 3,000 departments in more than 40 different fields. Also, the literature contains a multitude of articles providing rankings in individual disciplines.

Rankings are an effective device used to compare items in any subject area that are difficult to measure. Certainly, academic programs are difficult to compare. Vast numbers of universities with an array of similar programs warrant a ranking system. Therefore, academic quality rankings are an important part of the literature.

Rankings appear to be useful to university administrators, faculty, and students. Administrators may find academic rankings useful in the allocation and acquisition of resources (Miller, Tien, & Peebler, 1996; Scott & Mitias, 1996; Webster, 1992). Faculty have an interest in their program's or institution's standing against similar programs (Goodwin, 1995; Katz & Eagles, 1996; Lowry & Silver, 1996; Scott & Mitias, 1996). Many students use rankings to determine where to continue their academic study (Miller et al., 1996; Morrison, 1987; Scott & Mitias, 1996; Webster, 1992).
There appear to be four major types of contemporary methods to rank academic programs. First, is ranking academic quality by reputation (Roush, 1995). In this method, individuals knowledgeable in a discipline or esteemed in their field are asked to rank programs. Second, are academic quality rankings based on faculty productivity. Popular measurements of faculty productivity include the number of articles published and the number of citations received in the literature (Taubes, 1993; Tauer & Tauer, 1984; Webster, 1986; West & Rhee, 1995). Third are rankings based on student achievements. These include such measures as SAT and GRE (standardized) test scores. Fourth are rankings based on institutional resources. These include measures such as the number of volumes in the library, student-faculty ratio, and the amount of resources expended per student (Webster, 1986; West & Rhee, 1995).

The present study included three methods: faculty productivity, student achievement, and institutional resources, as all three can be employed to measure faculty productivity and doctoral student activity, which are the measures of academic quality in this article. Reputation, although an often-used measure of academic quality and a valuable indicator of perceived performance, was not the focus of this study because, by nature, reputation is highly subjective.

**Significance of this Study**
The study built and expanded on previous ranking methodologies for other disciplines and adds to the literature in at least four ways. First, although rankings exist for many disciplines and programs, there is no ranking of doctoral programs of health education. Second, many ranking systems in the literature are based either on one variable, which usually is reputation, or a combination of articles and citations received in a restricted set of journals. This study expanded the number of variables used to rank departments and obtained a more accurate and detailed assessment of quality. Third, most multiple standard rankings weight each variable equally or appear to arbitrarily assign weights. This study apparently is the first to establish a weighting system for multiple variables based on the input of scholars and leaders in the field. Fourth, this research will provide institutions and departments as well as administrators, faculty, and students with information regarding the quality of programs in health education.

**Purpose of the Study**
The purpose of this study was to rank doctoral programs of health education based on the academic productivity of the faculty and indices on the activity of doctoral students within the departments. The ranking builds on the work of Charles West in the field of education. West used a set of six variables to rank departments of education (West & Rhee, 1995). This study also differentiates the importance of the individual variables in a set of variables through a weighting system determined by scholars and leaders in the field of health education. The variables used to rank programs measure academic productivity by articles and citations received in key selected journals; editorships in the same selected journals; external funding for research and contracts; activity of doctoral students; doctoral student/ faculty ratio; faculty mentoring and placement of doctoral students; and doctoral student support, including assistantships for teaching and research. Previous research identified leading journals of health education that would be appropriate for this study (Everett, Casler, & Summers, 1994; Laflin, Horowitz, & Nimms, 1999; Price & Robinson, 1999).

**Methods**

**Step 1: Survey One Design**
A literature review of previous ranking studies was conducted to identify valid measures to rank doctoral programs. The Step 1 survey was developed with eight identified variables to be weighted and to collect other pertinent information that could be used to rank doctoral programs of health education.

**Step 2: Establishment of a Board of Reviewers**
A board of reviewers was established to complete the Step 1 survey. Scholars and leaders were selected from the field of health education during the 10 years (1987-1997) who also were employed at an institution that has a doctoral program in health education. The board's knowledge of the field of health education enabled them to determine the weight for the individual variables that were used to rank the programs. In addition to current
chairs or heads of doctoral programs of health education, the subjects selected were from three prominent health education organizations—the American Association for Health Education (AAHE), the Society for Public Health Education (SOPHE), and the Public Health Education/Health Promotion Section of the American Public Health Association (APHA). The groups are not mutually exclusive as many individuals belong to a number of the categories. The nine groups surveyed were (1) department chairs in doctoral programs of health education (from the AAHE Directory of Institutions Offering Undergraduate and Graduate Degree Programs in Health Education, 1997 edition); (2) the AAHE scholar recipients (AAHE recognizes one health education scholar annually); (3) AAHE presidents (elected every 2 years by the membership); (4) SOPHE distinguished fellows (SOPHE recognizes one distinguished fellow annually); (5) SOPHE presidents (elected annually by the membership); (6) Public Health Education and Health Promotion Section of APHA Public Health Education Distinguished Career Award recipients (section selects a recipient annually); (7) APHA Public Health Education/Health Promotion section chairpersons (individuals elected annually by the members); (8) APHA School Health Education section chairpersons (individuals elected annually by the members); and (9) AAHE/SOPHE committee members who drafted the graduate standards for health education (elected by the leadership of national professional organizations).

A questionnaire was sent to members in these nine categories with a return envelope provided. A follow-up survey for non-respondents was conducted about 1 month after the initial contact. The following information was collected.

- Respondents were asked to place themselves in one or more of the nine categories that were applicable to their personal academic or professional status.

- Only respondents identified as having been employed at an institution of higher learning in a program granting a doctorate in health education were asked to complete all the questions.

- To establish a weighting system, respondents were asked to review eight proposed variables to rank doctoral programs of health education for the years 1993-1997. Respondents were asked to provide a number rating from 0 to 100 for each of the eight variables so that the total equaled 100%. The variables were as follows: (a) articles published by faculty in preeminent health educational journals; (b) citations received by faculty in preeminent health education journals; (c) faculty editorships or journal board memberships in preeminent health education journals; (d) external funding for research, grants, and contracts (not training or service) in health education; (e) activity of doctoral students in health education in research, teaching, and service; (f) student/faculty ratio in doctoral programs of health education; (g) faculty mentoring of students and quality of student placement on graduation; (h) student support (assistantships and research).

- Respondents were asked to state the critical mass of faculty with health education degrees and total faculty needed to offer a quality doctoral program in health education.

- Other information was solicited from respondents including (1) how many years of past data the respondents felt should be used to rank doctoral programs and (2) whether the recently developed (1997) AAHE/SOPHE graduate standards should be used to rank the quality of programs for possible use in future studies. Finally, the respondents were asked whether a ranking would be used, if one existed, for hiring faculty, staff consultants, or for other purposes.

**Step 3: Development of Weighted Variables**

The data from the Step I survey were analyzed utilizing the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were employed to establish the weighting of variables used in this study. Correlation analyses were used to assess the degree of relationship between the weighted variables.
Step 4: Survey Two Design and Implementation
The Survey Two design operationalized the weighted variables so that the survey would collect the data needed to establish a ranking of doctoral programs of health education. The time frame from which data were collected was limited to 5 years to control for distant works that may have had a substantial impact on the rankings.

Selection of Subjects and Methods
Survey Two was administered to current chairs/heads or coordinators of all 44 doctoral programs of health education in the United States. Follow-up of nonrespondents over the following 3-month period consisted of telephone contact, mailing of an additional copy of the survey, and E-mail correspondence. The chairs were asked to supply the following information.

- Whether their departments had doctoral programs in health education. Those departments without a doctoral program in health education were not included in the ranking.

- Descriptions of their current positions in the department or unit. Respondents could report one of the following categories: (a) department head or chair, (b) department coordinator/curriculum coordinator, (c) health education program coordinator, or (d) other (respondents were asked to specify).

- A list of up to five (full or part-time) most academically productive health education faculty or staff. To assess academic productivity, 81 refereed preeminent health education journals identified by Laflin et al. (1999) were reviewed for the 5-year period January 1993 through December 1997 pertaining to health education in terms of (a) the number of faculty articles published, (b) the number of faculty citations in other publications, and (c) the number of faculty journal and/or editorial board editorships.

- The approximate total dollar value (direct and indirect costs) of health education grants and contracts for which the faculty member served only as a principal investigator or co-principal investigator (not as a subcontractor), for the 5-year period January 1993 through December 1997, that contributed directly to the following: (a) faculty and graduate student health education research; (b) health education community intervention activities or demonstration projects; (c) health education innovations, training, continuing education, and related activities; (d) other (respondents were asked to explain). If one grant/contract contributed to more than one category, the funds were to be either divided or allocated to the most related category. Funds were not to be double counted. Grants and contracts the primary purpose of which was not related to health education were not to be included.

- On average, for the 5-year period January 1993 through December 1997, the approximate annual number of full time equivalent (FTE) faculty in the administrative unit dedicated to the doctoral program of health education.

- On average, for the 5-year period January 1993 through December 1997, the approximate annual number of doctoral students of health education that, as defined by the institution, were (a) full-time health education doctoral students, or (b) part-time health education doctoral students.

- On average, for the 5-year period January 1993 through December 1997, the approximate annual percentage of full-time doctoral students of health education who received the following: (a) 50% or more teaching or research assistantship, (b) 24-49% teaching or research assistantship, and (c) internal or external financial dissertation support. Only (a) and (b) are mutually exclusive.

- On average, for the 5-year period January 1993 through December 1997, the approximate annual percentage of full-time health education doctoral students who, while a graduate student: (a) had sole responsibility for teaching two or more health education classes or sections; (b) had sole responsibility for teaching one health education class; (c) were appointed by the health education department with a paid assistantship to assist health education faculty with teaching a class, research projects, or service projects; or (d)
served on a university, college, school, or departmental committee as a representative of the department or program.

- A list of up to 10 health education students who received doctorates during the 5-year period January 1993 through December 1997, including their names and current employment with place of employment and professional title or rank.

**Step 5: Ranking the Programs**

Step 5 of this study analyzed the data and developed the ranking for doctoral programs of health education.

**Collection of Data**

Survey Two data were collected from department heads or coordinators of doctoral programs of health education. The data were tabulated and analyzed using SPSS. Descriptive statistics and correlation analyses were utilized. The following steps were performed for each of the eight variables to obtain the ranking. Determining the Raw Score Data for the eight variables used to rank doctoral programs of health education were totaled to obtain an overall doctoral program raw score. The raw scores for each of the variables from 1993-1997 were determined as follows.

The data for the three variables involving articles published by faculty, citations of faculty, and faculty editorships in the 81 preeminent health education journals identified by Laflin et al. (1999) was based on the sum of the five faculty members provided by each program. The numbers of articles published were collected from the 81 journals by the use of automated library indexes. Books were not used for several reasons. Books are not subject to peer review to the same extent as peer reviewed articles. However, to assess the effect of books on rankings, a separate analysis was conducted correlating academic publishing productivity of articles alone to articles and books combined. The variables were nearly perfectly correlated (.98), indicating excluding books from the analysis would not significantly effect the rankings. The indexes used were ERIC, MEDLINE, PsychInfo, and Web of Science. Citations were obtained from the Social Science Citation Index in the Web of Science index, which contained 68 of the 81 journals, accounting for 84% of the journals. Citations from the remaining 13 journals were not included. Editorships were obtained for 92% of the 81 journals by reviewing the appropriate journal editions. Each raw score was the total number of faculty articles, citations, and editorships.

Information on external funding was from self-reported data from each program, with the highest amount of total dollars being the highest raw score.

Information on the student/faculty ratio was self-reported data, and the raw score was determined by dividing the approximate annual number of total doctoral students (not just graduates) by the approximate annual number of total FTE faculty per year. The lowest student/faculty ratio was considered the highest raw score. To determine the total number of doctoral students, full-time students were given a weighted value of 1.0, and part time students were given a weighted value of 0.5. The two weighted values of doctoral students were combined. To determine the number of FTE faculty, the amount of time dedicated to the health education program of full-time and part-time faculty were combined. For example, six total faculty with two at 100% time, two at 50% time, and two at 25% time in the health education program would equal 3.5 FTE faculty.

To measure the activity of doctoral students in health education in research, teaching, and service, the self-reported survey data included two mutually exclusive responses: (1) the percentage of students who had sole responsibility for teaching two or more health education classes, and (2) the percentage of students who had sole responsibility for teaching one health education class. Students teaching two or more classes received a weight of 0.50, while students responsible for one class received a weight of 0.25. The remaining two items were (3) the percentage of students appointed by the health education department with a paid assistantship to assist health education faculty with teaching a class, research projects, or service projects received a weight of 0.25, and (4) the percentage of students who served on a university, college, school, or departmental committee
as a representative of the department or program also received a weight of 0.25. The weighted scores were combined, with the greatest program total being considered the highest raw score.

To measure student support for assistantships and research, three items of self-reported information were used, with the first two responses being mutually exclusive: (1) percentage of doctoral students receiving a 50% or more teaching or research assistantship received a weight of 0.50, (2) percentage of doctoral students receiving a 24-49% teaching or research assistantship received a weight of 0.25, and (3) percentage receiving internal or external financial dissertation support received a weight of 0.50. The greatest total weighted score was considered the highest raw score.

To measure faculty mentoring of students and quality placement the department heads were asked to provide a list of up to 10 of the top students who received their doctorates during the 5-year period January 1993 through December 1997. The number of articles published and citations received was determined in the same fashion as were the faculty counts derived from the indexed journals of the set of 81 health education-related journals identified by Laflin et al. (1999). In addition, placement was determined by the number of the 10 doctoral students who were employed at Carnegie Research I institutions or at national level health institutions/organizations such as the National Institutes of Health, the Centers for Disease Control and Prevention, and the National Arthritis Foundation. Articles and citations received a weight of 0.50 in the same proportion relative to each other as the weight applied in Survey One. The number of doctoral students employed at Carnegie Research I institutions or at national level health institutions also received a weight of 0.50. The weighted scores were combined, with the greatest total being the highest raw score.

**Determining Proportional and Weighted Scores**

For each of the eight variables, the program with highest raw score was assigned a value of 1.0 and each of the remaining scores was a proportion of 1.0. The proportion was determined by dividing the raw score by the raw score of the highest value to obtain the proportion. For example, if 10 were the greatest number of articles published, that program would receive a value of 1.0. A second program with 5 articles published would have a proportional score of 0.50.

Each proportion for the eight variables was multiplied by the weighting assigned to that variable from Question 4 of Survey One, which was developed by scholars and leaders in the field of health education to obtain a weighted score for each variable.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Weight</th>
</tr>
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<tbody>
<tr>
<td>External funding</td>
<td>18.1</td>
</tr>
<tr>
<td>Articles in leading journals</td>
<td>17.3</td>
</tr>
<tr>
<td>Mentoring and placement</td>
<td>13.3</td>
</tr>
<tr>
<td>Student activity (teaching, research, service)</td>
<td>11.7</td>
</tr>
<tr>
<td>Student/faculty ratio</td>
<td>11.5</td>
</tr>
<tr>
<td>Citations in leading journals</td>
<td>9.9</td>
</tr>
<tr>
<td>Editorships in leading journals</td>
<td>9.2</td>
</tr>
<tr>
<td>Student support (assistantships and research)</td>
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</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
<tr>
<td>University</td>
<td>Wt. Score</td>
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<tr>
<td>------------------------</td>
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</tr>
<tr>
<td>Indiana</td>
<td>58.85</td>
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<tr>
<td>Texas-Houston</td>
<td>55.61</td>
</tr>
<tr>
<td>North Carolina</td>
<td>53.16</td>
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<tr>
<td>Illinois-Chicago</td>
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<tr>
<td>Toledo</td>
<td>47.11</td>
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<tr>
<td>Univ. of South Florida</td>
<td>40.90</td>
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<tr>
<td>Southern Illinois Univ.</td>
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<td>Florida</td>
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<tr>
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<tr>
<td>Texas Woman<em>s</em></td>
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</table>

*Top 20 ranks included. () indicates a rank not included in the top 20.

**Abbreviations: Wt. Score = weighted score (sum of the weighted scores for the eight variables); Ment = mentoring and placement; Cit = citations; Fund = external funding; S. Act = student activity; Ed = editorships; Art = articles; Ratio = student/faculty ratio; S. Spt = student support.

Note: Survey respondents are listed in alphabetical order: Auburn, Columbia, huisson, Johns Hopkins, Minnesota, Nebraska, New Mexico, New York University, Ohio State, Oklahoma State, Purdue, Rutgers, Tennessee, Texas A&M Commerce, Tulane, and Wisconsin.

*Other programs ranked in the top 20 on any variable; listed in alphabetical order.
The weighted scores for each of the eight variables were summed for a total weighted score. The total weighted scores were placed in rank order with the highest total weighted score being ranked first to the lowest total weighted score being ranked last. The end result is the ranking of doctoral programs of health education.

Limitations of the Study
To control for size, each program was limited to only five faculty and 10 doctoral students as reported by the program or department heads. The journals used in this study were a set of 81 journals identified by Laflin et al. (1999) as preeminent journals in health education. Citation indexes containing 68 of the 81 journals were searched by the authors' names as provided by the program or departments. All authors listed in an index for an article received full credit for a publication or citation because some sources list authors alphabetically, making it difficult to determine which author had the greatest contribution to an article.

Results and Discussion
Rankings
The initial questionnaire was sent to 102 scholars and leaders in the field of health education. Of this group, 79 responded, giving a response rate of more than 75%. Fifty respondents met the study criteria, having been employed at an institution of higher learning in a program granting a doctorate in health education, to weight the variables in Survey One. The 50 scholars and leaders from the field of health education assigned weights to the eight variables based on a 100-point scale. The results of the weighting are presented in Table 1. External funding and articles published in journals received the highest weighting. Each variable received a weight of at least 9.0%. It is interesting to note that citations received a weight that was about 40% less than articles. The
four variables related to faculty activity accounted for about 55% of the total weight, whereas the four variables related to doctoral students received about 45% of the total weight. This may indicate that although the faculty received the greater weighting, a high level of importance also was placed on the activity of program doctoral students.

Twenty-eight programs were represented and ranked in this study. Results of the overall composite weighted score for the top 20 doctoral programs in health education, the overall ranking based on that score, and the ranking for the eight variables based on the weighted score for each variable are presented in Table 2. Other ranked programs are listed alphabetically and not in rank order. Programs having a rank not in the top 20 on any variable are indicated by a dash. Of the eight ranked variables, four are related to faculty and four to students.

Review of the composite weighted score indicates programs are grouped into several tiers. The top tier includes the 9 highest ranked programs, headed by Indiana University and continuing through the University of Toledo. The University of South Florida stands between the top and next tier of 10 programs, including Southern Illinois University to Loma Linda University. A review of the rankings indicates that programs in schools of public health appear generally to rank highly, having 6 of the top 10 programs. Those six schools were the University of Texas at Houston, the University of North Carolina at Chapel Hill, the University of Illinois at Chicago, the University of South Carolina, the University of Michigan, and the University of South Florida.

Results of the rankings for the eight variables reveals several findings. Six programs had a majority of the eight variables ranked in the top 10. Indiana appears the most consistent, with a ranking in the top 10 for all eight variables, followed by the University of Toledo with seven and the University of North Carolina at Chapel Hill, the University of South Carolina, the University of Alabama/University of Alabama at Birmingham, and the University of Maryland having five variables ranked in the top 20. All 28 programs had at least two variables ranked in the top 20. Twenty-six schools had at least one variable ranked in the top 10. The frequency of programs having a variable in the top 10 and top 20 are presented in Table 3.

Variability of the rankings for the eight variables within programs was noted. Several programs ranked in the top 10 (University of Texas at Houston, University of Illinois at Chicago, University of South Carolina, and the University of Toledo) had at least one variable not ranked in the top 20. This was offset by high rankings for other variables. For example, the second highest ranked program, the University of Texas at Houston, was not ranked in the top 20 for student activity but had the highest ranking for external funding, was tied for first in faculty article publications and second for citations in the literature. Similarly, the University of Illinois at Chicago did not rank in the top 20 for either student activity or student/faculty ratio but was first in citations, and tied for first with the University of Texas at Houston in article publications and second in external research funding. In contrast, the University of Toledo, which was not ranked in the top 20 for external funding, exhibited a consistently high ranking on all other variables. These results suggest that some programs may choose to focus on specific activities, such as publishing journal articles, while others are more broadly focused.

**Correlation Findings**

To gain additional insight, Pearson correlation coefficients were calculated for the weighted scores for each of the eight variables and the total composite score. Results of the correlation matrix are presented in Table 4. Several findings emerged. There was a correlation of .80 between faculty journal article publications and citations in the professional literature. This indicates that faculty who publish more frequently are cited more often in the literature. Funded research was correlated with both article publication (.61) and citations (.67).
This may reflect that program faculty having greater external research funding may have greater opportunities to conduct research, are often expected to publish their findings by their funding sources, and that the faculty may simply devote more time to scholarly research. Review of the rankings for funded research indicates that schools of public health generally tend to have higher rankings for both external funding and number of publications. Some of these programs may be more dependent on "soft" funding than other programs. Thus, their faculty may devote more effort to securing external funding in contrast to other programs funded to a greater extent by "hard" money, which may require more effort devoted to a teaching mission.

Journal editorships/editorial board involvement was modestly and not significantly related with either articles (.31) or citations (.17). One might have expected faculty who are more often published and cited in the literature to be more involved in terms of editorships/editorial boards, but this does not appear to be the case. It might be that programs focusing more on publications are less likely to have the time or inclination to serve in those capacities. However, the time frame of this study may be a factor. This study period was 1993-1997. It might be that current editorship/editorial board involvement may be more likely held by those already having established a previous record of publications and who may still be publishing but at a lesser rate when compared with others heavily involved in establishing a strong publishing record.

With respect to the four variables related to students, it was found that several were moderately and significantly related to each other, but not significantly related to any of the faculty variables. No significant correlation was found between student activity and any other variable, with the exception of moderate and significant correlation to student support (.40). This latter finding is not surprising since doctoral student activity (such as having a teaching assistantship or conducting research or service projects) often depends on having student support. Also, these programs usually do not have an undergraduate teaching mission (especially with health education programs in schools of public health) and thus there is less opportunity for students to have a teaching experience.
However, doctoral programs at schools of public health generally have higher ranking in terms of external research funding as evidenced by the University of Texas at Houston, the University of Illinois at Chicago, the University of South Carolina, the University of South Florida, and UCLA, but this does not necessarily translate into higher student activity and student support. Another possible explanation for the modest relationship between student activity and funding is that in doctoral programs with greater teaching activity, there simply may be less time for faculty to secure external funding. These faculty may be more involved themselves with teaching and supervising/coordinating doctoral student teaching.

Noteworthy was the significant relationship between student support and mentoring (.57). It appears that students in doctoral programs providing greater support are more likely to secure placement in Carnegie Research I institutions or national level health organizations. Possibly students receiving support have greater opportunities for teaching and/or research experiences, which facilitate their subsequent placement and
academic productivity. It may be due to faculty having more contact with students who have support and thus greater opportunities for faculty to mentor. It was also interesting to note that programs with faculty having more publications and citations did not seem to influence subsequent mentoring as measured by student placement and publications. One might have conjectured a spillover effect as students are socialized by faculty.

Possibly, faculty are not necessarily integrating students into this activity to the extent that student support appears to contribute to student placement and publications. Interestingly, student/faculty ratio did not significantly correlate with any other variable. One might conjecture that student/faculty ratio would correlate with student mentoring as measured by quality of student placement and subsequent academic productivity in terms of journal publications. Yet, only a weak and insignificant correlation (.12) was found.

Faculty-Student Variable Rankings
As previously mentioned, of the eight ranked variables four were related to faculty and four to students. Table 5 presents the top 20 rankings for each variable showing possible relationships between the weighted scores of faculty and student variables. A Pearson correlation was run on the rank of all 28 schools for both variables. The result of that correlation was low (.06), which indicated no relationship between these variables. There was no evidence that schools high or low on one variable were high or low on the other. The absence of any correlation indicates the variables are independent. Only 15 of the 28 schools were in the top 20 rankings on both variables and only 7 programs—University of Alabama/University of Alabama at Birmingham, Indiana University, University of Maryland, University of Michigan, University of North Carolina at Chapel Hill, University of South Carolina, and the University of Toledo—were in the top 10 on both variables. Indiana University was the only school in the top 5 on both faculty and student variables. Furthermore, 25 of the 28 schools were in the top 20 of either variable and 13 schools were in the top 10 for either variable.

Conclusion
How might rankings be used? What are some of the implications? As mentioned previously, ranking studies are abundant in other fields and have been used for a variety of purposes. The ranking of doctoral programs in health education yields similar benefits as those identified for other fields of study, but also yields benefits specific to health education. These benefits of rankings can be derived from both a ranked list of programs and from the systematic development of the criteria to rank programs. The literature on rankings and the opinions of scholars and leaders in the field of health education were used in this study to design the ranking criteria and weights. The benefits of this consensus-building process should not be overlooked. With these thoughts as a backdrop, the following benefits of ranking doctoral programs in health education are offered.

Benefits for Administrators
• Provides criteria as to what scholars and leaders in the field of health education view as quality indicators for doctoral programs. The ranking and related criteria can be used to address the argument that no quality standards exist in the field.
• Provides role models of exemplary programs in the preparation of doctoral students in health education.
• The ranking and related criteria can be used to improve program quality.
• The ranking and related criteria may help to justify the decisions by administrations to keep and strengthen good programs and to downsize or eliminate weak programs.
• The ranking could be used by administrators to advertise their programs to obtain faculty or graduate students.

Benefits for Faculty
• Provides faculty in doctoral programs with quality indicators to help guide their professional activity. For example, the scholars and leaders in the field of health education weighted variables pertaining to external
funding, articles published, citations received, and editorships in preeminent journals in health education as quality indicators for doctoral programs. Therefore, if faculty wish to be successful in these programs, the types of scholarly activity sought by such institutions are clearly outlined.

- The ranking criteria reinforce the role of scholarship, in conjunction with mentoring. The ranking included several variables pertaining to the activities of program doctoral students. The ranking criteria reinforce the value of faculty working collaboratively with students on scholarly activity.

- The rankings show faculty where their program stands compared with other programs and what can be done to enhance their ranking.

- The ranking may provide faculty with information on the best program to continue their career (Scott & Mitias, 1996). Also, 66% of the scholars and leaders reported they would use a ranking when hiring faculty.

**Benefits for Students**

- Allows students the opportunity to find a program that better fits their specific needs and interests.

- Provides students with generally accepted criteria of program quality.

Prospective doctoral students may see the rankings as a proxy for expected dissertation quality and optimum postgraduate job prospects (Scott & Mitias, 1996).

**Benefits for the Health Education Profession**

- Provides evidence that the field has identified weighted indicators of quality for doctoral programs and has ranked programs accordingly.

- Provides a demonstrable set of standards in the field of health education for doctoral programs. This furthers another area in the field of health education by adding to the Responsibilities and Competencies for Health Educators designed by the National Commission for Health Credentialing (NCHEC) that provide entry-level skills for health educators.

- The ranking criteria reward faculty for working on health education activities. Faculty from highly ranked programs tend to be frequent authors and are often cited in preeminent journals of health education.

- The ranking process focuses on the program as the unit of measure. Whereas other criteria focus on the competencies of the individual, the ranking criteria focus on activity at the departmental/organizational level. This approach clearly places the onus for the preparation of quality doctoral students on the organization (departments, colleges, and universities) rather than the individual.

- Ranking programs, and the related criteria, may slow the trend toward the elimination of doctoral programs or the consolidation of programs under other disciplines. This may help to solidify health education as a viable field of study on a par with other ranked fields of study.

In conclusion, this study provides a ranking of doctoral programs of health education where none existed previously. In the end, it is the programs and the readers of this article who can interpret and use the findings of this study for their own purposes.

**References**


