A Survey of Research Productivity in Respiratory Therapy Educational Programs

Melinda Register

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ABSTRACT

RESEARCH PRODUCTIVITY IN RESPIRATORY THERAPY DEPARTMENTS
IN THE UNITED STATES

Issue: There is a need to standardize faculty evaluations across departments, particularly at research intensive universities. To date, there is no such standard to measure research productivity of respiratory therapy (RT) professors and programs in the U.S. This study asked: How is research productivity described in RT? What is the research productivity ranking of researchers? and What is the research productivity ranking of departments? Methods: After IRB approval, 56 B.S./M.S. degree RT programs were surveyed by email. Data were analyzed for descriptive statistics and correlations. Outcomes: Response rate was 52%. Research productivity in RT is best described using H-Index and M quotient. Range of H-Index for professors was 0 to 44 with a mean of 2.37. Outcome variables found to have positive correlation with H-Index were highest degree earned, academic rank, accreditation role, and Carnegie Classification. Mean program H-Index ranged from 0 to 10.17 with a mean of 1.99. Conclusion: A positive relationship exists between H-Index of RT professors and several outcome variables. Faculty and program directors seeking to increase research productivity can by way of changes in hiring practice and furthering faculty development.
A SURVEY OF RESEARCH PRODUCTIVITY IN RESPIRATORY THERAPY EDUCATIONAL PROGRAMS

By

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A Thesis Presented in Partial Fulfillment of the Requirements for the Degree of Master of Science in Health Science in the Department of Respiratory Therapy in the Byrdine F. Lewis College of Nursing and Health Professions

Atlanta, Georgia 2018
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CHAPTER I

INTRODUCTION

The primary focus of productivity of any academic institution is and should be centered on measuring what students have learned. A secondary focus for universities is what lasting contributions and/or discoveries they have made in their field of expertise through research. Universities have multiple instructors responsible for various areas of their academic program: teaching, research & service. A select few professors at larger institutions may have dedicated time and resources towards developing research on behalf of the whole institution. Academic promotion has been reported to be evaluated in part by research impact (Bevan, 2004). Professors often compete for limited grants or funding from outside their departments to support their investigations. Reviewers may make decisions based on anticipated outcomes achieved via the research process (Gunn & Mintrom, 2016; Quimbo & Sulabo, 2014). How universities recruit professors and set aside dedicated time and resources may be dependent on their research productivity (J. E. Hirsch, 2005).

With increasing diversity of the academic workforce, there are demands to standardize evaluations of faculty across departments. Perceptions of research productivity can vary depending on the designation of the institution. In 1970, the Carnegie Commission on Higher Education designed a classification framework to stratify higher education institutions in many categories. Currently, doctoral universities are categorized by research as having highest (R1), higher (R2) or moderate (R3) activity. Master’s level Colleges and Universities are subtyped by size into: larger (M1), medium (M2) and smaller (M3) programs. These designations can play a
role in the demands of each program’s research output as well as faculty rank, tenure, promotion and workload.

The simplistic strategy of counting the number of research papers produced and comparing the sum with an author’s counterparts may seem attractive. However, this method does not take into account the value of the material covered and whether it plays any impact on the field of study. If an author publishes numerous studies in obscure publications and they affect no change to the industry of study, is there any value given the work done? There is a need for a system to objectively measure productivity.

Common bibliometric indicators include journal impact factor (JIF), citation rates and H-Indexes. Australia, New Zealand and England all use bibliometric measures as a way to quantify academic accomplishment in their higher education sectors (Bennett, Genoni, & Haddow, 2011). JIF was originally developed by Eugene Garfield in 1955 to help librarians decide which journals to carry with limited budgets (Garfield, 2015). JIF has been used since the 1960’s after it was first proposed by Eugene Garfield and Irving Sher as a means of quantifying scholarly output (Khan et al., 2013). It is published annually in the Journal Citation Reports by Clarivate Analytics. This report provides tools for ranking, evaluating, comparing and categorizing journals. Journals benefit from knowing their JIF. Journal editors can use this tool to help them continue to select articles they feel will add value for their subscribers. JIF has more recently been criticized to be easily manipulated by reprinting original publications of historical significance. These reprints have been reported to outperform the original true sources of material and thus increasing the impact factor of the reprinting journal (Bevan, 2004).
In 2005, Jorge E. Hirsch, a physicist at the University of California in San Diego, acknowledged that apart from winning the Nobel Prize, it was difficult for scientists to quantify the impact and relevance their research had on a given topic (J. E. Hirsch, 2005). He then devised an index to help quantify researcher’s contributions. Hirsch’s H-index takes into account the number of times a paper is cited as influential by peers. According to Smith, Crookes & Crookes, the H-index is simple, more accurate and easy to calculate and provides a fairer comparison across disciplines. It is more comprehensive than the JIF. It does not weight highly cited papers as opposed to lower or uncited papers and it provides a cumulative estimate of the impact of a researcher’s work (Harzing & van der Wal, 2009); (Smith, Crookes, & Crookes, 2013).

The H-index is not without its criticisms. The H-index can be critiqued for never diminishing with time. Therefore, it could be problematic comparing new and old researchers in the same field. Hirsch suggested a correction to the H-index known as the m-quotient (Khan et al., 2013). The m-quotient is the H-index divided by the number years since the author’s first publication. It provides another measure of research productivity that accounts for length of time of a researcher.

Many disciplines have calculated their H-index to measure the research productivity of professors (Barner, Holosko, & Thyer, 2014). To date, no such study exists for respiratory therapy educational departments in universities across the U.S. In 2009, the International Respiratory Journal Editors Roundtable released a declaration about their view of JIF. They believe it “should not be used as a basis for evaluating the significance of an individual scientist’s past performance or scientific potential” (Virchow, 2009). This roundtable did view citation records for the individual scientist as a “more valid measure”. In light of this
information, calculating an H-index as well as m-quotient for university professors for respiratory therapy educational programs across the U.S. seems all the more practical.

**Purpose of the Research Study**

The purpose of the study is to measure the research productivity of respiratory therapy educational programs in the U.S. by calculating a ranking of H-indexes and m-quotients. These values, once known for the field of respiratory therapy, may be used in recruitment of new faculty, research fund allocation, promotion and tenure evaluations and for researcher’s self-examination.

The following research questions were addressed to guide the acquisition of data required to satisfy the requirements of the purpose statement.

1. How is research productivity described in respiratory therapy?
2. What are the research productivity rankings of respiratory therapy educational researchers?
3. What are the research productivity rankings of respiratory therapy educational departments?

**Educational Significance of the Research Study**

While there are H-indexes calculated for other fields of study, to date no one has calculated the H-index for respiratory therapy educational programs and current Respiratory Therapy educators across the U.S. Once calculated, these values may be used as a baseline benchmark to rate aspects of quality in respiratory therapy education and productivity.
**Definitions**

Altmetrics or alternative metrics: Non-traditional metrics (such as storage, links, bookmarks, conversations and retweets) proposed as an alternative to more traditional citation impact metrics such as impact factor and H-index.

Bibliometrics: Statistical analysis of written publications.

Citation: A reference to a published or unpublished source.

Citation impact: Quantifies the citation usage of scholarly works.

H-index: An author level metric that attempts to measure both the productivity and citation impact of the publications of a scientist or scholar. A scholar with h papers, has been cited each of which has been cited in other papers at least h times.

Impact factor (IF) or Journal Impact Factor (JIF): A measure reflecting the yearly average number of citations to recent articles published in that journal. The number of citations received in that year by articles published in that journal during the two preceding years, divided by the total number of articles published in that journal during the preceding two years.

\[
IF = \frac{\text{Citations}_{y-1} + \text{Citations}_{y-2}}{\text{Publications}_{y-1} + \text{Publications}_{y-2}}
\]


M-quotient: The H-index divided by the number years since the author’s first publication.

Scientometrics: The study of measuring and analyzing science, technology and innovation.
Assumptions

The intention of this study is to accurately measure the H-index of respiratory therapy educational departments across the United States. We assume that members of these respiratory therapy education departments will do their best to accurately answer questions asked by the surveyor. Complications may arise if unable to contact members of a respiratory therapy education department for feedback. Best efforts by the surveyor will be made to complete the questionnaires fully.

In summary, productivity at research active universities is important to respiratory therapy educational departments when evaluating professors for hire or promotion. Departments may look at research output based on the costs associated with or prestige brought to the university. Individual professorial contributions can be standardized for equality of measurement via use of traditional biometric metrics such as H-index and m-quotient. These metrics are done and used for comparison based on field of expertise. To date, no such baseline benchmark metric exists for respiratory therapy.
CHAPTER 2

REVIEW OF THE LITERATURE

There were a limited number of published articles that discuss the changing demands placed on respiratory therapy faculty, their programs and their institutions. Faculty degree requirements, curricula differences, and professorial expectations are explored. This chapter was organized as follows: respiratory therapy faculty, professional expectations, metrics and summary. Definitions of publication productivity and the metrics used to measure research were examined. Databases used for this review include: PubMed, CINAHL, and EBSCOhost. Search keywords were: respiratory therapy faculty, respiratory therapy program, respiratory therapy research, research productivity, faculty education, research metrics, and H-Index.

The following research questions were addressed to guide the acquisition of data required to satisfy the requirements of the purpose statement.

1. How is research productivity described in respiratory therapy?
2. What are the research productivity rankings of respiratory therapy educational researchers?
3. What are the research productivity rankings of respiratory therapy educational departments?

Respiratory Therapy Faculty

Little is written about respiratory therapy faculty and the programs they develop. The faculty along with their director sets clearly defined goals as to how to develop research, scholarship and faculty experience along with other objectives into achievable tasks. In the U.S., departmental goal setting is thought to be essential as it is mandated by the Commission on
Accreditation for Respiratory Care (CoARC). CoARC requires respiratory programs to set a minimum number of goals each year for the purpose of growing their program in alignment with the university or college’s goals and objectives. However, no scholarship or research requirement is currently mandated.

Faculty degree requirements vary by job classification and are on the rise. In a 2005 unpublished dissertation, 36 respiratory care education (RCE) programs were surveyed with regard to the number of personnel and the credentials of their faculty (Ari, 2005). Personnel were classified into three categories: full-time staff, full-time faculty and part-time faculty. At that time, this survey found that the mean number of total faculty was 5. The mean number of full-time faculty, full-time staff and part-time faculty were 3, 1.75 and 1.97 respectively. Programs had a wide range of total number of faculty with anywhere between 2 to 11 persons. Of these personnel, Ari tallied their education. Bachelors, Masters and Doctorate degrees were held by of 11.61, 64.28 and 24.11 percent respectively. In a 2015 unpublished thesis of Respiratory Therapy Faculty Perceptions of Effective Teaching Characteristics of Clinical Instructors, faculty were surveyed in nine associate, bachelors and masters programs in Georgia (Siraj, 2015). Siraj reported faculty held degrees of a baccalaureate, masters and doctorates at 11, 47, and 42 percent respectively. CoARC requires all B.S. & M.S. Program Directors to have earned a doctoral degree and all Directors of Clinical Education to have earned at least a master’s degree.

Curricula Differences
In 2018, there are 358 AS, 55 BS, and 14 MS respiratory therapy education programs in the U.S. There are important differences in curriculum expectations of bachelor versus associate program professors. Respiratory therapy faculty members spend more time teaching evidence-based medicine and respiratory care protocols in baccalaureate-degree programs than the
associate-degree programs (Barnes, Kacmarek, & Durbin Jr, 2011). Furthermore, respiratory therapy education curricula have a significantly higher percentage (80%) of baccalaureate-degree as opposed to associate-degree programs (42%) instruct students in how to critique research. They also found, baccalaureate programs teach students more about the general meaning of statistical tests when compared to associate programs (70% compared to 34%).

Program curricula are ever changing to meet current demands. Interprofessional collaboration in respiratory programs is expected. In a recent study of respiratory faculty’s knowledge of and attitudes toward Interprofessional Education (IPE) 285 of 874 (33% responded) associate and bachelor programs faculty members were surveyed (Vernon et al., 2017). Baccalaureate and Masters level programs reported 66% inclusion of IPE as opposed to 48% of associate programs. Distance online learning is on the rise and may compound faculty demands. This is likely due to changing views of respiratory therapy program directors. In a 2011 study, respiratory therapy program directors felt there was no difference in outcomes between on-line and classroom-based courses (Varekojis, Sergakis, Dunlevy, Foote, & Clutter, 2011). This was a change from prior studies conducted in 2007 and 2004. Professors are more and more supplementing their courses via online digital technology and as a means to document student performance and outcomes.

Demand for understanding research and how to apply it into daily practice is now a standard of the norm. In a survey regarding the future education and credentialing of respiratory care students and staff, 90 percent of directors of respiratory therapy departments expected new graduates and other staff therapists to be able to apply evidence-based medicine to clinical practice (Kacmarek, Barnes, & Durbin Jr, 2012). Whether demands to understand and apply
research include experience performing research as part of the curricula with faculty supervision and direction is not known.

**Professional Expectations**

While books, presentations and grants are useful measures of scholarly activity, the academic journal continues to be one of the most revered measures of scholarship. Perhaps, this is because journals represent each discipline’s most recent findings and an open atmosphere for challenging established paradigms. Institutional and individual publication productivity is commonly used as an index of institutional quality, influence and prestige. Research institutions may have loftier budgets and time allocation to attract research experts to improve their institution’s profile. Research productivity has spanned several decades and disciplines (psychology, computer science, social work, sociology, gerontology, law, marketing, finance, advertising, political science, journalism, criminal justice, education, physical therapy and nursing) thus adding to its inferred importance. As early as 1958, Caplow and McGee state that “the explicit definition of publication is the criterion of productivity is very common” (Caplow & McGee, 1958).

Productivity should improve with time and experience. A researcher with experience should be more efficient in conducting research. They should know how to complete studies on a more efficient time line, what studies are important to their field of expertise and how to improve chances of getting published in the most read journals of their industry. These researchers should also be training the next generation of researchers and thus their publication productivity is enhanced through their trainee’s publications.

Publication productivity can be defined a number of ways. One way is by the simple counting the number of articles published in journals. An articles importance can be deemed
greater by the weight of the journal an article is published within or by the number of times someone references back to the article. Mention is also given to the amount of resources (grant funding) received to obtain research. Each measure has its own merits of value and constraints. If a researcher published 100 articles in journals that were obscure, and no one has read, that researcher may be argued to not be productive. If another researcher only publishes one article in a well-known journal and it is referenced by others in the same industry, that researcher is said to be productive and assert a large influence on their field of interest. Therefore, it can be difficult to accurately measure productivity.

**Metrics**

Since journal impact factor has been shown to be easily manipulated, this standard of measurement seems inadequate for measuring researcher’s scholarly impact (Bevan, 2004). H-index remains a common standard of faculty research output across professions as well as abroad (Barner et al., 2014) (Bennett et al., 2011). Hirsh’s correction to the H-index, the m quotient, to account for length of time of publishing is important in comparing new and seasoned faculty members. Together, reporting a researcher’s H-Index and m quotient allows an accurate depiction of researchers’ scholarly impact including time as a factor.

Citation searching tools are needed to accurately gather missing information. As of May 2018, Web of Science, Scopus, Google Scholar and Research Gate are some of the favorite tools for searching for scholarly impact. Prior to these web databases, Thomson Scientific Reuters, formerly known as the Institute for Scientific Information (ISI) monopolized citation databases. ISI was searchable originally in print form only and later used a third-party information retrieval system. Opponents of this older system dislike that ISI type databases (like Web of Science) do not include books and most conference proceedings (Meho & Yang, 2007). In a recent study of
academic nursing programs, Scopus offered significantly higher journal coverage over Web of Science (Powell & Peterson, 2017). Yet in another study, Google Scholar was found to find 53 percent more citations than Web of Science and Scopus together (Meho & Yang, 2007). Another study proposes aggregating a variety of citing references to improve accuracy (De Groote & Raszewski, 2012). Each search engine has benefits of use. Google Scholar calculates an H-Index once researchers create a user profile and verify their institution which makes verification of research productivity quick and easy. Scopus identifies an author’s institutional affiliation and state. This aids in identifying medical directors who practice primarily at nearby medical facilities. Research Gate offers a format to link researchers to both their institution and their department to aid in proper identification for those with common names. Since a researcher can list projects they are currently working on and there is no current standard for sharing work done, it has become a popular social networking site for researchers. A 2017 study of Communication Sciences research productivity located more faculty in ResearchGate than Scopus (Stuart, Faucette, & Thomas, 2017).

Many fields are acquainted with their profession’s H-index when measuring the research output of faculty (Barner et al., 2014). H-Index has been documented for educational faculty of nursing (Powell & Peterson, 2017), physical therapy (Littman, Sonne, & Smith, 2017), occupational therapy (MacDermid, Fung, & Law, 2015), communication sciences (Stuart et al., 2017), social work & psychology (Barner et al., 2014), radiology (McDonald et al., 2017), and emergency physicians (DeLuca et al., 2013). To date, respiratory therapy does not have a similar known standard. In 2009, the International Respiratory Journal Editors Roundtable declared journal impact factor “should not be used as a basis for evaluating the significance of an individual scientist’s past performance or scientific potential” (Virchow, 2009). The roundtable
did view citation records for the individual scientist as a “more valid measure”. In light of this understanding, calculating an H-index and m-quotient for university professors for respiratory departments across the U.S. seems overdue.

In summary, there are gaps in our understanding surrounding the amount of research productivity of respiratory therapy professors across the United States. While each department must set goals, whether research is part of these goals is not known. Although type of degree earned by respiratory therapy professors has been researched, who of these publishes research is not known. While Masters level programs spend more time instructing and critiquing research, it is not known if their professors publish more than their baccalaureate program counterparts. Finally, with increasing demands on respiratory therapy professors to participate in interprofessional education, distance learning and applying evidence-based practice, are they finding time to publish research they have done? Currently, no study has researched how all these increasing demands and changes within respiratory therapy education have affected scholarly output of respiratory therapy professors in the U.S.
CHAPTER 3

RESEARCH METHOD

Research productivity is one way to measure the effectiveness of faculty. To be measured fairly, each discipline must compare standards for their field which considers limitations of resources and availability of relevant journals of that specialty. Awareness of the research productivity within one’s profession and faculty status may contribute to further gains in research within the industry. The purpose of this study was to measure research productivity of respiratory therapy educational departments in the U.S. by calculating a ranking of H-indexes and m-quotients of their faculty and the program. This chapter explains the methods used to answer the following questions.

Research Questions

1. How is research productivity described in respiratory therapy?

2. What are the research productivity rankings of respiratory therapy educational researchers?

3. What are the research productivity rankings of respiratory therapy educational departments?

Research Design

To obtain factual information consistent with the research questions of this study, the following factors are described.

Source of Data: Since the information in this study was not readily available, an e-mailed survey using the Respiratory Therapy Research Survey (RTRS) was developed in order to obtain data essential for this study (See Appendix B). The RTRS contained questions about the accuracy of an internet search performed for each institution. The survey asked program directors to verify
accuracy concerning current employment of listed faculty, their listed academic ranking, accreditation role and highest degree achieved. Program degrees offered were verified for accuracy as well. Program directors were invited to correct or complete any missing information. Preference for obtaining research publications for faculty through information published on their institutions website, internet search or by providing curriculum vitae of faculty. Some program directors preferred faculty contacted directly by surveyors and provided faculty e-mail addresses.

Population: The target population of this study was Bachelor and Masters level degree Respiratory Therapy Educational programs in the United States accredited by CoARC. 

Sampling Frame: The directory list of accredited BS and M.S. degree programs was the sampling frame for this study. Fifty-six programs are accredited by CoARC, surveys were e-mailed to program directors listed in the directory.

Collection of Data: Survey research is a common tool for data collection in educational research. For face validity, three respiratory therapy educators reviewed the RTRS for clarity prior to administration. IRB approval was granted & assigned IRB number H18416. A letter (See Appendix A) was e-mailed one week in advance to all program directors to notify them of the purpose of the study in an attempt to improve response rate. The survey was sent along with the proceeding letter and a cover letter (See Appendix C). The cover letter explained what the study was about, why it was important, how information would be kept confidential and whom to contact for questions. One week after sending the questionnaire, a reminder e-mail (See Appendix D) along with the survey and cover letter was sent. In the follow-up e-mail, those that had participated were thanked and for those who had not responded a response was requested.
Two weeks after sending the initial survey, a final reminder notice (See Appendix E) which
again thanked those that participated and again requested a response for those who had not.

After creating a data collection instrument of all 56 CoARC accredited Bachelor and
Master level respiratory therapy programs in the United States, the name and contact information
for each Program Director was identified via internet search of each program on the institutional
website. At the same time, faculty names, academic rank, accreditation role and highest degree
earned of all full-time instructors were noted. Data was also collected if their curriculum vitae
(CV) or research publications were posted on their institution’s website. All 56 program directors
were surveyed to verify the accuracy of the web information and provide curriculum vitaes.
Since curriculum vitaes often contain private information, some program directors had study
personnel directly contact faculty to give their consent. Program directors and faculty were
reassured all information obtained would remain unidentified. In lieu of providing a curriculum
vitae, program directors participated by consenting study personnel to use either a CV or
research listing already published on their institutional website or having research personnel
complete a journal publication search using a combination of Google Scholar, Scopus and
Research Gate to correctly identify faculty’s publications. If the program director was able to
verify employment and accuracy of the website information but was not able to return a
curriculum vitae for their professors, a Google Scholar, Scopus and Research Gate search was
completed to find faculty’s journal publications.

Data collected from the curriculum vitaeas, institutional website research listings and
internet search included total of peer-reviewed journal publications, number count of first
authorship, years since first publication and number of times publications are cited more than 50
times. From this data, faculty’s H-Index and m quotient were calculated.
**Data Analysis**

**Statistical Analyses:** To answer the research questions, descriptive statistics were used. Correlations were used for comparison for tests of significance. Data was assessed using statistical software (SPSS version 21.0, IBM SPSS statistics, Inc., Chicago, IL.

**Data Management and Storage:** Data storage is crucial to research. Properly storing data is the best way to safeguard research investments. Data may need to be accessed in the future to explain or augment subsequent research, so data will need to be stored. Furthermore, other researchers might wish to evaluate or use the results of this research. Stored data can establish precedence in the event that similar research is published. Storing data can also protect research subjects and researchers in the event of legal allegations (Letzring, 2017). As such, data was saved on a password protected file in a cloud database. Electronic backup of information was provided by the investigators on excel spreadsheets on password-protected computers.

In summary, this chapter described how research productivity in respiratory therapy was obtained. A survey was e-mailed to all B.S. and M.S. level respiratory therapy programs listed with CoARC. Surveys were kept confidential. Descriptive statistics and correlations of significance were analyzed. Data was stored in a password protected file in a cloud database. Backup files were stored in a separate password protected file.
CHAPTER 4

FINDINGS

This chapter provides the data collected from the survey of respiratory therapy program directors of Bachelor and Master degree programs in the United States as well as the findings of the analysis conducted in the study. It is comprised of two sections. The first section provides the descriptive statistics of the programs and full-time faculty. The second section reports the analysis of data collected by the survey and internet searches used to test the hypothesis of the study to find the Research questions are:

1. How is research productivity described in respiratory therapy?

2. What are the research productivity rankings of respiratory therapy educational researchers?

3. What are the research productivity rankings of respiratory therapy educational departments?

Descriptive Statistics

Of the 56 CoARC accredited Bachelor and Master level respiratory therapy programs in the United States at least 262 faculty were employed full-time via internet search. Of the 56 programs, 52% of program directors responded (n=29). One program opted out stating it was in the process of closing its program. Another program identified it had no full-time employees and thus did not meet the study criteria of examining only full-time faculty. Of the 27 remaining participating programs, 143 instructors participated. From the 143 participating instructors, 28% of faculty were contacted directly for their CV (n=40). Research information was published for 10% (n=15) of faculty on their institution’s website and was used to find their journal publications. Internet search was utilized to find 62% (n=88) of faculty’s research productivity.
Programs surveyed varied in multiple ways: degree(s) offered, number of full-time faculty, completeness and accuracy of faculty web information and location in the United States. From the 56 CoARC accredited programs, 1 offered a Masters degree only, 13 offered both MS/BS degrees while 42 offered Bachelor Degrees. Number of full-time faculty per program ranged from 2-13 with one excluded institution responding they had no full-time faculty. Institutional web information varied tremendously. Some websites proved exceedingly difficult to find any faculty names or roles. Other websites had full listings of full and part-time faculty with research publications or CVs. Medical directors for some programs were not identified. Accurate internet information was posted for faculty concerning their employment, academic rank, accreditation role and highest level of degree for 65% of faculty surveyed (n=93). From all the programs invited to participate in the survey, 18 states were represented. Of the remaining 32 states, 22 had no B.S. or M.S. program offered. Following is a geographic representation of the study sampling. See Figure 1.

Only 23% of the professors’ curriculum vitaes or research publications were listed on their institution’s website (n=33). Search engines including Google Scholar, Scopus and Research Gate were used to find research publications for 61.5% of professors (n=88). Of the
143 participating instructors, 66 were women and 77 were men. Academic Rank of those surveyed was identified for 128 faculty. Academic Rank was as follows: Instructor (n=28), Assistant Professor (n=54), Associate Professor (n=30), Full Professor (n=15) and Emerita Professor (n=1). Highest degree obtained was identified for all 143 faculty. Results were as follows: MD (n=22), Doctorate (n=32), Master (n=82) and Bachelors (n=7).

Of these 143 professors, 84 (58.7%) had no peer-reviewed journal publication. The range of total research publications varied widely with a range of 0 to 159 and a mean of 5.73. The range of H-Index for all professors also varied widely with a range of 0 to 44 and a mean of 2.37. See Table 1. M-quotient ranged from 0 to 1.02 and a mean of 0.1342. See Table 2.

Table 1

*Respondent Faculty H-Index Frequency and Percent*

<table>
<thead>
<tr>
<th>Faculty H-Index</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
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<td>84</td>
<td>58.7</td>
<td>58.7</td>
</tr>
<tr>
<td>1</td>
<td>15</td>
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</tr>
<tr>
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<td>13</td>
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</tr>
<tr>
<td>4</td>
<td>3</td>
<td>2.1</td>
<td>83.2</td>
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<td>4.9</td>
<td>88.1</td>
</tr>
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<td>7</td>
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<td>2.1</td>
<td>93.0</td>
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<td>0.7</td>
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<td>0.7</td>
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<td>1.4</td>
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<tr>
<td>Total</td>
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Table 2

*Respondent Faculty m-Quotient Frequency and Percent*

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<tr>
<th>Faculty m-Quotient</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
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<td>89.5</td>
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<td>93.7</td>
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<td>95.1</td>
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<tr>
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<td>97.2</td>
</tr>
</tbody>
</table>
Outcome Variables

Since the H-Index varied widely, an examination was warranted to discover factors that correlated with increasing professors H-Index. Factors that correlated with a higher H-Index were as follows: highest degree achieved, academic rank, accreditation role and Carnegie Classification of Institutions of Higher Education. By degree, the standard deviation of H-Index was most dramatic. Mean H-Index by degree was as follows: MD 8.55, Doctorate 3.31, Master 0.55 and Bachelor 0. M-Quotient varied in similar fashion to H-Index. Mean m-Quotient by degree was as follows: MD 0.316, Doctorate 0.232, Master 0.059 and Bachelor 0. See Table 3.

Table 3

*Respondent H-Index & m-Quotient by Degree*

<table>
<thead>
<tr>
<th>Highest Degree Achieved</th>
<th>N</th>
<th>Mean H-Index</th>
<th>H-Index Range</th>
<th>H-Index Standard Deviation</th>
<th>Mean m-Quotient</th>
<th>m-Quotient Range</th>
<th>m-Quotient Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>22</td>
<td>8.55</td>
<td>0-44</td>
<td>+/- (11.693)</td>
<td>0.3160</td>
<td>0-1.02</td>
<td>+/- (0.30877)</td>
</tr>
<tr>
<td>Doctorate</td>
<td>32</td>
<td>3.31</td>
<td>0-16</td>
<td>+/- (3.771)</td>
<td>0.2319</td>
<td>0-0.86</td>
<td>+/- (0.23056)</td>
</tr>
<tr>
<td>Master</td>
<td>82</td>
<td>0.55</td>
<td>0-7</td>
<td>+/- (1.288)</td>
<td>0.0587</td>
<td>0-0.57</td>
<td>+/- (0.12648)</td>
</tr>
<tr>
<td>Bachelor</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>143</td>
<td>2.37</td>
<td>0-44</td>
<td>+/- (5.707)</td>
<td>0.1342</td>
<td>0-1.02</td>
<td>+/- (0.21511)</td>
</tr>
</tbody>
</table>

H-Index also varied by Academic Rank. Mean H-Index by Academic Rank was Full Professor 5.2, Associate Professor 1.6, Assistant Professor 0.81 and Instructor 0.39. Mean m-Quotient by Academic Rank was Full Professor 0.224, Associate Professor 0.138, Assistant Professor 0.113 and Instructor 0.019. See Table 4.
Table 4

Respondent H-Index & m-Quotient by Academic Rank

<table>
<thead>
<tr>
<th>Academic Rank</th>
<th>N</th>
<th>Mean H-Index</th>
<th>H-Index Range</th>
<th>Mean m-Quotient</th>
<th>m-Quotient Range</th>
<th>m-Quotient Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerita / Emeritus Professor</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Full Professor</td>
<td>15</td>
<td>5.20</td>
<td>0-16</td>
<td>0.2244</td>
<td>0-0.73</td>
<td>+/- (0.22898)</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>30</td>
<td>1.60</td>
<td>0-8</td>
<td>0.1375</td>
<td>0-0.66</td>
<td>+/- (0.03145)</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>54</td>
<td>0.81</td>
<td>0-7</td>
<td>0.1133</td>
<td>0-0.86</td>
<td>+/- (0.02845)</td>
</tr>
<tr>
<td>Instructor</td>
<td>28</td>
<td>0.39</td>
<td>0-7</td>
<td>0.0186</td>
<td>0-0.27</td>
<td>+/- (0.01290)</td>
</tr>
<tr>
<td>Total</td>
<td>143</td>
<td>1.41</td>
<td>0-16</td>
<td>0.1104</td>
<td>0-0.86</td>
<td>+/- (0.01664)</td>
</tr>
</tbody>
</table>

Accreditation role was another variable found to have positive correlation with faculty research productivity. Mean H-Index by accreditation role were as follows: medical director 9.05, program director 2.00, director of clinical education 0.33 and non-accreditation role 1.56. When collecting data for the study, some programs were between job positions and did not have assigned faculty to each of the accreditation roles. Several programs did not identify a medical director, which may affect their program’s mean program faculty H-Index. See Table 5.

Table 5

Respondent H-Index & m-Quotient by Accreditation Role

<table>
<thead>
<tr>
<th>Accreditation Role</th>
<th>N</th>
<th>Mean H-Index</th>
<th>H-Index Range</th>
<th>Mean m-Quotient</th>
<th>m-Quotient Range</th>
<th>m-Quotient Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Director</td>
<td>18</td>
<td>9.06</td>
<td>0-44</td>
<td>0.2870</td>
<td>0-1.02</td>
<td>+/- (0.3079)</td>
</tr>
<tr>
<td>Program Director</td>
<td>32</td>
<td>2.00</td>
<td>0-8</td>
<td>0.1678</td>
<td>0-0.86</td>
<td>+/- (0.2228)</td>
</tr>
<tr>
<td>Director of Clinical Education</td>
<td>27</td>
<td>0.33</td>
<td>0-3</td>
<td>0.0426</td>
<td>0-0.5</td>
<td>+/- (0.1119)</td>
</tr>
<tr>
<td>Non- Accreditation Role</td>
<td>66</td>
<td>1.56</td>
<td>0-16</td>
<td>0.1136</td>
<td>0-0.75</td>
<td>+/- (0.1915)</td>
</tr>
<tr>
<td>Total</td>
<td>143</td>
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<td>0-44</td>
<td>0.1342</td>
<td>0-1.02</td>
<td>+/- (0.2151)</td>
</tr>
</tbody>
</table>

Another variable found to influence H-Index of faculty was the Carnegie Classification of Higher Education. Doctoral universities are categorized by research as having highest (R1),
higher (R2) or moderate (R3) activity. Master’s Colleges and Universities are subtyped by size into: larger (M1), medium (M2) and smaller (M3) programs. Notably, instructors with an H-Index of 10 or more were employed by universities designated R1, R2 or M1. See Table 6.

Table 6

*Respondent Faculty H-Index Frequency, Carnegie Classification & Percent*

<table>
<thead>
<tr>
<th>Faculty H-Index</th>
<th>Frequency</th>
<th>Carnegie Classifications</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
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<td>0</td>
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<td>R1, R2, R3, M1, M2, M3, 0</td>
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<td>58.7</td>
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<td>1</td>
<td>15</td>
<td>R1, R2, R3, M1, M2, 0</td>
<td>10.5</td>
<td>69.2</td>
</tr>
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<td>2</td>
<td>13</td>
<td>R1, R2, R3, M1, 0</td>
<td>9.1</td>
<td>78.3</td>
</tr>
<tr>
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<td>4</td>
<td>R1, R2, R3, M1</td>
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<td>81.1</td>
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<tr>
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<td>3</td>
<td>R2, 0</td>
<td>2.1</td>
<td>83.2</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>R1, R2</td>
<td>4.9</td>
<td>88.1</td>
</tr>
<tr>
<td>6</td>
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<td>7</td>
<td>2</td>
<td>M3, 0</td>
<td>1.4</td>
<td>90.9</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>R1, R2, 0</td>
<td>2.1</td>
<td>93.0</td>
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<td>9</td>
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<td>R3</td>
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<td>13</td>
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<td>M1</td>
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<td>M1</td>
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<td>99.3</td>
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<tr>
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<tr>
<td>Total</td>
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<td>100</td>
<td></td>
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</table>

Mean faculty H-Index of each program was also evaluated to discover research productivity ranking of programs. Mean Program H-Index ranged from 0 to 10.17 with a mean of 1.99. The top 10 percentiles of programs had a mean H-Index of professors of 6.00 or greater. See Table 7.

27
Table 7

*Respondent Mean Program H-Index Frequency and Percent*

<table>
<thead>
<tr>
<th>Mean program H-Index</th>
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<th>Percent</th>
<th>Cumulative Percent</th>
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<td>25.9</td>
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<tr>
<td>4.67</td>
<td>1</td>
<td>3.7</td>
<td>88.9</td>
</tr>
<tr>
<td>6.00</td>
<td>1</td>
<td>3.7</td>
<td>92.6</td>
</tr>
<tr>
<td>7.56</td>
<td>1</td>
<td>3.7</td>
<td>96.3</td>
</tr>
<tr>
<td>10.17</td>
<td>1</td>
<td>3.7</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

One additional variable explored to examine its correlation with mean program H-Index was total number of faculty of each program. Pearson Correlation was calculated to be 0.335 and reflects there is a very weak relationship between total number of faculty and mean program H-Index. Test of Significance (2-tailed) was 0.088. Significance was set as p=0.01. See Table 8. Since correlation was not strongly significant with H-Index and the m-quotient is typically less than 1. Correlation of total number of faculty with mean program m-quotient was not explored.
Table 8

Correlation of Total Number of Faculty and Mean Program H-Index

<table>
<thead>
<tr>
<th></th>
<th>Total Number of Program Faculty</th>
<th>Mean Institutional H-Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Program Faculty</td>
<td>Pearson Correlation 1</td>
<td>0.335</td>
</tr>
<tr>
<td>Sig, (2-tailed)</td>
<td></td>
<td>0.088</td>
</tr>
<tr>
<td>N</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Mean Institutional H-Index</td>
<td>Pearson Correlation 0.335</td>
<td>1</td>
</tr>
<tr>
<td>Sig, (2-tailed)</td>
<td>0.088</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>27</td>
<td>27</td>
</tr>
</tbody>
</table>

P=0.01

The final variable examined was mean program H-Index by Carnegie Classification. See Table 9. Mean program H-Index was highest for Carnegie Classification Research Highest (R1). Mean program H-Index for M1 classification was skewed by one program that had a mean program H-Index of 10.17. On further inspection, other M1 classified programs mean index ranged from 0-1.5 with a mean of 0.3. Furthermore, the outlier program with a mean program H-Index of 10.17 had a total of 3 physicians, all of whom were medical directors for various parts of their programs. The physicians combined experience in research totaled 88 years with a mean H-Index between them of 20. Although no other program responded to the survey with 3 medical directors, one other program had 3 physicians, however their mean program H-Index was 3.23. Some programs did not include or designate a medical director (n=14) included even though it was asked as part of the survey. Four of these programs did have faculty with medical degrees. Possible rational may that not all medical directors may be full time faculty and perhaps were not included for this reason. One other explanation may be that the program has lost the previous medical director and is currently in search for their replacement. No matter the case, this may play an important role in mean program H-Index.
The Masters Small Carnegie Classified program notably had a mean program H-Index of 3.50. Upon further inspection, there were only 2 faculty members, both had earned Masters degrees and academic rank of instructors. The program offered bachelors level degrees only. One faculty had an H-Index of 0. The other was a program director with 28 years of research experience with an H-Index of 7. Also of note, this was the only program of the 56 programs surveyed with a M3 classification.

Table 9

<table>
<thead>
<tr>
<th>Carnegie Classification</th>
<th>Code</th>
<th>N (Programs Responded to survey)</th>
<th>All CoARC RT Programs e-mailed</th>
<th>Mean Program H-Index</th>
<th>H-Index Standard Deviation</th>
<th>Mean Program m-Quotient</th>
<th>m-Quotient Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Highest</td>
<td>R1</td>
<td>4</td>
<td>6</td>
<td>3.39</td>
<td>+/- (3.40)</td>
<td>0.5438</td>
<td>+/- (0.761)</td>
</tr>
<tr>
<td>Research Higher</td>
<td>R2</td>
<td>6</td>
<td>9</td>
<td>2.52</td>
<td>+/- (2.15)</td>
<td>0.1150</td>
<td>+/- (0.075)</td>
</tr>
<tr>
<td>Research Moderate</td>
<td>R3</td>
<td>3</td>
<td>8</td>
<td>0.67</td>
<td>+/- (0.76)</td>
<td>0.0487</td>
<td>+/- (0.0639)</td>
</tr>
<tr>
<td>Masters Larger</td>
<td>M1</td>
<td>8</td>
<td>16</td>
<td>1.53</td>
<td>+/- (3.53)</td>
<td>0.2738</td>
<td>+/- (0.616)</td>
</tr>
<tr>
<td>Masters Medium</td>
<td>M2</td>
<td>1</td>
<td>3</td>
<td>0.13</td>
<td>-</td>
<td>0.0250</td>
<td>-</td>
</tr>
<tr>
<td>Masters Small</td>
<td>M3</td>
<td>1</td>
<td>1</td>
<td>3.50</td>
<td>-</td>
<td>0.1250</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>1</td>
<td>13</td>
<td>1.7775</td>
<td>+/- (0.54)</td>
<td>0.1545</td>
<td>+/- (0.092)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>27</td>
<td>56</td>
<td>1.99</td>
<td>+/- (2.55)</td>
<td>0.2252</td>
<td></td>
</tr>
</tbody>
</table>

**Summary**

As in other professions, research productivity is described in respiratory therapy by journal publications. These findings reveal standards can be used specifically only to the field of respiratory therapy for the first time.

A wide range of H-Index from 0 to 44 was found. Exploration of mean H-Index by academic rank found that as academic rank rose, so did mean H-Index. Investigation of influence
of mean H-Index by accreditation role found mean H-Index to be 0.33 for Director of Clinical Education, 2.00 for Program Director and 9.06 for Medical Director. Mean H-Index for those without an assigned accreditation role was 1.56. Range for Medical Director was widest at 0 to 44, followed by those without accreditation role with a range of 0 to 16, followed by Program Directors with a range of 0 to 8, trailed by Director of Clinical Education with a range of 0 to 3. Finally, influence of Carnegie Classification on faculty H-Index was explored. While H Index varied widely for all categories, it was notable that all faculty with an H-Index of 10 or greater was from an institution with a Carnegie Classification of R1, R2 or M1. These findings may be found useful in standardizing hiring, evaluations or promotion of respiratory faculty particularly in research focused institutions.

Mean Program H-Index varied widely with a range of 0 to 10.17. Due to this variation in mean H-Indexes, correlation variables, total number of faculty and Carnegie Classification were investigated.
CHAPTER 5

DISCUSSION & CONCLUSION

The purpose of this chapter is to discuss the findings in relation to past research, discuss the limitations and make recommendations for implications of future research.

Overview

The purpose of this study was to answer three questions regarding respiratory therapy programs and their faculty:

1. How is research productivity described in respiratory therapy?
2. What are the research productivity rankings of respiratory therapy educational researchers?
3. What are the research productivity rankings of respiratory therapy educational departments?

Discussion

While other professions have calculated measurements of research productivity for their profession, to date no such index exists for respiratory therapy. This discussion explores the results of research productivity of full-time faculty of B.S. and M.S. respiratory therapy programs across the United States. The definition of research productivity identified for respiratory therapy is consistent with nursing, allied health, social sciences and medicine. H-Index range for respiratory therapy educational researchers (0-44) was similar to faculty from other fields: nursing (0-23) (De Groote & Raszewski, 2012), physical therapy (0-17) (Littman et al., 2017), occupational therapy (0-37) (MacDermid et al., 2015), communication sciences (1-67) (Stuart et al., 2017) and emergency physicians (0-44) (DeLuca et al., 2013).
Research productivity was found to vary widely. Higher research productivity was associated with highest degree achieved. This is not surprising since many institutions require masters, doctoral and medical students to participate in research as part of their program. Likewise, since academic rank and accreditation roles are limited somewhat by highest degree achieved, it makes sense that research productivity would increase as well. Similar findings were achieved when comparing academic rank and H-Index for social work, psychology (Barner et al., 2014) and communication sciences faculty (Stuart et al., 2017). Finally, Carnegie Classification was found not to have correlation with individual faculty ranking. Five faculty employed at an institution without a Carnegie designation of R1-3 or M1-3 were found with an H-Index of 6, 7 or 8 which placed them in the top 10th percentile of faculty surveyed. Faculty had research experience of 7, 9, 20, 21 and 35 years. Four held doctoral degrees and one held a masters degree. Four were from programs offering B.S & M.S. level degrees and one was from a program offering a bachelors degree alone. Four were program directors and one had no accreditation role. Two were assistant professors and three were associate professors. The combination of years of experience, accreditation role and degree may all play a role in their research success. Influence of Carnegie classification was investigated for physical therapy and also found no significant correlation with faculty research productivity (Littman et al., 2017).

In regards to question 3, what is the research productivity ranking of respiratory therapy departments, mean program H-Index was found very weakly related to total number of faculty. Carnegie Classification was found to have highest ranges for programs designated R1, R2 and M1. Research moderate (R3) designated programs were outperformed by an M3 classified program.
Faculty and program should be aware that the secondary focus for some smaller universities or those without a research designation may not be what lasting contributions and/or discoveries they have made in their field of expertise through research. Instead, there are many other foci demanding time and energy from respiratory professors across the United States. Without a concentrated effort and support towards journal publication from their program or institution, professors may never publish work they have done. This was most evident in the pages of professors’ curriculum vitae. CVs were filled with conference presentations, editorials, journal articles, journal article reviews, committee & board memberships, abstract reviews, abstracts, poster presentations, volunteering, applications for funding that were not funded, grants, book chapters and book publications. After reviewing faculty efforts displayed by their curriculum vitae it was easy to understand how competing factors detract time from both program and faculty goals of research publication. Program directors and department chairs should be aware of these competing factors and may need to reallocate time and resources for assistant and associate professors.

Another notable discovery while looking at institutional websites for professor information was the varying presenting of research publications. As previously mentioned, only 23% of the 143 faculty that participated in the survey had information posted on their institution’s website (n=33). This brought up two important points of discussion. First, are programs protecting faculty private information as it should? Can potential disgruntled students easily view faculty personal information with just a few clicks? Web sites varied tremendously in sharing information about faculty. Some web sites did not list faculty at all. Other sites contained either a listing of faculty research publications or curriculum vitae (sometimes with personal information like home address or spouse’s name). More than one curriculum vitae was posted
with personal information obscured to protect faculty privacy. A few program directors voiced concerns over sharing faculty personal information which led to e-mailing faculty directly for concerned directors or using internet search engines to find journal publications. For some faculty, a web search was performed and faculty were e-mailed to confirm found information was accurate. Surprisingly, web search information was found to be reliable. Second, are programs advertising the way they should research done by faculty? If scholarly output is revered and measured through journal publications, why are only 23% of institutions publishing it on their website? Faculty were discovered to have mixed amounts of publication efforts done as well. Internet search via Google Scholar, Scopus and Research Gate found 45.5% (n=65) had profiles that shared their journal publications. Interestingly, several were found to have profiles on Research Gate even though they had no journal publications to display. Research Gate has a feature to link both the institution and department to the researcher. Are institutions creating departmental websites where they can share research done along with the results of all their efforts? While there are certainly other share sites available, based on this study’s use of three search engines this seems to be an area for future development in the field. Is there a need to educate faculty including program directors on efficient means of sharing research productivity and following work done at other institutions?

Limitations
While efforts were done to provide accurate representations of faculty curriculum vitae, some faculty may not have been approached to update their curriculum vitae prior to sharing it for the purpose of this study. Likewise any research information gleaned from the institutional website, may not have been reviewed by the faculty recently prior to its use for this study. Also, faculty with commonly used names may have been difficult to distinguish their research
publications. Every effort was made to obtain accurate information hence why three different search engines were used and cross-referenced when needed with other members of their programs staff.

**Suggestions for Future Research**

For this study, efforts towards and amounts of grants received was not explored. Total amounts of grants awarded by faculty was not recorded. Factors which may correlate with programs and faculty receiving grants may prove important to faculty’s research productivity as well.

Another important topic not explored in this study is time and productivity of other efforts that were mentioned to potentially affect time available for research. Count of books chapters, books published, conference presentations, editorials, journal articles, journal article reviews, committee and board memberships, abstracts and abstract reviews, poster presentations and volunteering are all important work done to advance the profession. This work done may too have several correlating influences.

As identified, there are 22 states that remain without B.S. or M.S. respiratory therapy programs. Are there barriers that exist in these states that limit the developing of these programs? Are current respiratory programs offered only at community colleges which are limited to expand their programs to offer bachelor and masters level degrees? Do respiratory therapists in these states present a unique challenge for the profession? Do neighboring states serve the respiratory therapists who wish to advance their degrees? Do these states present the profession with unique challenges?
Altmetrics have been characterized to be more rapid, transparent and a better measure of article level impact (Chisolm, 2016). Which altmetric best quantifies an author’s impact for the field of respiratory therapy currently?

**Conclusions**

Faculty holds responsibility for publishing research from abstracts to manuscripts. The educational program has responsibilities to move their department and profession forward. Faculty need to model professional behavior to engage in life-long learning by participating in research to find answers to keep their profession robust. In summary, questions for future research involve privacy concerns, amounts of grants awarded, time involvement of competing projects and limitations of further developing programs in states not currently containing B.S. or M.S. respiratory therapy programs.
REFERENCES


Siraj, R. (2015). *Respiratory Therapy Faculty Perceptions of Effective Teaching Characteristics of Clinical Instructors in the State of Georgia*: ScholarWorks @ Georgia State University.


Dear Respiratory Therapy Department Chair,

I am writing this email to invite your participation in a research study related to your position as department chair of a CoARC accredited respiratory therapy program. We are interested in the assessment of baccalaureate respiratory therapy programs and the potential correlation with faculty research involvement. As the chair of the department, we are contacting you for program specific information. Furthermore, as a full-time faculty member, we would like to also ask you about your research activity.

In the next two weeks, a member of our research team will e-mail you a survey to collect the needed information for this study. We would like you to ask faculty to be involved by providing their Curriculum Vitae to you. To make this process easier we have provided the requested information below. These questions will be answered during the survey. Please have a list of your peer-reviewed science publications (articles) with the full citation available to enter into the survey website (no abstracts, no magazines or newspaper articles please)

Personal Research Activity:

1. Full name including middle initial

2. Academic rank: instructor, assistant, associate, full professor

3. Highest educational degree

4. A list of peer-reviewed science publications (articles) with the full citation (no abstracts, no magazines or newspaper articles please)
The results of this study will be published in a peer-review journal, most likely “Respiratory Care.” Names of institutions will be published with the summary data. Names linked with data will be kept for future analyses, but individual researcher names will not be published.

Thank you for your time, and we look forward to getting your feedback.

Best regards,

Melinda Register, RRT, CPFT, NPS
Graduate Assistant, Department of Respiratory Therapy
Georgia State University

Mregister6@student.gsu.edu
Cell: 404-936-1624
Dear Respiratory Therapy Faculty,

I am writing this email to invite your participation in a research study related to your position as a member of a CoARC accredited respiratory therapy program. We are interested in the assessment of baccalaureate & master’s respiratory therapy programs and the potential correlation with faculty research involvement. As a full-time faculty member, we would like to also ask you about your research activity.

In the next two weeks, a member of our research team will collect the needed information for this study via the following survey. To make this process easier we completed an internet search of your institution’s website to gather the following information. We realize this information is not always updated immediately and not all institutions list their faculties’ accomplishments on their site’s home page. The following is information was found on your program:

University of ________________

(Enter Chair Person’s Name)

Chair of the Department of Cardiorespiratory Care

Phone: (xxx) xxx-xxxx

name@university.edu
1. **Please update or correct any errors and add any missing faculty listed below.** This is a list of instructors found via internet search for your institution. For this study, we are only interested in Instructors, Assistant Professors, Associate Professors and Professors. Please exclude Adjunct or Part-Time Instructors for this survey. We also would like to classify accreditation role of faculty. Please include this role in the separately marked column.

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Academic Rank</th>
<th>Accreditation Role</th>
<th>Highest Degree Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please list middle initial of instructors or name as might appear in publication</td>
<td>Please list: Instructor, Assistant Professor, Associate Professor, or Professor for each faculty member</td>
<td>Program Director, Director of Clinical Education, Medical Director</td>
<td>Degree</td>
</tr>
<tr>
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<td>Program Chair</td>
<td>Degree 1</td>
</tr>
<tr>
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<td>Rank 2</td>
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<td>Degree 2</td>
</tr>
<tr>
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<td>Rank 3</td>
<td>Medical Director</td>
<td>Degree 3</td>
</tr>
<tr>
<td>Faculty 4</td>
<td>Rank 4</td>
<td></td>
<td>Degree 4</td>
</tr>
</tbody>
</table>

**Please mark the correct statement:**

- [ ] Information above was all correct.
- [ ] Information above was incorrect & changes were made to correct it.

2. **Please update any changes in your program offerings (Bachelors levels & above only).** As part of this survey, we have also identified your program as having the following respiratory programs:
  - BS Degree in Respiratory Therapy
  - Master of Science in Respiratory Therapy

**Please mark the correct statement:**

- [ ] Information above was all correct.
- [ ] Information above was incorrect & changes were made to correct it.

3. **If available, please send a current Curriculum Vitae with listings of your faculty which includes research done by these faculty members.** While some institutions have this readily available on their home website, we would like to assure the most current data is used. All information shared will be done so confidentially and no institution nor faculty members will be identified in the study.
Please mark the statement for your institutions choice of sharing Curriculum Vitae or add your own:

☐ Curriculum Vitae of each faculty member is being returned with the survey.

☐ Please use the curriculum vitae available on our institutional website.

☐ We would like to be part of the study, but please use search engines (like Google Scholar) to find faculty members research study listings.

☐ Other:

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In the next two weeks, a member of our research team will collect the needed information for this study via the following survey. To make this process easier we completed an internet search of your institution’s website to gather the following information. We realize this information is not always updated immediately and not all institutions list their faculty’s accomplishments on their site’s home page. The following is information was found on your program:

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<td></td>
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<td>Degree 4</td>
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5. **Please update any changes in your program offerings (Bachelors levels & above only).** As part of this survey, we have also identified your program as having the following respiratory programs:
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   - Master of Science in Respiratory Therapy

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For one more week, a member of our research team will collect the needed information for this study via the following survey. To make this process easier we completed an internet search of your institution’s website to gather the following information. We realize this information is not always updated immediately and not all institutions list their faculty’s accomplishments on their site’s home page. The following is information was found on your program:

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