

Quality Approaches in Higher Education



Assessing
graduate-level
training in research
and evaluation
methods

Research and Evaluation Methods Programs in the United States

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Abstract

This exploratory study utilized both quantitative and qualitative methods to examine the characteristics of research and evaluation methods programs in the United States. A list of universities in the United States was identified through the Carnegie website. Results indicate 45 research and evaluation programs in research-intensive universities, with two completely online programs. Findings from this study provide insight into the current state of graduate-level training within the discipline of research and evaluation methods.

Keywords

Graduate Education, Research and Evaluation Methods, Online Education

Introduction

There are multiple master's degrees available for students who wish to increase their education past their undergraduate years (Peterson's, 2014). Obtaining a master's degree can drastically increase annual earnings, help with changing jobs or occupations, and increase "organizational fit...career satisfaction and performance" (Seibert, Kraimer, Holtom, & Pierotti, 2013, p. 169). Gwartz (2014) states, "Students have several important decisions to make when considering whether to pursue an advanced degree. Graduate education requires a major commitment of time, money, rigorous course work, and, many times, a research project. In making this decision, the student must take an inventory of their passion and career goals" (p. 241). Unfortunately, not all master's degrees have the marketing capability to help potential students understand that the degree is available, will help them attain an interesting career, and serve as a viable choice for furthering their education (Lewison & Hawes, 2007).

The Leech (2012) conceptual framework for understanding how to educate knowledgeable and skilled researchers was utilized as a foundation for the current study and is presented in Figure 1. The Leech (2012) framework incorporates three theories/studies (Bozeman, Dietz, & Gaughan, 2001; Levine, 2007; Lovitts, 2005) and outlines four main areas that contribute to educating skilled and knowledgeable researchers: individual resources, the program, micro-environment, and macro-environment. Individual resources, as measured by Bozeman et al. (2001), include aspects of the student, such as his or her motivation and thinking styles. The program incorporates the curriculum, instruction, assessment, and standards. As defined by Lovitts (2005), the micro-environment includes peers, faculty, mentors, location of the school, and the department while the macro-environment includes the culture of graduate education and the culture of the discipline. Each of these areas is important to consider when evaluating graduate programs.

The purpose of this study was to investigate the research and evaluation programs in the United States, including whether they offer online programs, tuition costs, location (e.g., urban, rural, etc.), accreditation type, etc. Specifically, this study will answer the following overarching research question: What are the characteristics of research and evaluation programs in the United States? The current study provides an in-depth examination into the program component of Leech's (2012) conceptual framework and addresses the other three areas of the framework with less emphasis.

The Research and Evaluation Methods (REM) master's degree is one of the less well-known degrees. In general, REM degree programs provide training in data collection, analysis, interpretation, and presentation of results from the data. These skills allow for the practical application of research and evaluation techniques to real-world problems and the translation of research into practice and policy. After searching Education Resources Information Center (ERIC) through EBSCO, ProQuest, using the Boolean terms "research and evaluation program" and "research and evaluation methods program," and, for both searches, narrowing the search to only peer-reviewed documents, just two articles were found. By using Web of Knowledge with the search terms and narrowing the search to only peer-reviewed documents, six articles were found. Unfortunately, but not surprisingly, none of the findings were applicable to increasing understanding of REM

programs. Using the search terms "research master's program" various articles and sources were found, yet the majority of these articles were focused on other master's programs, for example, biomedical sciences (Blanck, 2014), English-medium instructed master's degree programs (Kuroda, 2014), programs in sustainable development (Vermeulen, Bootsma, & Tijm, 2014), and online biostatistics programs (Shillam, Ho, & Commodore-Mensah, 2014) among others. These articles show there is extant research to better understand master's programs, but very little research in the area of REM master's programs.

After searching on Google, one unpublished paper was found. Alban and Hancock (2001) explored doctoral degrees in measurement, statistics, and evaluation methods. The purpose of the study was to better understand which programs were quality programs. Using the National Council on Measurement in Education's list of programs in educational measurement (National Council on Measurement in Education, 1998), the

American Psychological Association's (APA) publication, *Graduate Study in Psychology* (American Psychological Association, 1998), and Peterson's *The Grad Channel* now found at *Find a graduate school that's right for you!* (Peterson's, 2015) website, 80 doctoral programs were identified. Eight areas were explored for the years 1995-2000, including the total number of full-time faculty, the total number of full-time students, the number of content courses offered, the average number of assistantships, the number of doctoral degrees conferred, the number of students obtaining a faculty position in a Research I (e.g., research universities with very high research activity) and Research II (e.g., research universities with high research activity) university, the amount of grant funding received, and the number of publications by the faculty. The top 10 programs in each area were delineated. This information is helpful, especially if a potential student is choosing a doctoral program, yet this paper is missing important information: how prevalent the program is on the Internet (e.g., how difficult it is to find for a prospective student) and whether or not these programs are offered online, a delivery option that is becoming increasingly popular.

Online delivery of courses and entire programs of study have been growing for

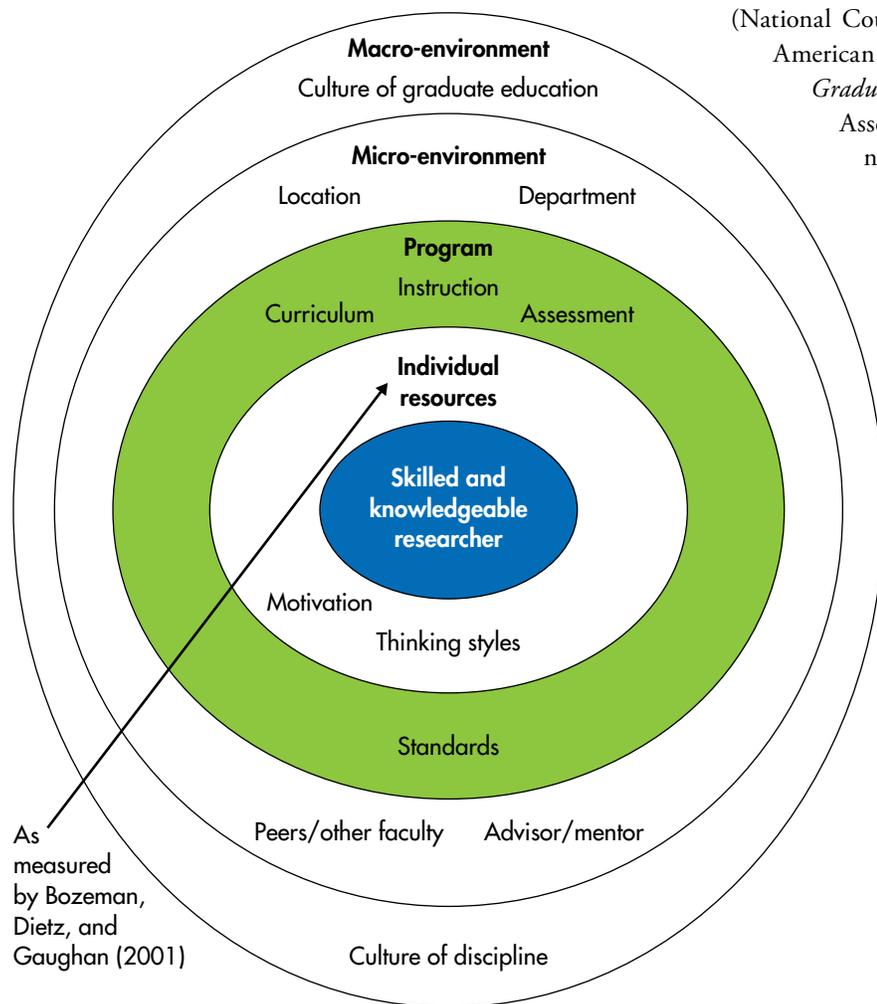


Figure 1: Leech's (2012) Model for Understanding Doctoral Student Success
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the past decade (Russell, 2004). In fact, as early as the 1990s, computers were used for distance education through an online format (Kennedy & Archambault, 2012). According to Jaggars, Edgecombe, and Stacey (2013) the availability of online courses has increased by 29% since 2010. With this proliferation in online education there has been increased discussion of the growing number of institutions that offer programs in an online format (Flowers & Baltzer, 2006). The addition of online courses and programs has been termed “penetration rate” (Allen & Seaman, 2005, p. 5). Parsad, Lewis, and Tice (2008) found in the years 2006-2007, 88% of all public four-year institutions offered courses online or hybrid (e.g., a mix of online and face-to-face), 71% offered at least one online undergraduate degree, and 52% offered at least one online graduate degree. Interestingly, when looking across types of institutions, “the highest penetration rates for each level (associate’s, bachelor’s, master’s, and doctoral) were seen at doctoral institutions” (Flowers & Baltzer, 2006, p. 39). According to Allen and Seaman (2005) in 2004, doctoral institutions had penetration rates of 64% for undergraduate, 79% for graduate, and 74% for continuing education. Programs that are offered only online are much less available. In fact, Allen and Seaman (2005) found that at doctoral institutions, 38% of undergraduate programs, 66% of master’s programs, and 16% of doctoral programs were offered entirely online.

Methods

This study was a concurrent, equal status, partially-mixed study (Leech & Onwuegbuzie, 2009) incorporating quantitative and qualitative data seeking to answer the following overarching research question: What are the characteristics of research and evaluation programs in the United States? Specific quantitative research questions included the following: Is there a difference in how many master’s-level and Ph.D.-level research and evaluation programs exist in very high research activity (RU/VH) institutions and research universities with high research activity (RU/H)? How many master’s- and Ph.D.-level research and evaluation programs are available online? What are the mean, median, mode, and standard deviations of the number of credits in master’s- and Ph.D.-level research and evaluation programs? The qualitative research question was: How are research and evaluation programs described on the website? As this study did not include collecting data from human subjects, institutional research board approval at the authors’ institution was not required.

Procedure

A list of all 207 RU/VH universities and RU/H institutions in the United States were identified through the Carnegie website (Carnegie Foundation for the Advancement of Teaching,

February, 2012). RU/VH and RU/H institutions must have at least 20 research doctoral degrees and not be a Tribal College or a Special Focus Institution (Carnegie Foundation for the Advancement of Teaching, February, 2012). Each institution’s name was searched using the Google search engine. Once a website for the university was found it was searched for the existence of a research and evaluation degree and/or program. Information was then extracted from the website and the data were entered into an Excel spreadsheet. Variables included if there was a master’s degree in research and evaluation and whether it was available online, if a Ph.D. program was available, the school or department that the program resided in, number of credits, cost per credit, and the qualitative description of the programs.

Analysis

The quantitative data were analyzed with descriptive statistics and chi-square. Assumptions of chi-square were checked. Quantitative data were imported from Excel into IBM SPSS version 22. The qualitative data were analyzed by using NVivo version 9.2.70.0 with constant comparative analysis (Glaser & Strauss, 1967), classical content analysis (Berelson, 1952), and word count (Fielding & Lee, 1998). Constant comparison analysis (Glaser & Strauss, 1967) was conducted by reading through the manuscript, developing chunks of the data (e.g., small phrases or sentences), assigning a code to each chunk, and then organizing the codes into themes. Classical content analysis (Berelson, 1952) was conducted by counting the codes that were developed through the constant comparison analysis. Finally, word count (Fielding & Lee, 1998) was conducted by counting the number of words included for each program description.

Results

From the 207 universities investigated, a total of 45 research and evaluation programs were found. Twenty-seven were at RU/H institutions and 18 were housed at RU/VH institutions. Table 1 presents the 45 institutions that house a research and evaluation program. A chi-square test was conducted to answer the first research question of whether there is a difference in how many master’s-level research and evaluation programs exist in RU/VH and RU/H institutions. Assumptions of having at least 80% of the expected frequencies being five or greater was checked and met. No statistically significant difference was found, $\chi^2 = 1.16$, $df = 1$, $N = 207$, $p = .281$. Therefore, the number of master’s-level research and evaluation programs was not greater in RU/VH institutions than in RU/H. When looking at the number of research and evaluation programs available online, only two programs were identified: University of South Carolina-Columbia and University of Illinois at Chicago. The

Table 1: Institutions With a Research and Evaluation Program

List of each university as a high research institution (H) or a very high research institution (VH), the number of master and doctoral credits, and the program's emphasis. Programs where the information could not be found are labeled as not specified (NS) (N = 45).

University	H or VH	Online?	Master's Credits	Doctoral Credits	Emphasis
Boston College	VH	No	30	54*	QUANT
Claremont Graduate University	VH	No	32	72	BOTH
Cleveland State University	VH	No	NS	not	NS
Emory University	H	No	36	N/A	N/A
George Mason University	VH	No	30	66	BOTH
Kent State University Kent Campus	VH	No	32	60	QUANT
Loyola University Chicago	VH	No	30	60	BOTH
New York University	H	No	34	N/A	NS
Northern Illinois University	VH	No	36	N/A	N/A
Oklahoma State University-Main Campus	VH	No	32	90	BOTH
Rutgers University-New Brunswick	H	No	39	72	QUANT
SUNY at Albany	VH	No	30	66	NS
Texas A&M University	VH	No	36	64	BOTH
The Ohio State University	H	No	31	57	QUANT
The University of Texas at Austin	H	No	NS	NS	QUANT
University of Arkansas	H	No	30	63	QUANT
University of California Los Angeles	H	No	39	90	QUANT
University of Colorado Denver	H	No	36	78	NS
University of Connecticut	H	No	33	75	QUANT
University of Denver	H	No	45	90	NS
University of Florida	VH	No	NS	NS	NS
University of Georgia	H	No	30	NS	NS
University of Illinois at Chicago	H	Yes	32	N/A	NS
University of Iowa	H	No	32	90	QUANT
University of Kansas	H	No	28	90	BOTH
University of Maryland-College Park	H	No	30	90	QUANT
University of Memphis	VH	No	36	54*	BOTH
University of Miami	H	No	30	63	QUANT
University of Minnesota-Twin Cities	H	No	33	61	QUANT
University of North Texas	VH	No	36	63	BOTH
University of Pennsylvania	H	No	NS	NS	QUANT
University of Pittsburgh-Pittsburgh Campus	H	No	39	90	BOTH
University of Rochester	H	No	30	N/A	N/A
University of South Carolina-Columbia	H	Yes	36	NS	BOTH
University of South Florida-Tampa	H	No	37	75	QUANT
University of Southern Mississippi	VH	No	NS	NS	QUANT
University of Toledo	H	No	30	70	QUANT
University of Utah	H	No	30	N/A	N/A
University of Washington-Seattle Campus	VH	No	45	NS	QUANT
University of Wisconsin-Milwaukee	VH	No	30	90	QUANT
Wayne State University	H	No	NS	63	BOTH
West Virginia University	VH	No	NS	N/A	NS
Western Michigan University	VH	No	27	93	QUANT

*Master's degree is required in addition to given credits.

third research question: What are the mean, median, mode, and standard deviations of the number of credits in master's evaluation programs, was answered with descriptive statistics. The number of credits ranged from 27 to 45 ($M = 33.76$, median = 32, mode = 30, $SD = 4.43$).

The qualitative research question was to investigate how the research and evaluation programs were described on the websites. Three types of analyses were conducted: constant comparative analysis (Glaser & Strauss, 1967), classical content analysis (Berelson, 1952), and word count (Fielding & Lee, 1998). Constant comparative analysis (Glaser & Strauss, 1967) revealed multiple themes. The themes are not presented in any particular order. One theme was the focus on multiple types of methodologies available in the programs including: quantitative and statistical techniques, qualitative, program evaluation, and measurement. For example, the website from Boston College states the following:

[Our program] has been training students to examine educational programs, design quantitative research studies, develop assessment instruments, and analyze educational data to help inform policy-making for over 40 years.

Northern Illinois University's website included the following when discussing the different methodologies:

Students learn to plan and design educational evaluations, implement and interpret qualitative and statistical data analytic procedures, and relate the findings to educational and social science policy.

Within this theme was the subtheme of how the descriptions incorporated information regarding the importance of having both quantitative and qualitative methods. For example, Cleveland State University includes the following statement regarding the importance of including both methodologies:

Particularly in this era of accountability, the program provides students with both qualitative and quantitative skills necessary for data-based decision making.

A second theme focused on the purpose of the program and what the students would be prepared to do after graduation, for example:

The MA prepares individuals to enter careers as analysts, program evaluators, and public service leaders in legislative and executive agencies, policy research organizations, nonprofit organizations, consulting firms, and foundations. (Claremont Graduate University)

Similarly, Northern Illinois University's website includes the following:

[Our program] prepares students for careers as data analysts/statisticians in educational, business, and professional settings, as well as in governmental agencies ... as evaluators for school districts, business and professional organizations, culturally based institutions, and military and government agencies.

Other programs focused on preparing students to attend a doctoral program. For example, SUNY at Albany's website states:

The program is primarily intended for students who plan to take advanced work in statistical methods or educational measurement at the Ph.D. level.

A third theme that emerged from the data was the practical details of the program, including advising, coursework (including coursework in educational psychology), time in the program or credits required, and the culminating activity. Texas A&M University's website included the following when discussing the coursework:

... focuses on a broad range of quantitative and methodological issues, including multivariate statistics, item response theory, generalizability theory, hierarchical linear modeling, structural equation modeling, time series analysis, growth modeling, and Monte Carlo study.

Some websites included how the students could choose their culminating activity, for example:

Three credits of independent study coursework that is used to complete a thesis/project or to prepare to take the master's level comprehensive exam. (University of Connecticut)

A fourth emerging theme—tailoring the program to the student to meet their unique needs and along with faculty being leaders in the field—was delineated.

Each student entering a REMS program has a unique set of interests and experiences. Consequently, programs of study are unique. Beyond Department core requirements ... are free to design a unique program of study to meet individual career objectives. All master level students, however, are expected to be knowledgeable in research design, univariate statistical methods and qualitative methods. (University of Georgia)

Similarly, the University of Minnesota-Twin Cities' website included that they offer:

... a unique course of study to those seeking to inform the decision-making process in a variety of fields, including education, business, and the social services.

Finally, some programs emphasized the importance of the environmental factors, the focus on diverse populations, and innovative methods and teaching techniques.

The second qualitative analysis conducted was classical content analysis (Berelson, 1952) which revealed that *prepare leaders in education research* ($n = 30$), *statistical research techniques* ($n = 24$), *quantitative* ($n = 19$), *program evaluation* ($n = 16$), *research methods* ($n = 16$), *qualitative* ($n = 14$), and *measurement* ($n = 12$) were the most commonly used codes. Interestingly, the code of *mixed methods* was used only once. All other counts of codes can be found in Table 2.

Finally, word count (Fielding & Lee, 1998) was conducted to assess the number of words used in each description. The mean number of words used was 74.46, with a median of 71, and a mode of 42 ($SD = 36.29$). There was a wide range of the number of words used in the descriptions, from a low of 21 to the highest at 175.

Discussion

This exploratory study utilized both quantitative and qualitative methods to examine the characteristics of REM programs in the United States. The aim of the study was to begin to provide a rich description of graduate training opportunities within this discipline, a current gap in the extant literature. Using the Leech (2012) conceptual framework as a foundation, four areas that contribute to educating skilled and knowledgeable researchers were examined: individual resources such as cognitive skills, program components and features, the micro-environment, and the macro-environment. Program components from the framework were investigated in depth.

Findings from this study add to the extant literature by providing insight into the current state of graduate-level training within the discipline of REM. Graduates of these degree programs acquire the conceptual and methodological tools needed to conduct research, program evaluation, and policy analysis and synthesis. The present study indicates a variety of training options within the REM field in terms of credit hour and degree requirements, although the options for online study are limited; a surprising finding given that more than half of all public four-year institutions offer at least one online graduate degree (Parsad et al., 2008). Findings also suggest that information about these programs is readily available on the Internet and that program descriptions imply consideration of those variables which support the education and training of research and evaluation experts.

Qualitative analyses of REM program websites suggest the consideration of individual resources or human capital in the curriculum by describing unique courses of study intended to align with individual interests and experiences. As noted by Bozeman

et al. (2001), human capital can be used as a means of evaluating science and technology projects and programs. In addition, many REM program websites detail a variety of culminating activities and research projects, examples of social/research project capital (Leech, 2012). The importance of a cohesive, coherent program of study was highlighted by most REM program websites. The Leech (2012) and Lovitts (2001, 2005) frameworks both describe the contributions of the immediate setting to educating skilled and knowledgeable researchers. These micro-environments in which budding researchers work and train (e.g., the department, lab, etc.) can influence the scientific contributions ultimately made by program graduates (Lovitts, 2005). This is also true of the macro-environment (the social-cultural context of graduate education that includes norms and values). In general, REM program faculty appear to consider these important facets in their program design.

The majority of the REM programs examined emphasize multiple types of research methodology, including assessment, evaluation, quantitative and qualitative methods, and the application and utility of research in professional practice. Aiken, West, and Millsap (2008) emphasize the importance of training in innovative quantitative methodology that is required to address increasingly diverse and complex research questions. REM programs appear to meet this charge.

The major limitation of this study was the use of REM program websites as the sole source of data. Many of the websites were quite limited in terms of descriptions of the program—including information related to micro- and macro-environments. Further, interactions between the four conceptual areas (individual resources, facets of the program, micro-, and macro-environments) could not be explored. The interaction and reciprocal influence of these variables can ultimately impact the quality and significance of student scholarly contributions (Lovitts, 2005). In addition, the REM programs examined in this study are housed in various schools and colleges (e.g., education, public health, liberal arts, etc.) and are at various levels (e.g., master's and doctoral). Analyses were not conducted to determine if the programs differed significantly in relation to the Leech conceptual framework (2012) as a result of these variations. Future research should examine the experiences of students in various REM programs, as well as professional outcomes of program graduates as a means of examining the effectiveness of programs in developing skilled and knowledgeable researchers.

Conclusion

The aim of this study was to examine the features of REM programs in the United States and provide a rich description of graduate training opportunities within this discipline. Using

Table 2: Results of the Classical Content Analysis

Code	Number of times used
Prepare leaders in educational research	30
Statistical research techniques	24
Quantitative	19
Research methods	16
Program evaluation	16
Qualitative	14
Measurement	12
To serve in professional positions	11
Develop knowledge	11
Faculty are leading scholars	10
Both quantitative and qualitative methods appropriate for professional and social science research	9
Assessment	7
Prepares students for further advanced graduate work in psychology or education	7
Unique set of interests and experiences	7
Skill	6
Broad spectrum of courses	5
Disciplined inquiry	5
Collaborate with others	4
Explore the economic, political, and technical factors underlying policy formulation, public decision-making, implementation, and evaluation	4
Educational foundations courses	3
Internship	3
Complete a thesis/project	3
Contemporary theories	3
Program emphasizes research	3
Help improve teaching-learning processes and student achievement	3
Expected to complete 33 credits	3
Project	2
Learn highly marketable skills	2
Seeking solutions to human problems in organizations and communities	2
Rigorous training	2
Computer database analysis experience	2
One-year program	2
Advisory committee	1
In consultation with their advisor	1
Elective courses	1
Summer statistics workshops	1
Encourages students to pursue a minor area outside of the specialty	1
Other courses	1
Core requirements	1

Code	Number of times used
Independent study	1
Portfolio	1
Non-thesis	1
Comprehensive exam	1
Diverse global community	1
Meet the needs of diverse populations	1
Supportive	1
Attitudes	1
Communication skills	1
New approaches to teaching and learning statistics	1
Innovative in the development of new methods for analyzing education data	1
Creation of new assessment	1
Maximum flexibility	1
Three areas (REM)	1
Methodological backbone	1
Two specialized areas of emphasis referred to as tracks, Development & Learning (D&L) and Research, Evaluation, Measurement and Statistics (REMS)	1
Draw widely from the resources of the university	1
Addresses the current industry-wide shortage of individuals capable of functioning effectively in educational research and other social science research settings	1
Strategies	1
Scholarly competence	1
Should be comfortable in researching	1
Read research	1
To examine the public policy issues and decision processes that shape PK-20 education in the United States	1
Assessing theoretical perspectives, research, and practice within and across content domains	1
Ethical application	1
Relate the findings to educational and social science policy	1
Study in the general track allows students to focus on a specific discipline of the department	1
Institutional research	1
Translating research findings for application in educational settings	1
Provide methodology for the advancement of educational research	1
Data mining	1
Individually tailored to each student's needs	1
Does not require an extensive background in mathematics	1
Flexible-credit program	1
Mixed-methods	1
Modern analytical methods	1
Policy research	1

the Leech (2012) conceptual framework as a foundation, four areas that contribute to educating skilled and knowledgeable researchers were examined, with particular focus on the program components: individual resources such as cognitive skills, program components and features, the micro-environment, and the macro-environment. Analyses revealed that although there are a variety of training options in terms of credit hour and degree requirements, opportunities for online study in this field are limited. Findings indicate that most REM programs emphasize multiple types of research methodology, including assessment, evaluation, quantitative and qualitative methods, and the application and utility of research in professional practice. Further, results suggest that, in general, training in innovative quantitative methodology is needed to address increasingly diverse and complex research questions. Graduates of these programs may be uniquely qualified to engage in data-based decision-making, relate research findings to educational and social science policy, and ultimately, address the persistent science-to-practice gaps that exist in education and social science fields.

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