

# The Value of Research Preparation in Professional Practice

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*The findings of this study show that while students who have completed a research course at the graduate level find the content valuable, especially in understanding and evaluating the professional literature, they are not motivated to take additional courses in research or statistics, to learn more about research methodology, or to engage in research on their own. Nevertheless, in contrast to earlier studies, most agree that teachers need preparation in both research and statistics, that such courses help them to pay more critical attention to articles about research, and that such courses help them to increase the frequency of their use of the professional literature as well as the application of what they read to their professional roles and responsibilities.*

## Background

Because of changes in the way in which teachers are prepared, increasing emphasis is being placed on discipline-specific content in contemporary teacher education programs. As a result, many prospective teachers receive little, if any, training in research or statistics as part of their undergraduate education. For many, the only time they are exposed to these important topics is if, and when, they begin study at the graduate level.

Many researchers have pointed out this serious shortcoming in teacher education over the years. Green and Kvidahl (1990) have reported that teachers are untrained in research methodology and, as a result, have negative attitudes toward research. Others (Fleming, 1988; Rackcliffe, 1988) have asserted that teachers generally do not use research in the conduct of their professional responsibilities because it was not part of their undergraduate training or is generally not considered to be among the survival techniques teacher education candidates need to learn (Kaplan, 1976).

The effectiveness of research courses taught at any level has rarely been empirically assessed (Green and Kvidahl, 1990). This study sought to determine the extent to which students in a variety of graduate degree programs in education and related professional studies at a mid-size comprehensive public college value and use the skills and techniques they learned in graduate-level research courses in the conduct of their professional roles as teachers, profes-

sional services specialists, and administrators.  
*Research Questions*

1. How valuable have educators found research skills in their professional careers?
2. To what extent has research study motivated educators to seek more advanced training in research or statistics?
3. What evidence exists to demonstrate that research study has motivated educators to read the professional literature more frequently and to engage in research projects.
4. What additional skills or training in the broad areas of research or statistics are needed by educators, but which they did not acquire as part of their undergraduate or graduate programs?

## Method

### *Sampling Procedures and Survey Methodology*

A systematic random sample was selected of 121 former students in the graduate research course entitled *Procedures and Evaluation in Research* from a population of 351 students enrolled in the course between 1985 and 1992. This course, the only comprehensive offering in research methodology within the School of Education at Rowan College of New Jersey, is required for all students enrolled in graduate degree programs in school administration, supervision, curriculum development, and community college education. It is also a recommended core course for

graduate degree students in learning disabilities, special education, and environmental sciences. During the period of the study, this course was taught by at least three different instructors, including the author. The sample, which represents approximately one-third (34 percent) of the population, was identified through a systematic random selection process of students enrolled in the courses as identified by the college registrar. It was designed to have a confidence level of 90 percent and an acceptable margin of error of  $\pm 5\%$  (McCall, 1980). Survey (mail) questionnaires were developed, field tested, and distributed to the sample respondents.

#### *Instrumentation*

The four-page questionnaire used in the study included questions on the characteristics of the respondents such as gender, years of experience in education, degree program, present role in education, and number of professional journals read on a regular basis. Additional questions sought to determine the extent to which the content of the research

course proved valuable to respondents, the extent to which exposure to the course motivated respondents to further activity or study, and the extent of agreement-disagreement by respondents with a number of statements related to the study's objectives. Tables 2-6 provide considerably more detail on many of these questions.

Other questions asked respondents to indicate the frequency with which they referred to and applied the professional literature to their jobs, as well as any type of research activity, other than the master's thesis or other capstone project, in which they had engaged and, if so, whether any of their research efforts had been published.

Finally, respondents were asked to identify any skills or knowledge related to research or statistics that they found they now needed as part of their professional obligations but were not offered as part of either their undergraduate or graduate academic preparation.

#### *Sample Characteristics*

One hundred and twenty-one surveys were mailed early

Table 1  
*Characteristics of Survey Respondents (Percent)*

<u>Gender</u>		<u>Years of experience in education</u>	
Female	67	Less than 5 years	9
Male	33	5-7 years	9
		8-10 years	8
		11-15 years	26
		16-20 years	27
		More than 20 years	21
<u>Enrollment in degree program</u>		<u>Number of journals read regularly</u>	
School administration	59	None	4
Supervision/curriculum	20	One	18
Community college education	5	Two	33
Special education	3	Three	21
Learning disabilities	1	Four	2
Environmental education	12	Five or more	3
<u>Present role in education</u>			
Classroom teacher	54		
Resource room teacher	6		
Guidance counselor	1		
LDT/C or school psychologist	1		
Supervisor	9		
Principal or vice principal	13		
Other	16		

in the fall of 1993. Eighteen surveys were returned as undeliverable, the time for forwarding having expired. The original mailing yielded responses from 44 respondents (36 percent). A follow-up mailing resulted in an additional 37 completed responses which raised the total of usable responses to 81 (67 percent). Telephone calls to a small sample ( $N = 7$ ) of non-respondents suggested that no systematic bias was present. Because of the relatively high response rate (67 percent overall--79 percent after accounting for non-deliverable surveys), no additional attempt was made to assess the representativeness of the sample in terms of characteristics of respondents other than to check the comparability of respondents' genders with known institutional characteristics. This check suggested that the female-male ratio in the respondent sample (i.e., 2:1) was essentially the same as the population ratio as determined from data available in the college's student information system. The characteristics of the respondents are illustrated in Table 1.

### Descriptive Analysis

#### *Value of Course Content*

Nearly all respondents reported that the content of their research course was *very useful* or *useful* in helping them to understand and evaluate critically the research literature and to engage in research projects. Table 2 illustrates the extent to which respondents reported such usefulness and

suggests that the course content was useful in helping some respondents to apply research findings in classroom activities and to use statistics in educational research.

#### *Exposure to Research Methods Course*

Relatively few respondents reported that exposure to their research methods courses had motivated them to other activities in selected areas of research. Table 3 shows that most respondents were not motivated to take additional courses in either research or statistics. This table further shows that only a limited number of respondents were motivated to learn more about research methodology, to engage in research projects on their own, or to consider seriously further academic study.

#### *Value of Research Methods Course*

The data in Table 4 suggest that there were a number of valuable effects of the respondents' exposure to their research courses. There was general agreement by a majority of respondents that the courses enabled them to obtain a better understanding of the role of research in education, to pay increased attention to articles in the news media about research studies, to overcome a fear of research and statistics, to read the professional literature with a more critical eye, to read an increased number of professional journals, and to increase the use of research concepts in their professional roles. The majority of respondents further reported general agreement that courses in research and statistics should be required in undergraduate and graduate teacher education programs.

**Table 2**  
*Extent of Usefulness of the Content of Research Methods Course (Percent)*

	Very Useful	Moderately Useful	Not Useful	Don't Know or Not Applicable
Understanding research literature	65	31	3	1
Critically evaluating research literature	55	40	1	4
Engaging in research projects	51	38	4	8
Using statistics in educational research	28	43	19	11
Applying research findings to classroom activities	36	41	15	8

Table 3  
*Extent to Which Research Methods Course Motivated Interest (Percent)*

	Very Much	Much	Somewhat	Not at all	Don't Know
Learning more about research methods	11	19	48	21	2
Taking additional courses in research	7	7	29	56	3
Taking additional courses in statistics	3	3	27	67	1
Seriously considering study for higher academic degree	14	21	26	38	1
Engaging in research projects	11	20	43	24	3

Eighty-one percent of the respondents reported that, as a result of their exposure to the course, they referred *very often* or *often* to professional journals for information on a topic of interest. Moreover, another 80 percent reported that they *very often* or *often* applied what they read in the professional journals to their jobs.

Slightly more than one-fifth of the respondents (21 percent) reported that, since the completion of their master's thesis or other capstone project, they had engaged in at least one research study. The types of such studies are reported in Table 5. Only one percent of the respondents, however, reported that the results of their research studies had been published.

#### *Recommendations for Revisions to Academic Programs*

Respondents were asked to identify skills and knowledge related to research or statistics that they found were now needed in their professional jobs, but for which they had received no training in their undergraduate or graduate academic preparation. A listing of their recommendations is provided in Table 6.

### **Inferential Analyses**

Several inferential analyses were conducted, including a two-sample chi-square for independence, *t*-tests on independent samples, and multiple stepwise linear regression.

#### *Two-Sample Chi-Square Test for Independence*

Within the contingency analyses, questions regarding the usefulness of the research course content, the extent to which such courses were motivational, and the extent of agreement-disagreement on a number of statements were cross-tabulated with questions regarding gender, years of educational experience, number of professional journals regularly read, and the frequency of references to and application of what is read in the professional journals. Of all the cross-tabulations that were run, only four were found to be of interest.

Respondents who read between 1-3 professional journals were most likely to agree that a research course should be required in undergraduate teacher education programs ( $\chi^2 [15, N = 77] = 28.88, p = .016$ ). Similarly, respondents who read between 1-3 journals were most likely to agree that they used what they learned in their research courses in their present professional roles ( $\chi^2 [15, N = 80] = 31.04, p = .008$ ). Respondents who frequently referred to the professional journals for information on a topic of interest were most likely to agree that they now approached the professional literature with a more critical eye ( $\chi^2 [6, N = 79] = 17.50, p = .007$ ). Finally, respondents who frequently applied what they read in the professional journals to their jobs were most likely to agree that a research course should be required in undergraduate teacher education programs ( $\chi^2 [9, N = 76] = 33.27, p < .001$ ).

Table 4  
*Extent of Agreement-Disagreement (Percent)*

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know
I am no longer afraid of research or statistics	21	69	9	0	2
A course in research methods should be required in every undergraduate teacher education program	33	55	6	1	5
A course in statistics should be required in every undergraduate teacher education program	19	44	28	1	9
Because of the course, I better understand the role of research in education	43	51	5	1	0
I use what I learned in the course in my present professional role	15	49	34	1	1
I read an increased number of professional journals	20	45	29	1	5
Now I pay more attention than before to magazine or newspaper articles about research studies	34	53	13	0	1
I approach most of the professional literature I read now with a more critical eye	44	46	9	0	1

Table 5  
*Types of Research Efforts Undertaken by Respondents (N = 81)*

Type	Frequency
Feasibility study for a foreign language program in high school	1
Early Warning Test or other standardized test analysis	3
Feasibility study for establishing fiber optic connection in county schools	1
Study to determine if deferring judgement in brainstorming sessions has a relationship to the fluency of ideas	1
Survey research on a developmental kindergarten program	1
Research on the reform of principal preparation programs	1
Quasi-experimental research on the effects of traditional vs. non-traditional reading methodologies	1
Designing a 3-5 year technology plan for a small elementary school	1
Research on academic credentialing	1
Research on student knowledge of the use or abuse of drugs and alcohol	2
Research on student self-esteem	
Research on the effects of heterogeneous vs. homogeneous grouping in an elementary mathematics class	1
Research on communication in annual reports of philanthropic foundations	1
Research on student retention in community colleges	1
Research on urban learners (published)	1

Table 6  
*Recommendations for Revisions to Academic Programs by Respondents (N = 81)*

Type	Frequency
Provide additional statistical training	6
Provide training in computerized statistical programs	5
More application of research results, less methods and design	5
Undergraduate courses in research and statistics	4
Provide a course on grant writing	2
Understanding and critically analyzing quantitative and qualitative studies	1
More concentration on how to review the literature	1
Provide training on how to read charts and graphs in research	1
Provide a course in tests and measurement	1
Spend more time on designing qualitative studies	1

*t-Tests of Independent Samples*

Several *t*-tests were also conducted to determine if statistically significant differences exist within the sample based on selected classifying variables. Respondents were arranged by grouping those who had responded that they found their research courses *very useful* or *useful* and those who reported that their courses were *not useful*. Respondents were also arranged by grouping those who had responded *very much* or *much* and *somewhat* or *not at all* to questions regarding the extent to which they had been motivated by their research courses. Respondents were further arranged by grouping those who had responded that they *strongly agree* or *agree* and those who had responded they *disagree* or *strongly disagree* with a variety of statements. Respondents were further arranged by grouping those who had responded that they regularly read between 1-3 or four or more professional journals. Finally, respondents were arranged by grouping them according to gender and years of experience in education. These data have been tabulated and are presented in Tables 7-11.

In Table 7, the relationship between the frequency and the caution with which respondents approached the professional literature is statistically significant at the  $p < .01$  level. Those who agreed that they approached the professional literature with a more critical eye than previously (Group 1) were found to refer to the professional literature more frequently for information on topics of interest than their colleagues who did not approach the literature as cautiously (Group 2).

Table 8 shows that the relationship between the frequency with which respondents referred to the professional literature and the extent to which the content of their research courses served them in their professional roles is statistically significant at the  $p < .001$  level. Those who

agreed that they used what they had learned in their courses in their present professional roles (Group 1) were found to refer to the professional literature more frequently than their colleagues who disagreed that they used what they had learned in the courses in their present professional roles (Group 2).

The relationship between what students had learned in their research courses and what they read in the professional literature and the connection of both to their present professional roles is demonstrated in Table 9. Respondents who agreed that they used what they had learned in their courses (Group 1) were found also to apply significantly ( $p < .001$ ) more frequently what they read in the research literature to their jobs than those who disagreed that they used what they had learned in their courses (Group 2).

In Table 10, the relationship between gender and motivation to increase research/statistical knowledge is statistically significant at the  $p = .014$  level. Males (Group 2) were shown to be slightly more motivated than their female colleagues (Group 1) to take an additional course in research or statistics, however, it is important to note that the data suggest that neither males nor females were very motivated to take such courses.

Table 11 shows that the relationship between years of experience in education and the usefulness of the course content in assisting teachers to apply research to class activities is statistically significant at the  $p < .001$  level. Those respondents with 10 or more years of experience in education (Group 2) were more likely to feel that what they had learned in their research courses was helpful in applying research findings to the classroom than were their colleagues with less than 10 years of experience in education (Group 1).

Table 7  
Group Comparisons - Frequency of Reference to Professional Journals

	Group 1 <sup>2</sup>			Group 2 <sup>3</sup>			<i>t</i>	<i>df</i>	<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>			
Frequency <sup>1</sup> of reference to professional journals for information on a topic of interest.	72	1.81	.74	7	2.57	.79	-2.59	77	.012

<sup>1</sup> Mean value scale 1-4, from (1) *very often* to (4) *never*

<sup>2</sup> Respondents who *strongly agree* or *agree* that they now approach the professional literature with a more critical eye.

<sup>3</sup> Respondents who *disagree* or *strongly disagree* that they now approach the professional literature with a more critical eye.

Table 8  
Group Comparisons - Frequency of Reference to Professional Journals

	Group 1 <sup>2</sup>			Group 2 <sup>3</sup>			<i>t</i>	<i>df</i>	<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>			
Frequency <sup>1</sup> of reference to professional journals for information on a topic of interest.	52	1.64	.63	27	2.33	.83	-4.19	77	.000

<sup>1</sup> Mean value scale 1-4, from (1) *very often* to (4) *never*

<sup>2</sup> Respondents who *strongly agree* or *agree* that they use what they learned in the course in their present professional roles.

<sup>3</sup> Respondents who *disagree* or *strongly disagree* that they use what they learned in the course in their present professional roles.

Table 9  
Group Comparisons - Frequency of Application of What is Read in Professional Journals

	Group 1 <sup>2</sup>			Group 2 <sup>3</sup>			<i>t</i>	<i>df</i>	<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>			
Frequency <sup>1</sup> of application of what is read in the professional journals to respondents' jobs.	52	1.67	.65	27	2.44	.70	-4.89	77	.000

<sup>1</sup> Mean value scale 1-4, from (1) *very often* to (4) *never*

<sup>2</sup> Respondents who *strongly agree* or *agree* that they use what they learned in the course in their present professional roles.

<sup>3</sup> Respondents who *disagree* or *strongly disagree* that they use what they learned in the course in their present professional roles.



Table 10  
*Group Comparisons - Extent of Motivation by Research Course*

	Group 1 <sup>2</sup>			Group 2 <sup>3</sup>			<i>t</i>	<i>df</i>	<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>			
Extent <sup>1</sup> to which research courses motivated to take additional course in statistics.	71	3.70	.55	5	3.00	.12	2.53	74	.014

<sup>1</sup> Mean value scale 1-4, from (1) *very much* to (4) *not at all*.  
<sup>2</sup> Female respondents.  
<sup>3</sup> Male respondents.

Table 11  
*Group Comparisons - Usefulness of Research Course*

	Group 1 <sup>2</sup>			Group 2 <sup>3</sup>			<i>t</i>	<i>df</i>	<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>			
Usefulness <sup>1</sup> of research course in helping to apply research findings to class activities.	20	2.50	1.1	61	1.75	.77	3.43	79	.001

<sup>1</sup> Mean value scale 1-4, from (1) *very useful* to (4) *not useful*.  
<sup>2</sup> Respondents who reported 10 years or less of educational experience.  
<sup>3</sup> Respondents who reported more that 10 years of educational experience.

### *Multiple Linear Stepwise Regression*

Finally, several multiple linear stepwise regression analyses were conducted using (a) the extent to which respondents found their research courses useful, (b) the extent to which exposure to such courses motivated them to further study, and (c) the extent of agreement-disagreement on selected statements as the dependent variables. Gender, years of educational experience, degree program, present job, number of professional journals regularly read, and frequency of reference and application of what is read in the professional literature served as the independent (predictor) variables.

Of all the regression analyses run, only two appear to be of any interest. First, general agreement that undergraduate teacher education programs should require a statistics course could be validly predicted only by frequency of reference to the professional literature on a topic of interest ( $R = .254$ ,  $R^2 = .065$ ,  $F[1,69] = 4.69$ ,  $p = .034$ ). This analysis suggests that those respondents who agree that undergraduate teacher education programs should include a course in statistics also tend to refer frequently to the professional literature. Second, general agreement that respondents tend now (presumably as a result of their exposure to the research course) to approach the professional literature with a more critical eye could be validly predicted only by frequency of reference to the professional literature on a topic of interest ( $R = .357$ ,  $R^2 = .128$ ,  $F[1,74] = 10.68$ ,  $p = .001$ ). This analysis suggests that those who agree they read the professional literature with a more critical eye also tended to refer more frequently to the professional literature. The statistical significance of these models notwithstanding, it is important to note that in both cases, the  $R^2$  statistic explained less than 7 percent and 13 percent respectively of the variance in the dependent variable distribution.

The ability to predict values on the dependent variables based on gender, years of educational experience, degree program, present job, number of professional journals regularly read, and the frequency of application of what is read in the literature to one's present job was shown to be insignificant.

### Discussion

The sample data suggest that respondents generally found the content of their research methods courses to be useful in their professional roles, especially with regard to their understanding and critically reviewing the research literature. Nevertheless, while several of the analyses illustrate that many respondents believed that courses in research and statistics should be required in teacher education programs, their experience with their own graduate-level research courses did not motivate them to take additional courses in either research methodology or statistics. Moreover, while many respondents reported that their courses had been useful in helping them to engage in re-

search projects, few respondents reported that they had been motivated to do so. In fact, only one respondent in five reported engaging in any type of research, and within the entire sample, only one individual reported that his/her research had been published.

The sample data seem further to clarify some of the earlier studies which suggested that teachers generally do not use educational research in the conduct of their professional responsibilities (Fleming, 1988; Rackcliffe, 1988), have generally negative attitudes about research (Adams, 1976; Brown, 1976; Green & Kvidahl, 1989; Kaplan, 1976; Rudduck, 1985; Zahorik, 1984), or do not generally consider research skills to be among the survival techniques teacher education students need to learn (Kaplan, 1976). This study's findings suggest that teachers use both what they learn in their research courses and what they read in the professional literature in their present roles. Moreover, it appears that a relationship exists among the frequency with which respondents refer to the literature, the extent to which they read the literature with a more critical eye, and the frequency with which they apply what they read to their jobs. Furthermore, in contrast to earlier studies, this study suggests that teachers have neither a negative attitude about research nor consider it unimportant for survival. Rather, they find research useful and believe that courses in both research and statistics should be required as part of the preparation of teachers.

In summary, this study suggests that while students who have completed a research course at the graduate level find the content useful, especially in understanding and evaluating the professional literature, they typically are not motivated to take additional courses in research or statistics, to learn more about research methodology, or to engage in research on their own. Nevertheless, most agree that teachers need preparation in both research and statistics, that such courses help them to pay more critical attention to articles about research, and that such courses help them to increase the frequency of their use of the professional literature as well as the application of what they read to their professional roles and responsibilities.

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