1979

What are the Benefits of Using Performance Testing in Electrical and Electronic Courses within the Virginia Community College System

Donald E. Remy
Old Dominion University

WHAT ARE THE BENEFITS OF USING PERFORMANCE TESTING IN ELECTRICAL AND ELECTRONIC COURSES WITHIN THE VIRGINIA COMMUNITY COLLEGE SYSTEM

A Research Paper

Presented to

The Faculty of the School of Education

Old Dominion University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Secondary Education

---

by

Donald E. Remy

April 1979

This research paper was prepared by Donald E. Remy under the direction of his advisor and instructor in Problems in Education VIAE 636. It is submitted to the Graduate Program Director for Vocational and Industrial Arts Education in partial fulfillment of the requirements for the Degree of Master of Science in Secondary Education.

Date: April 30, 1979

Approved by:

David I Joyner, Ph.D.
Graduate Advisor

John M. Ritz, Ph.D.
Graduate Program Director
Vocational and Industrial Arts
Education.

TABLE OF CONTENTS

		Page
LETTER OF APPROVAL		ii
TABLE OF CONTENTS		iii
LIST OF TABLES		v
CHAPTER		
1.	INTRODUCTION	1
	STATEMENT OF PROBLEM	1
	RESEARCH QUESTIONS	1
	ASSUMPTIONS	2
	LIMITATIONS OF STUDY	2
	DEFINITION OF TERMS	2
	SUMMARY	3
2.	REVIEW OF RELATED LITERATURE	4
	SUMMARY	5
3.	METHODOLOGY	7
	POPULATION	7
	INSTRUMENT DEVELOPMENT	7
	DATA COLLECTION	8
	DATA ANALYSIS	8
	SUMMARY	9
4.	RESULTS	10
	SUMMARY	15
5.	SUMMARY, CONCLUSIONS, RECOMMENDATIONS	16
	SUMMARY	16
	CONCLUSIONS	17
	RECOMMENDATIONS	18
FOOTNOTES		19
BIBLIOGRAPHY		21

APPENDICES

A. LETTER TO INSTRUCTORS REQUESTING ASSISTANCE..... 22

B. QUESTIONNAIRE STATEMENTS BACKGROUND INFORMATION. 23

C. QUESTIONNAIRE STATEMENTS..... 24

D. RESPONSES / TEACHING EXPERIENCE..... 25

E. RESPONSES / INDUSTRIAL EXPERIENCE..... 26

F. RESPONSES / EDUCATIONAL LEVEL..... 27

LIST OF TABLES

TABLE		Page
1.	RESPONSES / QUESTIONNAIRE.....	10
2.	RESPONSES / PERFORMANCE TEST PREPARATION TRAINING.	10
3.	RESPONSES / NUMBER OF PREPARATION TRAINING LEVELS.	11
4.	RESPONSES / QUESTIONNAIRE STATEMENT 1.....	11
5.	RESPONSES / LEVELS INSTRUCTOR TEACHES.....	12
6.	RESPONSES / QUESTIONNAIRE STATEMENT 2.....	12
7.	RESPONSES / QUESTIONNAIRE STATEMENT 3.....	12
8.	RESPONSES / QUESTIONNAIRE STATEMENT 4.....	13
9.	RESPONSES / QUESTIONNAIRE STATEMENT 5.....	13
10.	RESPONSES / QUESTIONNAIRE STATEMENT 6.....	13
11.	RESPONSES / QUESTIONNAIRE STATEMENT 7.....	14
12.	RESPONSES / QUESTIONNAIRE STATEMENT 8.....	14
13.	RESPONSES / QUESTIONNAIRE STATEMENT 9.....	15

CHAPTER 1

INTRODUCTION

In Virginia and nationally, strong emphasis is being placed on accountability in education and more specifically, competency based instruction. (CBI) The teachers of electricity and electronics courses have a need to produce some concrete proof that their graduates can in fact perform particular tasks required by employers. The proponents of CBI recommend performance testing as a method of providing this proof and thus satisfying the requirements of accountability.

STATEMENT OF PROBLEM

This study sought to identify what benefits can be gained when electrical and electronic instructors in the Virginia Community College System use performance testing as a teaching tool in their courses.

RESEARCH QUESTIONS

Questions important to this study are:

1. At what level of electrical and electronic courses are performance tests used?
2. How does the administration of performance tests effect the instructor's teaching time and the student's learning time?
3. How many performance tests are necessary in each course?
4. What different pressures are applied to the student as a result of the use of performance tests?
5. What kind of feedback has come from graduates that were taught with the performance test method?
6. What kind of feedback has come from employers of grad-

uates that were taught with the performance test method?

7. Is the increased time necessary to teach the performance test method offset by the increase in student learning?

ASSUMPTIONS

This study was based on the following assumptions:

1. Each instructor has sufficient laboratory equipment to teach practical as well as theoretical electricity and electronics.
2. The program head has identified the tasks that a graduate should be able to perform upon graduation.
3. One of the major objectives of the electrical and electronic programs is for the student to acquire some manipulative job related skill.

LIMITATIONS OF STUDY

This study was limited to the electrical and electronics instructors employed in the Virginia Community College System as of February 1979, as listed in the respective 1978-1979 college catalogs.

DEFINITIONS OF TERMS

The following terms were used in this study:

1. Accountability: Showing proof of accomplishing a task which you are being paid to do.
2. Competency: Ability to perform a job or task relevant to the overall job performance.
3. Criterion: Specific standard.
4. Norm: The most common response.
5. Performance Test: Instrument to evaluate a psychomotor skill.

6. Post-Secondary: Any schooling after high school.

SUMMARY

This chapter identified the task of determining the benefits of using performance testing. It made some initial assumptions and sited the limitation of the research study. In addition, definitions of critical terms were presented as well as a listing of the questions important to the study.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Performance testing is a method of evaluating a persons job skills. The tests should be designed to resemble an on the job situation as much as possible. The tools, equipment and location need to be similar to the actual work situation so that a person can demonstrate his abilities, and the employers can be assured of the skills of his employee.[1]

Correctly constructed and administered, a performance test will measure how much knowledge a person can apply.[2] So the key is CAN DO not KNOW HOW TO DO.[3] Industrial employers are very interested in this CAN DO ability and ask training institutions what their graduates specifically can do before doing any recruiting or hiring.[4]

The educators involved in using performance tests recommend criterion referenced tests rather than norm referenced tests.[5] The criterion should be very specific and identified well in advance of the test.[6] This way the student knows exactly what is expected of him at all times.[7] Research has proven that speed of doing a task is no measure of knowledge but in most cases a time limit should be imposed to limit the unknowledgeable from wasting time unnecessarily.[8]

In most cases teacher made criterion referenced performance tests are the best, but knowing the correct criterion and measures can be an impossible task. Each teacher has experience and resource persons to draw from, but additional help can be gotten from various organizations that supply criterion materials that

make test construction possible. The National Occupational Competency Testing Institute (NOCTI), Vocational-Technical Education Consortium of States (V-TECS), and the Ohio Division of Vocational Education are just some of these organizations which will supply test construction aids to teachers.[9]

There are many benefits that have already been identified for using performance tests. Post-secondary schools have used them to determine credit for courses completed at another institution.[10] The student gets instant feedback as to his ability in doing a specific task.[11] And the United States Army uses performance tests called Skill Qualification Tests (SQT) to certify soldiers for retention and promotion. Many times a well qualified soldier would freeze up on a written test but when observed on a performance test his abilities become obvious.[12]

As with everything, there are some disadvantages also to performance tests. Taking the time to observe every student performing a specific task.[13] Lack of sufficient money to acquire correct equipment to simulate an on the job situation.[14] Safety hazards in testing around dangerous equipment.[15] And testing supervisors remaining sufficiently unbiased to make a totally fair evaluation.[16] But the proponents of performance testing feel that these problems can be worked out easily and the benefits will be the predominant factor.[17]

SUMMARY

This chapter on review of related literature bases its findings on the fact that performance testing is the same for all skill training. The generalizations did not take into con-

sideration specific skills but lumped them all into one package. The concensus seemed to be that performance testing was the best and only way to evaluate skill ability and the advantages were predominant.

CHAPTER 3

METHODOLOGY

Chapter three of this study deals with the methods necessary to carry-out the research study. These methods are listed below:

1. Population definition.
2. Instrument development.
3. Data collection.
4. Data analysis.

POPULATION

The population in this study consisted of those electricity and electronics instructors employed as of February, 1979 in the Virginia Community College System. A list of the instructors participating in this study was acquired from the 1978-1979 college catalogs of each community college in the Virginia Community College System.

INSTRUMENT DEVELOPMENT

A number of statements were composed by the researcher concerning the benefits of using performance tests in teaching electricity and electronics courses. Composition of these questions was based upon the review of literature, the researcher's personal experiences, and informal interviews with present vocational teachers around the country.

The questionnaire was divided into two sections. The first section contained important terms and their definitions which were essential for understanding the questions and responses. Teaching experience, industrial experience, educational level, teaching level and courses(training) in preparing performance

tests were used to find some background information on the instructors for categorizing the responses. This part was important to determine any major differences between the level of teaching and the questions in part two of the survey.

Section two of the questionnaire contained the questions directly related to the research study. Responses to the questions were stated for ease and speed of marking by the respondents. In developing the questionnaire, the researcher attempted to keep the questions and responses as precise and direct as possible.

DATA COLLECTION

Questionnaires were sent through the United States Mail directly to the instructors at their school address as shown in their respective school catalogs. Each questionnaire included a quarter to be used by the responder for some refreshment while answering the questions. This method was used to assure a good response while at the same time keeping the promise stated in the questionnaire cover letter to keep all responses totally anonymous. Followup would be impossible with this method.

DATA ANALYSIS

A tally was made of each individual question and their responses. All totals were tabulated for the questions and in some cases percentages were deemed necessary to adaquately analyze the results of the questionnaire. Results were compared as follows:

1. The teaching level of the respondents was compared to the number of tests given and the weight performance tests exert on the student's grade.

2. The results of the questionnaire statements were studied and compared to the information found in the related literature, and assumptions found in this study.

The results of the questionnaire findings are contained in tables 1 through 13 in chapter 4.

SUMMARY

This chapter focused on the techniques utilized for setting up, administering, and reporting the responses from the questionnaire.

CHAPTER 4

RESULTS

Of the 52 surveys distributed to the electricity-electronics instructors in the Virginia Community College System, a total of 28 responded to the questionnaire statements. Five additional returns indicated that the instructors were no longer associated with their respective community colleges because of voluntary termination or death. Two forms were returned partially completed and unuseable. One additional questionnaire was returned with a note indicating an unwillingness to participate in the survey because of lack of time.

TABLE 1

Responses / Questionnaire

NO. SENT	NO. NO LONGER EMPLOYED	NO. POSSIBLE RESPONSES	NO. USEABLE RESPONSES	% RESPONSES
52	5	47	28	60%

As table one shows a 60% useable response to the survey was received which is considered a fair return and the responses are valid.

TABLE 2

Responses / Performance Test Preparation Training

LEVEL	YES / %	NO / %
Undergraduate	10 (36%)	18 (64%)
Graduate	8 (29%)	20 (71%)
Inservice	10 (36%)	18 (64%)
Other	0 (0%)	28 (100%)

As shown in table two the majority of training received in the preparation and use of performance tests was in undergraduate school and inservice courses. A further breakdown of the responses indicates that a definite majority of the respondents did have some training at two or all three levels. It is significant though that 32% had no training what so ever.

TABLE 3

Responses / Number of preparation Training Levels

3 LEVELS	2 LEVELS	1LEVEL	NO TRAINING
2 (7%)	5 (18%)	12 (43%)	9 (32%)

TABLE 4

Responses / Questionnaire Statement 1

Question: At what levels of electricity-electronic courses do you use performance tests?

LEVEL	NO. YES	% YES
Certificate	13	46%
Diploma	8	29%
Associates	17	61%
None	4	14%

Table four indicates that a majority of instructors use performance tests at the associates level with decreasing numbers being used at other levels. But table five shows that all instructors are using performance tests in every course they teach except for four instructors who teach at the associates level and do not use performance tests at all. The responses to these questions to indicate that the respondents do use performance tests

TABLE 5

Responses / Levels Instructor Teaches

LEVEL	NUMBER	PERCENT
Certificate	13	28%
Diploma	8	17%
Associates	21	45%

TABLE 6

Responses / Questionnaire Statement 2

Question: How many performance tests do you average giving in a ten week course?

	0	1	2	3	4	MORE
Number	4	5	5	7	3	5

Table six does not show a clear tendency toward any favored number of performance tests utilized by instructors. In fact for those instructors teaching different degree levels the number of tests required varied but there was not any correlation between the degree level and the number of tests required.

TABLE 7

Responses / Questionnaire Statement 3

Question: How does the using of performance tests as a teaching tool effect your teaching time?

	ADVERSELY	NO EFFECT	BENEFICIALLY	NOT APPLICABLE
Number(%)	4 (14%)	7 (25%)	14 (50%)	3 (11%)

A clear majority is shown in table seven (50%) that the respondents feel that the use of performance tests has a beneficial effect on the instructors teaching time.

TABLE 8

Responses / Questionnaire Statement 4

Question: How does performance testing in course content effect student learning time?

	ADVERSELY	NO EFFECT	BENEFICIALLY	NOT APPLICABLE
Number(%)	0 (0%)	5 (18%)	18 (64%)	5 (18%)

Again the majority of respondents (64%) indicated that the use of performance testing makes better use of the student's time in his attempt to learn the course material.

TABLE 9

Responses / Questionnaire Statement 5

Question: What kind of pressure does performance testing cause for students? (As a general rule)

	NEGATIVE	NONE	POSITIVE	NOT APPLICABLE
number(%)	4 (14%)	6 (21%)	15 (54%)	3 (11%)

Table nine shows that performance tests are a positive force (54%) on student learning. The pressures do not necessarily have a negative effect on the students.

TABLE 10

Responses / Questionnaire Statement 6

Question: What kind of feedback are you receiving from employers of your graduates who were taught using performance testing as to the employees preparation?

	NEGATIVE	NONE	POSITIVE	NOT APPLICABLE
Number(%)	0 (0%)	5 (18%)	18 (64%)	5 (18%)

Table ten indicated that of the respondents, none had received negative feedback from employers of past graduates but 64% had received positive feedback. This shows a definite benefit of using performance tests.

TABLE 11

Responses / Questionnaire Statement 7

Question: What kind of feedback are you receiving from graduates who were taught using performance testing, as to their job preparation?

	NEGATIVE	NONE	POSITIVE	NOT APPLICABLE
Number(%)	0 (0%)	4 (14%)	18 (64%)	6 (21%)

As in table ten, table eleven indicates only positive feedback (64%) from past students as to their preparation for their subsequent jobs. This shows that using performance tests is a definite plus in teaching a manupulative skill.

TABLE 12

Responses / Questionnaire Statement 8

Question: In your opinion, do you feel the extra time required in administering a performance test is balanced by the increase in learning by the student?

	NO	SOMEWHAT	YES	NOT APPLICABLE
Number(%)	1 (3%)	5 (18%)	19 (69%)	3 (10%)

Table twelve shows clearly that the responding instructors believe that the extra time necessary to utilize performance tests is well worth it (69%). From this table it is obvious that an improved learning level of the students is very obvious to

the instructor when he uses performance tests.

TABLE 13

Responses / Questionnaire Statement 9

Question: How much weight do the performance test grades exert on the student's final grade?

	0-20%	21-40%	41-60%	61-80%	81-100%
Number	9.	12	7	2	0

Questionnaire statement 9 sought to determine what importance the instructors placed on learning the psychomotor skill related to the electricity and electronic trades. Table thirteen shows that a clear majority of the respondents weigh the performance test results higher than 21% and less than 80% of the students final grade. This would indicate that the instructors rate the acquisition of a psychomotor skill highly and the performance test as better than adaquate in measuring this acquisition.

SUMMARY

This chapter indicated the number of responses and answers to the questionnaire statements by the use of tables and percentages when practical.

CHAPTER 5

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

SUMMARY

This study sought to identify what benefits can be gained when electrical and electronic instructors in the Virginia Community College System use performance testing as a teaching tool in their courses.

Questions important to this study included:

1. How does the administration of performance tests effect the instructors teaching time and the students learning time?
2. What different pressures are applied to the student as a result of the use of performance tests?
3. What kind of feedback has come from employers and graduates regarding the level of job preparation of graduates who were taught using the performance test method?
4. Is the increased time necessary to teach the performance test method offset by the increase in student learning?

A questionnaire with corresponding responses was composed and sent by mail to all electricity and electronics instructors in the Virginia Community College System. Of the 52 questionnaires distributed, 36 were returned with only 28 being useable. Eight instructors were no longer employed(5) or insufficiently filled out the questionnaire. Upon return of the questionnaires the responses were tabulated for all statements. Numbers and percentages where relavant, were utilized to analyze the results.

This study was limited to the electrical and electronics

instructors employed in the Virginia Community College System as of February 1979. The names were taken from the 1978-1979 college catalogs published in the Summer of 1978.

CONCLUSIONS

As a result of this study, the following conclusions were reached:

1. A majority of electricity and electronics instructors are using some form of performance test to measure the psychomotor skills of their students.
2. Training in the use and preparation of performance tests is dominate but there seems to be quite a number of instructors who remain untrained.
3. When an instructor decides to use performance tests he uses them at all levels at which he teaches.
4. There is no significant number of performance tests used to evaluate the students skill acquisition.
5. The use of performance testing has a positive effect on the students learning readiness, learning time, and the instructors teaching time.
6. When feedback is available from graduates and their employers about the graduate's skill preparation, it usually is positive.
7. Instructors using performance tests feel strongly about their benefit to student learning, and rely on them heavily for grading purposes.

It is important to remember that this survey was conducted using a limited population when considering the conclusions of this research effort.

RECOMMENDATIONS

As the result of this study the researcher recommends that the following actions could be taken:

1. Increased emphasis on training and backup support for performance testing in the Virginia Community College System.
2. Each college or instructor should activate and service a running file of graduates and their employers to determine the job readiness of graduates and what additional skills need to be tested for.
3. A study be instituted to determine what importance skill acquisition should have in a particular course or group of courses so a level of grade importance can be developed.

FOOTNOTES

1 Coit F. Butler, Instructional Systems Development for Vocational and Technical Training (Englewood Cliffs: Educational Technology Publications, 1973), pp. 217-221.

2 Ibid p. 225

3 Ibid p. 218

4 J. Dale Oliver, "Measuring Student Competencies," American Vocational Journal, (January, 1978), 48-51.

5 Ibid.

6 William C. Knaak and David J. Pucel, Individualizing Vocational and Technical Instruction (Columbus: Merrill Publishing Company, 1975), p. 184.

7 Butler, p. 225.

8 Ibid.

9 May W. Huang and Carl J. Schaefer, "Occupational Competency Measures," American Vocational Journal, (March, 1978), 40-41.

10 Ibid.

11 Butler, p. 219.

12 Robert Wiltshire, "The U. S. Army Breakthrough in Performance Testing," Educational Technology (March, 1978), 35-40.

13 Knaak, p. 172.

14 Oliver.

15 Wiltshire.

16 Ibid.

17 Oliver.

BIBLIOGRAPHY

Bohn, Ralph C., and G. Harold Silvus. Planning and Organizing Instruction. Bloomington: McKnight Publishing Company, 1976.

Butler, F. Coit. Instructional Systems Development for Vocational and Technical Training. Englewood Cliffs: Educational Technology Publications, Inc., 1973.

Huang, May W. and Carl J. Schaefer. "Occupational Competency Measures," American Vocational Journal, (March, 1978), 40-41.

Knaak, William C., and David J. Pucel. Individualizing Vocational and Technical Instruction. Columbus: Merrill Publishing Company, 1975.

Oliver, J. Dale. "Measuring Student Competencies," American Vocational Journal, (January, 1978), 48-51.

Wiltshire, Robert. "The U. S. Army Breakthrough in Performance Testing," Educational Technology, (March, 1978), 35-40.

APPENDIX A

February 24, 1979

Dear Sir;

As a part of my graduate work at Old Dominion University, I am conducting a survey concerning the benefits of using performance testing as a tool in teaching electricity and electronic courses. Enclosed is a questionnaire which will provide the needed information for my study.

The questionnaire will take approximately 10 minutes to complete. All responses will be kept confidential, so please do not put your name on the questionnaire when you return it.

Having taught in the community college myself I know how busy things can be at this time of year. Therefore I would be very appreciative if you would take the few minutes necessary to complete this survey. Please use the enclosed quarter and have a cup of coffee or soft drink on me while you answer the questions.

When you have completed the questionnaire please place it into the enclosed envelope and mail it by March 31st. Your time and assistance in this study is greatly appreciated.

Yours truly,

Donald E. Remy

APPENDIX B

SURVEY

DEFINITION OF TERMS

PERFORMANCE TEST: Instrument to evaluate the acquisition of a psychomotor skill.

FEEDBACK: Information from personal sources either directly or indirectly.

PERSONAL DATA:
Please check the appropriate box(s).

Teaching experience at all levels (in number of years):

0- 3	( )
4- 8	( )
9-12	( )
13-16	( )
17-20	( )
over 20	( )

Industrial experience (in number of years):

0- 3	( )
4- 8	( )
9-12	( )
13-16	( )
17-20	( )
over 20	( )

Educational level (last degree obtained):

Associates Degree	( )
Bachelors Degree	( )
Masters Degree	( )
Doctors Degree	( )

At what level do you teach? (check all that apply)

Certificate	( )
Diploma	( )
Associates	( )

Have you ever had any courses (training) in the preparation and use of performance tests?

	Yes	No
Undergraduate	( )	( )
Graduate	( )	( )
In-Service	( )	( )

Other (specify) _____

_____

_____

APPENDIX C

Please answer each of the following questions by checking the appropriate response.

1. At what level(s) of electrical-electronic courses do you use performance tests?

Certificate-( ) Diploma-( ) Associates-( ) None-( )

2. How many performance tests do you average giving in a ten week course?

0-( ) 1-( ) 2-( ) 3-( ) 4-( ) More-( )

3. How does the using of performance tests as a teaching tool effect your teaching time?

Adversely-( ) No effect-( ) Beneficially-( ) Not Applicable-( )

4. How does performance testing in course content effect student learning time?

Adversely-( ) No effect-( ) Beneficially-( ) Not Applicable-( )

5. What kind of pressure does performance testing cause for students (as a general rule)?

Negative-( ) None-( ) Positive-( ) Not Applicable-( )

6. What kind of feedback are you receiving from employers of your graduates who were taught using performance testing as to the employees preparation?

Negative-( ) None-( ) Positive-( ) Not Applicable-( )

7. What kind of feedback are you receiving from graduates who were taught using performance testing, as to their job preparation?

Negative-( ) None-( ) Positive-( ) Not Applicable-( )

8. In your opinion, do you feel the extra time required in administering a performance test is balanced by the increase in learning by the student?

No-( ) Somewhat-( ) Yes-( ) Not Applicable-( )

9. How much weight do the performance test grades exert on the students final grade?

0-20%-( ) 21-40%-( ) 41-60%-( ) 61-80%-( ) 81-100%-( )

APPENDIX D

Responses / Teaching Experience

INTERVAL	FREQUENCY	cf	(x)	f(x)
0- 3 years	1	1	1.5	1.5
4- 8 years	9	10	6.0	54.0
9-12 years	5	15	10.5	52.5
13-16 years	6	21	14.5	87.0
17-20 years	3	24	18.5	55.5
Over 20 yrs	4	28	21.0	84.0
	$\Sigma f=28$			$\Sigma f(x)=334.5$

$\bar{x}$=11.946 or 12(mean for years of teaching experience).

This information indicates the mean(average) amount of teaching experience of the electricity and electronics instructors responding to the questionnaire in the Virginia Community College System.

APPENDIX E

Responses / Industrial Experience

INTERVAL	FREQUENCY	cf	(x)	f(x)
0- 3 years	5	5	1.5	7.5
4- 8 years	9	14	6.0	54.0
9-12 years	3	17	10.5	31.5
13-16 years	5	22	14.5	72.5
17-20 years	3	25	18.5	55.5
Over 20 yrs	3	28	21.0	63.0
	$\Sigma f=28$			$\Sigma f(x)=284.0$

$\bar{x}=10.143$ or 10(mean for years of industrial experience)

This information indicates the mean amount of industrial experience of the electricity and electronics instructors responding to the questionnaire in the Virginia Community College System.

APPENDIX F

Responses / Educational Level

LEVEL	NUMBER	PERCENT
Associates Degree	2	7%
Bachelors Degree	11	39%
Masters Degree	13	47%
Doctors Degree	2	7%

The results indicate that a majority of instructors responding to the questionnaire or 86% are at the Bachelors or Masters Degree status.