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A Study to Determine Possible Relationships Between Graduate Record Examination Scores and the Professional Success of Graduates of the Instructional Media Department at Eastern Illinois University

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A STUDY TO DETERMINE POSSIBLE RELATIONSHIPS BETWEEN GRADUATE RECORD EXAMINATION SCORES AND THE PROFESSIONAL SUCCESS OF GRADUATES OF THE INSTRUCTIONAL MEDIA DEPARTMENT AT EASTERN ILLINOIS UNIVERSITY

(TITLE)

BY

MARK O. WALTERS

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

MASTERS OF SCIENCE IN EDUCATION

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1973
YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
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DEPARTMENT HEAD

ACKNOWLEDGEMENTS

Here I must take the time and space to gratefully acknowledge the help and counsel given to me so liberally by J. J. Reynolds, D.Ed., Shirley Moore, D. Ed. and of course my mother.

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CHAPTER I

Education is a commodity that is greatly in demand in this country. In the education field, this statement is ironical. In the October, 1971, National Education Asscciation Research Bulletin it was revealed that not only is there a job shortage for teachers, but that there is an increasingly greater supply of qualified graduates. Many seek to remedy this situation through graduate work. As a result, there are more applications for admittance to graduate schools than ever before. This surge of new applications increases the need for more accurate selection procedures.

This dilemma faces Eastern Illinois University. Based on discussions with various faculty members of the Graduate School of Education and in the Instructional Media Department, it was found that there have been no studies to determine the effectiveness of present selective procedures of the graduate applicants at Eastern Illinois University, more specifically, the Graduate Record Examination.

The Graduate Record Examinations are designed to assist graduate schools to evaluate the oualifications of applications for graduate school work. In view of

the purpose of the Graduate Record Examinations and the fact that they are required to be taken by all seeking admission to the Graduate School of Education, it would be interesting to determine the correlation, if any exists, between the Graduate Record Examination scores and the professional success of the graduates of the Instructional Media program. This study, then, will focus upon the above comparison.

Purpose of the Study

The purpose of this study was to determine if there was a relationship between the Graduate Record Examination scores and professional success of graduates of the Instructional Media program of Eastern Illinois University's Education Department.

Questions

1. What were the Graduate Record Examination scores of the graduates of Eastern Illinois University's Education Department with majors or concentrations in Instructional Media?

2. What was the success of each graduate of Eastern Illinois University's Instructional Media program as measured by present salary ranges, by faculty and non-faculty evaluations, and grade point averages?

3. Was there a relationship between Graduate Record Examination scores and present salary success of graduates of the Instructional Media program?

4. Was there a relationship between Graduate Record

Examination scores and faculty evaluations of graduates of the Instructional Media program?

5. Was there a relationship between Graduate Record Examination scores and nonfaculty evaluations of graduates of the Instructional Media program?

6. Was there a relationship between Graduate Record Examination scores and grade point averages of graduates of the Instructional Media program?

Delimitations

1. Only the Graduate Record Examination scores of Master of Science graduates of Eastern Illinois University's Education Department with majors or concentrations in Instructional Media were used.

2. The study was limited to the academic years of:

1964-1965

1965-1966

1966-1967

1967-1968

1968-1969

1969-1970

3. Evaluation of graduate success was based on the graduate's present salary scale, evaluations by faculty members, a nonfaculty evaluator, and grade point averages.

Limitations

1. The accuracy of the data depended on the accuracy of the Instructional Media Department's graduate data files, the accuracy of the faculty and nonfaculty

evaluators' knowledge and perception, and the accuracy of the files of the Record's Office and of the Dean of the Graduate School of Eastern Illinois University.

Methods

1. A questionnaire for salary levels was prepared.

2. As a trial run, two graduates from the Instructional Media program were asked to complete the questionnaire. Revisions were made where necessary.

3. A questionnaire was prepared for faculty and nonfaculty evaluations.

4. As a trial run, one faculty member from the Instructional Media Department was asked to complete the questionnaire. Revisions were made where necessary.

5. Questionnaires were mailed to those graduates of the Instructional Media program from the academic years of 1964-1965 through 1969-1970.

6. Questionnaires were mailed to all faculty members of the Instructional Media Department and to the one nonfaculty evaluator.

7. Both sets of returning questionnaires were coded by Instructional Media departmental personnel and forwarded to the author.

8. Graduate Record Examination scores were gathered from the files of the Office of the Dean of the Graduate School of Eastern Illinois University, and were coded by Instructional Media departmental personnel.

9. Graduate Record Examination scores, which had

been coded, were ranked from the highest to the lowest on a table.

10. A questionnaire for grade point averages was prepared.

11. The questionnaire was sent to the Record's Office of Eastern Illinois University.

12. The questionnaire was coded by Instructional Media personnel and forwarded to the author.

13. Tables showing salary scales were prepared.

14. Tables for faculty member evaluations were prepared.

15. Tables for nonfaculty evaluations were prepared.

16. Tables showing grade point average scales were prepared.

17. Comparison tables for data relating Graduate Record Examination scores to salary scales, and faculty and nonfaculty evaluations were prepared.

18. Tables for ranks and correlations for the Graduate Record Examination and salary, grade point averages, and combined faculty and nonfaculty evaluations were prepared according to Spearman's coefficient of rank correlation.

19. A table was prepared for the results of the rank and correlation tables just mentioned.

Definition of Terms

Graduate Record Examination scores. Both the Aptitude and Advanced Test scores.

Graduate Record Examination. That composite of Aptitude and Advanced Tests offered and administered by the Graduate Record Examinations Educational Testing service, Princeton, New Jersey.

Instructional Media Program Graduates. All those graduating from Eastern Illinois University with majors, or emphasis in Instructional Media in their Master of Science in Education degrees.

CHAPTER 2

Methods Used In The Study

In Accordance with the methods for the study, as stated in Chapter 1, a questionnaire to determine present salary levels of graduates was prepared. Additional information was requested from the graduates, such as their present positions, titles, and educational achievements, for future use if needed. The graduates were specifically requested to identify themselves by Social Security number only. Two graduates from the Instructional Media program, who were selected at random, were given questionnaires to be completed. No revisions were seen to be necessary from this trial run, so the questionnaire was prepared for mailing.

The salary questionnaire was mailed to all graduates of the Instructional Media program of Eastern Illinois University, from the years 1964-1965 through 1969-1970. An accompanying cover letter was also prepared and sent with each questionnaire. (See Appendix A) A second mailing was required to obtain a better response to the questionnaire. All identifying envelopes were destroyed by the Secretary of the Audiovisual Department and the

returned questionnaires were given to the project author.

Before the questionnaires for the faculty and non-faculty evaluations were prepared, it was decided to gather the Graduate Record Examination scores, since the results of this basic information could eliminate some of the graduates from the study. Originally, the Graduate Record Examination scores were to be obtained from the graduate data files of the Instructional Media Department. At that time it had not been foreseen that these files had large information gaps in them, so another source of information was sought.

The Graduate Record Examination scores were obtained from the Office of the Dean of the Graduate School of Eastern Illinois University, by the Secretary of the Audio-visual Department. The names of all the Graduates of the Instructional Media program of Eastern Illinois University from 1964-1965 through 1969-1970 were alphabetically placed on a list with their respective Social Security numbers. Both the Aptitude Test scores and the Advanced Test scores were gathered when they were available. A number of graduates were eliminated from the study at this time, due to a lack of G.R.E. scores. It is speculated that this was due largely to the fact that the G.R.E. tests were taken at the student's undergraduate schools. If this were true, these scores were never transferred to Eastern Illinois University's Graduate Office nor to the Graduate data files in the Audiovisual Department.

Since the Advanced Test scores were missing in several cases where Aptitude Test scores were present, Table 1 was prepared using only composite Aptitude Test scores to rank the graduates. Advanced Test scores were recorded when available, but were not used to rank the graduates, who were identified only by their identification numbers. To avoid discrimination between graduates with duplicate composite Aptitude Test scores, a simple procedure was used. Any duplicate averages were given a common ranking determined by taking the numerical orders of the scores and dividing them by half. An example of this is as follows: In a given list, number one is 3.90, and numbers two and three are the identical averages of 3.80, which is followed by number four, which is 3.70. To avoid discriminating between scores two and three, their numerical ascriptions are added and then divided by two, thus each would be ranked by the number two and one-half. The score of 3.70 remains ranked as four. This method of ranking duplicates was used throughout the rest of the study. This table was instrumental in determining the core group and their rank, around which the remainder of the study would be centered.

On Table 1, the Graduate Record Examination scores of Audiovisual graduates of Eastern Illinois University (1965-1970), were ranked from the highest to the lowest Aptitude Test scores in column three. The Advanced Test scores were not ranked since several were missing. All

graduates were identified with identification numbers.

TABLE 1

GRADUATE RECORD EXAMINATION SCORES
OF AUDIOVISUAL GRADUATES OF
EASTERN ILLINOIS UNIVERSITY (1965-1970)

Identification Number	Aptitude Test Scores	Aptitude Rank	Advanced Test Scores
1	460-780	1	570
2	410-640	2	510
3	460-580	3	510
4	530-500	4	-
5	550-470	5	520
6	520-460	6½	550
7	490-490	6½	520
8	520-400	9	550
9	540-380	9	460
10	440-480	9	470
11	500-410	11½	580
12	420-490	11½	470
13	460-430	13½	530
14	420-470	13½	440
15	400-530	15½	530
16	380-500	15½	410
17	540-320	18½	550
18	490-370	18½	520
19	430-430	18½	510
20	420-440	18½	480
21	460-380	21	470
22	430-390	22	500
23	360-450	24	400
24	330-480	24	380

TABLE 1 CONTINUED

Identification Number	Aptitude Test Scores	Aptitude Rank	Advanced Test Scores
25	410-400	24	-
26	460-320	26	440
27	320-450	27	450
28	400-340	28	540
29	370-340	29	-
30	270-420	30	-
31	360-320	31	420
32	350-310	32	-
33	290-350	33	-
34	290-300	34	410
35	330-280	35	410
36	360-220	36	300
37	280-260	37	340

Once the G.R.E. Aptitude Test scores were ranked, the graduates would retain this approximate order in all tables throughout the study. One such table was the Salary Scale Table. (See Table 2) Graduates were listed in their Aptitude Test score rank order and their identification continued to be their identification numbers. The graduate salary groups were placed appropriately and they were ranked from the highest salary group to the lowest in column four. Once again, group duplicates were treated as they were in Table 1.

TABLE 2

PRESENT SALARY SCALES OF AUDIOVISUAL GRADUATES OF EASTERN ILLINOIS UNIVERSITY (1965-1970)

Identification Number	Aptitude Rank	Salary Scale	Salary Rank
1	1	$14,000. to $16,000.	4½
2	2	$ 9,000. to $12,000.	17½
3	3	under $9,000.	20
4	4	above $16,000.	1½
5	5	*	
6	6½		
7	6½	$12,000. to $14,000.	11
8	9		
9	9		
10	9	$12,000. to $14,000.	11
11	11½		
12	11½	$14,000. to $16,000.	4½
13	13½	above $16,000.	1½
14	13½		
15	15½		
16	15½		
17	18½		
18	18½	$12,000. to $14,000.	11
19	18½	$12,000. to $14,000.	11
20	18½		
21	21	$12,000. to $14,000.	11
22	22	$14,000. to $16,000.	4½
23	24		
24	24	$ 9,000. to $12,000.	17½
25	24		
26	26	$12,000. to $14,000.	11
27	27		

TABLE 2 CONTINUED

Identification Number	Aptitude Rank	Salary Scale	Salary Rank
28	28	$12,000. to $14,000.	11
29	29		
30	30	$ 9,000. to $12,000.	17½
31	31	$12,000. to $14,000.	11
32	32		
33	33		
34	34		
35	35	$ 9,000. to $12,000.	17½
36	36	$14,000. to $16,000.	4½
37	37	$12,000. to $14,000.	11

*Seventeen graduates did not return their questionnaires, so salary is not listed for some.

Next, a questionnaire was prepared for faculty and nonfaculty evaluations. Those faculty members selected to participate in the study were taken from the Audiovisual Department and from the Instructional Media Department. The nonfaculty evaluator was the past chairman of the Audiovisual Department, and was selected to be an evaluator due to his knowledge about most of the graduates of this department. The questionnaire was comprised of an alphabetical list of the graduates whose G.R.E. scores were found, accompanied by three captioned columns. (See Appendix B) The first column contained the caption, 'unknown' which was defined in the accompanying

cover letter as "nothing is known about the graduate." The next column was captioned 'unsuccessful' which was defined in the accompanying cover letter as "the graduate is not presently employed in a meaningful media position." The last column was captioned 'successful' which was defined in the accompanying cover letter as "the graduate is presently employed in a meaningful media position." The evaluators were to place a check in the column that described each particular graduate best. The accompanying cover letter contained the above definitions of the terms used, and directions for evaluating the graduates, plus instructions for returning the questionnaire. (See Appendix B)

As a trial run, a faculty member from the Instructional Media Department was asked to complete the questionnaire. No revisions were seen to be necessary, so the questionnaires were either sent by mail, or delivered by hand, whichever was most expedient.

When the questionnaires were returned, the data was compiled into two tables. (See Table 3) Since there were five faculty evaluators, the evaluations fell into several groups. Later these evaluations would be grouped. At this time though, the graduates were ranked according to their G.R.E. Aptitude Test scores and were again identified by their identification numbers. The table for the nonfaculty evaluator was self-ranked due to the fact that there was only one set of evaluations. The arrange-

ment is the same for the nonfaculty evaluations as it is for the faculty evaluations.

Table three represents faculty evaluations of Audiovisual graduates of Eastern Illinois University (1965-1970), which were ranked from the highest to the lowest Aptitude Test scores. Each graduate was identified by his identification number. Column two represents G.R.E. Aptitude Test score rank. Column A represents the evaluation 'unknown', while column B represents the evaluation 'not successful', and column C represents the evaluation 'successful'. Five points is the highest score possible for each graduate.

TABLE 3

FACULTY EVALUATIONS OF AUDIOVISUAL GRADUATES OF EASTERN ILLINOIS UNIVERSITY (1965-1970)

Identification Number	Aptitude Rank	A	B	C
1	1			5
2	2	5		
3	3	3	2	
4	4	1		4
5	5	3	2	
6	6½			5
7	6½	5		
8	9	5		
9	9	4	1	
10	9	1		4
11	11½	4	1	

TABLE 3 CONTINUED

Identification Number	Aptitude Rank	A	B	C
12	11½	2		3
13	13½	4		1
14	13½	4		1
15	15½	5		
16	15½		1	4
17	18½	2	2	1
18	18½	4	1	
19	18½	1	1	3
20	18½	4		1
21	21	1		4
22	22	2		3
23	24	5		
24	24	2	1	2
25	24	2		3
26	26	1		4
27	27	4	1	
28	28	4		1
29	29			5
30	30	2	1	2
31	31	5		
32	32	2	3	
33	33	3	2	
34	34	1	1	3
35	35	3	2	
36	36	1	1	3
37	37	1		4

Table four represents nonfaculty evaluations of Audiovisual graduates of Eastern Illinois University (1965-1970) which were ranked from the highest to the lowest G.R.E. Aptitude Test scores. All graduates were identified by their identification numbers. Column two represents Aptitude Test score rank. Column A represents the evaluation 'unknown', while column B represents the evaluation 'unsuccessful', and column C represents the evaluation 'successful'. The highest score for each graduate was one.

TABLE 4

NONFACULTY EVALUATIONS OF AUDIOVISUAL GRADUATES OF EASTERN ILLINOIS UNIVERSITY (1965-1970)

Identification Number	Aptitude Rank	A	B	C
1	1			1
2	2		1	
3	3			1
4	4			1
5	5	1		
6	6½			1
7	6½		1	
8	9		1	
9	9		1	
10	9			1
11	11½	1		
12	11½			1
13	13½			1
14	13½		1	

TABLE 4 CONTINUED

Identification Number	Aptitude Rank	A	B	C
15	15½		1	
16	15½			1
17	18½		1	
18	18½		1	
19	18½			1
20	18½	1		
21	21			1
22	22			1
23	24		1	
24	24			1
25	24			1
26	26			1
27	27		1	
28	28	1		
29	29			1
30	30		1	
31	31			1
32	32		1	
33	33	1		
34	34			1
35	35		1	
36	36			1
37	37			1

It was decided that a valuable source of measurement of graduate success was grade point averages. A simple questionnaire was prepared to be sent to the Record's Office at Eastern Illinois University for the

purpose of acquiring the grade point averages of each of the graduates that were ranked on the G.R.E. scores on Table 1. The questionnaire contained a simple statement of request, which was followed by an alphabetical list of the names of the graduates and their accompanying Social Security numbers. Adequate space was left for the appropriate undergraduate and graduate grade point averages. This form was then sent to the Record's Office.

When whis questionnaire was returned, the contents were organized for a table. The graduates were arranged according to their G.R.E. Aptitude Test score rank and were identified by their identification numbers. Each graduate's undergraduate G.P.A. was placed in an accompanying column with a rank number, determined by organizing these G.P.A.s from the highest to the lowest. The duplicate averages were handled in the same way described on page nine for Aptitude Test scores. The graduate G.P.A.s were placed in another column and ranked in the same way. (See Table 5)

Next, a composite table was created for summarization purposes. (See Table 6) Table 6 contained seven columns and six subcolumns. The first column contained the graduates identification numbers ranked according to Table 1. Column two contained the Aptitude Test score rankings for each graduate. Column three contained the available salary scales. Columns four and five contained faculty and nonfaculty evaluations using

TABLE 5

GRADE POINT AVERAGES OF AULIOVISUAL GRADUATES
OF EASTERN ILLINOIS UNIVERSITY (1965-1970)

Identification Number	Aptitude Rank	Undergraduate G.P.A.	Rank	Graduate G.P.A.	Rank
1	1	2.72	12	3.50	14½
2	2	2.81	11	3.27	31½
3	3	2.38	25	3.50	14½
4	4	3.36	4	3.91	1
5	5	*	-	3.50	14½
6	6½	2.88	9½	3.73	5
7	6½	3.46	2	3.46	19½
8	9	3.02	8	3.46	19½
9	9	3.10	7	3.77	3½
10	9	2.31	30	3.64	8
11	11½	3.52	1	3.77	3½
12	11½	2.35	26	3.25	34½
13	13½	2.49	19½	3.60	10
14	13½	2.09	34	3.33	26½
15	15½	2.61	16	3.50	14½
16	15½	2.88	9½	3.38	25
17	18½	3.24	6	3.32	28
18	18½	2.70	14	3.50	14½
19	18½	2.43	22	3.33	26½
20	18½	2.48	21	3.42	22½
21	21	2.21	33	3.42	22½
22	22	3.37	3	3.78	2
23	24	2.81	11	3.27	31½
24	24	2.51	18	3.00	30
25	24	2.25	32	3.17	36
26	26	2.32	29	3.67	6½
27	27	2.27	31	3.62	9

TABLE 5 CONTINUED

Identification Number	Aptitude Rank	Undergraduate G.P.A.	Rank	Graduate G.P.A.	Rank
28	28	2.49	19½	3.31	29
29	29	3.29	5	3.67	6½
30	30	2.42	23	3.25	34½
31	31	2.34	27½	3.54	11
32	32	2.71	13	3.42	22½
33	33	2.39	24	3.07	37
34	34	-	-	3.46	19½
35	35	2.69	15	3.27	31½
36	36	-	-	3.42	22½
37	37	2.58	17	3.50	14½

*Three graduates did not have undergraduate grade point averages registered at the Record's Office at Eastern Illinois University.

the score rankings for each graduate. Column three contained the available salary scales. Columns four and five contained faculty and nonfaculty evaluations using the unknown, unsuccessful, and successful categories for each subcolumn. Column six contained the undergraduate grade point average rankings, while column seven contained the graduate grade point average rankings.

Since the tables up to this point deal with pairs of measurements, the next logical step was to find any correlations and determine their predictive values, if any existed. It was decided that Spearman's coefficient

TABLE 6

SUMMARY TABLE

entification Number	Aptitude Rank	Salary Scale	Faculty Evaluation A	B	C	Non-faculty Evaluation A	B	C	Undergraduate G.P.A. Rank	Graduate G.P.A. Rank
1	1	D			5			1	12	14½
2	2	B	5				1		11	31½
3	3	A	3	2				1	25	14½
4	4	E	1		4			1	4	1
5	5	-	3	2		1			-	14½
6	6½	-			5			1	9½	5
7	6½	C	5				1		2	19½
8	9	-	5				1		8	19½
9	9	-	4	1			1		7	3½
10	9	C	1		4			1	30	8
11	11½	-	4	1			1		1	3½
12	11½	D	2		3			1	26	34½
13	13½	E	4		1			1	19½	10
14	13½	-	4		1		1		34	26½
15	15½	-	5				1		16	14½
16	15½	-		1	4			1	9½	25
17	18½	-	2	2	1		1		6	28
18	18½	C	4	1			1		14	14½
19	18½	C	1	1	3			1	22	26½
20	18½	-	4		1	1			21	22½

TABLE 6 CONTINUED

ntification Number	Aptitude Rank	Salary Scale	Faculty Evaluation A	B	C	Non-faculty Evaluation A	B	C	Undergraduate G.P.A. Rank	Graduate G.P.A. Rank
21	21	C	1		4			1	33	22½
22	22	D	2		3			1	3	2
23	24	-	5				1		11	31½
24	24	B	2	1	2			1	18	30
25	24	-	2		3			1	32	36
26	26	C	1		4			1	29	6½
27	27	-	4	1			1		31	9
28	28	C	4		1	1			19½	29
29	29	-			5			1	5	6½
30	30	B	2	1	2		1		23	34½
31	31	C	5					1	27½	11
32	32	-	2	3			1		13	22½
33	33	-	3	2		1			24	37
34	34	-	1	1	3			1	-	19½
35	35	B	3	2			1		15	31½
36	36	D	1	1	3			1	-	22½
37	37	C	1		4			1	17	14½

of rank correlation be used for the above mentioned purposes. The following formula was used:

$$r = 1 - \frac{6\,d^2}{N - 1}$$

A table was prepared for each paired group of measurements. (See Appendix C) The G.R.E. Aptitude Test scores were ranked according to the number of salary statistics that were available, which ranged from one to twenty. The salary levels were ranked from the highest to the lowest, and duplicate levels were ranked in the same method used for the G.R.E. Aptitude Test scores described on page nine. The differences between each set of ranks were recorded, and then squared according to the formula mentioned above. The squared differences were then totaled, and multiplied by six. This answer was then divided by the number in the study (twenty) minus one (nineteen) and this figure was then subtracted from one. This procedure produced the rank correlation of salary with the G.R.E. Aptitude Test scores.

This procedure was followed for each paired group of measurements. The faculty and nonfaculty evaluations were combined and ranked in order to be compared with ranked G.R.E. Aptitude Test scores. To summarize the rank correlations of each paired group of measurements, Table 7 was prepared to show the results of each coefficient of rank correlation. On the same page, a correlation table was placed to be used to read the correlations, and from which predictions could be made.

TABLE 7

CORRELATION SUMMARY

1. r = .66	G.R.E. Aptitude and Salary Rank Correlation.
2. r = .87	G.R.E. Aptitude and Combined Evaluation Rank Correlation.
3. r = .17	G.R.E. Aptitude and Undergraduate G.P.A. Rank Correlation.
4. r = .02	G.R.E. Aptitude and Graduate G.P.A. Rank Correlation

CORRELATION COEFFICIENT CHART*

Correlation Coefficient	Percent in Better Half on G.R.E. Who Will Fall: in better half on Test B	in worse half on Test B
.00	50	50
.05	52	48
.10	53	47
.20	56	44
.30	60	40
.40	63	37
.50	67	33
.60	70	30
.70	75	25
.80	80	20
.90	86	14
.95	90	10
1.00	100	0

*Floyd L. Ruch and Philip G. Zimbardo, Psychology And Life (8th ed.; Glenview, Ill.: Scott, Foresman & Co., 1971), p. 670.

Results

The graduates that were studied represented a widespread area of composite Aptitude Test scores. These scores peaked at 1,240 out of a possible score of 1,600, and dropped to 540 out of a possible score of 1,600. Advanced scores were listed, but not ranked as they were incomplete.

The study table comparing G.R.E. Aptitude Test scores with salary, represented a total range of wages from under $9,000. to those over $16,000. (See Table 2) Five categories were deliberately chosen, these being: a. under $9,000., b. $9,000. to $12,000., c. $12,000. to $14,000., d. $14,000. to $16,000., and e. above $16,000. The major reason for such broad categories was the fact that starting salaries, in Illinois, have tended to be the same over the past few years as have the small raise increases. With such information at hand, it was hoped that broad salary categories would tend to decrease any bias.

Once the G.R.E. Aptitude Test scores and salary ranges were ranked, Spearman's coefficient of rank correlation formula was applied. The correlation for this paired group of measurements was .66. (See Table 7 and Appendix C) This correlation is high and shows that there is good correlation and prediction between high G.R.E. Aptitude Test scores and success in terms of high salary.

Next to be correlated with the G.R.E. Aptitude Test scores were the faculty and nonfaculty evaluations. It was decided, that since the nonfaculty evaluator had recently been a faculty member, and the same evaluation questionnaire had been used for both evaluations, it would be just as easy to combine both sets of evaluations. Once the evaluation measurements had been combined they were ranked. (See Appendix C) Each difference between the G.R.E. Aptitude Test score rank were squared and then these squared differences were added. The sum was then multiplied by six, and the answer was divided by thirty-six (the number in the study, minus one), then this was subtracted from one, which was r = .87. This was the highest correlation coefficient in the entire study. This high correlation coefficient detects that there is a great deal of relationship between high G.R.E. Aptitude Test scores and graduate success, as measured by the faculty and nonfaculty evaluators.

The third paired group of measurements that had Spearman's coefficient of rank correlation formula applied to it, involved undergraduate grade point averages. These grade point averages ranged from a 3.32, out of a possible 4.00, to a 2.09, out of a possible 4.00. The individual differences between G.R.E. Aptitude Test score ranks and undergraduate grade point averages were squared and then all of them were added. The sum of the squared differences was then multiplied

by six, then this product was divided by thirty-three (or the total number in the study, minus one). The answer to the latter problem was then subtracted from one, which resulted in r = .17. This was a poor correlation coefficient and has no real predictive value.

The last group of paired measurements to be correlated involved graduate grade point averages. The range represented by this group of averages was not as broad as were the undergraduate grade point averages. The top of the range was a 3.91, out of a possible 4.00, and the bottom of the range was a 3.07, out of a possible 4.00. The differences between the G.R.E. Aptitude Test score ranks and the graduate grade point averages were individually squared, then all of these squared differences were added and multiplied by six. The product was then divided by thirty-six (or the number in the study, minus one) and this figure was then subtracted from one which resulted in r = .02. This was the lowest and the least predictive of all of the correlation coefficients in the study.

CHAPTER 3

Summary

The results of study Table 2, which compared ranked G.R.E. Aptitude Test scores with ranked salary figures, were found by using Spearman's coefficient of rank correlation formula. The correlation coefficient that was arrived at was $r = .66$, which is relatively predictive. This simply shows that there is a good correlation and high predictive value between high G.R.E. Aptitude Test scores and graduate success in terms of salary. In other words, according to this study, a graduate who has high G.R.E. Aptitude Test scores will have very good chances of earning a high salary.

The next study proved to have extremely positive results. When Spearman's coefficient of rank correlation was applied to the ranked G.R.E. Aptitude Test scores and ranked combined faculty and nonfaculty evaluations, the result was a correlation coefficient of $r = .87$. This correlation was the highest and the most predictive out of all of the studies. A correlation coefficient of $r = .87$ in this study shows that there is a high relationship between high G.R.E. Aptitude Test scores and graduate success, as measured by faculty and nonfaculty evaluations. The possibility of a graduate having high

G.R.E. Aptitude Test scores and being successful in the media field, in terms of faculty and knowledgeable non-faculty evaluations, is very probable.

The third paired group of measurements involved ranked G.R.E. Aptitude Test scores and ranked undergraduate grade point scores. Spearman's coefficient of correlation coefficient was r = .17. This was a poor predictive correlation. In other words, just because the graduate has a high G.R.E. Aptitude Test score, does not necessarily mean that he will also have a high undergraduate grade point average.

This finding is supported by other studies done in this area. One such study was Kalmer E. Stordahl's study on the "Predictive Validity of the Graduate Record Aptitude Test,"[1] which was done at Northern Michigan University in 1970. This study revealed that undergraduate grade point averages were good predictors of graduate academic performance. When G.R.E. scores were added to the study, they did not significantly add to the prediction of grade point averages.

The last study involved ranked G.R.E. Aptitude Test scores and ranked graduate grade point averages. When Spearman's coefficient of rank correlation formula was applied, the result was a correlation coefficient of r = .02. This was the lowest and least predictive

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[1]Kalmer E. Stordahl, "Predictive Validity of the Graduate Record Aptitude Test," Research in Education, VI p. 42.

of all of the correlation coefficients in the study. In other words, there was no relationship between a high G.R.E. Aptitude Test score and a high or a low graduate grade point level.

Conclusions

In spite of the fact that G.R.E. Aptitude Test scores do not significantly predict graduate success in terms of both graduate and undergraduate grade point averages, they are still valuable. G.R.E. Aptitude Test scores have been found to be valuable in predicting the success of graduates in the area of salary and in the area of success in the media field, in terms of faculty and knowledgeable nonfaculty evaluations. The high correlation coefficients as stated previously, strongly indicate their value. In view of their value, the Graduate Record Examination Aptitude Test scores are valuable in predicting graduate success, as measured by data measuring instruments employed in this study, and should be considered to be a valid and effective selective procedure of the graduate applicants in the Instructional Media program at Eastern Illinois University.

Recommendations

Following are several recommendations which should be made at this time:

1. Performance on the G.R.E. Aptitude Tests should

be given careful consideration in the selection of students for the program leading to a degree in Instructional Media.

2. A study should be made to determine the correlations, if any exists, between the grade point averages of graduates and success of graduates as outlined in this study.

3. An effort should be made to complete the G.R.E. Advanced Test score list, if this is possible, in order to do a correlation study. This study could correlate the Advanced Test scores and graduate success, or it could combine G.R.E. scores and correlate them and graduate success as defined in this study.

4. An effort should be made to extend the scope of this study annually, by compiling data from additional graduating classes and adding it to what has already been done, to detect any inconsistencies.

5. An effort should be made to search for additional, valid determinates of graduate success, and to find correlations between them and the G.R.E.

An effort should be made to compare this study with other research that compares the G.R.E. with graduate success, to determine the consistency of this study.

APPENDIX A

Salary Questionnaire and Cover Letters

February 19,1973

Dear Graduate:

It would be greatly appreciated, if you would cooperate in filling out the enclosed questionnaire and returning it to us.

This form is one of the methods of gathering information for an Education 611 project, so we would like to assure you that:

1. You will not be identified by name at any time. Only your Social Security number will be used to match your data from this questionnaire with other data.
2. The results of this study will be reported without identifying any individual by either name or Social Security number.

Thank you for your cooperation.

James J. Reynolds

Project Advisor

Mark O. Walters

Graduate Student

mow

March 28, 1973

Dear Graduate:

It would be greatly appreciated, if you would cooperate in filling out the enclosed questionnaire and returning it to us. This form is one of the methods of gathering information for an Education 611 project, so we would like to assure you that:

1. You will not be identified by name at any time. Only your Social Security number will be used to match your data from this questionnaire with other data.
2. The results of this study will be reported without identifying any individual by either name or Social Security number.

Thank you for your cooperation.

James J. Reynolds

Project Advisor
Mark O. Walters

Graduate Student

Encl. 1

Questionnaire for Education 611 Project

1. Have you taken the Graduate Record Examination (G.R.E.)?____

2. What is your Social Security number?_____

3. What is your present position?_____

4. What is your present title?_____

5. Check the wage bracket that applies to you:

___a. under $9,000.

___b. $9,000. to $12,000.

___c. $12,000. to $14,000.

___d. $14,000. to $16,000.

___e. above $16,000.

6. Check other graduate work done after you received your M.S. in Education from this program:

___a. Specialist's degree. Specify_____

___b. another Masters. Specify_____

___c. work toward Doctors. Specify_____

___d. received Doctors._____

___e. other work or degrees. Specify_____

Thank you for your assistance.

Please return this completed form to: Mark O. Walters

Audio Visual Center

Eastern Illinois University

Charleston, Illinois 61920

APPENDIX B

Faculty Evaluation Form and Cover Letter

March 28, 1973

Dear Faculty Member:

The attached evaluation form is one of the ways that has been devised to gather information for an Education 611 project. The following terms appear as categories on the form and are defined for you below;

1. Unknown - nothing is known about the graduate.
2. Not Successful - the graduate is not presently employed in a meaningful media position.

Each graduate is to be rated once by you by placing a check in the column that you feel is appropriate.
Your cooperation in filling out the attached form will be appreciated. When you have completed the attached form, please return it to Mrs. Hite in the Audio Visual Center.

Mark O. Walters

Graduate Student

FACULTY EVALUATION FORM

Graduate	Unknown	Not Successful	Successful
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

FACULTY EVALUATION FORM

(Continued)

Graduate	Unknown	Not Successful	Successful
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			

APPENDIX C

Correlation Coefficient Tables

TABLE A

G.R.E. APTITUDE TEST SCORE AND SALARY
CORRELATION COEFFICIENT TABLE

G.R.E. Aptitude Rank	Salary Rank	d	d^2
1. 1	4½	3½	12.25
2. 2	17½	15½	240.25
3. 3	20	17	289.00
4. 4	1½	2½	6.25
5. 5	11	6	36.00
6. 6	11	5	25.00
7. 7	4½	2½	6.25
8. 8	1½	6½	42.25
9. 9½	11	1½	2.25
10. 9½	11	1½	2.25
11. 11	11	0	0.00
12. 12	4½	7½	56.25
13. 13	17½	4½	20.25
14. 14	11	3	9.00
15. 15	11	4	16.00
16. 16	17½	1½	2.25
17. 17	11	6	36.00
18. 18	17½	½	.25
19. 19	4½	14½	210.25
20. 20	11	9	81.00
			1,093.00 X 6
	6,558.00	345.15 19 ⟌ 6,558.00	1.00 -.34 .66 = r

TABLE B

G.R.E. APTITUDE TEST SCORE AND
COMBINED EVALUATION CORRELATION COEFFICIENT TABLE

G.R.E. Aptitude Rank	Combined Evaluation Rank	d	d^2
1. 1	1½	½	.25
2. 2	27	25	625.00
3. 3	23	20	400.00
4. 4	6	2	4.00
5. 5	32½	27½	756.25
6. 6½	1½	5	25.00
7. 6½	27	20½	420.25
8. 9	27	18	324.00
9. 9	32½	23½	552.25
10. 9	6	3	9.00
11. 11½	32½	21	441.00
12. 11½	11	½	.25
13. 13½	17	3½	12.25
14. 13½	22	8½	72.25
15. 15½	27	12½	156.25
16. 15½	9	6½	42.25
17. 18½	24	5½	30.25
18. 18½	32½	14	196.00
19. 18½	14	4½	20.25
20. 18½	20	1½	2.25
21. 21	6	15	225.00
22. 22	11	11	121.00
23. 24	27	3	9.00
24. 24	16	8	64.00
25. 24	11	13	169.00
26. 26	6	20	400.00
27. 27	32½	5½	30.25

TABLE B CONTINUED

G.R.E. Aptitude Rank	Combined Evaluation Rank	d	d^2
28. 28	20	8	64.00
29. 29	1½	27½	729.00
30. 30	18	12	144.00
31. 31	20	11	121.00
32. 32	37	5	25.00
33. 33	32½	½	.25
34. 34	14	20	400.00
35. 35	36	1	1.00
36. 36	14	22	484.00
37. 37	6	31	961.00
			8,036.50 X 6
		1,339.41	1.00
	48,219.00	36 ⟌48,219.00	-.13
			.87 = r

TABLE C

G.R.E. APTITUDE TEST SCORE AND
UNDERGRADUATE G.P.A. CORRELATION COEFFICIENT TABLE

G.R.E. Aptitude Rank	Undergraduate G.P.A. Rank	d	d^2
1. 1	12	11	121.00
2. 2	11	9	81.00
3. 3	25	22	484.00
4. 4	4	0	0.00
5. 5½	9½	4	16.00
6. 5½	2	3½	12.25
7. 8	8	0	0.00
8. 8	7	1	1.00
9. 8	30	22	484.00
10. 10½	1	9½	90.25
11. 10½	26	15½	240.25
12. 12½	19½	7	49.00
13. 12½	34	21½	462.25
14. 14½	16	1½	2.25
15. 14½	9½	5	25.00
16. 17½	6	11½	132.25
17. 17½	14	3½	12.25
18. 17½	22	4½	20.25
19. 17½	21	3½	12.25
20. 20	33	13	169.00
21. 21	3	18	329.00
22. 22	11	11	121.00
23. 23	18	5	25.00
24. 24	32	8	64.00
25. 25	29	4	16.00
26. 26	31	5	25.00
27. 27	19½	7½	56.25
28. 28	5	23	529.00

TABLE C CONTINUED

G.R.E. Aptitude Rank	Undergraduate G.P.A. Rank	d	d^2	
29. 29	23	6	36.00	
30. 30	27½	2½	6.25	
31. 31	13	18	324.00	
32. 32	24	8	64.00	
33. 33	15	18	324.00	
34. 34	17	17	289.00	
			4,617.75	X 6
		839.59	1.00	
	27,706.50	33 ⟌27,706.50	-.83	
			.17	= r

TABLE D

G.R.E. APTITUDE TEST AND
GRADUATE G.P.A. CORRELATION COEFFICIENT TABLE

G.R.E. Aptitude Rank	Graduate G.P.A. Rank	d	d^2
1. 1	14½	13½	182.25
2. 2	31½	29½	870.25
3. 3	14½	11½	132.25
4. 4	1	3	9.00
5. 5	14½	9½	90.25
6. 6½	5	1½	2.25
7. 6½	19½	13	169.00
8. 9	19½	10½	110.25
9. 9	3½	5½	30.25
10. 9	8	1	1.00
11. 11½	3½	8	64.00
12. 11½	34½	23	529.00
13. 13½	10	3½	12.25
14. 13½	26½	13	169.00
15. 15½	14½	1	1.00
16. 15½	25	9½	90.25
17. 18½	28	9½	90.25
18. 18½	14½	4	16.00
19. 18½	26½	8	64.00
20. 18½	22½	4	16.00
21. 21	22½	1½	2.25
22. 22	2	20	400.00
23. 23	31½	8½	72.25
24. 24	30	6	36.00
25. 25	36	11	121.00
26. 26	6½	19½	380.00
27. 27	9	18	324.00

TABLE D CONTINUED

G.R.E. Aptitude Rank	Graduate G.P.A. Rank	d	d^2
28. 28	29	1	1.00
29. 29	6½	22½	506.00
30. 30	34½	4½	20.25
31. 31	11	20	400.00
32. 32	22½	9½	90.25
33. 33	37	4	16.00
34. 34	19½	14½	210.00
35. 35	31½	3½	12.25
36. 36	22½	13½	182.25
37. 37	14½	22½	506.25
			5,929.00 X 6
		988.16	
	35,574.00	36) 35,574.00	1.00
			-.98
			.02 = r

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