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ABSTRACT

Drawing tests are often used to provide confirmatory and supporting evidence of intelligence or intellectual functioning. The relationship between scores on these types of instruments and academic achievement was studied among graduate students seeking degrees in education. The sample consisted of 125 graduate students in education (93 women and 32 men). Subjects had to draw a lady walking in the rain, a standardized measure that is not difficult to score. "Lady Walking in the Rain" protocols were scored by the researcher and correlated with achievement measures including grades and scores on achievement tests. Results indicate that scores on human figure drawing tests are not consistent with other measures of achievement in these adult students. There was considerable variation in scores on the various measures. Using such a "language free" measure of intellectual functioning requires additional study prior to acceptance for adult subjects. One table presents descriptive statistics and a correlation matrix. An appendix contains the scoring system for the drawing task. (SLD)

Can Academic Achievement Be Predicted by A Lady Walking in the Rain?

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Can Academic Achievement Be Predicted by A Lady Walking in the Rain?

For a number of years, projective devices such as the Human Figure Drawing Test, the Goodenough-Harris Drawing Test, and the Lady-Walking-in-the-Rain have been used to assess intelligence and/or intellectual functioning. In each of these tests, the examinee is asked to draw a specific figure or figures. The roots of this practice belie attempts to divorce intelligence from language skills and to measure "culture free" intelligence.

Although correlations between drawing test scores and scores on other intelligence measures have been reported as high, there is still disagreement as to what such devices actually measure. Similarly, the relationship between drawing test scores and achievement measures has been touted by some and "poohed" by others. And, whereas most authors promote the use of drawing tests with children, such devices have been employed with adults.

Drawing tests are often used to provide confirmatory and supportive evidence. However, questions about their utility with adults and as an indicator of achievement remain. The purpose of the present investigation is to assess the relationship between scores on these types of instruments and academic achievement among graduate students seeking degrees in education.

Method

Subjects

The sample consisted of 125 graduate students in Education enrolled in the researcher's Data Collection and Analysis (educational research) course some time over the past two years. Of the initial sample, two students were eliminated from analysis because they had repeated the course and data were obtained twice.

Since the course Data Collection and Analysis is required for all graduate students, sample members varied in their majors and professional experience. Majors included MAT in Secondary Education with emphasis on Biology, History, Mathematics, or English; M.Ed. in Curriculum and Instruction; M.Ed. in Elementary or Secondary School Administration and Supervision; M.Ed. in Special Education; M.Ed. in Elementary or Secondary School Counseling; M.Ed. in Reading Education. A few students were non-degree candidates who were taking courses for re-certification or to try to determine whether a career change would be warranted. Of the degree-seeking students, most were in the initial stages of their graduate careers at the time of data collection since the research course is a core requirement.

The sample included 93 women and 32 men.

Instrument - The Lady Walking in the Rain

The scoring criteria (see Appendix) would indicate that the "Lady Walking in the Rain" is objectively scored. To test this assumption, 25 drawings were scored independently by the researcher and a counseling psychologist. Utilizing an inter-rater agreement formula (# agreements/# agreements + # disagreements) with the raw scores, the inter-rater reliability was computed at 0.08. (The scorers only agreed in two cases.) Scores were converted to quarters based on age norms given in Rey's standardization table (Taylor, 1961), and an inter-rater coefficient was calculated at 0.48.

Analysis of scorer agreements and disagreements indicated no systematic differences. However, it revealed that even the two cases in which the scorers agreed were derived differently. It is interesting to note that an inter-rater reliability coefficient calculated for the total number of decisions (i.e., item by item) was 0.90.

Raw scores for the two scorers were also correlated using the Pearson-Product moment formula (r=.548) and the Spearman rank formula (r=.505). When the coefficients were re-calculated eliminating one subject, the correlations were elevated to .767 and .696, respectively.

The stability of scoring was assessed using 13 cases. Drawings were scored twice by the same person using an interval of a month. The stability coefficients were .753 calculated with the Pearson and .74 utilizing a Spearman rho. Raw scores agreed in 4 of the 13 (31%) of the cases.

Design and Procedure

Students were given a blank sheet of paper at the beginning of one class meeting and asked to draw a lady walking in the rain. The words, "Lady Walking in the Rain," were written on the chalkboard. The purpose of this exercise was clarified by a class discussion on instrumentation, including projective devices, usually provided later during the same class meeting. Hence the actual collection of data was not originally intended to be experimental in nature, nor was it for clinical evaluation. It was simply a hands-on class exercise.

"The Lady Walking in the Rain" was selected for the class exercise for several reasons. First, it is easy to administer. According to Taylor (1961), standardized administration procedures include asking the subject to draw a "lady walking in the rain" and allowing "not more than ten minutes" for this task. Second, scoring is straightforward enough (see Appendix) to be undertaken as a group/class exercise with very little training. Third, students are not familiar with this particular projective device. Although it is introduced to counseling and school psychology students, such instruction usually comes later in their programs

of study. Even students who have read the assigned text material may not directly associate this activity with the projective devices mentioned in the text (Rorschach Ink Blot Test, Thematic Apperception Test, Picture Situation Inventory).

As a rule students do not balk at or question this activity because they have been exposed to other unique requests during the semester. For example, on the first night of class they are asked to write various types of demographic information on an index card for future reference by the instructor. In addition they are asked to draw a picture of themselves. The professor, who has difficulty remembering names, uses the cards and pictures to associate names and demographic particulars with faces. Similarly, students rarely discuss or share their drawings with one another.

"Lady Walking in the Rain" protocols were scored by the researcher and correlated with achievement measures. These included final scores in the Data Collection and Analysis class, Graduate Record Exam scores, Miller Analogies Test scores, and grade point average. The researcher had assigned the class grades, and other data were obtained through the college's computerized student database. In a few cases, test scores had not been entered into the database and were obtained from the student's paper records.

Data Analysis

Statistical analysis revealed no significant correlation between scores on "The Lady Walking in the Rain" (RAINLADY) and achievement measures including the final average in the Data Collection class (AVGDC) and graduate grade point average (GPA). Similarly, no significant correlations were found between RAINLADY and Miller Analogies Test (MAT) scores or between RAINLADY and Graduate Record Exam scores including total scores (GRETOT), verbal scores (GREV), quantitative scores (GREQ).

Descriptive statistics and the Pearson correlation matrix are presented in Table 1. Other than the correlations among GRE scores, the only correlation of note is the correlation between class average (AVGDC) and the grade point average.

Discussion

Based on the results of this study, it would appear that scores on human figure drawing tests are not consistent with other measures of achievement for adult students enrolled in graduate courses in education. Although the study is somewhat limited by what some might view as a relatively homogenous sample, there was considerable variation in scores on the various measures. Similarly, the method of collecting data on the projective measure may have been somewhat tainted by the "experimental conditions." Nonetheless, utilization of such a "language free" measure of intellectual functioning requires additional study prior to acceptance for adult subjects.

A somewhat surprising finding in the present study was the lack of objectivity or inter-rater reliability with such a straight-forward scoring system. This warrants note, and may have contributed to the final outcome of the study.

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Appendix

Rey's Scoring System for "The Lady Walking in the Rain"

Item		Points
1.	Human form (head with legs)	1
2.	Body distinct from arms and legs	1
3.	Some clothing (buttons, scribbles on body)	1
4.	A female figure	1
5.	Profile: head and at least one other part of body in profile (body, feet, arms)	1
6.	Motion indicated (gait, posture)	1
7.	Rain roughly indicated	1
8.	Rain properly indicated (touching ground, regularly distributed, raindrops on umbrella and lower parts of picture)	1
	For drawing featuring umbrella	
9.	Umbrella roughly indicated	1
10.	Umbrella in two lines (round, oblong, top, handle)	1
11.	Umbrella clearly shown (ribs, points, scallops)	1
12.	Umbrella dimensions 1/3 to 2/3 of body length	1
13.	Umbrella positioned to cover at least half of body	1
14.	Umbrella attached to hand at end of arm	1
15.	Position of arm adequate	1
	For drawing featuring raincoat, hood, without umbrella	
16.	Hood indicated (if there is a hood and an umbrella count only point 42 - clothing)	1
17.	Head well covered by hood	1
18.	Raincoat or raincape	1
19.	Shoulders, arms covered by coat or cape, hands showing only	1
20.	Arms fully covered by cape, with shoulders clearly indicated	1
21.	Shoulders not shown, but asked "where are the arms?" the child answers, "under coat."	1
22.	Eyes shown (one line, dot)	1
23.	Eyes in double lines, several parts	1
24.	Nose shown	1
25.	Mouth shown	1
26.	Mouth shown in double lines, lips front or profile	1
27.	Ears shown	1
28.	Chin shown (front or profile)	1
29.	Hair or headgear (except hood)	1
30.	Neck or collar shown clearly If the lady's face is covered by umbrella or if her back is turned, give credit for nose, mouth, eyes, etc. Credit 2 points if the quality of the picture suggests the more mature form of these details.	1
31.	Hands (credit one point if hands are in pocket)	1
32.	Arms shown (one line)	1
33.	Arms in double lines	1
34.	Arms attached to body at shoulder level	1

35.	Arms in proportion to body or slightly longer	1
36.	Legs shown (one line)	1
37.	Legs in double lines	1
38.	Legs properly attached	1
39.	Legs in proportion to body	1
40.	Feet shown	1
41.	Shoes shown clearly	1
42.	Clothing: 2 articles (skirt and blouse, jacket and skirt; if the hood goes with an open umbrella, it is considered clothing)	1
43.	No transparency if such could be possible	1

For a picture that shows a definite artistic trend or technique (silhouette, etching, skilled schematization), credit total number of points possible up to here: 37 points.

For landscape

44.	A baseline, a road, a path, in one line or dots	1
45.	Figure clearly positioned on baseline or road	1
46.	Road or path shown	1
47.	Pavement or gravel shown	1
48.	Flower border, tree, doorway, house shown	1
49.	Special details showing imagination	1

Maximum 43 points

(From Taylor, 1961)

Table 1
Descriptive Statistics and Correlation Matrix for RAINLADY, AVGDC, MAT, GPA, GREV, GREQ, GRETOT

Simple Statistics

Variable	N	Mean	Std Dev	Median	Minimum	Maximum
RAINLADY	123	31.715447	5.203278	32.000000	13.000000	40.000000
AVGDC	111	89.072072	7.930048	90.000000	47.000000	100.000000
MAT	70	48.042857	16.683269	46.000000	19.000000	93.000000
GPA	119	3.598303	0.468487	3.667000	1.000000	4.000000
GREV	25	478.400000	108.038573	460.000000	320.000000	770.000000
GREQ	25	523.200000	119.014005	540.000000	310.000000	750.000000
GRETOT	25	1001.600000	192.130164	980.000000	670.000000	1520.000000

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / Number of Observations

	RAINLADY	AVGDC	MAT	GPA	GREV	GREQ	GRETOT
RAINLADY	1.00000	0.08896	0.21688	0.06034	-0.06840	0.05324	-0.00548
	0.0	0.3532	0.0713	0.5145	0.7453	0.8005	0.9792
	123	111	70	119	25	25	25
AVGDC	0.08896	1.00000	0.26845	0.78651	0.12615	0.17443	0.17915
	0.3532	0.0	0.0306	0.0001	0.5663	0.4260	0.4134
	111	111	65	108	23	23	23
MAT	0.21688	0.26845	1.00000	0.23575	.	.	.
	0.0713	0.0306	0.0	0.0512			
	70	65	70	69	1	1	1
GPA	0.06034	0.78651	0.23575	1.00000	0.23465	0.33732	0.34054
	0.5145	0.0001	0.0512	0.0	0.2697	0.1070	0.1035
	119	108	69	119	24	24	24
GREV	-0.06840	0.12615	.	0.23465	1.00000	0.43075	0.82915
	0.7453	0.5663		0.2697	0.0	0.0316	0.0001
	25	23	1	24	25	25	25
GREQ	0.05324	0.17443	.	0.33732	0.43075	1.00000	0.86167
	0.8005	0.4260		0.1070	0.0316	0.0	0.0001
	25	23	1	24	25	25	25
GRETOT	-0.00548	0.17915	.	0.34054	0.82915	0.86167	1.00000
	0.9792	0.4134		0.1035	0.0001	0.0001	0.0
	25	23	1	24	25	25	25