

UNIVERSITY OF SWAZILAND

FACULTY OF EDUCATION

FINAL EXAMINATION PAPER 2005

TITLE OF PAPER : RESEARCH METHODS AND EVALUATION

COURSE NUMBER : EDF 320 B.ED. III PAPER 2

TIME ALLOWED : THREE (3) HOURS

- INSTRUCTIONS :**
- 1. THERE ARE TWO SECTIONS IN THIS PAPER SECTION A AND SECTION B**
 - 2. ANSWER ALL ITEMS IN SECTION A. THERE IS ONLY ONE CORRECT ANSWER TO EACH ITEM. PUT A CIRCLE AROUND EACH CORRECT RESPONSE IN THE ANSWER CARD PROVIDED.**
 - 3. YOU ARE ADVISED TO SPEND ONLY 45 MINUTES IN SECTION A.**
 - 4. ANSWER QUESTION 1 AND ANY OTHER TWO QUESTIONS FROM SECTION B.**

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED TO DO SO BY THE INVIGILATOR

SECTION A

INSTRUCTION: ANSWER ALL QUESTIONS IN THIS SECTION BY PUTTING A CIRCLE AROUND THE ONE CORRECT ANSWER ON THE ANSWER CARD PROVIDED.

ITEM 1.

When a test gives some indications about a child's future performance, this is called

- a. face validity
- b. predictive validity
- c. construct validity
- d. concurrent validity
- e. content validity

ITEM 2.

When test scores reveal consistency, they are said to be

- a. valid
- b. standardized
- c. original
- d. reliable
- e. none of the above

ITEM 3.

Evaluation given at the end of a programme of instruction is called

- a. summative evaluation
- b. programme evaluation
- c. formative evaluation
- d. product evaluation
- e. instructional evaluation

ITEM 4

Minimum amount of time, skill and expense should be given preference when considering ease of

- a. interpreting test scores
- b. scoring a test
- c. cost of testing
- d. testing
- e. administering a test

ITEM 5.

Evaluation given to pin-point pupils's learning problems is called

- a. placement evaluation
- b. formative evaluation
- c. process evaluation
- d. product evaluation
- e. diagnostic evaluation

ITEM 6.

Which of the following r-values indicates the strongest relationship between two variables?

- a. 0.42
- b. - 0.48
- c. 1.02
- d. - 0.40
- e. 0.20

ITEM 7.

What term is given to evaluation that assesses one's potential to do well in a specific task?

- a. Protest
- b. Attitude
- c. Placement
- d. Diagnostic
- e. Examination

ITEM 8.

A very easy test is represented graphically by a

- a. symmetrical curve
- b. positively skewed curve
- c. normal curve
- d. a negatively skewed curve
- e. none of the above

ITEM 9.

What is the main function of an achievement test?

- a. It shows how a student is performing compared to the rest of the class.
- b. It shows that a student is likely to perform well in a specific task.
- c. It measures what a student has learnt.
- d. It allows the teacher to assess his own teaching methods.
- e. It compares the teacher with other teachers.

ITEM 10.

- (i) It involves subjectivity in marking
- (ii) It is easy to mark
- (iii) It is easy to construct
- (iv) It is susceptible to guessing
- (v) It covers a wider area of the syllabus content

Which of the above are true of essay tests items?

- a. (i) and (ii)
- b. (ii), (iii) and (v)
- c. (i), (iii) and (iv)
- d. (i) and (iii)
- e. (ii), (iii) and (iv)

ITEM 11.

A test in which students consistently score the same or similar marks is said to be

- a. objective
- b. reliable
- c. valid
- d. usable
- e. accountable

ITEM 12.

In order to improve on the accuracy and impartiality in scoring essay tests, an examiner must

- (i) read all the scripts once before scoring them
- (ii) evaluate responses anonymously
- (iii) score all questions in one paper before scoring the others
- (iv) prepare marking schemes for each question before marking the scripts

Which of these precautions are desirable?

- a. (ii) and (iv)
- b. (i), (ii) and (iii)
- c. (iii) and (iv)
- d. (ii), (iii) and (iv)
- e. (i) and (iv)

ITEM 13.

Which of these is evaluation?

- a. All the pupils got the same scores in maths.
- b. Thabsile is top of the class
- c. Gugu scored 90 out of 100 in English
- d. Everyone is doing well in statistics
- e. Dumi scored higher than Jabu in commerce

ITEM 14.

The raw scores and their standard scores will always yield

- a. the same curves
- b. mesokurtic curves
- c. symmetrical curves
- d. positively skewed curves
- e. different curves

ITEM 15.

A test that does not sample most of what has been taught may lack

- a. Discrimination
- b. Accountability
- c. Validity
- d. Objectivity
- e. Reliability

ITEM 16.

Minimum amount of time should be given preference when considering ease of

- a. interpreting test scores
- b. testing
- c. cost of testing
- d. scoring a test
- e. administering a test

ITEM 17.

If a test requires several hours to score, it may be seen as

- a. Not usable
- b. Invalid
- c. Lacking objectivity
- d. Unreliable
- e. Unrealistic

ITEM 18

- (i) split-half method
- (ii) test-retest with equivalent form
- (iii) Kuder-Richardson method
- (iv) test-retest method
- (v) equivalent form method

Which of the above methods of reliability determines stability in tests?

- a. equivalent form method
- b. test-retest method
- c. split-half method
- d. test-retest with equivalent method
- e. Kuder-Richardson method

ITEM 19.

What is the major function of a pretest?

- a. Helps the teacher introduce herself to the students.
- b. Introduces the subject in an unusual way.
- c. Finds out how well the students mastered previous content.
- d. Finds out if the students have prerequisite skills for the new learning.
- e. Finds out if the students have the potential to cope with the new learning.

ITEM 20.

- (i) the variance
- (ii) the range
- (iii) the mean
- (iv) the mode
- (v) the standard deviation

Which of the above are the best measure(s) of variability?

- a. (i) and (v)
- b. (ii), (iii) and (iv)
- c. (iii) and (ii)
- d. (iii), (ii) and (v)
- e. (ii) and (v)

ITEM 21.

Which of these is a disadvantage of the true/false test items?

- a. Items are too simple, anyone can score very high marks.
- b. Students have a 50% chance of guessing the correct response.
- c. Items test rote memorisation.
- d. They examine lower thinking skills.
- e. Teachers are never certain as to what they are measuring.

ITEM 22.

In a multiple choice test, there is always a correct statement called

- a. A key
- b. An option
- c. A stem
- d. An alternative
- e. A distractor

ANSWER QUESTIONS 23 TO 25 FROM THE INFORMATION PRESENTED BELOW:

SCORES	f
77 - 88	2
66 - 76	3
55 - 65	5
44 - 54	9
33 - 43	6
22 - 32	4
11 - 21	1

ITEM 23.

Compute the mean for the above distribution.

- a. 49.0
- b. 48.0
- c. 0.0
- d. 54.5
- e. 49.5

ITEM 24

Determine the median for the distribution.

- a. 46.94
- b. 47.94
- c. 49.60
- d. 49.72
- e. 48.39

ITEM 25.

What is the mode for the distribution?

- a. 9.50
- b. 4.54
- c. 4.00
- d. 9.00
- e. 4.00

ITEM 26.

One advantage of a short answer test is that

- a. It measures simple learning outcomes.
- b. It takes a longer time to mark.
- c. Children can easily prepare for the test.
- d. It possesses very good content coverage.
- e. It measures higher order skills.

ITEM 27.

If you have to use the salaries and wages of a university staff members to determine the average salary in that university, which measure of central tendency would you use?

- a. mean
- b. range
- c. variance
- d. mode
- e. median

ITEM 28.

Which of the following is least affected by guessing?

- a. Completion test
- b. True/false test
- c. Matching item test
- d. One word answer test
- e. Short essay test

ITEM 29.

Summative evaluation tests are normally

- a. Group referenced
- b. Norm referenced
- c. Criterion referenced
- d. Both group referenced and norm referenced
- e. None of the above

ITEM 30.

Given that $\sum xy = 26$, $\sum x^2 = 24$ and $\sum y^2 = 40$, determine the correlation coefficient of the Person "r".

- a. 30.98
- b. 1.32
- c. 0.84
- d. 15.60
- e. 0.48

ITEM 31.

Which of the following is the highest order of skills in Bloom's taxonomy?

- a. Knowledge
- b. Application
- c. Synthesis
- d. Evaluation
- e. Comprehension

ITEM 32.

A driving test can be classified as

- a. An objective test
- b. A criterion referenced test
- c. A power test
- d. A mastery test
- e. A norm referenced test

ITEM 33.

The process of examining students' responses to each item so as to ascertain its difficulty level and its discriminating power is called

- a. validity
- b. rating scale
- c. reliability
- d. item analysis
- e. usability

ITEM 34.

The content validity of a test can be best estimated by

- a. Specifying the content of the test
- b. Carrying out an item analysis
- c. Constructing a table of specification
- d. Computing the difficulty index of each item
- e. Eliminating easy items

ITEM 35.

Determine what percentage of the area under the normal curve will be covered between plus and minus 1.7 standard deviations from the mean.

- a. 86.64%
- b. 41.92%
- c. 43.32%
- d. 68.26%
- e. 91.08%

ITEM 36.

What is the best advantage of an oral test?

- a. It is easy to score.
- b. You can ask for further explanation of the response.
- c. It takes a short time to administer.
- d. You interact with the examinee face to face.
- e. The examiner may take a liking to the examinee.

ITEM 37.

One of the following is the most heterogeneous among the five classes. Which one is it?

- a. A class with a mean = 58 and a std. dev. = 1.35
- b. A class with a mean = 58 and a std. dev. = 5.81
- c. A class with a mean = 58 and a std. dev. = 3.11
- d. A class with a mean = 58 and a std. dev. = 5.32
- e. A class with a mean = 58 and a std. dev. = 2.76

ITEM 38.

Instructional objectives which are concerned with the pupils acquiring the minimum essentials of a course are

- a. Mastery outcomes
- b. Developmental outcomes
- c. Essential outcomes
- d. Basic outcomes
- e. Immediate outcomes.

ITEM 39.

Which of the following methods of determining Validity is most statistical?

- (a) predictive
- (b) content
- (c) concurrent
- (d) construct
- (e) Face

ITEM 40.

- (i) split-half method
- (ii) test-retest with equivalent form method
- (iii) Kuder-Richardson method
- (iv) test-retest method
- (v) equivalent form method

Which of the above method(s) of reliability determine(s) consistency in tests?

- a. test-retest with equivalent form method and test retest method
- b. test-retest method and Kuder-Richardson
- c. split-half method and Kuder-Richardson method
- d. test-retest with equivalent method and split half
- e. Kuder-Richardson method and test-retest with equivalent form method

SECTION B

INSTRUCTION : ANSWER QUESTION 1 (ONE) AND ANY OTHER 2 (TWO) QUESTIONS FROM THIS SECTION MAKING A TOTAL OF THREE QUESTIONS IN ALL.

QUESTION 1.

- (a) Write down the expression for the degree of freedom for the Student - t test. 3 marks

- (b) If your N is 123 and $r = 0.57$, determine the value of the Student - t at the 95% confidence level. 12 marks.

- (c) Find out whether the Student-t is significant and explain your finding. 5 marks

20 MARKS

QUESTION 2.

"Strictly speaking, criterion reference and norm reference refer only to the methods of interpreting results" Gronlund, N (1965).

Elaborate on the above statement showing when it would be appropriate for teachers to use each of the above named tests. 20 MARKS

QUESTION 3.

Write short notes on any four (4) of the following:

- a. The Normal curve
- b. Correlation
- c. Item Analysis
- d. Interval Scale
- e. Standard Deviation

5 marks each = 20 MARKS

QUESTION 4.

Argue for or against the use of multiple choice tests and examinations in assessment of children's learning in schools. 20 MARKS

A P P E N D I X A

df	.1	.05	.01	.001
1	6.314	12.706	63.657	636.619
2	2.920	4.303	9.925	31.598
3	2.353	3.182	5.841	12.941
4	2.132	2.776	4.604	8.601
5	2.015	2.571	4.032	6.859
6	1.943	2.447	3.707	5.959
7	1.895	2.365	3.499	5.405
8	1.860	2.306	3.355	5.041
9	1.833	2.262	3.250	4.781
10	1.812	2.228	3.169	4.587
11	1.796	2.201	3.106	4.437
12	1.782	2.179	3.055	4.318
13	1.771	2.160	3.012	4.221
14	1.761	2.145	2.972	4.140
15	1.753	2.131	2.947	4.073
16	1.746	2.120	2.921	4.015
17	1.740	2.110	2.898	3.965
18	1.734	2.101	2.878	3.922
19	1.729	2.091	2.861	3.883
20	1.725	2.086	2.845	3.850
21	1.721	2.080	2.831	3.819
22	1.717	2.074	2.819	3.792
23	1.714	2.069	2.807	3.767
24	1.711	2.064	2.797	3.745
25	1.708	2.060	2.787	3.725
26	1.706	2.056	2.779	3.707
27	1.703	2.052	2.771	3.690
28	1.701	2.048	2.763	3.674
29	1.699	2.045	2.756	3.659
30	1.697	2.042	2.750	3.646
40	1.684	2.021	2.704	3.551
60	1.671	2.000	2.660	3.460
120	1.658	1.980	2.617	3.373
α	1.645	1.960	2.576	3.291

SOURCE: APPENDIX C from Downie, N.M., and Heath, R.M. Basic Statistical Methods, N.Y.; Harper & Row, Publishers, 1974.

STATISTICAL FORMULAE

$$(1) \bar{X} = \frac{\sum X}{N}$$

$$(2) \bar{X} = M' = \frac{\sum fx'}{N} \quad i$$

$$(3) x = X - \bar{X}$$

$$(4) ss = \sqrt{\frac{\sum x^2}{N}} \text{ or } \sqrt{\frac{\sum x^2}{N-1}}$$

$$(5) s^2 = \frac{\sum x^2}{N} \text{ or } \frac{\sum x^2}{N-1}$$

$$(6) \sum x^2 = i^2 \left[\sum f x'^2 - \frac{\sum fx'^2}{N} \right]$$

$$(7) s = \sqrt{\frac{\sum X^2}{N} - \bar{X}^2}$$

$$(8) s = \frac{1}{N} \sqrt{N \sum X^2 - \sum X^2}$$

$$(9) Q = \frac{Q_3 - Q_1}{2}$$

$$(10) z\text{-score} = \frac{X - \bar{X}}{s}$$

$$(11) T\text{-score} = 10z + 50$$

$$(12) r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

$$(13) r = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

$$(14) r = \frac{\sum z_x z_y}{N}$$

$$(15) r_{pb} = \frac{\bar{X}_y - \bar{X}_t}{s_t} \left(\sqrt{\frac{p}{q}} \right)$$

$$(16).b_{yx} = \frac{\sum XY - [(\sum X)(\sum Y)/N]}{\sum X^2 - [(\sum X)^2/N]}$$

$$(17).a_{yx} = \bar{Y} - b_{yx}\bar{X}$$

$$(18).b_{xy} = \frac{\sum XY - [(\sum X)(\sum Y)/N]}{\sum Y^2 - [(\sum Y)^2/N]}$$

$$(19).a_{xy} = \bar{X} - b_{xy}\bar{Y}$$

$$(20).s_{xy} = \sqrt{(\sum Y - \bar{Y})^2 / (N-1)}$$

$$(21).student - t = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

$$(22).Y' = a + b_1X_1 + b_2X_2 + b_3X_3$$

$$(23).F_{n_1-1, n_2-1} = \frac{S_g^2}{S_i^2}$$

$$(24).t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

$$(25).t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{\sum x_1^2 + \sum x_2^2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$26.x^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$$27.TOTAL_{ss} = \sum X^2 - \frac{(\sum X)^2}{n}$$

$$WITHIN_{ss} = \sum \sum X^2 - \frac{\sum (X)^2}{n}$$

$$31. df_t = n - 1$$

$$32. df_b = k - 1$$

$$33. df_w = n - k$$

$$MS_b = \frac{SS_b}{df_b}$$

$$34. MS_w = \frac{SS_w}{df_w}$$

$$35. F = \frac{MS_b}{MS_w}$$

$$(15) r_{123} = \frac{r_{12} - r_{13}r_{23}}{\sqrt{1 - r_{13}^2} \sqrt{1 - r_{23}^2}}$$