

University of Swaziland



Faculty of Education

Department of Educational Foundation and Management

Supplementary Examination Paper

July 2014

Title of paper: Measurement and Testing

Course Code: EDF321 PGC F/T

Time allowed: Three (3) hours

Notes and Instructions: The total for the paper is 100% .

This paper is not to be opened until permission has been granted by the invigilator.

Answer all questions

Question one

- (a) What is the difference between Norm referenced and Criterion referenced evaluation (2 marks)
- (b) Explain how these two processes are helpful in improving practice in schools/organisations-support your answer with examples? (10 marks)

Question two

- (a) What is item analysis? (2 marks)
- (b) Explain the importance of item analysis in improving practice in schools or in educational organisations such as the Examination Council? (3 marks)
- (c) What is the difference between difficult level or index and discrimination index? (3 marks)

Question Three

- (a) Calculate the difficult index or level of these two following items/questions and interpret the results. (10 marks)

Distractors	A	B	C	D
Questions 1	0	4	23 *	3
Question 2	11 *	14	3	2

Key: * correct answer!

- (b) Calculate the discrimination index of these two items and interpret the results (10 marks)

Key: 1 correct answer

0 wrong answer

Students	Scores	Item (1)	Item (2)
Thoko	90	1	0
Simon	90	1	0
John	80	0	0
Charles	80	1	0
Sonia	70	1	0
Robert	60	1	0
Cliford	60	1	0
Khelina	50	1	1
Justice	50	1	1
Tom	40	0	1

Question four

- (a) Calculate the mean, variance and standard deviation from this distribution of the test scores of ten individuals (10, 1, 3, 9, 2, 5, 7, 6, 9, 8). Using this formula.

Variance= Total sum of the deviation score squared divided by N

Standard deviation = Total sum of X squared divided by N, then square root. (10 Marks)

Marking guide: EDF321

NB: All answers must be supported with examples.

Question one: (a)

Norm referenced evaluation-

- Norm referenced test measure the performance of one group of learners against another. For example, form three learners from St Michaels and Mjinga taking the same history test. It measures how much a test taker knows compared to another learner. It measure broad skills areas taken from different textbooks. Test score are reported in a percentile rank.
- Criterion referenced- tests measure the performance of test takers against the criteria covered in the curriculum. It measures how much a learner known before and after taking the test (students' understanding, a change of behaviour in terms of learning). It tests the skills the learner has acquired through learning the curriculum (how much the curriculum is understood by the learners).

(b) Norm referenced tests is helpful:

- Recognising the strengths and weakness of the learner when compared with other students doing the same content/curriculum. This helps in designing relevant strategies to address the weakness;
- Giving feedback to both teachers and leaners;
- Diagnosing educational problems;
- The refocus on teaching strategies.

Criterion referenced is helpful:

- Providing means of making educational judgement on what is covered on the curriculum;
- Providing an educational feedback on the skills acquired by the learner;
- Providing means of examination individuals understanding of the concepts covered- not in relation to others.

Question Two

(a) Item analysis is a process of finding the flaws in an test item, diagnosing information about students learning practices.

(b) Importance of item analysis:

- Provides means of understanding the learner;
- Provides teacher professional development;
- Prepares teachers to be best test items writers;

- Provides feedback;
- It helps in improving the curriculum;
- It addresses misconception.

Question three

(a) What is a difficulty level index:

- It's an educational process which helps in assessing the difficulty level of an item- through a special educational formula- R/T .

(b) Question one: Difficulty level= $R/T \times 100$

$$=23/30$$

$$P= 0.767$$

This means question 1 was easy.

Question two:

Difficulty level= $R/T \times 100$

$$11/30$$

$$P =0.36$$

This means the test was moderate.

(c) Discrimination index for Question 1=

$4-4=0/5=DI 0$. Meaning that there is no/zero discrimination.

Question 2. Discrimination index =

$$0-3=-3/5$$

$$=DI -0.6.$$

Negative index tells us that the lower achievers got more correct answers compared to higher achievers-this requires the teacher to re-visit the item.

Question four

(a) Calculate the mean, variance and standard deviation from this distribution of the test scores of ten individuals (10, 1, 3, 9, 2, 5, 7, 6, 9,8). Using this formula.

Variance= Total sum of the deviation score squared divided by N

Standard deviation = Total sum of X squared divided by N, then square root.

Answer:

Table: Distribution of the test scores of ten individuals

X Scores	Mean	Deviation score	Deviation squared	
10	-	6	4	16
9	-	6	3	9
9	-	6	3	9
8	-	6	2	4
7	-	6	1	1
6	-	6	0	0
5	-	6	-1	1
3	-	6	-3	9
2	-	6	-4	16
1	-	6	-5	25
Total X = 60			0	Total = 90

- (i) Mean = $60/10 = 6$
- (ii) Variance = $90/10 = 9$
- (iii) Standard deviation = $90/10 = 9$ then square root of 9 which is 3.