EXPERIMENTS IN EDUCATION

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Price Rs. 60.00

CONSTRUCTION AND STANDARDISATION OF AN AWARENESS QUESTIONNAIRE ON M-LEARNING*

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Abstract

The world of learning has become more mobile, more flexible and more exciting thanks to the invention of innovative mobile devices. Mobile computing and communication devices offer unique opportunities for teachers and students with their different kinds of instructional setting to capitalize on the flexibility and freedom offered by these devices. However, these benefits demand new pedagogies and new approaches in delivering and facilitating instruction. Mobile learning (M-learning) is bound to become more significant in the field of education than online learning and traditional learning methods. It is time to study teacher trainees' awareness about m-learning. Hence an attempt to construct and standardize an awareness questionnaire about mobile learning has been made.

Introduction

The phrase 'mobile learning' (m-lg) refers to the use of mobile devices such as Personal Digital Assistants (PDAs), mobile phones, laptops and tablet PC technologies in the teaching – learning process. Teaching – learning that takes place through mobile devices is known as m-learning. Mobile learning enables teaching-learning to take place any time and any where.

Awareness implies vigilance in observing something. If one is to have high awareness towards mobile learning, he must have knowledge about mobile communication devices.

Construction and Standardisation of an Awareness Questionnaire on M-Learning

The main aim of this study is to construct and standardize a tool for measuring awareness about mobile learning among student teachers.

The means of estimating a person's awareness to get a sample of his expressed opinion as a reaction certain statements. The investigators must depend on what the individual says as to his knowledge. The total pattern of one's opinion to the different items reals one's awareness. Questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in himself.

PLANNING

In this section, the researchers framed as many as 40 statements relating to awareness about mobile learning. The statements were collected from the following sources:

a. experts in the field of education.
b. experts working in the field of ICT.
c. users of mobile devices.
d. the internet.
e. related books.

TRYOUT

A try out was made for a pilot study of the tool. The try out helps to refine the items as clearly as possible. Not only for refining the items but also for the following:

1. To identify the weak items and the needed improvements.
2. To refine the instruction and procedures.
3. To know how to organize the items.
4. To streamline the format of the tool.

Thus the preliminary version of the tool was circulated among the experts in the field of ICT and those who were working in the various colleges and university departments. After that, the awareness questionnaire was finalized.

PREPARATION OF ITEMS FOR THE PILOT STUDY

The investigators framed the awareness questionnaire with 40 statements. For the administration of pilot study, the investigators selected the colleges of education from Kumbakonam Taluk of Tanjore District. Then the investigators conducted pilot study on a sample of as many as 100 graduate teacher trainees who were studying in the B.Ed., colleges.

The next step in the construction and standardization of an awareness questionnaire is to find out the difficulty index and discriminating power for each item in the questionnaire which form the basis for item selection.

SCORING

The questionnaire consists of 40 statements with two responses "yes" and "no". A score of one was given to each correct answer and zero was given to each wrong answer. The total score of an individual can be obtained by adding his/ her scores for all the individual items in the awareness questionnaire. The maximum score for this questionnaire is 40 and the minimum is 0.

ITEM ANALYSIS

One of the important steps in the standardization of any tool is items analysis. For this purpose, the investigators used 100 answer sheets of the sample selected. The individual's awareness scores for all the 100 samples were found out and they were arranged from the highest to the lowest score. After that the researchers took top 25% of the sample –the high scorers, and the bottom 25% — the low scorers. The high and low groups, thus selected, formed the criterion groups. Each group consists of 25 answer sheets.

ITEM SELECTION

Difficulty Index of an Item

The difficulty index of an item is represented by the percentage of students who responded to it correctly. It was calculated using the formula.

$$D.I = U+L/2N$$

Where

U = Number of correct responses in the upper group

L = Number of correct responses in the lower group

N = Number of students in both the groups.

Discriminating Power of an Item

The discriminating power of an item indicates the measure of the extent to which an item discriminates or differentiates between subjects who do well on the overall test and those who do not do well on the over all test. The discriminating power of the item was calculated by the formula.

$$D.P = U - L/N$$

Where

U = Number of correct responses in the upper group

L = Number of correct responses in the lower group

N = Number of students in both groups.

SELECTION OF ITEMS

Any item whose discriminating power is above 0.30 should be considered as a reasonably good item (Ebel, 1966). In the present investigation, only such of those items whose difficulty indices ranged from 0.33 to 0.76 and whose discriminating power falls between 0.30 and 0.68 were selected (Table 1).

TABLE 1

TABLE SHOWING THE 'D.I' AND 'D.P' VALUES FOR ITEM ANALYSIS AND SELECTED ITEMS FOR THE M-LEARNING AWARENESS QUESTIONNAIRE

ITEM NO	DIFFICULTY INDEX	DICRIMINATING POWER	ITEM SELECTION
1.	0.92	0.04	X
2.	0.86	0.12	X
3.	0.78	0.44	S
4.	0.76	0.16	X
5.	0.8	0.08	X

ITEM NO	DIFFICULTY INDEX	DICRIMINATING POWER	ITEM SELECTION
6.	0.84	0.24	S
7.	0.56	0.32	S
8.	0.64	0.32	S
9.	0.92	0.16	X
10.	0.94	0.12	X
11.	0.64	0.72	S
12.	0.78	0.2	S
13.	0.88	0.24	S
14.	0.7	0.52	S
15.	0.86	0.12	X
16.	0.76	0.48	S
17.	0.86	0.28	S
18.	0.74	0.44	S
19.	0.92	0.16	X
20.	0.76	0.32	S
21.	0.92	0.16	X
22.	0.84	0.08	X
23.	0.82	0.2	S
24.	0.74	0.52	S
25.	0.86	0.28	S
26.	0.78	0.36	S
27.	0.74	0.52	S
28.	0.78	0.28	S
29.	0.82	0.2	S
30.	0.76	0.4	S
31.	0.9	0.2	X
32.	0.9	0.2	X
33.	0.8	0.4	S
34.	0.68	0.56	S
35.	0.88	0.16	X
36.	0.72	0.48	S
37.	0.78	0.28	S
38.	0.86	0.28	S
39.	0.84	0.16	X
40.	0.64	0.4	S

Note: s- denotes the items selected; x- denotes the items not selected

OL FOR THE FINAL STUDY

The final form of the awareness questionnaire nsists of as many as 26 items. A maximum score this awareness questionnaire is 26. There is no time limit for completing this tool. But an average person can complete it with in 40 minutes.

VALIDITY

Validity means truthfulness. The awareness about mobile learning has face validity. The awareness

questionnaire was given to the experts in order to ascertain its face validity. The experts agreed that the items in the awareness questionnaire are relevant and worthwhile for collecting the data from the sample.

RELIABILITY

Reliability refers to the accuracy (consistency and stability) of measurements by a test. In this study, the co-efficient of internal consistency has been found by the split half method to be 0.83. The co-efficient of stability is also determined by the test-retest method. It is found to be 0.78.

PERCENTILE NORM

The following table represents the percentile norm for this awareness questionnaire.

TABLE 2

PERCENTILE NORM FOR THE M-LEARNING AWARENESS QUESTIONNAIRE (MLAQ)

S.NO	PERCENTILE	SCORE RANGE	NORM
1.	$P_{25}(Q_1)$	Below 12	Low awareness
2.	P_{25} to $P_{75}(Q_1-Q_3)$	12 - 19	Average awareness
3.	$P_{75}(Q_3)$	Above 19	High Awareness

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