

# Awareness Questionnaire on Massive Open Online Course (MOOCs): A Tool Construction and Standardization

Vijila C, K Thiyagu



**Abstract:** In the present study, the test items were administered to the Post Graduate students for standardize the MOOCs awareness questionnaire. This preliminary draft questionnaire consists of 50 questions. The sample of the study was 370 Post Graduate Students, were randomly selected. The 't' test is used to standardize the tool and finally 43 multiple-choice questions were retained after pilot study. Cronbach's Alpha value after the item analysis is .820. This tool should be useful to measure the MOOCs awareness. This article describes a tool construction and standardization procedure of Massive Open Online Course (MOOCs) awareness questionnaire.

**Keywords:** MOOCs, Awareness, Questionnaire, Reliability and validity

## I. INTRODUCTION

Massive Open Online Courses (MOOCs) are one among the most prominent and emerging trends as innovative practices of teaching and learning globally (Vijila & Thiyagu, 2019). Moreover it is a new trend in online education which encompasses both similarities and dissimilarities of distance learning. A massive open online course (MOOC) is an online course which provides the learners a great opportunity of unlimited participation and open access via the web and also it provides a broad opportunity to use technology, resulting in wider benefits of universal higher education. (Marshall, 2014). MOOCs provide video lectures, power point presentations, reading references, and assessment tools. MOOCs also generate interactive user forums to support various types of community interactions among students, teachers and others (Shaikh, 2017). MOOCs usually offers high quality education from worlds' top universities through online. OpenupEd (2015) says that "MOOCs are courses designed for huge number of participants that can be accessed from anywhere by anyone with an internet connection and it is open to everyone without entry qualifications, and offer a full/complete course experience. It was in 2008, MOOCs were first introduced and later by 2012 it emerged as a popular mode of online and distance learning.

The meaning of words in MOOCs indicates- Massive (dispersed geographically, high enrolment), Open (articulated to free and accessible), and Online (web based facilitation). Course (Some learning objectives to be achieved by learners after certain learning activities within in a given period of time) (Chauhan & Chauhan, 2018). Different universities are offer their courses through major providers of MOOCs viz. Coursera, edX, Udacity and Udemy.

The present item analysis is an attempt for assessing MOOCs awareness among PG students. In present scenario online courses are getting more recognition. Most of the Indian Universities are now insisting online courses for the completion of total credit of the regular courses of Post Graduate Students. Hence creating an awareness on online courses becomes a prerequisite condition for all student communities.

## II. OBJECTIVE

Awareness is the ability to know, to perceive, to feel, or to be cognizant of events. More broadly, it is the state of being conscious of something. Awareness of MOOC denotes the level of knowledge or conscious in the context of Massive Open Online Courses. The main objective of the study is to find out the awareness on MOOC courses among the post graduate students. The major tool was developed and standardized to measure the awareness level of massive open online courses among the post graduate students.

## III. PILOT STUDY

A pilot study is, "A small-scale test of the methods and procedures to be used on a larger scale" (Porta, 2008). The major purpose of conducting a pilot study is to examine the feasibility of an approach that is intended to ultimately be used in a larger scale study, to test the effectiveness of the tools and to determine the deficiency, a pilot study is conducted. As well as, before went to pilot study the investigator got it feedback and suggestions from concern subject experts. Finally, the investigator has conducted pilot study; this study to represent all the characteristics of population, probability sampling technique was used. The pilot study respondents include 370 Post graduate students. Investigator creates the Google form for pilot study and share the link through emails and WhatsApp for filling the tool. They took 45 minutes to answer the questionnaire. This was helpful in revealing the discrepancies in the tool. Necessary modification was carefully carried out before finalizing the tool.

Manuscript published on 30 September 2019

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Retrieval Number: C5209098319/2019©BEIESP

DOI: 10.35940/ijrte.C5209.098319

Journal Website: [www.ijrte.org](http://www.ijrte.org)

Published By:  
Blue Eyes Intelligence Engineering  
& Sciences Publication

IV. SCORING PROCEDURE

The investigator has constructed draft MOOCs awareness questionnaire. It consists of fifty multiple-choice questions. Each item has four alternative responses marked (a), (b), (c) and (d), in this right response carries one mark and wrong response carries zero mark.

V. ITEMS SELECTION

**Interpretation Based on ‘t’ value:** The ‘t’ value is a measure score of the extent to which a given item differentiates between the high and low groups. If the ‘t’ value is equal to or greater than 2.58, it shows that the average response of the high and low groups to a statement differs significantly at 0.01 level. Out of 50 items, 43 items were retained, due to ‘t’ value more than 2.58, 7 items were deleted. They are given in table -1.

**Interpretation Based on ‘p’ value:** If the ‘p’ value is less than 0.01, it indicates that the average response of the high and low groups to a statement differs significantly. The ‘p’ value of all the 50 items were obtained to select the items for the final draft. Out of 50 items, 43 items were having ‘p’ value less than 0.01, the remaining 7 items were deleted. They are given in table -1.

Table-I:Item wise Analysis : MOOC Awareness Questionnaire

Item Numbers	‘t’ Value	‘p’ Value	Item wise Remarks	Item No. in the Final Draft Tool
1.	4.376	.000	Retain	1
2.	10.977	.000	Retain	2
3.	3.514	.001	Retain	3
4.	8.600	.000	Retain	4
5.	5.349	.000	Retain	5
6.	4.408	.000	Retain	6
7.	3.210	.002	Retain	7
8.	2.754	.006	Retain	8
9.	2.475	.014	Reject	-
10.	1.634	.104	Reject	-
11.	5.707	.000	Retain	9
12.	5.043	.000	Retain	10
13.	6.966	.000	Retain	11
14.	.200	.842	Reject	-
15.	6.886	.000	Retain	12
16.	7.803	.000	Retain	13
17.	5.339	.000	Retain	14
18.	3.994	.000	Retain	15
19.	5.841	.000	Retain	16
20.	.025	.980	Reject	-
21.	7.776	.000	Retain	17
22.	9.533	.000	Retain	18
23.	6.203	.000	Retain	19
24.	8.543	.000	Retain	20
25.	2.094	.038	Reject	-
26.	6.917	.000	Retain	21
27.	3.229	.001	Retain	22
28.	8.005	.000	Retain	23
29.	.867	.387	Reject	-
30.	4.762	.000	Retain	24
31.	1.772	.078	Reject	-
32.	4.813	.000	Retain	25
33.	7.984	.000	Retain	26

34.	11.930	.000	Retain	27
35.	4.478	.000	Retain	28
36.	5.702	.000	Retain	29
37.	4.123	.000	Retain	30
38.	5.985	.000	Retain	31
39.	5.953	.000	Retain	32
40.	5.079	.000	Retain	33
41.	5.346	.000	Retain	34
42.	6.201	.000	Retain	35
43.	9.849	.000	Retain	36
44.	9.106	.000	Retain	37
45.	10.916	.000	Retain	38
46.	8.031	.000	Retain	39
47.	11.506	.000	Retain	40
48.	5.501	.000	Retain	41
49.	5.546	.000	Retain	42
50.	8.872	.000	Retain	43

The final draft of the tool consist of 43 multiple-choice questions.

VI. RELIABILITY ANALYSIS OF THE MOOC AWARENESS QUESTIONNAIRE

Reliability is the degree of consistency that the instrument or procedure demonstrates: whatever it is measuring, it does so consistently (Best, Khan, & Jha. 2006). It refers to consistency throughout a series of measurements. For example, if a respondent gives out a response to a particular item, he is expected to give the same response to that item even if he is asked repeatedly. If he is changing his response to the same item, the consistency will be lost. So the investigator should frame the items in a questionnaire in such a way that it provides consistency or reliability. In the present study, the investigator employed Croanbach’s Alpha and split-half method for establishing reliability of the tools.

**A) Cronbach’s Alpha reliability value:** For selecting the relevant and consistent items to the tools, the investigator administered the draft MOOC awareness questionnaire tool consist of 43 statements after the item analysis phase to 370 subjects of the sample and computed Cronbach’s alpha value. Cronbach’s alpha measure the reliability or internal consistency of a set of scale or test items. In other words, reliability refers to a consistent measure of a concept, and Cronbach’s alpha is one way of measuring the strength of that consistency (Tavakol.,& Dennick.2011). Cronbach’s alpha is computed by correlating the score for each scale item with the total score for each observation (usually individual survey respondents or test takers), and then comparing that to the variance for all individual item scores:

$$\alpha = \left( \frac{k}{k - 1} \right) \left( 1 - \frac{\sum_{i=1}^k \sigma_{yi}^2}{\sigma_x^2} \right)$$

Where:

k = denotes to the numbers of scale items

$\sigma_{yi}^2$  = denotes to the variance associated with

item

$\sigma_x^2$  = denotes to the variance associated with the observed total score.



From the above table shows that Cronbach's alpha is .820, which indicates an accessible level of internal consistency of the tool.

**B) Split- half reliability:** The investigator employed split-half method to establish the 'γ' value of the tools. The total items of the tool were 43 the items of the tools were divided into two inequivalent groups and the two set of scores were correlated. Then the reliability of the tools was estimated by the Spearman Brown formula. The Spearman Brown Coefficient value of the tool is 0.710. Thus the reliability of the tools was established.

## VII. VALIDITY OF THE TOOL:

"Validity is the degree to which evidence and theory support the interpretation of test scores entailed by proposed uses of test" (Joint Committee on Standards for Educational and Psychological Testing, 1999). Research validity in surveys relates to the extent at which the survey measures right elements that need to be measured. In simple terms, validity refers to how well an instrument as measures what it is intended to measure. The experienced research guides, educational technology experts, and senior teacher educators analysed the objectives of the study and each area of the questionnaire and expressed that the rating scale has a high degree of validity. Thus the validity of the tool was established. Hence it had the content validity.

## VIII. CONCLUSION

The investigator desired to make use of the tool in the form of awareness questionnaire. The 't' test was used to standardize the tool and finally 43 statements were retained after pilot study. Cronbach's alpha is a measure used to assess the reliability, or internal consistency, of a set of scale or test items. Cronbach's alpha is .820, which indicates an accessible level of internal consistency of the tool. Thus it shows that the tool is useful to measure MOOCs awareness among Post Graduate students. Hence, this tool will be very useful for various research which measures the level of MOOCs awareness among Post Graduate students. It can be utilized and extended for further research in the same field.

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## AUTHORS PROFILE



**Vijila C** presently pursuing her research degree from Department of Education Central University of Kerala She holds the Degree MA (International Relations and Political Science) and Master of Education. She has presented papers in 10 international and National conferences held in various colleges and universities.

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