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THE VALIDITY OF THE QUALITY ASSESSMENT TOOLS USED AT THE OPEN UNIVERSITY OF SRI LANKA

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Student evaluations of faculty teaching have four recognized functions. They provide diagnostic feedback for faculty, an evaluative tool for personnel decisions, information for students, and a subject for academic research. Teaching quality is an important criterion to assess in higher education. Students and their parents demand high-quality teaching, and teachers and department heads need good measures of teaching quality. Its importance begs the question of whether current teaching assessments provide reliable data on teaching effectiveness. The objective of this study is to examine the ratings of students on the quality of teaching and to assess the validity of the quality assessment tools used in The Open University of Sri Lanka. The student feedback form for Day School evaluation, a 16-item questionnaire, was administered among 345 undergraduate students from faculty of health sciences, which includes department of Nursing, Pharmacy, Basic sciences, Psychology & Counselling, and Medical Laboratory Sciences to evaluate their teaching and learning experiences in the programme. The proportion of the students was only 16% out of the population due to the low attendance of students in the last days of Day Schools. The items in the questionnaire were measured on a five-point Likert scale, where 1 indicated 'Strong Disagreement' and 5 indicated 'Strongly Agreement' to the statement. The data was analysed using statistical software, SPSS, version 21. The internal consistency reliability was assessed using Cronbach's alpha coefficient and item-to total correlations. Cronbach's alpha of more than 0.7 indicates that Student feedback on Day School is reliable. Construct validity was evaluated using Exploratory Factor Analysis (EFA) and it was used to check if all items could be reduced into a smaller dimension. Factor loading of 0.4 was used as the cut-off point in order to check the redundant items. The conclusion of this study showed that the student feedback form on Day School is a valid instrument in evaluating teaching effectiveness. The items of the questionnaire were validated and extracted into two factors. The model could be argued that the student feedback form on Day School has construct validity but lacks content validity as some of items (item 6,10,11,15, and 16) do not seem to measure teaching effectiveness. Particularly on content validity to be conducted so as to develop a more comprehensive instrument as a valid tool to measure teaching effectiveness in the institution.

Keywords: *Day School, Quality Assessment Tools, Students Feedback, Validity*

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Abstract

Student evaluations of faculty teaching have four recognized functions. They provide diagnostic feedback for faculty, an evaluative tool for personnel decisions, information for students, and a subject for academic research. Teaching quality is an important criterion to assess in higher education. Students and their parents demand high-quality teaching, and teachers and department heads need good measures of teaching quality. Its importance begs the question of whether current teaching assessments provide reliable data on teaching effectiveness. The objective of this study is to examine the ratings of students on the quality of teaching and to assess the validity of the quality assessment tools used in The Open University of Sri Lanka. The student feedback form for Day School evaluation, a 16-item questionnaire, was administered among 345 undergraduate students from the Faculty of Health Sciences, which includes Departments of Nursing, Pharmacy, Basic sciences, Psychology and Counselling, and Medical Laboratory Sciences, to evaluate their teaching and learning experiences in the programme. The proportion of the students was only 16% out of the population due to the low attendance of students in the last days of Day Schools. The items in the questionnaire were measured on a five-point Likert scale, where 1 indicated 'Strong Disagreement' and 5 indicated 'Strongly Agreement' to the statement. The data were analyzed using statistical software, SPSS, version 21. The internal consistency reliability was assessed using Cronbach's alpha coefficient and item-to total correlations. Cronbach's alpha of more than 0.7 indicates that Student feedback on Day School is reliable. Construct validity was evaluated using Exploratory Factor Analysis (EFA), and it was used to check if all items could be reduced into a smaller dimension. Factor loading of 0.4 was used as the cut-off point in order to check the redundant items. The conclusion of this study showed that the student feedback form on Day School is a valid instrument in evaluating teaching effectiveness. The items of the questionnaire were validated and extracted into two factors. Through this model it could be argued that the student feedback form on Day School has construct validity but lacks content validity, as some of the items does not measure teaching effectiveness. It is suggested to develop a more comprehensive instrument as a valid tool to measure teaching effectiveness in the institution, particularly focusing on content validity.

1. INTRODUCTION

Teaching quality can be measured in different ways and by tapping different sources. The most common way to measure teaching quality in higher education is through student evaluations of teachers (Ben-Chaim, D. et al., 2001). In most cases, student evaluations of teaching quality are obtained via evaluation questionnaires. In higher education, student ratings are often used to evaluate and improve the quality of courses and lecturers' instructional skills. Unfortunately, student-rating questionnaires rarely generate specific feedback for lecturers to improve their instructional skills. Peterson et al. (2000) found that student perception questionnaires used at various levels of the education system (primary school, middle school, and high school) were reliable and valid teacher evaluation measures (Daniela Feistauer, 2017). Determining teaching quality reliably and validly serves as an important measure for improvement and accountability purposes.

Quality can be considered to have three components- internal validity (risk of bias), external validity (applicability/variability), and reporting quality. The quality of studies evaluated will depend on them being sufficiently well-designed and conducted to be able to provide reliable results. Poor design of conduct or analysis can introduce

2. METHODOLOGY

The student feedback form for Day School evaluation, a 16-item questionnaire, was administered among 345 undergraduate students from the Faculty of Health Sciences, which includes the Departments of Nursing, Pharmacy, Basic Sciences, Psychology and Counselling, and Medical Laboratory Sciences, to evaluate their teaching and learning experiences in their study programme. The proportion of the students was only 16% out of the population due to the low attendance of

bias or systematic error affecting study results and conclusions, which affects internal validity. External validity or the applicability of the study to the review question is also an important component of study quality. Reporting quality relates to how well the study is reported. It is difficult to assess other components of study quality if the study is not reported with an appropriate level of details (Whiting et al., 2017).

Quality assessment is central to good teaching and is inevitably a key component in learning environments that facilitate students' learning with understanding (Donovan and Bransford, 2005). Validity, including reliability and manageability are key principles underpinning quality assessment and, from these principles, specific descriptors of practice have been formulated. Assessment practice impacts students and teachers at many levels, including the way curriculum is presented and the ways teachers operate in classrooms. Quality assessment practices need to include a consideration of 'fitness for purpose' of an assessment task/activity as well as consideration of the characteristics of the learners themselves, so that the best choices are made regarding the nature and timing of assessment (Gardner, 2006). This study focuses on finding out the validity of the quality assessment tools used in the Open University of Sri Lanka.

students in the last days of day schools. The items in the questionnaire were measured using a five-point Likert scale, where 1 indicated 'Strong Disagreement' and 5 indicated 'Strongly Agreement' to the statement. The Google forms were also used to collect data, as well as the printed feedback forms. All collected data were recorded in Microsoft Excel. The data were analysed using statistical software, SPSS, version 21.

2.1 Data analysis

The data was imported to SPSS from Microsoft Excel. The determination of the adequacy of the exploratory factor analysis (EFA) was performed through the analysis of Bartlett's test and the Kaiser-Meyer-Olkin (KMO) measure. The KMO statistics range from 0 to 1, with values closer to 1 denoting greater adequacy of the factor analysis (KMO 0.6 low adequacy, KMO 0.7 medium

adequacy, KMO 0.8 high adequacy, KMO 0.9 very high adequacy). Principal factor analysis with a Varimax rotation was used to explore the structure underlying the qualitative items. The inclusion or exclusion of an item in a construct was determined iteratively by examining factor loadings. If the factor loadings are less than 0.4, that item can be removed from the questionnaire.

3.2 Reliability test

Internal consistency reliability was assessed using Cronbach's alpha coefficient and item-to-total correlations. Cronbach's alpha was used to identify redundant items. A low Cronbach's alpha indicates a lack of correlation between the items in a scale, which makes summarizing the items

unjustified. A very high Cronbach's alpha indicates high correlations among the items in the scale. An alpha value higher than 0.70 is a measure of good internal consistency. The "Cronbach's alpha if item deleted" was calculated for all the items.

3. RESULTS

3.1 Construct validity

The KMO statistic was 0.913, and the result of Bartlett's test was $p < 0.001$, which leads to a high sampling adequacy (Table 1). The principal

component analysis of the resulting 16-item questionnaire was extracted in to two factors, which explained 53.2% of the variance in the data.

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			0.913
Bartlett's Test of Sphericity	Test of Approx. Chi-Square	df	2361.058
		Sig.	120
			0.000

The values in the extraction column indicate the proportion of each variable's variance that can be explained by the factors (Table 2). Variables having low

communalities (lower than 0.40) do not contribute much to measuring the underlying factors. Such variables can be removed from the analysis.

Table 2: Communalities

Communalities	
Items	Extraction
The purpose (objectives) of the day school was explained at the commencement of the day school	0.522
The order of topics was sufficiently logical to help the learning process	0.728
Subject matter was clearly explained	0.660
Greater emphasis was placed on the concepts difficult to understand	0.560
Presentation slides were useful	0.413
Use of blackboard/white board was effective	0.343
Examples were used for better explanation	0.466
Students were encouraged to ask questions and express their views	0.402
Group discussion was encouraged in the learning process	0.625
The lecturer was well prepared for the class	0.246
The lecturer came for the day school on time	0.142
Time management of the lecturer was good (sufficient time was spent on each topic)	0.469
The lecture was audible (loud enough to be heard)	0.488
The lecturer is friendly and approachable	0.671
I am motivated to follow the course after attending the day school	0.266
Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts	0.206

Table 3 contains component loadings, which are the correlations between the variable and the component. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful anyway. Therefore, some of the items can be removed from the questionnaire.

They are as follows,

- The lecturer was well prepared for the class
- The lecturer came for the day school on time
- Use of blackboard/white board was effective
- I am motivated to follow the course after attending the day school
- Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts

Table 3: Component matrix (Extraction Method: Principal Component Analysis)

	Component Matrix ^a	
	Component	
	1	2
The purpose (objectives) of the day school was explained at the commencement of the day school	0.666	-0.279
The order of topics was sufficiently logical to help the learning process	0.832	-0.192
Subject matter was clearly explained	0.792	-0.179
Greater emphasis was placed on the concepts difficult to understand	0.493	0.343
Presentation slides were useful	0.536	0.158
Use of blackboard/white board was effective	0.363	0.260
Examples were used for better explanation	0.681	-0.043
Students were encouraged to ask questions and express their views	0.590	0.399
Group discussion was encouraged in the learning process	0.411	0.675
The lecturer was well prepared for the class	0.179	-0.196
The lecturer came for the day school on time	0.264	0.029
Time management of the lecturer was good (sufficient time was spent on each topic)	0.610	0.313
The lecture was audible (loud enough to be heard)	0.665	-0.214
The lecturer is friendly and approachable	0.789	-0.220
I am motivated to follow the course after attending the day school	0.112	-0.085
Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts	0.238	-0.059

After removing the items which have shown the low correlations with both of the factors, the EFA was done to the remaining variables (Table 4). Those 11 items can be extracted again in to 2

components, as shown in Table 4. Items 1,2,5,6,9,10 and 11 show a high correlation with the 1st component, while the others show a high correlation with the 2nd factor.

Table 4: Rotated component matrix (Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization)

Rotated Component Matrix^a		
	Component	
	1	2
The purpose (objectives) of the day school was explained at the commencement of the day school	0.766	0.021
The order of topics was sufficiently logical to help the learning process	0.844	0.219
Subject matter was clearly explained	0.239	0.787
Greater emphasis was placed on the concepts difficult to understand	0.267	0.546
Examples were used for better explanation	0.604	0.336
Presentation slides were useful	0.508	0.390
Students were encouraged to ask questions and express their views	0.168	0.731
Group discussion was encouraged in the learning process	0.037	0.795
Time management of the lecturer was good (sufficient time was spent on each topic)	0.542	0.388
The lecture was audible (loud enough to be heard)	0.670	0.217
The lecturer is friendly and approachable	0.786	0.211

3.2 Reliability analysis

The Cronbach's alpha for the questionnaire (before removing the above items) was 0.886, which shows a high consistency of the measures.

Table 5: Reliability Statistics

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.886	0.911	16

By looking at the item-total correlation and "Cronbach's Alpha if item deleted", it can be interpreted that the alpha value is getting somewhat higher when those variables are removed, as mentioned in the exploratory factor analysis (Table 6). Therefore, we can conclude that the following items can be removed from the day school feedback form.

- The lecturer was well prepared for the class
- The lecturer came for the day school on time
- Use of blackboard/white board was effective
- I am motivated to follow the course after attending the day school
- Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts

Table 6: Item-total Statistics

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
The purpose (objectives) of the day school was explained at the commencement of the day school	0.561	0.879
The order of topics was sufficiently logical to help the learning process	0.744	0.874
Subject matter was clearly explained	0.706	0.874
Greater emphasis was placed on the concepts difficult to understand	0.561	0.874
Presentation slides were useful	0.587	0.872
Use of blackboard/white board was effective	0.343	0.899
Examples were used for better explanation	0.605	0.877
Students were encouraged to ask questions and express their views	0.552	0.882
Group discussion was encouraged in the learning process	0.507	0.882
The lecturer was well prepared for the class	0.385	0.887
The lecturer came for the day school on time	0.387	0.887
Time management of the lecturer was good (sufficient time was spent on each topic)	0.572	0.877
The lecture was audible (loud enough to be heard)	0.569	0.878
The lecturer is friendly and approachable	0.684	0.875
I am motivated to follow the course after attending the day school	0.425	0.884
Overall, I am happy that I attended the day school because I was able to gain knowledge and clear my doubts	0.461	0.885

4. DISCUSSION AND CONCLUSIONS

In this study, we investigated the validity and reliability of student perceptions of the teaching quality in undergraduate programmes conducted by the Faculty of Health Sciences and their consistency with the ratings obtained from student observers. We will first elaborate on the findings and strengths of this study. Thereafter, the limitations

of this study and suggestions for further research are presented.

The present study examined the validity of student evaluations of teaching quality. Our results showed that teachers and courses were essential sources of variance for all four facets of teaching quality examined in this study

and also for the overall ratings of courses and teachers. The evaluation of a valid and reliable assessment tool is not a trivial task (Wagner, 2013). Therefore, after studying other research in different quality assessment tools, an evaluation of the construct validity and the psychometric reliability of the questionnaire was performed. The most important aspect of this research is that, this could be the first study to develop and test a quality assessment tool used in the Open University of Sri Lanka.

We evaluated 345 questionnaires completed by undergraduate students who attended the day schools in each study programme.

The aims of the present study were to identify the validity of the day school evaluation form and evaluate the student's perception on classroom teaching. This study showed that the student feedback form on Day School is a valid instrument in evaluating teaching effectiveness. The items of the questionnaire were validated and extracted into two factors. Through this model it could be argued that the student feedback form on Day School

has construct validity but lacks content validity, as some of the items (item 6, 10, 11, 15, and 16) does not measure teaching effectiveness. It is suggested to develop a more comprehensive instrument as a valid tool to measure teaching effectiveness in the institution, particularly focusing on content validity.

4.1 Limitations of the study and recommendations for further research

In this study, a limited number of the students provided their opinion about their teachers. As attendance is not compulsory in day schools, data were collected from the students who participated in the day schools. For future research, it is suggested to investigate the comparability of both measurements in a more rigorous way: by comparing teaching quality based on student perceptions and ratings by student observers for the same lessons, and also, using the same wording and rating scales for the items. In addition, some items of the student perception questionnaire in this study did not provide much information and might be excluded in future research.

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