

PROPOSAL AND VALIDATION OF A QUESTIONNAIRE OF EVALUATION OF THE ONLINE TEACHING PRACTICE THROUGH THE STUDENT OPINION

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ABSTRACT

Teaching evaluation is a process in which improvements can be done in the teaching-learning process. The students are the ones who can evaluate teaching activity according to their experience and satisfaction in relation to the acquired knowledge. The objective of this project was to create an assessment instrument of the online teaching practice through student feedback. This study collected comments of 110 students that have taken online courses at the Autonomous University of Ciudad Juarez (UACJ). A questionnaire of 16 items with Likert scale was drawn up, considering the course organization, pedagogical dynamics, evaluation, and personal and academic traits. The opinion of the students was transcribed, classified, and codified in similar conceptual variables; from this analysis the questionnaire was restructured resulting in an instrument of 13 items. This instrument was evaluated on an online pilot test applied to 441 students from online courses. The validation of this instrument was estimated through reliability testing based on Cronbach's alpha. The analysis of the internal consistency of the instrument based on the Cronbach's alpha was 0.9. The evaluation of this coefficient is rated as excellent, so the instrument is viable and reliable to evaluate the teaching practice of online courses at UACJ.

INTRODUCTION

Learning is the primary objective of any training event and, as such, is the result of the quality of teaching in higher education. Although quality is a broad and complex term to measure in education, an important factor is the practice or performance of the teacher. Therefore, it is important to evaluate the teacher's activity in terms of academic performance, compliance with curricular objectives, teaching activities, teaching techniques, levels of interaction with students, etc.

Most teachers, mainly at the undergraduate level, have little formal training in teaching techniques, in the evaluation of student learning or in the evaluation of teaching effectiveness (NRC, 2003). However, there are guides or basic principles that are evaluable in the online teacher. Nevertheless, as mentioned by Puente and Santoyo (1998), the measurement of teacher performance is dictated by the student, it is the one who decides whether the performance is efficient or not. An appropriate teaching performance would be one that, according to Ellis (1993), complies with the rules and activities that must be implemented to achieve the specific learning purpose of the student. Therefore, it is established that from the student opinion can be recognized the teaching performance. Although several authors have mentioned the important features of effective teaching in traditional

classrooms, an effective teacher in an online course may seem very different to students. This makes it necessary to modify the instruments of data collection used for the evaluation of the face-to-face teaching performance and to couple it with the characteristics that a student identifies in the virtual environment.

The most frequent instrument of evaluation of teaching practice is the questionnaire (Arribas, 2004). For the design of a questionnaire it is important to define the aspects to be measured or constructs, for this, it is necessary to consult the background, opinions of experts or gather information through interviews with focus groups. The questionnaires are composed of many items that must be evaluated for their validity and reliability (Alexandrova and Haybron, 2016). A measuring instrument is reliable if it provides approximately the same type of responses for different groups of students or in repeated applications to the same group of scholars. The reliability of the internal consistency of the instrument can be estimated by Cronbach's alpha (Cronbach, 1950). A questionnaire assessing online teaching practice with acceptable reliability or a Cronbach alpha greater than 0.7 (George and Mallery, 2003), would provide feedback on strengths and areas in which the University can focus efforts to improve online courses. For this reason, the objective of this study was to construct an instrument of evaluation of the teaching practice in the online modality, through the student opinion.

METHODOLOGY

Participants

To carry out the Assessment Instrument of the online modality, an interdisciplinary team of experts was created. The team was composed of a representative of each of the four institutes of the University, a member of E-learning, and a member of Teaching Evaluation. The study considered the opinions of the students of four institutes, IADA, ICB, ICSA and IIT, and the division of multidisciplinary studies of CU. Focus groups were formed with 110 students, allocated in five classroom-based focus groups and one online focus group belonging to the different institutes. To analyze the reliability of the assessment instrument, a pilot test was applied to 441 students of the UACJ that have taken at least one online course, they represent 21% of the student population that took online courses on the semester prior to the previous semester.

Assessment Instrument

In the first stage, the Instruments of Teaching Evaluation of the classroom-based courses of each institute were considered to identify the aspects to be evaluated and to differentiate the relevant ones in the online modality. The following instruments were analyzed: 16 items of IADA-Architecture, 15 items of IADA-Art, 17 items of IADA-Design, 14 items of ICB, 18 items of ICSA, and 18 items of IIT; all the instruments take into consideration for the evaluation the dimensions of Course Organization, Pedagogical Dynamics, Evaluation and Qualification Criteria, and Personal and Academic Traits. Based on the results of the Instrument of Teaching Evaluation review of the classroom-based courses, the first revision of the Instrument of Teaching Evaluation for the online modality was done. The resulting instrument was restructured according to an exploratory test with experts and focus groups. The importance of this exploratory test with focus groups consist of collecting information of participants' personal experiences (Powell and Single, 1966) and transform them into qualitative data (Hamui-Sutton y Varela-Ruiz, 2013). Considering the nature of the instrument to be proposed and the type of interaction with the students that take online courses, an additional online focus group was created to collect the information and experiences of the participants (Adler *et al.*, 2002; Tates *et al.*, 2009). Each classroom-based focus group was moderated by two experts during 45 to 60 minutes sessions, starting from a semi-structured guide, the sessions were recorded with the previous authorization of the participants. The online focus group took place via Campus Virtual Institutional (Moodle platform) and an expert moderated it in asynchronous mode for 15 days.

Subsequently, the collected data of the classroom-based focus groups were transcribed and the data from the online focus group were recovered through Campus Virtual to be analyzed. From the obtained data, comments represented similar criteria were selected. These comments were grouped and a variable or a keyword was assigned to each of them. From these variables, as indicators, the instrument was reconstructed in the four dimensions.

Pilot test

The pilot study created to verify the internal consistency of the instrument (annex 1) was carried out online individually and anonymously to 441 students of the UACJ that had taken at least one online course.

Analysis of the results

The validation of the instrument was analyzed through reliability tests based on Cronbach's alpha (Cronbach, 1950; Peterson, 1994), in the statistic program SPSS Statistics 24.0® (SPSS Inc, EE.UU.).

FINDINGS

In this second stage, a methodological contribution, in both, the generation and validation of an instrument of the student opinion for the online teaching evaluation were sought after. From the analysis of the information obtained from the focus groups, the group of experts identified thirteen common indicators that were contemplated in the pre-test. The indicators were assigned to the corresponding dimension and thus the questionnaire was designed to be evaluated by the pilot test through a Likert scale (Table 1).

Table 1. Questionnaire

Item	Always	Very often	Sometimes	Rarely	Never
Course Organization					
1. The student guide was presented at the beginning of each unit (objective, content, instructions for each activity, ways of evaluating, materials and curricular resources to be revised).					
2. During the course, the instructions, resources, due dates for each assignment are explained and easy to identify if needed.					
3. The activities carried out are closely related to the content of each unit.					
4. Timeframes for assignment completion and delivery were at least seven days.					
Pedagogical Dynamics					
5. Course content was linked with case studies and practical examples.					
6. Questions were answered in less than 48 hours.					
7. During the course, participation (discussion, debate, collaborative work, research work and writing) was encouraged					
8. Different data sources were used during the course (bibliography, data base, manuals, catalogs, journals, videos and multimedia files).					
Evaluation and Qualification Criteria					
9. Assignments were revised and returned to students no later than seven days after the due date.					
10. The evaluation of each activity was based on criteria established for each unit.					
Personal and Academic Traits					
11. The professor showed interest in your learning process.					
12. The professor communicated in a kind, respectful manner.					
13. The professor is knowledgeable in the topic and able to clarify doubts and questions.					

The reliability test made for thirteen items that form the questionnaire was made based on the Cronbach's alpha (Cronbach, 1950), where values over 0.7 were taken as acceptable. The result was satisfactory and superior to 0.90 (N=13), so this indicates that the instrument is fully valid.

However, to determine if there were trivial indicators or items, tests were made to determine if removing some of the items could improve the alpha index of Cronbach. Table 2 shows the analysis of the validation with each of the indicators that form the evaluation card. It was determined that is not necessary to remove any item, since the exclusion of any of them (given in the fourth column of estimations), does not improve the alpha index of Cronbach, given that in any of the cases the obtained score is inferior to 0.909 when fully analyzed.

Table 2. Validation analysis

Indicator	Mean of the scale if an item is deleted	Variance of the scale if an item is deleted	Correlation of the total items corrected	Cronbach Alpha if eliminates one item
1. The student guide was presented at the beginning of each unit (objective, content, instructions for each activity, ways of evaluating, materials and curricular resources to be revised.	53.89	65.619	.636	.902
2. During the course, the instructions, resources, due dates for each assignment are explained and easy to identify if needed.	54.16	63.346	.634	.902
3. The activities carried out are closely related to the content of each unit.	53.87	66.967	.590	.903
4. Timeframes for assignment completion and delivery were at least seven days.	53.86	67.568	.564	.904
5. Course content was linked with case studies and practical examples.	54.31	63.310	.594	.904
6. Questions were answered in less than 48 hours.	54.24	61.631	.675	.900
7. During the course, participation (discussion, debate, collaborative work, research work and writing) was encouraged	54.34	62.943	.576	.905
8. Different data sources were used during the course (bibliography, data base, manuals, catalogs, journals, videos and multimedia files).	54.07	64.909	.640	.901
9. Assignments were revised and returned to students no later than seven days after the due date.	54.20	62.951	.661	.900
10. The evaluation of each activity was based on criteria established for each unit.	53.95	64.066	.731	.898
11. The professor showed interest in your learning process.	54.16	62.39	.686	.899
12. The professor communicated in a kind, respectful manner.	53.78	67.467	.619	.903
13. The professor is knowledgeable in the topic and able to clarify doubts and questions.	53.89	65.619	.636	.902

However, to revalidate the obtained result in previous tests, another test with two halves was generated. This means, the number of items in the test were split into two parts, making an analysis on the seven indicators in the first part, leaving the rest of the items in the other half. The obtained results can be appreciated in Table 3, it is noted that the results are satisfactory, obtaining a Guttman Test score of 0.926 and the Cronbach's alpha index is more than 0.7, which is the minor acceptable score.

Table 3. Revalidation with two halves

Cronbach's alpha	Part 1	Value	0.818
		N elements	7
	Part 2	Value	0.838
		N elements	6
N total elements			13
Correlation between forms			0.874
Spearman-Brown Coeficient	Equallength		0.933
	Unequallength		0.933
Two halves of Guttman			0.926

As the questionnaire indicators were grouped into four categories or dimensions, the validation analysis was also performed on the function of those dimensions. Table 4 shows the results in the categories: a) the Cronbach alpha acceptable score and b) the proof that no items need to be eliminated in order to improve these indices.

Table 4. Analysis by dimension summary

Dimension	Cronbach's alpha	N elements
Course Organization	.746	4
Pedagogical Dynamics	.786	4
Evaluation and Qualification Criteria	.719	2
Personal and Academic Traits	.70	3

Additionally, it was interesting to perform a univariate descriptive analysis of each of the items, obtaining the median of the valuations issued to understand which questions are significant for the students in the questionnaire. Such analysis is shown in Table 5, where items are arranged in ascendant order according to the obtained median.

Table 5. Univariate descriptive analysis

Indicator	25	50	75	RI
12. The professor communicated in a kind, respectful manner.	4.347	4.875	5	.653
1. The student's guide was presented at the beginning of each unit (objective, content, instructions for each activity, ways of evaluating, materials and curricular resources to be revised).	4.271	4.813	5	.729
13. The professor is knowledgeable in the topic and able to clarify doubts and questions.	4.271	4.813	5	.729
4. Timeframes for assignment completion and delivery were at least seven days.	4.265	4.804	5	.735
3. The activities carried out are closely related to the content of each unit.	4.270	4.804	5	.730
10. The evaluation of each activity was based on criteria established for each unit.	4.207	4.754	5	.793
8. Different data sources were used during the course (bibliography, data base, manuals, catalogs, journals, videos and multimedia files).	4.085	4.648	5	.915
11. The professor showed interest in your learning process.	4.044	4.632	5	.956
2. During the course, the instructions, resources, due dates for each assignment are explained and easy to identify if needed.	4.039	4.627	5	.961
6. Questions were answered in less than 48 hours.	3.972	4.597	5	1.028
9. Assignments were revised and returned to students no later than seven days after the due date.	3.967	4.583	5	1.033
7. During the course, participation (discussion, debate, collaborative work, research work and writing) was encouraged.	3.606	4.509	5	1.394
5. Course content was linked with case studies and practical examples.	3.651	4.506	5	1.349

Based on results of Table 5, it can be concluded that the most important items for the student that evaluates teachers are:

- Item 12 which refers to the teacher approaching the student in a cordial and respectful manner.

- Item 1 refers to the teacher delivering a guide for the student when every module or unit starts, where objectives, content and indications for every activity can be consulted.
- Item 13 refers that the teacher must denote dominion of the subject and answer the students' doubts about the class.
- Similar interpretations for the rest of the items.

It is necessary to understand that, according to the Likert scale, which has a scale between one and five, item number five has a median of 3.651, which means that it is regularly important.

In the same way, the fourth column shown the interquartile range that is a dispersion method of the emitted values (difference between the third and the first quartile). According to that, small values indicate that there is a consensus among the respondents and the big values mean the absence of that consensus. Based on values in Table 5, it is noted that there's an adequate consensus from opinions emitted in relation to the mean values of the items.

CONCLUSIONS

The reliability measure through Cronbach's alpha assumes that the thirteen reactants from the generated evaluation instrument, evaluated by a Likert scale, measures the same construct of teacher's evaluation and is highly correlated. The value of Cronbach's alpha coefficient evaluation is 0.9, rated as excellent, meaning the questionnaire is valid and affordable to evaluate teacher's practices that teach in E-learning modality in the Autonomous University of Ciudad Juarez.

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