

# Aspects regarding the Evaluation of a Software for Students Online Assessment

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## Abstract

*The advantages offered by the online technologies are various and more and more appreciated by both educators and scholars of all levels. Today, the online technologies are giving the educators involved in higher education the opportunity to reach a superior level compared to the traditional class from the overall educational process effectiveness point of view. This paper presents several aspects related to the evaluation of an educational software used for student performances assessment. Therefore, educators teach and students learn but the results are a common responsibility which shall be shared by both parties involved in the educational process.*

**Key words:** *online assessment, four levels of evaluation, students interaction, students acceptance*

## Introduction

Always, at the end of the educational process, the educators want to check how much and at which level their scholars arise.

One could say it's easy to do it. Done by centuries, the educator is listening to his scholar and he gives an appreciation translated in a grade. As long as the number of the scholars with very good and good results is high, the educator is satisfied. But, should this be also the satisfaction of the scholar?

If we analyze our situation, the higher education, specialists have always emphasised the importance of providing direction and support to the students [3]. This should be a general accepted principle regardless if what we discuss about traditional education environments or new environments. The educational process, mainly at the higher education level, is a common responsibility which shall be shared by educators and students.

The today higher education has no other chance to grow up but only this. Both parties involved shall listen to one another and shall take into consideration their appreciations. There are educators who already start a kind of sharing opinion process even in a traditional classroom environment. They are asking the students at the end of their course about their opinion and usually in writing. The question is this kind of sharing students opinions has finality?

The online environments are making this action easier. At the end of the online course the students can share their opinion with the educator through a specific formulary. Their answer

can be transformed in graphs, percentages etc. and these results can be used for future improvements of the curriculum.

What about the student assessment? Are the students happier with a method or another? Can the educators use the students' opinion to improve the cycle of the assessment? The present paper for sure will not respond entirely to these questions. In fact such questions always bring about discussions supporting one method or another. However, the author will try to present several results obtained through a case study at a small scale.

## **Levels of Evaluation**

The Kirkpatrick [4] four level system applicable for students assessment is very well known. According Rosenberg [5], the Kirkpatrick four level system can be also used for the online evaluation environments. Rosenberg [5] assumes that the following levels can be used:

- Level 1 – Reaction (evaluation completed by student is considered essential)
- Level 2 – Learning (student assessment in the form of feedback rather than testing)
- Level 3 – Performance (was the online learning effective?)
- Level 4 – Results (what contribution did online learning have to the success of the educational process?)

Taking the opportunity and studying the educational process elements, the author, believes that these levels can be accommodated also in the particular case of the student assessment. The author's idea is to use the first and second level unchanged but to re-direct the third and fourth level in a manner that can allowed the educator to improve his methods and technologies used for assessment but also to share the responsibility of the assessment processes with the students.

The performance level of any student can be measured only through an assessment method. The educators know this but the question is how the educators can use this level to improve their assessment methods and technologies and, at the end, the curriculum? The level of performance is related to the results. By sharing the performances and the results with the students, the author believes that a part of the responsibility regarding the true positive value of the educational process what can be achieved much easier and effective is to take it by the students. Of course, one of the most important elements in this process remains student's feedback. If this feedback is collected on a regular basis and it is not just a one time event the positive results and performances should appear quickly.

## **Sharing the Assessment Responsibility – Case Study**

A case study was carried out by the author regarding this approach. A software package (E.S.A.C. Soft) [2] was used to perform an online assessment of a group of students from the Petroleum & Gas University. The choosen discipline was the Informatics Basis. At the end of the assessment a questionnaire [2] was delivered to each participant in order to collect their feedback.

The questionnaire was designed and built taking into consideration the multiple possibilities to use the feedback coming from students such as: to improve the assessment methodology, to catch the reaction of the students facing a new assessment method, to measure the efficacy of the new online assessment method etc. The author believes that such questionnaire can cover all four Kirkpatrick levels of evaluation accommodated by Rosenberg for the online educational process.

Than, the author split the questionnaire in several parts as follows:

- Student identification data – the aim is to cover the possibility to obtain pedagogical and social statistics related to the participants (students)
- Navigation issues – this part of the questionnaire was connected to the accessibility capabilities of the software
- Interface issues – this part of the questionnaire was dedicated to the interface accessibility and used methodology
- Interaction issues – the interaction of the student with the software package is one of the main issues what should be taken into consideration
- Acceptability issues – the level of understanding and personal opinion of each student is the opportunity that the educator can use to develop further the software itself, the methodology and technology used to implement it

Navigation, interface and interaction parts were covered with four questions each. The students had the possibility to rate each question with a score starting from 1 (very poor) to 5 (excellent). The last part of the questionnaire dedicated to the acceptance issues was covered through six questions and the student was asked to answer by yes / no / I don't know. All results were analysed by simple statistical techniques and transformed in percentages.

The author would like to focus on the interaction and acceptability parts of the questionnaire by presenting below the results obtained.

### Student Interaction

Since the beginning the author would like to highlight the fact that very few students didn't answer to all questions from the questionnaire. But, taken into consideration the number of the students and the number of the questions remained without a response the author considers this fact as negligible. As the author said previously the student interaction level was covered through four questions (see table 1) and the results obtained after the author did the analysis can be find enclosed in the table bellow.

**Table 1.** Students interaction analysis – feedback provided by students

STUDENTS INTERACTION		5	4	3	2	1
1	It is the software presentation interesting?	18	11	4	–	–
2	It is the software content at the same level with your level of knowledge?	–	22	4	4	–
3	How do you appreciate the capability of the software to provide you with an effective feedback that you can use in stimulating your personal development?	4	15	15	–	–
4	How do you appreciate the capability of the software to evaluate correctly your performances?	12	12	11	–	–
<b>TOTAL</b>		34	60	34	4	0
<b>% from TOTAL</b>		25,8	45,4	25,8	3,0	0,0

The author emphases that the interaction recorded at the first software use was appreciated by 71,2% from the students as a positive one. The satisfactory level was considered by 25,8% from the students and only 3% disagree with the capabilities of the software to improve the assessment process by using an online methodology.

In figure 1 the author presents the overall distribution of the students appreciations related to the interaction issues. If we look at little bit closer to the results some conclusions can be drawn there. The software package in general was positively appreciated by the students but still there exists a negative reaction from them when we are talking about their responsibilities related to the educational process. About 56% from the students answered positively to question three regarding the use of the software for personal improvement. It is true also, that no students

answered directly with a negative appreciation to this question but still there is a percentage of 46% from students who have doubts.

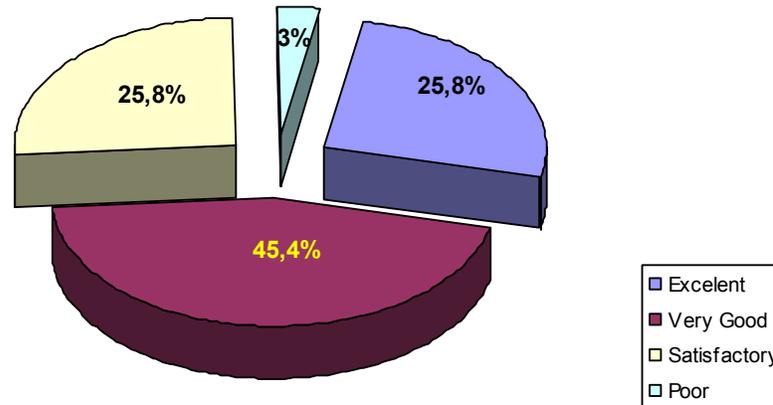


Fig. 1. Answers percentage overall distribution for the students interaction level

Also, around 31% from the students are still no confident in the capability of the software package to perform a correct evaluation.

### Student Acceptability

This part of the questionnaire focused on trying to identify future directions for improvement of the software also taking the opportunity to better understand the students' point of view related to the use of an online assessment software. The author provided the students with six questions as shown in table 2. Also, the author analyses the feedback by calculating the percentages from the total answers received and these are enclosed in the graph from figure 2.

Table 2. Students acceptability analysis – feedback provided by students

STUDENTS INTERACTION		YES	NO	I DON'T KNOW
1	Do you consider this software useful to correct some of your personal learning deficiencies?	28	0	4
2	Do you consider it as a possibility to increase the level of trust in a correct assessment of your performances by using this software?	22	4	7
3	Do you consider this software as a viable solution for the distance learning students assessment?	28	0	4
4	Do you consider useful to attach the software to the traditional classroom laboratories / seminars in order to get an increase in the individual performances?	22	4	7
5	Do consider the test that the software is generating as a challenge for you?	26	4	4
6	Do you consider that the software should be improved?	4	15	15
<b>TOTAL</b>		130	27	41
<b>% from TOTAL</b>		65,7	13,6	20,7

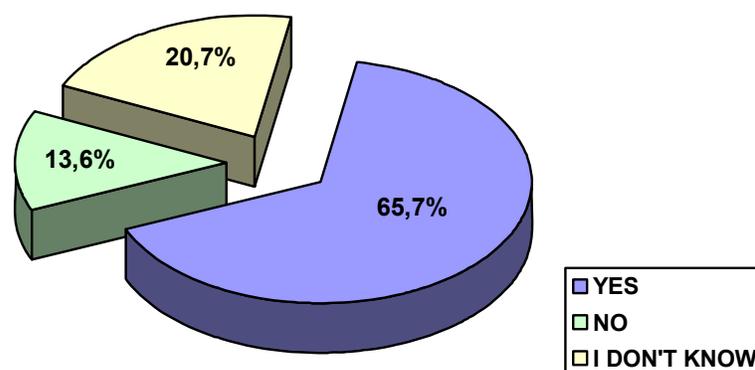


Fig. 2. Answers percentage overall distribution for the students acceptance level

If we look to the statistics some conclusions could be drawn. The students involved in this study replied in a majority, 87,5% that the software can be used to correct some deficiencies at a personal level. Also, the level of trust is quite high, 66,7% compared with negativistic opinions, 12,1% to which we can add another 21,2% who are not yet sure.

The same results as above were recorded when the students were requested to provide their opinion about the possibility to attach the assessment module to the traditional classroom laboratories / seminars. 66,7% considered it as positive attempt. Of course, this involves the students' efforts. Such action will lead to a regular evaluation of what they succeed to achieve during each learning courses. But, in any case, such percentage encourages future efforts.

The question coming is the one referring to whether the students are prepared or not to face such type of online evaluation. This is for sure another matter. The majority of the students know to use the computer at least at a minimum level. However, the author believes that any improvement in computer culture could come only from the student's side. The educator can add the spark but only the student is responsible for his own future development. In this case, 76,4% from all students answering to this question are right. The software is a challenge for them.

Like any other software package there is always room for improvement. Even the author believes that at this stage the software package is at its very beginning developing level and of course, in the future new improvements will be added.

## Conclusions

Of course, whenever we are talking about appreciations we have to take into consideration the subjective factors. But, regarding the subject in discussion, the author considers these trends as normal taken into consideration that all students were faced for the first time with assessment of this type. It always takes some time until the new is coming usual and the users of the new become familiar with this. The author is convinced that after a while, working with such types of educational software not only during the official assessments programs but also in particular the level of appreciations will increase and the "fear" will disappear for the majority of the students.

Therefore the market is wide open. And even if we like it or not we are in competition on this market. To remain competitive each educator shall be able to demonstrate his contribution to the quality of the educational process.

For sure all educators together are able to build up a viable educational system. But the responsibility for this task does not belong only to the educators but also to the students. Of course, this paper will not be able to solve the issues of the educational process but at least the author believes it is a gate for the future. Also, the author believes that a true value assessment of the student learning begins always with the educational values. Educators, students, technicians and in fact all other specialists acting in the educational process shall pay the right attention to the outcomes but also and equally to the experiences that lead to those outcomes [1].

The opinion of the students is welcomed. New gates can be opened having their feedback. This action, to obtain their feedback, provides the student with the responsibility to help himself by giving the educator the opportunity to improve his skills and curriculum. As more and more institutions from higher education area incorporate online courses in their curriculum, the educators need to determine and implement better methodology for the performances evaluation. The advantage that the technology provide is simple and clear. Traditional forms of assessment are limited tools that can only provide a partial "picture" of student performances. But the online learning means more than this. It means an interactive environment in which knowledge is created and shared between all participants. The evaluations lead to improvement only when all parties involved in the educational process are active participants.

## References

1. Bender, T. - *Discussion - Based Online Teaching To Enhance Student Learning*, Stylus Publishing LLC, Virginia, ISBN 1-57922-065-7, 2003
2. Dobre, I. - *Contribution to the Development of an Automatic System for Student Evaluation*, PhD theme, 2006
3. Hislop, G.W., Ellis, H.J.C. - A Study of Faculty Effort in Online Teaching, *Internet and Higher Education Review* 15-31(7), 2004
4. Kirkpatrick, D. - *Evaluation Training Programs: The Four Levels*, Berrett-Kohler, San Francisco, ISBN 10-1576753484, 1998
5. Rosenberg, M. - *E-Learning: Strategies for Delivering Knowledge in the Digital Age*, McGraw-Hill, Columbus, ISBN 0-07-136268-1, 2001

## Aspecte referitoare la evaluarea unui soft pentru aprecierea online a studenților

### Rezumat

*Avantajele oferite de tehnologiile online sunt variate și zi după zi sunt din ce în ce mai apreciate atât de către instructori cât și de către cei instruiți de la toate nivelurile. Astăzi, tehnologiile online dau posibilitatea instructorilor implicați în învățământul superior să atingă un nivel mai înalt comparativ cu cel obținut prin procesul clasic din punct de vedere al eficacității procesului educațional. Acest articol prezintă câteva aspecte referitoare la evaluarea unui soft educațional utilizat pentru aprecierea performanțelor studenților. Deci, putem afirma că instructorii predau și studenții învață, dar în fapt, rezultatele obținute sunt o responsabilitate comună ce trebuie împărtășită de ambele părți implicate în procesul educațional.*