E-Evaluation in virtual environments: automated versus personalized methodologies

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**Abstract**

In the particular case of e-learning pedagogical processes, we can find a wide range of educational methodologies, from automated to personalized ones. One example is the peer review methodology, where each participant in a virtual course, to complete the assessment of each module should evaluate at least a determined number of works from their peers. This methodology is popular in one particular scenario which is not present (at least in equal dimensions) in classroom teaching processes. This is the possibility of including, within one particular course, an enormous number of participants which would be impossible even to imagine in a classroom teaching process. This is where the concept of “mass education” appears, and with it, the concept of Massive Open Online Courses (MOOCs). On the other hand, we can see the results of personalized methodologies, in which the main instructor or a coordinator or assistant interacts directly with each student and performs feedback on each of the work, inquiries or suggestions from them.

**Keywords**

Educational process, e-learning, mass education

**Introduction**

When designing any educational process, we must analyze all the variables involved in this process: curriculum design, didactic transposition, the learning environment, evaluation methodologies, etc. In particular, evaluation methodology is a key component and as such we must analyze it and try to optimize it in order to achieve a feedback to keep improving this educational process. Of course, this evaluation is not only applicable to students or course participants but to all these other variables we mentioned. Therefore, we must clearly define and implement a correct evaluation methodology when designing any virtual teaching process.

In practice, most leaders of CSOs (members of boards of directors, committees, or the equivalent nomenclature in each country) are people who have no specific training in CSOs and have a very limited time to work therein. In this context, we are constantly reflecting on questions such as: What should a social leader know and what would be convenient for them to know?, How do we choose the priority issues?, In what way should they be taught?, What duration and intensity must the education process have?, How do we evaluate the outcome of this learning?, etc.

Given these concerns, both from the point of view of the teacher as from the student, there is a need to analyze the entire educational process and identify the critical components that not only should not be absent, but must be optimized to achieve greater efficiency and effectiveness thereof. Education is a process of systematically and intentionally directed communication toward achieving goals previously set or adjusted on the fly and whose essential components are: the person who must be educated, the educator, the message, the educational environment and the numerous interactions between these different factors. (De Ketele, 1984)

To plan a **teaching program**, the first thing we have to be clear about is their objective, which defines the criteria used to select the material, design the program content, the teaching procedures and the development of tests and examinations. The questions that arise are basically: Where do these objectives come from?, How do we set them?, What are the sources we use to define these objectives? Tyler argues that "there is no single source, but each one has certain values and all of them must be considered when designing a comprehensive educational program." (Tyler, 1974)

Tyler considers the following sources:

1) Study of the learners themselves as a source of educational objectives

The study of the learners themselves seeks to determine which changes in their conduct should the educational institution aim to achieve. This observation of the learners themselves indicates educational goals only if we compare the data obtained with desirable levels allowing the difference between the student's current condition and the desirable one. This gap between reality and aspiration is often called necessity. The study of the needs of a particular group of students will cover identification of those which have not been met, as well as the identification of the role of the educational institution in this regard. This argument sustains that the everyday environment of learners provides, generally, a considerable part of their education, so it is unnecessary that the educational institution cares about these educational experiences that have been already properly achieved. In other words, the work of educational institutions should focus on the weaknesses and gaps that appear in the current training of students. Another way to know the characteristics of the potential students is researching their interests. The progressive education theory is that the fundamental basis of the objectives focuses on the student's own interests, which should first be identified and then serve as the centre of attention of educators.

2) Study of contemporary way of life

There are two arguments in favour of the analysis of contemporary life as a source of suggestions of educational objectives. The first one sustains that, as contemporary life is extremely changing and complex, the effort must focus on the most important educational aspects, so as to avoid wasting the time of students on things that are not currently valid. The second argument is based on training flexibility. Studies on the application of training indicates that there are more chances of the student applying the teachings if he recognizes certain similarity between the situations of contemporary life and those which are intended to be taught to him.

3) The specialists in each subject suggest objectives

Taking into account the textbooks written by specialists in each subject, as well as the curriculums prepared by groups of various educational institutions, an approximation can be inferred about the goals that educational institutions should strive to meet. Suggestions about targets in these three cited sources provide more material than any educational institution could include in any program. Hence, some are incompatible with the rest, so it is necessary to select a limited number of important and consistent purposes. “An educational program cannot be efficient if it pretends so much that it ultimately accomplishes nothing." (Tyler, 1974)

**The curricular design**

As a result of the above steps, one can select a list of important and achievable goals, which, as they come from various sources, may be stated in different ways. When planning a single list of important objectives, it is convenient to list them in ways that are useful to be able to select learning activities and also guide these. Since the real purpose of education is not that the instructor performs certain tasks, but instead to promote significant changes in patterns of student behaviour, it is important to recognize that every statement of objectives will be related to the changes experienced by the students.

Meanwhile, Stenhouse argues that there are two ways to view the curriculum, the first one is to consider it as an intention, plan, or limitation on what we want to happen; the other idea is to see it as the state of things that really happen. Therefore, he clarifies that the study of the curriculum must be concerned with the relationship between the intention that this curriculum actually has and the reality of its implementation. After all, the curriculum is what happens in real situations. It is not the hope, but the achievement. The problem when one specifies it is to accurately perceive, understand and describe what actually happens. The curriculum is an attempt to communicate the principles and features of an educational purpose in a way that it remains open to critical discussion and can be effectively implemented. (Stenhouse, 1987)

The curriculum should, at least, provide the basis for planning a course, study it and justify it empirically. The most important principles that must be respected are:

-Selection of content: what should be taught and learned.

-Development of a teaching strategy: how must this be taught and learned.

-Decision-making on the sequence of events.

-Diagnosis of strengths and weaknesses of each student and their possibility to adjust to various cases.

-Study and evaluation of progress of both students and teachers.

The central problem of any curriculum project is that of content and, in a more general sense, knowledge. The **didactic transposition** is the adaptive transformation process (whether it involves distortion, substitution or creation of knowledge) by which scholarly knowledge constitutes itself in the knowledge or object to be taught and, in turn, knowledge or object actually taught. (Poggi, 1990)

Chevallard states that any social teaching and learning project is built dialectically by means of the identification and designation of contents. A content knowledge that has been designated as knowledge to be taught, then suffers a set of changes that will make it suitable to occupy a place among the objects of education. (Chevallard, 1997)

The experts who develop a curriculum become the mediators between scholarly knowledge and knowledge to be taught. Thus the curriculum becomes a bridge between theory and action, even more so if it allows freedom to both teachers and students.

**Teaching Strategies**

Having selected the content, one must also choose appropriate teaching strategies to achieve the desired goal. Designing teaching situations takes into account the assumptions concerning both teaching and learning. According to Fenstermacher and Soltis, there are three approaches to teaching, regarding how the teacher is conceived:

-The executive approach sees the teacher as an executor, a person responsible for producing some learning, and to achieve this uses the best skills and techniques available.

-The therapist's approach sees the teacher as an empathic person responsible for helping each individual in their personal growth and achieving a high level of assertiveness, understanding and acceptance.

-The liberating approach sees the teacher as a liberator of the individual's mind and a promoter of moral, rational and integral human beings. (Fenstermacher y Soltis, 1999)

According to Brunner, students can be classified as:

-Imitative apprentice: The students aim to achieve specific goals by steps or procedures.

-Didactic exposure apprentice: The student constitutes himself as a receptacle of knowledge.

-Thinker apprentice: There are exchanges among peers and the student expresses previous knowledge, but without theoretical support.

-Apprentice as objective knower: The student performs exchange, but with theoretical support (he must give valid theoretical arguments).

The way to propose the class depends on how the learner is considered, according to the content, the student group and the moment. The concepts of learner are dynamic and complementary, not exclusive. (Bruner, 1997)

In defining and prioritizing certain facets of a topic and providing those meanings to be promoted, the teacher anticipates the general context in which this process will develop, plans sequences of work, studies different ways to combine tasks, etc. This outline is precisely the adoption of a strategy: a plan that allows us to attain predefined goals. Stenhouse defines this plan by saying: “Teaching strategy seems to refer more to the planning of teaching and learning based on principles and give greater importance to teacher judgement. It involves the development and implementation of a course of conduct.” (Stenhouse, 1987)

**Evaluation**

Finally, having developed these strategies, feedback is crucial to achieve the educational process to create a system of continuous improvement in its implementation. For this you must have an appropriate system of assessment of learning.

Evaluation is a process of obtaining information and then making judgments and ultimately decisions. (Castillo Arredondo.and Cabrerizo Diago, 2006) According to Camilioni, evaluation is to assess value judgments about something: objects, behaviors or plans. These trials have a purpose; it is evaluated to make decisions regarding the progress of a process. (Camilloni, 2000) Meanwhile Allal states that “formative assessment, as it is characterized above, allows a double feedback. On the one hand, the student indicates its status under the various stages that must be passed for a particular learning and on the other, tells the teacher how the process of teaching and learning takes place, and the main achievements and difficulties of learning.”(Allal, 1997)

Regarding the usefulness of the evaluation, it helps students to learn about their progress in relation to the objectives, know their weaknesses, find their difficulties in order to overcome them and compare their performance with that of their peers. “From the point of view of the student, the evaluation is fused with learning. While it validates, it reorients. From the point of view of the teacher it acts as a regulatory evaluation of the teaching process.” (Camilloni, 2000)

For teachers, evaluation helps to know the initial state of knowledge of students, the progress made by each of them, their difficulties and finally being able to review the proposed objectives. (Camilloni, 2000) The teacher, after the interpretation of the evaluation data, can decide on the revision of an item or the repetition of the same teaching if necessary, the recommendation of literature or information to enhance some aspect of the learning process. (Allal, 1997)

**e-Evaluation**

In the particular case of e-learning pedagogical processes, we can find a wide range of educational methodologies, from automated to personalized ones. One example is the peer review methodology, where each participant in a virtual course, to complete the assessment of each module should evaluate at least a determined number of works from their peers. This methodology is popular in one particular scenario which is not present (at least in equal dimensions) in classroom teaching processes. This is the possibility of including, within one particular course, an enormous number of participants which would be impossible even to imagine in a classroom teaching process. This is where the concept of “mass education” appears, and with it, the concept of Massive Open Online Courses (MOOCs). On the other hand, we can see the results of personalized methodologies, in which the main instructor or a coordinator or assistant interacts directly with each student and performs feedback on each of the work, inquiries or suggestions from them.

To illustrate this with examples, I would like to comment on two completely different models.

First let me analyze the methodology of peer evaluation. To do this I will use as an example a course dictated on the Novo Ed virtual platform; in particular I will refer to a course from 2013, by Stanford University in conjunction with the Catholic University of Chile, on “Evaluation of Strategic Decisions.”

Since this course was based on the MOOC (Massive Open Online Course) model of mass formation and an enormous amount of participants were likely (being free and recognized by prestigious institutions), it resulted impossible to perform a personalized assessment of each students work. According to the organizers, "the inscriptions of this course exceeded 118,000 students." Obviously, with one teacher in charge, having to read about 4 or 5 answers of each participant was directly an impossible task. As a solution, they implemented the peer review methodology, in which each participant should assess at least 5 papers from their peers in order to complete the assessment of each module

It sounded good in theory but in practice it was not that simple.

The main difficulties arose in the heterogeneity of academic backgrounds of participants and the large difference in the depth that they engaged in both developing responses as making assessments on them.

The first problem that arose was that of cases of highly elaborate answers, several pages long and with great academic quality, which were evaluated as mediocre, without even an argument or some sort of explanation justifying this evaluation. Just a "low grade" without taking the time to write 5 words in the comment field explaining this evaluation.

This obviously created a huge amount of claims and complaints from participants, which, added to the limited availability of coordinators or assistants, generated a major frustration among most of the students.

On the other hand, we see the result of personalized evaluation methodologies, where the main teacher, or a reduced group of coordinators or assistants, read the work of each student and makes a written feedback on each piece of work.

The immediate and most obvious advantage to students is that they feel more accompanied and enriched in their learning process. A disadvantage, however, is the fact that this methodology requires more teacher effort.

Returning to the previous example, it would be impossible to assess in a personalized way 118,000 pupils in 4 months!

**Conclusion**

One of the main issues in today’s on line education programmes is trying to find the right balance between the amount of students and the amount of teachers or coordinators assigned to each particular course. The main problem is the cost of this. How can you offer free MOOCs to thousands of students when you should probably have to pay for a couple of hundred teachers or coordinators?

Obviously there is much more to say about the subject and is always open to debate, but the contrast between models with less teacher involvement versus those that require greater dedication, pose significant challenges when designing a virtual teaching process.

We can summarize the dilemma as “automation versus customization.”

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