

E-Teaching Strategies: massive versus customized methodologies

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Abstract

When designing any educational process, we must analyze it and try to optimize it taking into account all the variables involved in this process: curriculum design, didactic transposition, the learning environment, evaluation methodologies, etc. In the particular case of e-learning pedagogical processes, there is 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). These methodologies of “mass education” may seem very attractive because of the volume of students who can be trained, but are very sensitive to environmental design, which can determine the success or failure of the process. 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

In the particular case of e-learning pedagogical processes, there is 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). These methodologies of “mass education” may seem very attractive because of the volume of students who can be trained, but are very sensitive to environmental design, which can determine the success or failure of the process. 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.

The educational processes designed for distance learning or e-Education programs, rely basically on three major components: curricular design, teaching strategies and e-Education learning environments.

- The curricular design

What exactly is the core knowledge we wish to transmit? What should a student know and what would be convenient for them to know? How do we choose the priority issues? We have to choose the appropriate content and structure it accordingly to be able to effectively communicate it and thus achieve a successful learning process.

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 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)

Without an effective curricular design it will not be possible to achieve a positive impact on any student. Having selected the main content we must now focus on the teaching strategies.

- Teaching strategies

Having selected the content, one must also choose appropriate teaching strategies to achieve the desired goal. In general, these teaching strategies can be classified as:

- The teaching of organized forms of knowledge through direct intervention strategies: exposition, interrogation, etc.
- Strategies focused on indirect forms of teacher intervention: case studies, problem-based learning, inquiry, etc.
- The skills training through simulation and controlled practice.

Early theories of teaching strategy start from behaviorism, which begins in the late nineteenth century in Russia, when Pavlov raises Reflexology, arguing that behavior is a chain of reflections and learning is achieved by contiguity, association and stimulus - response. There are conditioned reflexes (learned or acquired) and unconditioned (not acquired or innate). At the same time, in U.S., John Watson and B. Skinner talk about a learning strategy where the teacher is active, selects the contents, doses the material in a relevant sequence. They claim that if there is behavioral change, there is no learning. This is based on the sequence information - application - feedback. Skinner also proposes the use of the learning machine. (Tenutto, 2004) While these are some of the earliest theories of learning, they are still widely used as pedagogical methodologies today. In fact, in certain circumstances, they remain as methodologies which are successfully applied to the process of teaching.

In the early twentieth century the Gestalt theory evolves in Germany. This theory relies mainly on perception, where "The whole is more than the sum of its parts," and learning occurs by what is known as "Insight." The most important contribution of this theory is that learning cannot be conceived as a phenomenon which is isolated of the environment and all the other factors that influence the actors in this process.

Constructivism emerged in the mid-twentieth century (50's and 60's) and its main exponents were Piaget, Vigotsky and Bruner. This theory states that the student is active, adapting, works to resolve conflicts, overcomes the limitations of knowledge, is interactive, conscious and an active part of the learning process.

As for Piaget, learning arises by an equilibrium process that comes from cognitive conflict. Intellectual functioning is based on two main attributes: the organization (the multiple interrelationships between cognitive actions) and adaptation, which in turn covers two sub properties closely related: assimilation (structuring or cognitive restructuring of an object in

accordance with the nature of intellectual organization which is already part of one's own knowledge) and accommodation (the process of adapting to the varied demands that are imposed on the subject). He also emphasizes that social interaction can facilitate or impede learning, but is not determinative. (Flavell, 1979)

Vigotzky introduces the concept of Proximal Development Zone, defined as the distance between the actual developmental level as determined by the ability to independently solve a problem, and the level of potential development as determined through problem resolution under the guidance of another person. (Vigotzky, 1998)

Bruner argues that the student explores, with advances and retreats. There is no concept of mistake because mistakes are part of the process and they serve to advance the process. The characteristic of the teacher is to generate uncertainty, intrigue and desire for further understanding. The object of education is that students think for themselves. (Bruner, 2001)

Finally there is Cognitivism, a theory which speaks of meaningful learning and emerges in the 60's. Its main exponents were Ausubel and Novak. According to Ausubel, for meaningful learning to occur, it is necessary that the material presented to the student is not arbitrary, meaning that it possesses meaning. A material has meaning if the elements are arranged and not merely juxtaposed, that is, if it has a meaningful structure. It is also necessary that the student's cognitive structure contains inclusionary ideas, meaning that their previous knowledge can be related new material. (Poza, 1987) Previous organizers serve to accommodate the new knowledge in one's cognitive structure. In the event that there were no relevant concepts in it, the previous organizers will serve to reinforce new information and lead to the development of an inclusive concept that may operate to facilitate subsequent learning on relevant issues. (Novak, 1990)

Under this theory, the student is active and aware of the learning process and relates the content with prior knowledge. The teacher, in turn, generates previous organizers, presents the content, organizes and structures materials, asks for examples, and shows connections to prior knowledge. This is an ongoing process, which clearly explains why knowledge acquired which is based on previous organizers will be much more durable and useful than simple memory learning.

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 Camilloni, 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-Education learning environments

Finally, an aspect that is also important is the channel that will be used to implement this learning process, since we now have efficient and economical Information and Communication Technologies, which are increasingly accessible. This will enable us to deliver knowledge in a more effective way to increasing numbers of people. But we must remember that these are the only channels and that the main importance is in the developed content.

By combining these three components, we will be able to build soundly based educational proposals that meet the growing requirements of training, continuing education and professionalization of prospective students.

Student feedback on technology in e-Education learning environments

As in any successful educational processes, feedback from the participants plays an important role to improve different aspects such as curricular design, methodology, evaluation, etc. As well as taking note of spontaneous feedback from online students we have conducted a number of surveys among these participants, so as to understand their particular needs as far as learning environments and the use of information technology in their homes and or work-places. Some relevant issues that arose from a recent survey conducted in 2015 (CENTED, 2015), include:

- One of the most frequent complaints from online students is the availability of tutors /coordinators to be able to answer inquiries and assist students in general problems.
- Another issue occurring in some e-learning platforms is that some students find it difficult to locate the learning material. When there are many different files (video, text, presentations, etc.) located in different places, it is relatively frequent that they “skip” some of them.
- Automated inscription to courses (as opposed to direct e-mail communication) has proven to be a problematic issue for some potential participants.
- Although e-mail communication has also presented some problems, as a number of other prospective students have mentioned the problems of “spam-block” in some educational institutions (meaning that legitimate inquiries are treated as spam).

Conclusion

Whereas information technology has provided us with a fabulous means of providing education, we cannot ignore the point that this is merely the channel used for delivering the process and not an ultimate goal in itself. Technology is of huge importance, but the main focus must be placed on curricular design and teaching strategies.

In the particular case of e-learning pedagogical processes, there is 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. Whereas these methodologies of “mass education” may seem very attractive because of the volume of students who can be trained, but are very sensitive to environmental design, which can determine the success or failure of the process.

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. Although this requires much more effort, the results still seem far superior.

Bibliography

- Allal, L. 1997. “Estrategias de evaluación formativa. Concepciones psicopedagógicas y modalidades de aplicación,” en Revista Infancia y Aprendizaje, Barcelona.
- Beaumont, Stephen. 2009. “La formación de los dirigentes de las Organizaciones de la Sociedad Civil: la importancia fundamental del diseño curricular.” - VII Conferencia Regional de América Latina y El Caribe de la ISTR. Tecnológico de Monterrey, México.
- Bruner, J. 2001. “Desarrollo cognitivo y educación.” Madrid, Morata.
- Camilloni, A. 2000. “Las funciones de la evaluación.” (Mimeo).
- Castillo Arredondo, S. y Cabrerizo Diago, J. 2006. “Evaluación educativa y promoción escolar.” Editorial Pearson Prentice Hall, Madrid. Cap. 1.
- CENTED. 2015. “Relevamiento del uso de tecnología de la información entre alumnos de cursos virtuales.” Documento interno.
- Fenstermacher, G. 1989. “Tres aspectos de la filosofía de la investigación sobre la enseñanza,” en Wittrock, Merlin “La investigación de la enseñanza I, Enfoques, teorías y métodos.” Barcelona, Paidós/MEC.
- Ferry, Gilles. 1997.”La formación: dinámica del desarrollo personal,”en “Pedagogía de la Formación.” Buenos Aires, FFyL-UBA y Ediciones Novedades Educativas.
- Flavell, J. 1979. “La psicología evolutiva de Jean Piaget.” Buenos Aires, Paidós. Cap. 2.
- Novak, J. 1990. “Teoría y práctica de la educación.” Alianza. Cap. 3 y 4.
- Poggi, M. 1990 “Sobre la teoría curricular y la transposición didáctica.”
- Pozo, J. I. 1987. “Aprendizaje de la ciencia y el pensamiento causal.” España, Visor. Cap.8.
- Rogers, Carl. 1991. “Libertad y Creatividad en la Educación en la década de los ochenta.” Barcelona/Buenos Aires, Paidós. Capítulos III, VII y IX.
- Segovia, J. y Bolivar Botía, A. 1998. “Repensando la formación del profesorado: historias de vida y desarrollo personal y profesional.” En Revista de Ciencias de la Educación N° 176.
- Stenhouse, L. 1987. “Investigación y desarrollo del curriculum.” Madrid, Morata. Cap. 1.
- Tenutto, M. 2004. “Las producciones y sus contextos.” Material de cátedra del Profesorado Universitario, Universidad Maimónides.
- Vigotzky, L. S. 1998. “El desarrollo de los procesos psicológicos superiores.” Grijalbo. Cap. 6.

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