

Instructional design and tutorial strategies in online training courses on qualitative research methodology

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This article locates a didactic and methodological perspective which is seldom covered in the literature on online training. Most of the published studies describe the objectives of a course and basic methodological ideas, entering more in depth in the results. Only a few articles recount how this training process in research methodology courses has been carried out. To cover this necessity, we present a proposal that we have delivered in a course of postgraduate students at the University of Seville. We attempt to delve into the keys of instructional design and online tutorial strategies. Results have been very satisfactory, including an outstanding acceptance on the part of the students. The learning objectives have been completed, as completed learning tasks and students' own answers have been shown. However, many tutor hours were required for the development of this training in addition to the number of hours required for delivery and tutorials.

Keywords web-based instructional design; online tutorial strategies; online methodology; qualitative research

1. Introduction

Articles on the way training experiences take place in research methodology do not usually appear in a detailed way in publications. Authors focus their interest in the results of online educational processes, but they leave aside the formative process. We intend to present in more detail instructional design and worked tutorial strategies, which give us these results.

Our objective, therefore, is to establish some key ideas on how this web-based formative process is settled down, through our experience in online training courses on methodology of qualitative research with graduate students of the University of Seville (Spain). The challenge of the course was to teach how to use a software package (AQUAD) for qualitative data analysis. The course was intended for professionals from diverse research fields. WebCT was the platform which supported the process. This LMS provides an environment of flexible work, adapted to the different rhythms of students' learning, with different communication methods between students and tutors, with group or singular workspaces, etc. Inside this learning environment, educational activity was based on principles of active learning.

2. Literature review

Case-based learning is a strategy used in our experience. This learning comes from real or fictitious experiences that help us to study and to analyze a real or fictional problem. Based on Jonassen's works, reasoning and capacity of later argument take special relevance. Argumentation is a fundamental process of social negotiation through informal reasoning. Technology can support social negotiation and the explication of informal reasoning in the form of argumentation through Computer-Supported Collaborative Argumentation [1]. Kirschner, Buckingham Shum, and Carr examine Computer-Supported Argument Visualization (CSAV) into rich information environments, authentic learning tasks, negotiation of meaning by understanding multiple perspectives [2].

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On the other hand, Moore [3] presented the known theory of transactional distance. This distance exists in all educational relationships. It defines distance not as a geographical phenomenon but as a pedagogical phenomenon. *“This distance is determined by the amount of dialog which occurs between the learner and the instructor, and the amount of structure which exists in the design of the course. Greater transactional distance occurs when an educational program has more structure and less student-teacher dialogue, as might be found in some traditional distance education courses. Moore acknowledges that even face-to-face teaching environments have high transactional distance such as a class of 100 students offered in a large, auditorium-style classroom where there is little or no opportunity for the individual student to interact directly with the instructor”* [4].

Education offers a continuum of transactions from less distant, where there is greater interaction and less structure, to more distant where there may be less interaction and more structure. Moore’s theory of transactional distance takes into account learner autonomy, which is a personal characteristic, in varying degrees. The learner’s capacity and desire to determine the course of his or her own learning, which may be called learner “autonomy,” implies a corresponding decrease in the degree of instructor control over the process. The highest degree of autonomy is found in programs that allow the learner to participate in all three aspects of instruction; the lowest degree of autonomy is offered by those programs in which instruction is planned, implemented, and evaluated entirely according to the dictates of the course designer(s) and/or instructor(s) [4].

Gunawardena and McIsaac [4] talk about four types of interaction. They took Moore’s work, which made a distinction between three types: learner–instructor interaction, learner–learner interaction, and learner–content interaction. Learner–instructor interaction is that component of Moore’s model that provides motivation, feedback, and dialog between the teacher and student. Learner–learner interaction is the exchange of information, ideas and dialog that occur between students about the course whether this happens in a structured or nonstructured manner. Learner–content interaction is the process of intellectually interacting with lesson content that results in changes in the learner’s understanding, and perspective. Frequently it has been considered as a medium of interaction and not as an interaction by itself. But they added a fourth component to the model, learner–interface interaction, necessitated by the addition of high technology communications systems to mediate the communication process. So, cognitive work is generated through interaction with these 4 types of elements (instructor, learner, content and interface).

Finally, another relevant element is about previous training beliefs and has to do with the subsequent process of cognitive conflict. Jackson and Wolski [5] understand ‘cognitive conflict’ as the most important and consistent feature of successful instructional interventions. While cognitive conflict might be provoked through explicit text-based refutation of activated beliefs and through argumentative interaction with peers [5].

3. Emergent instructional design in online environments

Instructional design of the learning environment focused around principles of Constructivist Learning Theory. The interaction, in its wide sense, and the exercise of the practical tasks are the main elements. The student should be directing his own learning.

Online training experiences tell us that a part of success in students' learning is due to environment instructional design. Professionals who work on eLearning know that students learn usually in closed and rigid environments based on a previous instructional design. This way, we can say that it is the student who adapts himself to the environment, never the contrary. The learning environment never adapts to the student's training needs.

Our contribution tries to redefine the relationship in learner-content interaction, as noted by Moore [3]. We focus on a new conception of content. Understanding of the materials goes from a vision of static elements toward another vision of elements as dynamic and growing resources.

The idea about modifying (readapting) the contents arises from the authors whose to design and to development this teaching-learning environment. Our proposal for training into learning environments resides in the open character that should have the environment design and learning contents. In this case, the design must be understood as a pedagogic activity inside learning process.

In this process, the tutor acquires a very tight-knit commitment with content designer's role. The tutor is the person who knows students, their work, and their learning and communication style. He/she is who detects this type of process needs. Therefore, he/she knows how to adapt the contents -to students' training needs- so that these can achieve an easier interaction into an environment of more understanding.

3.1 Emergent instructional design in e-Learning

We will describe the key elements of our instructional design. They are several parts considered. First, the main page shows four important areas for the course methodology: 1) General Orientations to follow the course: about the different tools, LMS, procedure.... Keys to navigate for the environment are given; 2) Content area: all contents in each thematic units and other complementary materials; 3) My Tutor: place to know the tutors and personal advisor; 4) 'Fotolog': students introduce themselves by pictures, personal comments, etc. Helps to create a small learning community.

The course contents are organized in topics. Each thematic unit has a presentation wherein is described the study field and the general objectives to achieve. Each unit has different elements, and answer to work needs for each topic. All topics include several sections, some of which are permanent (such as the pedagogic orientations of the topic, the practical assignment and the theoretical content). The student can find other materials which will be used to complete the tasks of each topic, and another type of links to multimedia that allow visualization, using videos, how to carry out any operations.

Regarding the theoretical contents, they are presented in an interface with multiple possibilities to integrate other elements of instructional design. The student always has available the following options: 1) Learning objectives: describes the competences to achieve; 2) Tasks: are required to show what has been achieved by student; 3) Print: creates a printable version of the contents; 4) Notes: student can write impressions, ideas or opinions from contents he/she is reading. These notes are saved in platform; 5) Other options: communication resources (forum, chat, email) from which ideas are discussed or to clarify ideas related to the thematic topic being studied.

Each theoretical unit is divided in a different number of sections according to its extension. The development content for each section doesn't usually have more space than can be seen in one screen. The content becomes accessible from a column menu where the sections that compose the content are distributed in a linear way and by grade of complexity. This content organization allows the student to see the order suggested for them to read the contents.

The theoretical content design followed an scheme of planning based on principles of the Case-Based Learning. All the main sections of a topic begin with a practical case that locates the student's learning in the acquisition of some competence. In the development of the case, diverse didactic elements were used. They motivate and demand the student to take an active role in his/her learning. Some of these elements are: real examples of concrete cases that are used so that student acquires a better understanding of the content; references to publications that enlarge the contributed information; links to technical words that include a brief definition; graphics and flowcharts like supplementary resource used so that the student assimilates the content better and facilitate his/her learning; table with definitions of useful terms for the understanding of the theoretical framework; table with important annotations that student should remember; practical experiences of use in fields with similar meanings; self-assessment exercises focused on reinforcing the key elements of one topic.

Students can be called in LMS by announcements. They are written by tutors and have the function of remembering or calling about some event. Generally, the announcements are related with: important dates; delivery of new or recent materials in LMS (example, documents registered weekly by tutorial chats); changes or adaptations in the course schedule; participation guidelines inside the communication environments; opening of the thematic units and new tasks due.

The tasks are one of the main sources of the work that is requested of the student. It is also one of the sources from which the tutor takes information for learning evaluation. During the process, different practical tasks were required, which followed a work-only model. These tasks consisted of a research project. This project should follow different phases associated with students' learning needs. Also, these

learning needs were related with the competences that students should achieve to be able to use AQUAD.

The tasks design always considers two options of works: singular and "*parallel*". The election of one or another option depends on each student's training interests. The first work option is remitted to the practice of a research project which materials were proposed by instructors. The second option consisted on working on a specific research project proposed by the own student.

The scheme that follows the course assignments design was: brief explanation with competences to achieve; schedule due; clear instructions for completion; important notes or comments by tutor about correct presentation; required attached files; rubric with evaluation criterions; recent comments where student can write requesting more explanations on the assignment.

The forum has been used fundamentally for advice functions in group on the different learning units. Students and tutors use this communication tool to encourage the participation in the discussions, to solve general doubts about the contents, to enlarge understandings, to implement planned activities, to promote the reflection on the contents and to share the experiences of their projects.

There were 5 different forums. Each one had assigned a concrete thematic function. This allowed the students to have organized spaces for the development of the discussions: general forum (study topics, contents...), chat tutorial (weekly sessions of chat), system of categories (can be an important question during the course), and coffee room (social environment, external comments).

3.2 Primary tutorial strategies delivered

One of the most interesting ideas in the course was the thinking-aloud technique taken through written forums. That is to say, the tutors encouraged to the learners' participation so that they narrated all their doubts in the same way they thought them during problem solving (cognitive conflict). Here, students' complicity helped to express their doubts clearly. But it did not happen without the tutor's support to encourage these written reactions about what students were thinking when trying to solve each problem. It allowed the instructional design to be adjusted by the tutors to the group's understanding in each topic.

On the other hand, our idea was to reduce the transactional distance in tutor-learner interaction and content-learner interaction to improve the communication. The interaction and communication were improved in this sense. Equally it helped that answers were given in less than 24 hours. We attempted to ensure that the tutor was not always the first to answer. When the question's complexity required it, answers were given with graphs to clarify the problem, and/or ad hoc didactic videos were designed. This was very well regarded by the students. Mainly *emergent questions* were used [6]. These encouraged the interaction and argumentation process between students and tutors.

After contents in each topic were delivered, contents were emphasized in the forums and practical tasks were made. Tutors were specially focusing on the study problem and understanding of presented contents. When any doubt was raised, the contents were completed with new resources: images which show procedure examples, new videos on practical application or a new reading was given.

4. Discussion

Instructors' work in this course was focused on offering learning opportunities. The communication among the participants was one of the main keys in the teaching-learning process. We highlight the pedagogic value of the constant interaction in the communication tools. The design that was delivered has encouraged the student-content interaction. A great part of the success in content learning was achieved by the methodology adopted by the tutors and to the environment instructional design. It was important to adapt the contents to the students' training needs. Different activities were carried out in the practical skills, which improve active learning. We can consider that we have been able to diminish the transactional distance postulated by Moore [3].

Thinking-aloud strategy has generated for tutors a better control of instructional design. It has also generated harder work and tutorial hours in the course, since the answers should be thoroughly explained. In fact, they included graphic or visual materials created ad hoc by the tutors. It was supposed

that the student visualizes his learning process better, his cognitive abilities and learn how to solve cognitive conflicts.

The action of redesigning the educational environment implies a set of substantial changes which affect the traditional conception of environment as a not very flexible space. However, the most remarkable practical implications can be observed in the tutors and students' work. This new form of understanding online educational space requires a bigger effort and control of training process by the tutors. During content delivery, instructional design and tutorial strategies were self-regulated issues. The tutor is the key and 'instrument' in this self-regulation process. An important part of the success in students' learning is due to this feedback mechanism.

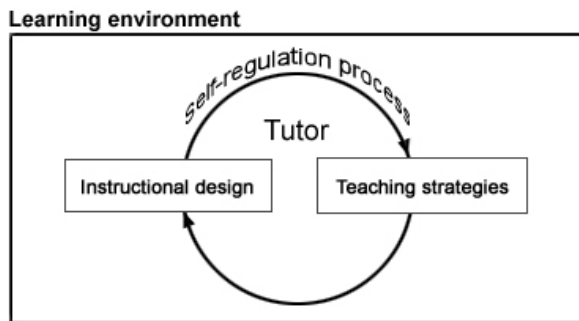


Fig. 1 Self-regulation system into emergent design

The results obtained in the evaluation of the educational process demonstrate the great value of the relationship between the methodology adopted by the tutors and the flexible character in the instructional design environment. Two of the pedagogic implications which directly impact students' learning have to do with a higher motivation in student-content interaction and an accented understanding of the educational environment, adapted to the personal training needs.

5. Conclusion

Instructional design and tutorial strategies are instruments that play an important role in the configuration of training. According to the perspective of practical pedagogy, the analysis of this experience has opened up a new study field, where the possibilities of adaptation of the environment and of the contents to the student's needs give a bigger sense into training.

This experience stems from a professionals' online training on qualitative research methodology arises from an appropriate emergent design, not rigid, but open at all moments to students' needs. The speed of the tutor's answer generates greater debate and argumentation possibilities. This opens new thoughts and reflection lines which contribute to significant learning.

Accompanying the students in their learning process, in the group resolution of doubts, also helped us to generate a more efficient work atmosphere versus that of other courses with design and tutorial models that were more closed.

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