AN INSTRUCTIONAL DESIGN MODEL FOR DISTANCE LEARNING

The following instructional design model for distance learning has been produced from different perspectives and models. Different perspectives are coming from the usability engineering and software engineering fields based on Nielsen (1993) and Galvis (1992), where I borrow the pilot and field testing concepts. Different models are coming from the instructional development models classified by Gustafson and Branch (1997). At the same time, I try to follow the steps suggested in Gagne (1992) to develop instruction and the variables that we have seen in the Instructional Design for Distance Learning class. Concepts like social dimension in asynchronous learning, learner development, and psychological distance are part of this model.

The model is organized in four main steps such as analysis, design, develop and evaluation. In addition, each step is divided in two sub-steps such as instructional and performance goals and learner analysis, instructional strategy and media and materials, learner development and instruction, and pilot and field testing respectively. All sub-steps will be explained in the following paragraphs to give a general point of view of this instructional model for distance learning. I want to point out that this model is considered as an iterative process that starts again with the analysis step to obtain the best final instruction. In addition, the designer can move back and forth between analysis, evaluation and develop steps, to develop a major quality in the distance instruction.

1. ANALYSIS

1.1. Goals definition

The purpose of this step is to determine and precisely state what the learner should be able to do or accomplish at the end of the instruction on each task. These instructional goals will be the base to identify the contents that are going to fill the gap between what the students know and what the students will know when they finish the instruction. At the same time, we are going to define the performance objectives to translate the needs and goals into the explicit and detailed performances to show progress toward the goals. These performance objectives will provide the foundation for determining what skills need to be taught and for developing measures that indicate whether the desired learning has taken place.

1.2. Learner analysis
The next step is to study the intended users. Developers should know their students so they could have a feel about how the course will be received. It is necessary to know the class of people who will be interacting with the instruction. In some situations this is effortless because you design your class for a determined course and college. But sometimes you design a course for all kind of people around the world. By knowing the user’s work experience, educational level, age, previous computer experience, and so on, it is possible to anticipate their learning difficulties.

2. DESIGN

As Weston and Cranton (1986) say “The selection or development of teaching methods and materials is one of the most complex components of the process of curriculum design, and yet it is the area which receives the least attention in instructional planning in higher education” (p. 259). In this design model, the design step is the broadest one because of many variables that we need to take into account.

2.1. Instructional strategy

Based on the information from the previous steps, we will design the possible sequences of the instruction to get the terminal objective. The strategy will include sections on pre-instructional activities, presentation of information, participation of the student, testing, and follow-through activities. As suggested by Wolcott (1996), we need to define the instructional practices to minimize distance and its psychological effects by employing methods and techniques to build rapport, decrease isolation, and enhance interaction. We define here, the motivation strategy and the kinds of feedback or reinforcement that the instruction will use to stimulate the students to work to accomplish the objectives. Teaching method is defined too. Based on Weston and Cranton (1986) we can work inside of the following teaching methods: instructor-centered, interactive, individualized, and experimental. If the course is an asynchronous one, we need to think in a instructional strategy that can help the issue expressed in Wegerif (1998): “Individual success or failure on the course depended upon the extent to which students were able to cross a threshold from feeling like outsiders to feeling like insiders” (p. 34).

2.2. Media and materials

Courses offered via synchronous or asynchronous distance learning have a range of different technologies available. In this step we decide which media is the most adequate for the
course. In this point I want to bring the media point of view of Richard Clark (1983) “Media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition. Basically, the choice of vehicle might influence the cost or extent of distributing instruction, but only the content of the vehicle can influence achievement” (p. 445). In other words, there is not difference in the use of different media in the learning process, what really influences learning are the ways that I use that technological tool in the learning process. In general, based on Weston and Cranton (1986), we need to think about the delivery system, which media we are going to use; the content or message, the information that is communicated with teaching materials; and the form or condition of abstractedness such as realia, imitations, illusions, and symbols. We need to consider that all these details are based on the instructional strategy that we have considered previously.

3. DEVELOP

3.1. Learner development

As Hardy and Boaz (1997) stated: “learner development refers to the preparation of the student for a distance education experience, beyond the technical orientation” (p. 41). Here, the question will be: what can we do to fill the student needs as a distance learner in this course? Based on Hardy and Boaz (1997), we need to take into account the quality and submission of the materials, communication in general, complete faculty information, and what is expected of them. Although the previous definition of learner development talks about beyond the technical orientation, we could include in this step extra technical orientation. For instance, does the student need special training? Sometimes, we can find situations where specific kind of students needs training in Microsoft Office for example, but they do not find tutorials according to their profile.

3.2. Materials

In this step, we will use your instructional strategy and the selection of media and materials to produce the instruction. Based on Dick and Carey (1996), the components of an instructional package can be the instructional materials, assessments, and the course management information. Sometimes developing new materials is an expensive and long process, so we could consider criteria for selecting existing materials. Dick and Carey (1996) discuss four criteria to determine whether the existing materials fit the objectives. Goal-centered, focus on the content of the
instruction; learner-centered, focus on the appropriateness of the instructional materials for the target group; context-centered, focus in the instructional and performance context; and learning-centered, determine whether existing materials are adequate as is, or they need to be adapted or enhanced prior to use.

4. EVALUATION

4.1. Pilot testing

With the pilot test, we pretend to improve the instruction when it is used for representative students of the target population. As mentioned by Lockee, Moore and Burton (2002), we need to ask the following questions: Did students learn what the goals and objectives intended? Was the instruction well written? Were the objectives clearly stated and measurable? Were appropriate instructional strategies chosen? Was there enough practice and feedback? Were examples provided? Did assessment methods correlate with instructional content and approaches? Although the idea of pilot testing is to work with a sample of the target population, sometimes is not easy to find samples of the target audience, especially in distance learning. Based upon Lockee et al. (2002), we can use alternative formative evaluation methods such as design review, evaluated by other designers; and expert review, evaluated by a content expert.

4.2. Field testing

Field testing of the instruction is more than just letting the students interacts with the instruction. It is the opportunity to test in the real life that something that makes sense on paper, it is valid in the real world, too. Based on Lockee et al. (2002), we consider the following aspect to evaluate in this step: program inputs, like budget and personnel information; performance outcomes, like knowledge, skills; attitude outcomes, like interest, motivation, participation; programmatic outcomes, like market reach, professional impacts, organizational change; and implementation concerns, like stability, maintenance, student support, etc.

Each one of the categories gives us specific information about the instruction. For example, inputs explain about cost, outcomes explain if the student reach the desired skills, and concerns talk about the implementation of distance courses. All above aspects in conclusion allow to determine if the instruction reaches with the goal established, in other words, if the instruction solves the educational problem that motives its design and develop under the conditions selected previously.

5. Summary
The model here presented was an evolution of different resources from different books and class notes. It is divided in four main steps such as analysis, design, develop and evaluation. All those steps have composed by sub-steps to provide a more complete instruction. It is important to emphasize that the model is an iterative process, giving the possibility to the user revise the instruction as many times are necessary to improve his/her materials. The main goal was to design a model as simple and general as possible. Finally, the creation of an instructional design model is not an easy work. It has many details that need to be considered when we are designing it. Besides with the distance learning idea add another extra element is its complexity.

References