

Using Design Based Research to develop tools to help instructional designers with cultural adaptation

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We have developed a method and an advisor system to help instructional designers in considering cultural variables during the instructional design process. To do so, we identified cultural variables and modeled knowledge regarding these variables via a formal ontology on the basis of which we created a “Cultural Diversity” knowledge base, which brings together knowledge regarding five cultures. Our advisor system, through an executable assistance process for cultural adaptation, uses this knowledge to advise the instructional designer, who then proceeds to adapt a pedagogical scenario to a culture other than his or her own.

The research methodology that we used for the development of the advisor system prototype is a combination of design-based research (DBR) and the Unified Process (Larman, 2004). Design-based research (DBR) is a systematic yet flexible methodology with the goal to improve educational practices through iterative analyses, design, development and implementation in natural contexts in order to establish theoretical principles and proposals (Wang and Hannafin, 2005). According to Reeves (2000), the goal of this type of developmental research is to solve existing and real problems while constructing design principles that could inform future decision making. Three principal characteristics of DBR stand out, i.e., its dual purpose, which consists in understanding the phenomena studied and adjusting the design (interventionist), its flexibility, which makes it possible to modify the protocol and the design in the process of being tested, and its openness, on the basis of which a DBR protocol may combine quantitative and qualitative methods and techniques.

Following this iterative process, our research began with semi-structured interviews and doctoral internship research at the University of Mauritius, where we conducted an in-depth analysis of the practical problems resulting from a lack of methods and instructional design author tools to help instructional designers to take into account cultural variables. These interviews confirmed that it is necessary to take into account cultural variables when planning training and that learning resources often have to be culturally adapted when reused in a new culture. We then developed the cultural adaptation method, the knowledge base and the advisor system over five iterations of the DBR, while continually assessing the relationship between our research and the practice in the field. This is how we prepared a web questionnaire that instructional designers from different countries have completed. The questionnaire consists of four main sections. The first relates to the context in which the instructional design is practiced. The sections that follow include a series of questions about the local educational practices. Questions about the various educational resources and the teaching and learning environments complete the questionnaire. The literature review, conceptualization process and questionnaire response analysis allowed us to target seventeen variables that we grouped into three major categories: Values, Common Practices and Human Interactions. On the basis of

these variables, we grouped knowledge regarding instructional design practices in France, Belgium, Gabon, Mauritius and Quebec. It is this knowledge that the advisor system uses.