Preface

This book is the result of a research program that I have led at the LICEF research Center of Télé-université since 1992. Télé-université is the oldest distance university in Canada, founded in 1972.

Learning and Teaching at a distance implies a very different context than in a Campus university, even though knowledge modeling is central in both cases, as in any educational or knowledge management situation. In distance learning, teachers and learners are not in a classroom at the same time. They interact in a Virtual Campus supported by information and communication technology. This implies that the courses must be carefully planned for autonomous study by the learner, and for networked interactions between learners and trainers or professors. On the professors’ side, while keeping the general responsibility on the quality of learning, the teaching activities are shared with education professionals, media and technology specialists, and the tutors that interact directly with the learners. There are multiple interactions between these actors in three main processes: design, where courses and programs are conceived and planned; production where the learning material and environments are produced, and the delivery of these environments where learning take place.

The research program at LICEF has been influenced by this challenging context. Modeling is the central idea that provided the backbone of our research and application activities. Modeling multi-actor processes was necessary both to describe the flow of the activities between actors involved in design and production of on-line courses before learning occurs, as well as to define the learning processes themselves. These are seen also as multi-actor processes where learners achieve learning task supported by the learning material and the interaction with tutors, facilitators and peer learners. An instructional engineering method was build by modeling these processes, supported by a first visual modeling tool built by us at the beginning of the nineties. Modeling also proved critical to organize knowledge acquisition goals in the form of competencies, both to plan the activities and the design of the learning environments. Finally knowledge construction and competency acquisition was seen also as a learner’s activity to be supported also by friendly visual modeling tools.

We soon found out that these tools and methods were useful outside the context of universities. Early in the nineties, we started interacting with large companies and professional organizations that were seeking similar approaches, most of the time in blended learning contexts involving some classroom activities, but mostly training outside the classroom. Our first projects were achieved in partnership with the DMR group, a large software consulting company, where we built a courseware support system integrating a visual modeling tool, and the Bank of Montreal, where our method and modeling tools served to design a training program for the personnel involved in a new set of banking services.

Later on, we interacted with 6 technology-based companies in the Multimedia Telecommunication project, with 7 laboratories in French Campus Universities within the HyperGuide-Recto project, and also
with a large set of Canadian universities and companies grouped in the TeleLearning National Centers of Excellence (TL-NCE). We have also been leading the eduSource integration project on learning object repositories and worked on two projects with professional organizations to help them build knowledge-based competency profile and use it to orient a training program. The visual modeling tools have been translated in foreign languages and used in some European and Latin American countries.

More recently, in the last six years, we extended the generality of the Visual Modeling tools and methods to knowledge management and the Semantic Web, mainly through the LORNET research network that was led by the author and heavily founded by the Canadian Government.

Internationally, since the beginning of the century, an increasing number of organizations had recognized the importance of learning technologies and knowledge management in organization. This new awareness resulted in attempts to identify, structure, organize, and sustain knowledge by reengineering professional processes for work and training, supported by the increasingly ubiquitous online technologies. At the same time, an important international movement started to elaborate eLearning standards that would enable users from all over the world to interoperate and reuse computerized resources, “learning objects” or “knowledge objects” available in “learning object repositories” distributed on World Wide Web. Both these major movements converged and integrated another pervading trend, the construction of the next Web generation, the “Semantic Web”, where knowledge models in the form of ontologies are the central element. These important international trends formed the core of the LORNET Research Program. They provided guidance to specify, structure and organize the scope, the goals, the objectives and the themes of the research program.

At the moment I write this book, we are involved in a three year project with Hydro-Quebec, a large public utility company, where we participate in building a knowledge management system based on the tools and methods developed in the LORNET network. We are also using visual knowledge modeling in other contexts such as a the Canada School of Public Services, or representing knowledge for a group of small manufacturing companies, as well as planning and support environment stages for young students. We also continue to apply Visual Modeling in our own teaching and research activities where we use knowledge and ontology modeling intensively.

I presented in short the history behind the book in order to emphasized that, although the tools and methods presented here have sound theoretical foundations, they have also practical value. They have been tested in a variety of contexts. They have been used outside university setting by professional in large or small, private and public organizations and in various cultural and linguistic contexts.

The reader interested in concrete examples will find throughout this book many references to Web sites that we maintain. In particular, the following link will lead the reader to tools, models and documents that will help him to follow up on the reading.

These are available free of charge at the following address: www.licef.ca/cice/KM

Gilbert Paquette

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