

## Chapter 8.4

# Dialogue Act Modeling: An Approach to Capturing and Specifying Communicational Requirements for Web-Based Information Systems

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### ABSTRACT

Web-based information systems (WBIS) aim to support e-business using IT, the World Wide Web, and the Internet. This chapter focuses on the Web site part of WBIS and argues why an easy-to-use and interactive Web site is critical to the success of WBIS. A dialogue act modeling approach is presented for capturing and specifying user needs for easy-to-use Web site of WBIS by WBIS analysis; for example, what users want to see on the computer screen and in which way they want to work with the system interactively. It calls such needs communicational requirements, in addition to functional and nonfunctional requirements, and builds a dialogue act model to specify them. The author hopes that development of the Web site of WBIS will be considered not only an issue in WBIS design but also an issue in WBIS analysis in WBIS development.

### INTRODUCTION

Web-based information system (WBIS) is a new type of information system that uses information technology, the World Wide Web (WWW), and the Internet to support e-business and information source management worldwide. They provide a new way of managing, manipulating, exchanging, sharing, and supplying global information and services online. They enable customers and companies worldwide to communicate with each other through the Internet and to demand and supply business information resources and services around the world without meeting each other. Appearance and use of WBIS in business have changed people's lives because it brings a new culture into business. People living with this new culture do not have to buy things in local shops; instead, they can buy things in global e-shops using the Internet. Suzuki (1997) in general

defines culture as the response pattern shared by a specific group of people, which is shaped through interaction with the environment. Furthermore, Ratner (2003) specifically defines global culture as what is common to all human beings and the response pattern as how people interact with the Web site in the context of the Web site. Based on the Suzuki and Ratner definitions (Ratner, 2003, p. 48), WBIS culture is defined in this chapter as follows:

*WBIS culture is what is common to all users of WBIS and that the “response pattern” is how the users will interact with the Web site of WBIS in the context of WBIS.*

Such response patterns can be perceived as an interactive communication procedure of getting the goal of a user’s task by using WBIS within a business context. A well-accepted WBIS should allow the user to control the interactive communication procedure and to decide how to interact with the Web site of WBIS. It is agreed that in order to have an easy-to-use Web site, WBIS basically needs to be user-centered and interactive as a computerized business tool linking customers to companies or linking companies to companies in e-business and information source management. They must be attractive to online users and compatible with other similar systems. Usability of WBIS relies greatly on the developer’s understanding of the user’s need for the Web site of WBIS (e.g., what users want to see on the computer screen and in what way they want to work with the system interactively). Unfortunately, understanding such a need currently is ignored in WBIS analysis because usability is often thought of as an issue in design rather than in analysis. For example, Cato (2001) emphasizes that the developer needs to pay greater attention to user interface and interaction design in WBIS design if he or she wants a system to be effective. However, in principle, understanding a user’s need is the task of system analysis but

not the task of system design. This means that the user requirements for effective interactive communication with the Web site must be captured in WBIS analysis. This is not supported by current modeling approaches, and new modeling approaches are needed for this purpose. Actually, a new modeling approach called *dialogue act modeling* (Liang, 2004, 2005a, 2005b) has been created specially by the author for capturing and specifying such user need and will be introduced in this chapter. The objective of the chapter is to help the WBIS developer (in particular, WBIS analysts) to understand the following:

- Different cultures of WBIS and traditional IS.
- Role of the Web site in the WBIS culture and its impact on user-centered and interactive WBIS.
- Need of considering usability of the WBIS Web site in WBIS analysis.
- Need of understanding the user need for easy-to-use Web site in WBIS analysis.
- The dialogue act modeling approach and how to use it to capture and specify such user need in WBIS analysis.

## **WBIS CULTURE AND ITS IMPACT ON WBIS DEVELOPMENT**

Observation has shown many differences between WBIS and traditional IS (Deshpande et al., 2002) and, unlike traditional IS, WBIS provides a Web site as the communication medium to interact with the user over the Internet. This drives the two systems to run in different environments with different cultures (i.e., what is common to the user and that the response pattern is how the user will interact with the system in its context are different). Figure 1(a) and 1(b) show that the response pattern of traditional IS culture is how the user will interact with IS directly in the context of IS, whereas the response pattern of WBIS is how the

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