The Creation of Users:
A Learning Experience in Information System Development

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ABSTRACT

The purpose of this article is to provide a better understanding of an information systems development process from a learning theory perspective. The authors wish to investigate how learning concepts can improve the practice of developing such systems. They look closer at the activities and outcomes of a development project with the focus on the user side and how these can be understood using different theories from the field of learning. The purpose of the case project was to ensure that the intended users of the systems (in this case, heart failure patients) should be able to influence the choices made during the project so that the implemented system would benefit the whole group of patients. During this process, it became apparent that the users themselves developed and changed a great deal. In this research, the authors therefore wish to investigate the learning and change mechanism that came into play through the designed participative ISD process. As a result, they suggest that a learning mechanism should be planned for in any ISD process, regardless of what methodology is applied.

KEYWORDS

INTRODUCTION

The importance of user involvement has been described by Ives and Olsen (1983) as “almost axiomatic” for the success of information systems development projects. Studies have shown that the relationship between user and developer is complicated. Taffe (2015), for example, states that little research exists on how participation in design influences end users. Taffe (2015) presents a study of a project and points to the threat of end-user involvement where the users become designers during the project. The area of co-design or participative design is under evolution (Sanders & Stappers, 2008), and the role of the user in such ISD projects could take many forms and serve different purposes. Sanders & Stappers (2008) envision a development where there are no users, just co-designers.

We aim here to investigate user involvement from a learning perspective. Human learning is about how individuals are able to alter their behavior on the basis of interactions with their environment and with other people. An information systems development (ISD) process is a massive exercise in knowledge creation, transfer and application. In this paper, we wish to explore our experiences
of an information systems development process through the lens of learning theory. This implies exchanges of knowledge between the main partners of the process, i.e. the IT/development experts, the experts of the host organization and the intended users. Knowledge transfer, especially from the host organization to the IT developer, has been long recognized as the key to a successful information system that contributes to the goals of an organization. Similarly, the role of the user is captured in various versions of, e.g., participatory or cooperative design. Here we focus on the user perspectives and examine the learning properties of various actions included in a development process.

The purpose of this research is to provide a better understanding of an information systems development process and of how learning concepts can improve the practice of developing such systems. We investigate the activities and outcomes of a development project with the focus on the user side. This development project was designed as a participatory project, involving a great many knowledge creation and transfer elements. In practice, participative methods are relatively open sets of tools and techniques (see for example MUST, Bodker et al., 2004) organized in flexible method chains. The individual tools comprise mixes of knowledge creation, elicitation and sharing activities and general workshops and interviews or various forms of tools for representing the knowledge of the project participants. A great many of these tools are similar to what can be found in learning theory, although the explicit connection is not often made. The purpose of the project was to ensure that the intended users of the systems (in this case, heart failure patients) should be able to influence the choices made during the project so that the implemented system would benefit the whole group of patients. During this process (a span of 1.5 years) it became apparent that the users themselves developed and changed a great deal. In this research, we therefore wish to investigate the learning and change mechanism that came into play through the designed participative ISD process. The process was created with the starting point in the “experience-based co-design toolkit” (EBCD, The Kings Fond, 2012). In Robert (2013) we find four areas that are central for the development of EBBCD: participative action research, user-centered design, learning theory, and narrative-based approaches to change. The learning theory refers to experimental learning based on work by Kurt Lewin (Kolb, 1984) and participatory action research. In this project, we worked with parts of the EBBCD method complemented with other tools or techniques, which were compounded into a working approach for participative design. Our aim is to make an in-depth study of the relation with the practical application of these ideas and how they connect to underlying learning theories. As a result, we suggest that a learning mechanism should be planned for in any ISD process, regardless of what methodology is applied. In the final section, we discuss the nature and consequence of changes in the perception and behavior of both users and developers and how these should be managed actively when an ISD project is designed. The paper is organized according to this structure: we start with an overview of learning theories, after this we look closer at different perspectives on learning in the area of ISD, after this theory part we discuss the case study and present some key information about it. The analysis section follows, in which we present 7 themes of learning activities that we could detect in the case and how these connect to the underlying theory. A resulting table provides a connecting picture of possible learning dimension of an ISD process. Final comments and future research issues concludes the paper.

LEARNING THEORY

Learning as a human phenomenon is complex, and its many dimensions have thus been studied and explored in different fields. To gain a working understanding of learning we need to draw on various theoretical backgrounds. The basic definition from a dictionary (Merriam-Webster) reads as follows: “the activity or process of gaining knowledge or skill by studying, practicing, being taught, or experiencing something”, including, “…1) the act or experience of one that learns, 2) knowledge or skill acquired by instruction or study, 3) modification of a behavioral tendency by experience (as exposure to conditioning)...” As the definition indicates, learning is a complex area, and can be understood from many perspectives. There is a wide variety of approaches to how learning is actually
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