Chapter 11

Technological and Psychological Fundamentals of Psychological Customization Systems: An Example of Emotionally Adapted Games

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ABSTRACT

Psychological Customization systems can customize the experiences of users of various information technology-based products and services. In this context customization entails the intelligent automatic or semi-automatic adaptation of information per user profile, which may systematically manipulate transient psychological states of the user such as emotion or cognition. The chapter presents the psychological and technological fundamentals of Psychological Customization and discusses an example of an application area in emotionally adapted games.

INTRODUCTION

Mass Customization takes place when a product is designed to meet the needs of a particular customer (Duray et al, 2000). Typically the customer is involved in specifying the product for the provider. Such customization can be called collaborative customization (Pine, 1992).

Cosmetic customization refers to a product that is presented differently to different customers. This approach to customization is functional when customers use the product in similar ways and there is a need for the presentation to differ. The standard package of the product is then altered and packaged differently for each customer or customer segment. (Pine, 1992)

Transparent customization is an approach where a company provides unique products and services to

a customer without explicitly telling them about such customization. This approach is useful when the customers preferences and needs are specific and easy to predict, or when customers can not or do not wish to state their needs repeatedly. In a way transparent customization is about observing the behavior of customers, inferring the customization needs and then providing the customized product to the customer. (Pine, 1992)

*Adaptive customization* implies that users can alter the product themselves based on one standard, but customizable product. This type of customization may be important when the customer wishes a product to perform in different ways in different circumstances or contexts. The customer interacts with a customizable product directly to mold and modify its properties, rather than interacting with the provider of the product. (Pine, 1992)

Adaptive customization is similar to *Adjustable Customization* (see Anderson, 2002). It is a reversible way to customize a product by electrical or mechanical modifications and adjustments. The possibilities for adjustments of the product can be defined by the customer or the provider of product or service. Adjustments can be realized in the form of configurations or discrete adjustments or they could be infinitely variable. For adjustment one can use for instance software-controlled configurations, or electronic switches and jumpers. (Anderson, 2002)

The rise of the experience economy (see Gilmore and Pine, 1997) has created a drive towards customized products and services that are characterized by unique and differentiated experiences. Assets in designing products that facilitate such experiences are not only the traditional utility, convenience, pricing and superior technologies but rather quality, feelings, values, meaning, identity and aesthetics for consumers (Nielsen, 2004).

It is experience, then, that is at the center of many customized and segmented experience-intensive products and services, such as video games, mobile services, rock concerts and tourist destinations. However, there has been little psychological research into the experiential aspects of customized products and services.

In this chapter we will discuss customization of products and services delivered via media- and communication technologies — *Psychological Customization*. Our approach to customization is adaptive, adjustable and partly transparent. We will present a system which allows the user to configure and adjust the product or service. Additionally, the product or service can be customized in a transparent manner without explicitly asking the user for continuous feedback for adjustment information. Our system is based on the customization of the experiences of users with various products and services when using media- and communication technologies.

The chapter first discusses the conceptual basis of Psychological Customization. Secondly, the chapter presents some empirical evidence for the feasibility of the concept of customizing experiences with products and services. We focus on emotion as a fundamental type of experience. Then a basic system design is presented for Psychological Customization systems. Finally, we will discuss emotionally adapted games as one promising application area of Psychological Customization along with an example of a psychophysiologicaly adapted game.

**PSYCHOLOGICAL CUSTOMIZATION**

**Basic Concept**

Our concept of technology is that of Media- and communication technology. It refers to information technology used to transmit and receive information. It takes into account the “media” aspects of information (such as TV, radio, newspapers, web pages, blogs, social networking sites) implying that people will process the information, learn from it, have experiences and that the information could have been designed as “media” in the
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