

# Chapter 68

## Human–Computer Interaction in Consumer Behaviour

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### ABSTRACT

*Human-Computer Interaction (HCI) studies play an important role in the design, implementation, and evaluation of a new generation of graphical user interfaces designed to support consumer behaviours and information needs. In recent years, the spread of new virtual environments and innovative tools have revolutionized the field of e-commerce. Although new digital environments can enable or facilitate certain user activities, the quality of the user interface will remain a continuing challenge. The chapter aims to underline the relationships between HCI studies and consumer behaviour, focusing attention on virtual environments for electronic and Internet e-commerce (online retail) services. The potential of multi-modal interfaces and virtual environments for business and marketing are examined by: (1) providing an overview of the relationships between HCI and consumer behaviour, (2) showing how different interaction modalities can enhance the communication process between user and consumer system, (3) showing how digital and interactive technologies can offer to the consumer many advantages and unique opportunities in exploring information and products, and (4) new directions for possible future research.*

### INTRODUCTION

The potential for direct online retail services using Information and Communication Technology (ICT) to provide additional consumer behaviour strategies represents an important challenge for

the contemporary world economy. In order to take full advantage of the range and volume of potential customers, a thorough understanding of both the user interfaces and the customer experiences is required. Understanding provides the platform to help developers design and maintain high quality

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and efficient interactions between the ICT system and the final user (Benyon, Turner, & Turner, 2005). Many of the most recent technological applications concern e-commerce based on social media environments. To take advantage of the new generation of e-commerce web sites, the goal of these systems is to include more interactive Web applications and services as well as mobile phone and tablet applications (Tatnall, 2010; Yang, 2012). These newer technologies need to adopt fresh graphical user interfaces, aimed at improving the communication between final users and the ICT system. In addition, the graphical user interfaces demand adapting to the current mobile devices. Final users, for instance, can personalize the information on their favourite portals or mobile devices to activate specific services like alert messages that inform them that a new product is available that matches their personal profile.

Effective Internet marketing requires an understanding of the customer needs, but also of their behaviour and habits, such as how the user finds the necessary information. It is therefore important to understand how different models of presenting products can condition user behaviour; how users explore and utilize information about products and the impact that it may have on them. For example, interactive 3-D models of virtual products can make more information available and transform the user's online experience by greatly enhancing the realism of the product presentation and making it more informative, intuitive and compelling (Ruppert, 2011). This suggests that business success can be positively influenced by the use of advanced technological applications, engineered as joint computer-cognitive interactive systems that satisfy specified user requirements (Hernandez, Jimenez, & Martin, 2009). Technological advances should be implemented taking into account the human cognitive factors (Bainbridge, 2004; Carroll, 2000; Sears & Jacko, 2009). These include cognitive processes, user behaviour and preferences during interactions with products presented digitally within virtual

environments. When done well, businesses can reap rewards afforded by high sales and satisfied, returning customers.

Advances in graphical user interface, driven by mobile phone and games technology, have led to a wide range of Human-Computer Interfaces (Sears & Jacko, 2009). These interfaces include different interaction modalities such as touch screens, voice control, kinaesthetic interfaces, multimodal interactions, and so on. The main idea of these systems is to augment the user experience by enabling interaction through intuitive actions learned and developed through real-world experiences. This enhances communication between user and digital information systems and objects situated in lifelike virtual worlds. However, despite the support from Cognitive Psychology in the design and development of such interfaces over recent decades, it is only now becoming clear how these can be fully utilized for commercial purposes by improving the user's ability to complete consumer transactions online. Information technologies are constantly improving and altering traditional business models and, in particular, the relationships between commercial organizations and their customers. Technological innovations open new challenges by developing different devices employing new communication modalities (Tatnall, 2010). Successful applications of new technologies, requires understanding of the impact that different interfaces and interaction modalities can have on customers and on consumer behaviour, particularly those of different digital products and platforms. In addition, central understands how mixed-modality interfaces integrate with the new generation of technologies offered by mobile systems, which provide ubiquitous and pervasive communications and how these can be combined with existing marketing channels and practices. This understanding will lead designers of personalized interfaces that support the user to realize the main tasks involved in the interaction process.

The focus of this chapter is on the relationships between user cognitive factors and graphical

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