

## Chapter 11

# Implications of Similarities in Instructional Design, Learner Interface Design and User Interface Design in Designing a User–Friendly Online Module

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### ABSTRACT

*The development of a user-friendly online module depends on the inputs, the processes and the outcomes from the user interface design, the learner interface design and the instructional design. The online module includes the user interface design, the learner interface and the instructional design. This chapter would examine the theories behind these three designs. What guidelines can be garnered from the theories of these three designs? How can these guidelines be used to develop a user-friendly online module? In addition, it would examine their similarities and how they can be used to develop a user-friendly online module. Further, the chapter recommended an alignment of the garnered guidelines from the three designs to explore the plausible reasons for the high attrition rate in Massive Open Online Courses (MOOC).*

### INTRODUCTION

Many online modules exist and it is not all these websites that are user-friendly. Online modules are platforms that allow communication between the learner and the module. Usually, when the learner is at the computer, the designer is not going to be present. Whether the use of a website is for learning or for purchasing goods; the website needs to be user-friendly. This chapter would examine the theories in user interface design, learner interface design and instructional design. Further, it would garner guidelines from their theories. In addition, it would examine how the similarities in these three designs can be used in developing a user-friendly online module.

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## **USER INTERFACE**

User interface design began with the design of software systems like Microsoft Disk Operating System (MS DOS), MS Windows, Windows 95, Macintosh Operating System (Mac OS and later with the development of application software like word processors, spread sheets and graphic designs (Jones & Farquahar, 1997). There are many definitions of user interface.

“User interface is the communication medium between the user and the technology or machine” (Vrasidas, 2011, p.228). It is through the user interface that humans can talk to the computer (Galitz, 2002, Chap. 2). It is the human end of the computer (Beynon-Davies, 1993, Chap. 19). A user interface is the software and hardware of the computer that allows the user to interact with the information from the computer (Mandel, 1997, Chap. 2).

Human-computer interface and human-human interface are synonyms for the user interface (Marcus, 2002). A user interface has input and output devices. These input devices include the mouse, the finger (for touch screen), keyboard and the voice for voice recognition (Galitz, 2002, Chap.2). The screen display is an output device. A user interface is the channel of communication that occurs between the user and the computer.

Computer based instruction was initially limited to text on the computer screen that was controlled by the keystroke from the keyboard. After the introduction of the graphical user interface, instructional delivery through the computer became revamped (Jones, 1995). User interfaces should be unobtrusive in their function by allowing the user to work seamlessly with the technology (Galitz, 2002, Chap.2; Vrasidas, 2011). The user interface is made up of windows, controls, menus, buttons, metaphors, online help and documentation.

The user interface is not the Hyper Text Markup Language (HTML) code (Vrasidas, 2011). It also includes non-traditional components like trackers, 3 D pointing devices and whole hand held devices (Bowman, Kruijff, LaViola & Poupyrev, 2001). User interfaces with assistive technologies have additional icons that would indicate the type of assistive technology on the user interface (see Figure 1). The mouse pointer enhancements are an assistive technology device for the user interface.

The user interface includes the software, hardware, tutorials and the manuals that come with the software and hardware (Mandel, 1997, Chap. 2). There are two main types of user interfaces; the Graphical User Interface (GUI) and the Web User Interface (see Figures 2 and 3).

The GUI is the “graphical representation of, and interaction with, programs, data, and objects on the computer screen” (Mandel, 1977 p.160). They usually have icons, menus and pointers. The web interface is the design of the information being presented (Galitz, 2002, Chap.2). User interface designs are used as game-based learning by integrating software applications in the learner interface (Liang, Lee & Chou, 2010).

At the onset, the purpose of creating the web interface design was to give information. The HTML used was directed at technical people and not at the general population. Therefore, the general user has problems with the web interface today (Galitz, 2002, Chap. 2). This can be an explanation to why some web sites are not user friendly.

The World Wide Web (WWW) is an open system because beyond the page that the designer has designed for the user, the user can link to other sites not created by the designer (Jones & Farquahar, 1997). Ritchie and Hoffman (1997) pointed out that a World Wide Web page with links to other sites is not an

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