

Chapter 24

Usability Guidelines for a Generic Educational Game Shell

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ABSTRACT

This chapter discusses usability rules for avoiding defects in the media design for Generic Educational Game Shell (GEGS) components, including visual interfaces, text, and sound. These rules served as a guide for the Web design of the Parcheesi™ GEGS and the games that it generates. The first section of the chapter deals with the screen, text, color, windows, images, and video as well as sound used in the input forms of the GEGS. The final section discusses some errors to be avoided in the interface design.

INTRODUCTION

Media design for the interface of a generic educational game shell (GEGS) makes use of familiar production techniques and tools, including computer graphics, layout design, and programming. An interface is a (hardware and software) device that enables an exchange of information between two systems. In concrete terms, an interface can be defined as everything that helps a human being understand and manipulate a machine. It is the central point of exchange between the person and the machine and has a physical layer (screen, keyboard, mouse, etc.) and a software component which intervenes

between the machine and the user (Martial, 2000). This chapter focuses on the design of a GEGS interface, particularly its ergonomic aspects.

Ergonomics covers the body of science related to how humans use tools and machines for maximum comfort, security, and effectiveness (Wisner, 1972). In the case of computer interfaces such as for a GEGS, the ergonomist finds and implements solutions to inform and guide the user to minimize as much as possible the software's cognitive (information) load. (Millrand & Martial, 2001, p. 74).

The importance of a well-constructed interface is widely recognized, yet the literature on user interfaces for digital games is scarce (Kellner, 2008). To establish guidelines for the creation of a GEGS interface, we relied primarily on studies in ergonom-

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ics for web environments (e.g., Dufresne, 2009; Livet, 2007; Millerand & Martial, 200; Nielson, 2000). For the GEGS interface to be efficient, it must meet two criteria: it must be useful—that is, adapted to user needs and preferences—and usable, that is, easy to teach and to use. Since the target users of the GEGS are young students, the organization of the GEGS should be linear and logical, consistent with the educational process of creating the elements of a game. According to Millerand and Martial (2001), this organization is well-suited for web-based educational sites or tutorials.

In this chapter, we examine media usability rules that helped us to avoid deficiencies in the *Parchesi* GEGS user interface, notably regarding visual, textual, and sound design. These media rulesⁱ served as a guide for the web layout of the GEGS and the games it generates. The first section of the chapter deals with the screen, text, color, windows, images, video, and sound. The final section discusses some errors to be avoided in the interface design for a GEGS.

GEGS INTERFACE DESIGN GUIDELINES

The Screen

The display's graphic design helps the user to focus on what is important. For Kellner (2008), a visual interface is problematic if it fails to highlight essential elements that the user needs to see. To avoid overload and emphasize the basics, here are some general rulesⁱⁱ:

- The team started formatting the GEGS by respecting the visual space limitations of the screen. In general, it is best to keep text brief—preferably to what can be viewed on a single screen. Long text on a computer monitor reduces motivation, and it is often not read. A web page should be more or

less equivalent in length to a printed page, including pictures or video clips. It must be short to eliminate, or at least minimize, scrolling, maximize visibility, and minimize download time. A page should also be readable without horizontal scrolling. In the GEGS, template contents generally fit within a 1024 X 768 display and require very little scrolling.

- Well-positioned navigational tools give the user a certain amount of control over the interface. Avoid positioning them only at the bottom of the page, where they fall outside the field of vision for users with small screens. In the GEGS, both the navigation bar (1) and the design toolbar (2) are always visible to the user, as illustrated in Figure 1.
- Important information is highlighted with graphics and text, for example flashing and asterisks. All forms include asterisks (Figure 1) to let the user know that some form items must be completed for the game to be functional.
- Known symbols are used to show an action or an obvious function. They are the same on all interface pages and are located close to the requested action. The question mark, for example, brings up information bulletins, as in Figure 1, where “?” located next to the Title item in Figure 1 explains how to write a game title and shows examples.
- Forms and blank information sections help to avoid confusion by giving examples of answers or providing help. This help can take different forms: guides, information bulletins, forms for questions, an online assistant who can be reached by email or telephone, etc. In the GEGS, the fill-in boxes offer answer examples (Figure 1), as well as information bulletins and an easily-printable pdf guide to the use of the game creation forms.
- The user must get needed information with no more than three clicks, a rule that all

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