Chapter 9

Persuasive Play:
Extending the Elaboration Likelihood Model to a Game–Based Learning Context

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ABSTRACT

Little research has examined the underlying psychological mechanisms of persuasive play. The purpose of the current study is to examine the explanatory potential of information processing approaches in a game-based learning context. Starting from the elaboration likelihood model, the authors theoretically develop a three-step model to explain how individual player characteristics (e.g., game preference) influence cognitive learning and attitude change through mediating variables like player motivations (e.g., personal involvement) and player evaluations (e.g., perceived realism). This model is empirically tested through a secondary analysis of survey data collected from Flemish adolescents (N = 538) in the 5th and 6th grade of secondary education. On the whole, the authors' results emphasize the importance of information processing variables as predictors of cognitive and attitudinal learning outcomes.

INTRODUCTION

Digital gameplay has been associated with a wide range of behavioral effects, including positive outcomes such as problem-solving capabilities (Cassell & Ryokai, 2001), spatial cognition (McClurg & Chaillé, 1987), mnemonic strategies (Oyen & Bebko, 1996), hand-eye coordination (De Aguilera & Méndiz, 2003), and social/political empowerment (Frasca, 2004), as well as negative outcomes such as aggressive script rehearsal (Anderson & Dill, 2000) or socialization of violent attitudes and behaviors (Bushman & Anderson, 2002). Although early research had a strong focus on empirically investigating these aspects, in recent years, a shift can be observed towards framing these results within a more comprehensive theoretical framework (e.g., Dipietro, Ferdig, Boyer, & Black, 2007; Van Eck, 2007).

Several models have been used to explain the learning processes that take place during digital

gameplay, including models derived from social psychology (Bandura, 2002), language acquisition theory (Johnson, Vilhjalmson, & Marsella, 2005), formal design theory (Gunter, Kenny, & Vick, 2006), or experiential learning theory (Egenfeldt-Nielsen, 2005). In this chapter, we argue that the elaboration likelihood model, or ELM (Petty & Cacioppo, 1986a, 1986b), provides a valuable additional point of view. The ELM has proven useful in explaining the effectiveness of persuasive communication in a wide range of applied research domains such as mass media (Petty, Briñol, & Priester, 2008), health communication (Braverman, 2008; Briñol & Petty, 2006; Holt, Lee, & Wright, 2008; Petty, Gleicher, & Jarvis, 1993), risk communication (Rucker & Petty, 2006), environmental communication (Mosler & Martens, 2008), computer-mediated communication (Di Blasio & Milani, 2008), and entertainment education (Slater & Rouner, 2002). As an audience-centered model focusing on message processing, the ELM can become a particularly useful tool for exploring the influence of serious games on knowledge acquisition and attitudes. This approach is in accordance with current tendencies in research on video game effects that put an emphasis on the receiver side in the communication process (e.g., Malliet, 2007). Nevertheless, the motivations and evaluations of video game players are presumably different than those of recipients of explicit persuasive messages about health, risk, or environment. For example, popular video games are able to attract audiences, not necessarily because of their educational or persuasive content, but because they are compelling as games (for a similar line of argument, see Slater & Rouner, 2002). Therefore, in order to explain how video games can elicit both unintended and intended cognitive and attitudinal effects, the main concepts of the ELM should be translated to a video game research context.

COGNITIVE RESPONSES TO PERSUASIVE MESSAGES: THE PERSPECTIVE OF THE ELM

Attitude Change According to the ELM: A Central Route and a Peripheral Route

The elaboration likelihood model is an information processing approach to attitude change. (Bohner, Erb, & Siebler, 2008). Unlike the troubling assumption that communication involves the linear transmission of messages from one point to the other (see Yannuzzi & Behrenshausen, this volume), information processing models approach persuasion as dependent on the reception of message arguments and various factors related to yielding to them (Petty, Priester, & Wegener, 1994). A common definition of an *attitude* is a general and relatively enduring evaluation of some person (including oneself), group, object, or issue. This evaluation can be based on various beliefs, emotions, and/or behaviors. *Elaboration*, in a persuasion context, denotes the extent to which a person thinks about the issue-relevant arguments contained in a message (Petty & Cacioppo, 1986a, 1986b). *Elaboration likelihood* refers to the degree to which a person is likely to engage in issue-relevant thinking. According to the ELM, there are broadly two routes through which a persuasive message is able to instigate attitude change: a *central route* and a *peripheral route* (Petty & Cacioppo, 1986a, 1986b).

The first, or central, route involves effortful cognitive activity. When the elaboration likelihood is high, the message recipient is likely to actively scrutinize all the information presented. The goal of this cognitive effort is to determine if the position advocated by the source has any merit. The end result of the effortful information processing is typically an attitude that is well articulated and bolstered by supporting information.

Attitudes can also be changed by a peripheral route, without much thinking about information

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