ABSTRACT

A growing area of video game research considers factors external to games that might predict both observed in-game and physical world decisions. One factor may be an individual’s habitual behaviors, such as their physical activity routines. Because the authors tend to automate behaviors that they repeat in stable circumstances or contexts, virtual re-creations of those stimuli should prompt the same behavior in the game environment. Moreover, as virtual worlds become more similar to the physical world, behaviors the authors learn in physical reality might influence virtual behaviors. The authors ask two research questions: (RQ1) Is there an association between real-world habits and in-game decisions? (RQ2) Does the nature of the in-game task influence any relationship between real-world habits and in-game decisions? A quasi-experiment of 110 students at a large, mid-Atlantic university demonstrated that physical activity routines bias in-game transportation decisions, particularly when prompted to pursue a specific goal over a free exploration task.

Keywords: Decision-Making, Habits, Physical Activity, Video Games, Virtual Worlds

INTRODUCTION

Left or right? Fight or flight? Every action taken in a video game, no matter how small, is the result of how a gamer learned how to react to a complex situation. Whether that learning happens in or out of game, understanding how to trigger a given reaction is important for a wide range of gaming stakeholders. Many studies have examined how video games affect the behavior of people in their ordinary lives, such as being more competitive or cooperative after playing violent or multiplayer games (i.e. Ewoldsen et al., 2012; Hasan, Bégue & Bushman, 2013). Fewer studies examine how gamers’ understanding of the physical world might influence their in-game actions. As we create more realistic simulations of the physical world in virtual worlds, how might automated behaviors cross the boundaries between the physical and the digital? Building on research of habitual decision-making – both in physical daily life and with respect to media choices – this paper evaluates the relationship between physical decision-making and video game behavior.
travel habits (a rather stable behavioral habit) and gamer tendencies toward travel habits in a sandbox digital environment (in which travel is a key component of game-world interaction). A quasi-experiment conducted at a large mid-Atlantic university found evidence supporting physically embodied travel mode habits transferring into the travel mode choices selected in the virtual world.

**Habits and Decision-Making**

Habits are automatic behaviors developed when people execute the same behavior in response to similar circumstances or contexts (Lally, Wardle, & Gardner, 2011; Verplanken & Wood, 2006; Wood & Neal, 2007). Automatic behaviors are processes that lack intentionality, controllability, attention, or awareness (Bargh & Chartrand, 1999; Wegner & Bargh, 1998). Automating behavior allows humans to integrate numerous small tasks into complex arrays of behaviors with less cognitive load (i.e. driving a motor vehicle). Habitual behaviors are adaptable to some degree of change in the environment, and may vary based on a person’s intentions and the context of the activity (LaRose, 2010; Saling & Phillips, 2007).

A variety of stimuli can prompt habitual responses, with environmental cues being most obvious (e.g. Wood, Tam & Witt 2005). Some environmental cues are locations (turning right when reaching an intersection on the way to work) or situations (a person has a cup of coffee every morning with breakfast). The habit literature has heavily studied environmental cuing often in the name of disrupting habits (e.g. Heatherton & Nichols, 1994; Quinn & Wood, 2004; Quinn & Wood, 2006; Verplanken & Wood, 2006; Wood, Quinn & Kashy, 2002; Wood, Tam & Witt, 2005). However, environmental cues do not affect all habits equally. A behavior that can only be enacted in a certain environment may be more likely to be linked to environmental cuing, as in the case of seatbelt use (Ji & Wood, 2007), but behaviors that can be enacted in a variety of situations may have other triggers (e.g. LaRose, 2008, 2010; Newell, 2003; Newell & LaRose, 2004; Saling & Phillips, 2007; Wood & Neal, 2007).

Cognitions, conscious or subconscious, may also activate habits, including moods or memories (LaRose, 2004, 2010; Saling & Phillips, 2007; Verplanken, 2006; Verplanken et al., 2007). One type of cognition that can activate a habitual behavior is a goal. Priming a goal may prompt automatic behaviors (Bargh, Chen, & Burrows, 1996; Sheeran et al., 2005) by providing a contextual cue for action (Wood & Neal, 2007).

Many habitual behaviors may have their roots in goal-driven behaviors. Behaviors tend to become habitual when a person repeats a behavior that produces a desired outcome in a stable context (Ouellette & Wood, 1998; Neal, Wood, & Drolet, 2013). For instance, a person may develop a habit of using their remote starter to unlock their car. As the remote starter reliably unlocks a person’s vehicle over time, the use of the starter becomes cognitively transparent, allowing a person not to think about using the starter to unlock their vehicle. They automatically activate the necessary behavior (pushing the starter button) when they are prompted to achieve a goal (unlocking the car).

Moreover, even behaviors with many discrete steps may become habitual by an effort to pursue goals efficiently. For instance, many people watch television under similar circumstances each day, such as while eating breakfast. Rather than having to consciously relearn what behaviors during media viewing lead to the desired rewards each time, the natural processes of cognitive automation allows smooth integration of behavior-response relationships into higher-level schema. The relevant goal stimulus can trigger these schemas; in the above example, “It’s time for breakfast” serves as a trigger for television watching.

Habitual media consumption is an important part of how the traditional mass media creates and cultivates audiences for content. Wood, Quinn and Kashy (2002) estimate over
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