Play online, work better? Examining the spillover of active learning and transformational leadership

Despoina Xanthopoulou [a,b,1], Savvas Papagiannidis [c,*]

[a] *Dept. of Work & Organizational Psychology, Erasmus University Rotterdam, The Netherlands*
[b] *Dept. of Psychology, University of Crete, Gallos Campus, Rethimno, GR-74100, Greece*
[c] *Newcastle University Business School, Newcastle upon Tyne, NE1 7RU, UK*

ARTICLE INFO

ABSTRACT

In this 1-month, longitudinal study we examined how participating in massively multiplayer online role-playing games affects users' real-life employment. For 79 employees, we tested spillover effects from gaming to work in relation to active learning and transformational leadership. Furthermore, we investigated the moderating role of game performance in these spillover effects. Results of hierarchical regression analyses showed that active learning spills over from game to work only under conditions of enhanced game performance, while bad performance reduces this effect. Furthermore, results supported the direct spillover of transformational leadership, as well as the boosting effect of high game performance in this spillover effect. These results provide further insights with regard to spillover processes, and suggest that virtual games may be of relevance for the development of new organizational training techniques.

1. Introduction

Over the past two decades, information and communication technologies have facilitated significant changes to our business and social environment. The main vehicle for this transformation was the Internet, which was not just—yet—another computer network, but a platform on which many of our activities were to be staged. Gradually, the way we live, work, communicate, learn and play was affected [1]. This process is still on-going today. In fact, now, we have an even more complex landscape, to which various metaverses have been added [2]. Metaverses are usually three-dimensional extensions of the 'traditional' electronic space that, among others, host massive multiplayer online role-playing games (MMORPGs). MMORPGs are played over the Internet and involve thousands of players, who are represented via their avatars (i.e. a player's virtual persona in the metaverse). MMORPGs evolve around a theme that defines the goals of the game [3]. In this context, players interact with each other, join groups to achieve common goals, and carry out complex missions. In other words, activities in virtual games have many common qualities with work in real organizations [4].

Ongoing developments in the business world suggest that in future organizations work teams will function globally, decision making will be distributed, and collaboration will occur mainly through digital interaction [5]. These increasingly competitive and faster paced work environments resemble virtual environments such as those of MMORPGs more and more. Therefore, the central question is whether virtual games may offer useful insights for better organizational functioning. Related skepticism can be addressed by considering the growing popularity of MMORPGs. The subscription-based MMORPG market grew by 22% in 2008 and reached consumer spending levels of $1.4 billion in North America and Europe alone, a figure which is projected to reach

* Corresponding author. Fax: +44 191 2081598.
 E-mail addresses: dxanthopoulou@psy.soc.uoc.gr (D. Xanthopoulou), savvas.papagiannidis@ncl.ac.uk (S. Papagiannidis).
[1] Tel.: +30 28310 77523.

$2 billion by 2013 [6]. Continuing their exponential growth since the late 90s, in 2008 total MMORPG active subscriptions exceeded 16 million [7]. Contrary to the stereotypical gamer profile (i.e. male, relatively young, and a socially maladapted person), recent surveys [8,9] suggest that the largest concentration of MMORPGs players is made up of people in their 30s, who are more educated than the general population, they are mainly male (80%), and they spend about 25 hours per week playing. Importantly, about half of them are employed full-time. These are indicative of the real-world reach MMORPGs can have, and their potential influence, particularly on employees' behavior in real work environments.

Driven by the high popularity of MMORPGs among employees, the purpose of this longitudinal study is to examine how active learning and transformational leadership behaviors that are developed and manifested in MMORPGs may affect users' real employment over the course of time. In addition, we suggest that game performance moderates the degree to which in-game behaviors spill over into work. Using games to develop various behaviors and skills is a long standing research area that is bounded to attract more attention as Internet and related technologies mature further [10–15]. To our knowledge, this study is the first to integrate psychological [16,17] and game [18,19] theories in a model of spillover from games to work that incorporates the role of performance as a motivator that boosts this spillover.

It is worth noting that we study the spillover from games to work from a psychological perspective. Accordingly, with the term spillover we refer to the within-person transfer of characteristics (i.e. affect, values, skills and behaviors) from one domain of an individual's life to another, resulting in similarities between domains [16,17,20]. In this context, psychological spillover refers to the transmission of specific leadership and learning behaviors from one life domain to another, and it is distinct from knowledge spillover, which refers to the knowledge externalities bounded in space, which allow companies operating nearby important (formal and informal) knowledge channels to introduce innovations at a faster rate than firms located elsewhere [21]. Confirming the proposed spillover model empirically advances current knowledge both by corroborating the ecological validity of psychological spillover theories in different contexts, and by better explaining the underlying psychological processes. Evidence for such processes is significant for practice as well, because it suggests that aspects of online games may be used for training purposes aiming at better functioning at work.

1.1. A spillover model from games to work

Spillover is a mechanism that links various areas of everyday life in a way that psychological states and their behavior manifestations transfer from one domain to another, within the same person [16,17,20]. Spillover can be negative when it interferes with role adaptation or positive when it promotes role adaptation. According to Edwards and Rothbard [16], behavioral spillover may be explained by two psychological mechanisms. Firstly, behaviors manifested in one domain may be generalized into knowledge and habits that, in turn, influence behaviors in other domains. Secondly, when situational cues (i.e. role requirements) in two domains are highly similar, spillover can be direct without intervening processes (e.g., via unconscious mimicking). It is important to note that these two mechanisms may function additively in a way that spillover is most likely to take place when both conditions apply, namely, when skills and behaviors have been internalized and situational cues are similar across domains [16].

Most previous studies examined affective spillover from work to family and vice versa (e.g., [22,23]), while evidence regarding behavioral spillover is scarce. Ispa et al. [24] found that parents whose jobs focused on helping people and involved considerable face-to-face contact were more receptive to their children's bids for conversation. Similarly, Rinaldi and Howe [25] showed that family members (mothers–fathers–siblings) demonstrated agreement on the frequency and types of conflict across different family subsystems (parent–child, marital, siblings). Conflict strategies applied to the parent–child system were linked to conflict strategies applied to both sibling and marital systems.

The present study advances theory and research by examining positive behavioral spillover from games to work. The roles and identities assumed in MMORPGs call for behaviors that the user must manifest in order to progress and become successful in the game [26]. Gamers who act as achievers, explorers or socializers exhibit different characteristics that can be related to the real-world behavior, albeit following different strategies. For example, achievers are interested in acting on the virtual world, explorers in interacting with the world, while socializers in interacting with other players. Among these, there are transferable behaviors that can be applied outside the membrane of the game [27]. In this context, the avatars have their own 'human' and social capital associated with them [3], which can be developed further in-game, potentially affecting the user's real-world human and social capital too.

To explain the spillover effect from games to work, we focus on Yee and Bailenson's [19] Proteus effect. Their idea stems from Bem's [28] self-perception theory, which states that people observe their own behaviors to understand which attitudes caused them. In turn, these attitudes may impact future behavior. Based on this assumption, Yee and Baileson hypothesized and showed that an individual's behavior conforms to their self-representation irrespectively of how others perceive them. This implies that when an individual observes her/his avatar behaving in a certain way in MMORPGs, it is likely that this individual will alter her/his behavior in the real world to be consistent with the behavior in the virtual world [19].

We argue that active learning and transformational leadership behaviors, when manifested in the game, may be transmitted to users' real work life over time. We focus on these two specific behaviors because they are commonly manifested and relate to better adaptation (in the form of successes) both in MMORPGs and at work [29–31]. According to Bartle's [26] taxonomy, among the most common roles that players assume in the game is that of explorers. That is, players aim to find out as much as they can about the world they enter and how it works (i.e. a typical manifestation of active learning). In a similar vein, players face organizational and strategic challenges like creating clans, recruiting new players, assessing, motivating, rewarding talented team members,