Games at Work: The Recreational Use of Computer Games During Working Hours

Leonard Reinecke, M.Sc.

Abstract

The present study investigated the recreational use of video and computer games in the workplace. In an online survey, 833 employed users of online casual games reported on their use of computer games during working hours. The data indicate that playing computer games in the workplace elicits substantial levels of recovery experience. Recovery experience associated with gameplay was the strongest predictor for the use of games in the workplace. Furthermore, individuals with higher levels of work-related fatigue reported stronger recovery experience during gameplay and showed a higher tendency to play games during working hours than did persons with lower levels of work strain. Additionally, the social situation at work was found to have a significant influence on the use of games. Persons receiving less social support from colleagues and supervisors played games at work more frequently than did individuals with higher levels of social support. Furthermore, job control was positively related to the use of games at work. In sum, the results of the present study illustrate that computer games have a significant recovery potential. Implications of these findings for research on personal computer use during work and for games research in general are discussed.

Introduction

With the growing accessibility of information technology in the workplace, the personal use of corporate computers during working hours, sometimes called “cyberslacking,” is a growing concern for employers and researchers alike. Frequently, the personal use of work computers is considered a form of organizational deviance, and previous research has focused primarily on the potential negative effects of cyberslacking in the workplace. Although some researchers have noted that the personal use of computers in the workplace is not necessarily destructive and might even have beneficial effects, such as job satisfaction or recreation from stress, fatigue, and boredom, the personal use of work computers as a recreational activity has not received much attention yet. While previous research has focused primarily on the personal use of the Internet in the workplace, the present research focuses on the use of computer games during work.

Several aspects lend support to the assumption that computer games may fulfill the function of recreation and recovery from stress and strain in the workplace. Especially, casual games, downloadable computer games with small file size or online games that are launched from a Web site and played via the user’s Web browser, are played by many office workers to unwind and to escape stress. Recent experimental data suggest that playing games after a demanding task might help to improve cognitive performance and concentration. Consequently, playing computer games during working hours might provide an effective means of recuperation.

Computer Games and the Recovery Process

During working hours, individuals are constantly confronted with tasks that demand their concentration and attention. The energy expenditure associated with these mental and physical efforts leads to strain reactions and psychological and physiological fatigue. Recovery, in contrast, is the process opposite to the strain process and leads to the restoration of depleted resources. Based on previous research on the recovery process, Sonnentag and Fritz identified four central dimensions that are crucial for successful recovery: (a) psychological detachment from work: mental disengagement from negative reflections on work-related issues; (b) relaxation: returning to baseline levels of psychological and physiological arousal; (c) mastery experiences: building up internal resources (e.g., new competencies and self-efficacy) through challenging activities during off-job time; and (d) control: increasing psychological well-being by experiencing personal control during leisure time.

Results of research on computer games suggest that playing games might contribute to these dimensions of the
recovery process for several reasons. Games put high cognitive demands on users and are a highly immersive media environment. Consequently, they have a high "intervention potential" and are able to absorb users and to focus their attention. Media messages with a high intervention potential help to stop negative cognitions and ruminations, provide relief from stress, and thereby lead to feelings of relaxation. Additionally, games offer the opportunity to try out new roles and identities and to explore fictional worlds. Hence, the content and narratives of games provide the opportunity to escape stress, problems, and negative feelings. This supports the assumption that games have a positive influence on the recovery process by facilitating psychological detachment and relaxation. The gaming experience also shows connections to the recovery facets of mastery and control. Users of video and computer games can actively influence the narrative and the progress of events in a game. Consequently, computer games elicit the experience of effectance, giving users the impression that they have an effect on the gaming environment. After acquiring the necessary skills to succeed in the game, players are rewarded with a series of local achievements, which leads to a feeling of mastery of the game. In sum, players have the chance to exert control over the gaming environment and to keep track of their achievements in the game. Increasing gaming performance and the rewarding experience of coping with the growing demands of the game are likely to contribute to a feeling of mastery and control.

As working activities lead to energy expenditure and work-related fatigue, the recovery potential of video and computer games presumably makes playing games an attractive recreational activity during working hours. The attractiveness of playing games to receive release from work-related fatigue is likely to increase in relation to the subjective recovery experience a person associates with gameplay. Accordingly, individuals who associate higher levels of recovery experience with playing computer games at work are expected to show a higher tendency to use games during working hours:

H1: The subjective recovery experience associated with gameplay at work is positively related to the use of computer games in the workplace.

Apart from the general recovery potential of games, a person’s individual situation is likely to influence the recovery experience associated with games. Individuals differ substantially in the working demands they face and the levels of work-related fatigue resulting from their job-related stress levels. Consequently, recreational activities and recovery can be expected to have a high priority for individuals suffering from high levels of work-related fatigue. At the same time, beneficial effects of games on recovery should be more salient to individuals who have higher levels of work-related fatigue. Therefore, individuals with high levels of work-related fatigue are expected to have a stronger recovery experience when playing games and show a higher tendency to play games during working hours than individuals with lower levels of work-related fatigue:

H2: Work-related fatigue is positively related to the recovery experience associated with playing computer games in the workplace.

H3: Work-related fatigue is positively related to the use of computer games in the workplace.

Recuperation from strain and fatigue is facilitated by a variety of resources, and social support has been identified as one of the most effective coping resources. Social support facilitates coping and can function as a buffer that moderates the impact of stress and strain. Individuals with deficits in social support are forced to rely on other coping resources when facing stress-inducing situations at work. In this case, computer games might serve as an alternative resource that facilitates recovery. Consequently, playing computer games at work and the resulting recovery experience presumably are more attractive to individuals with lower levels of social support at the workplace than for persons who receive more support from colleagues and supervisors:

H4: Social support is negatively related to the use of computer games at work.

Different work settings provide very different levels of job control. Job control refers to an individual’s opportunity to decide about the schedule of work and to select different strategies or methods to work on job tasks. Consequently, employees with higher levels of job control are better able to decide when to take a break from work and to choose recreational activities that best meet their recovery needs. For such individuals, it might be easier to use computer games for recovery purposes than it is for individuals who have very limited control on the timing and sequence of their working tasks:

H5: Job control is positively related to the use of computer games at the workplace.

Method
Participants
Ten thousand German users of the online gaming portal GameDuell were invited via e-mail to participate in an online survey on the use of computer games during working hours. GameDuell operates in the United States as well as in several European countries and provides a wide variety of casual games that can be played online via the user’s browser. The online questionnaire was accessible from July 17, 2008, to August 8, 2008. A total of 1,212 participants completed the survey. Completing the questionnaire took about 15 minutes. Participants received a 5 Euro gift certificate that could be redeemed at the GameDuell Web site. The cases of 379 participants were excluded from data analysis because they were unoccupied at the time of the survey. All data analyses reported here are based on the remaining 833 participants. The sample comprised 387 men (46.5%) and 446 women (53.5%). Their ages ranged from 16 to 66 years ($M = 35.1; SD = 9.9$).

Measures
Use of computer games during working hours. Participants estimated how frequently they play video and computer games during working hours on a scale from 1, never, to 6, daily. Five additional items assessed the use of games in different stress-evoking or tiring situations (e.g., "after an
exhausting task” or “when you are under stress”) during working hours on a scale ranging from 1, never, to 5, very frequently, (Cronbach’s $\alpha = 0.86$). The general frequency of game use during working hours and the frequency of gameplay after stress and strain during work were highly correlated ($r = 0.77, p < 0.01$). Therefore, in the structural equation models, both measures were combined to form a single index of playing in the workplace (Cronbach’s $\alpha = 0.88$).

Recovery experience associated with computer game play at work. Participants responded to the four subscales (psychological detachment, relaxation, mastery, and control) of the Recovery Experience Questionnaire.10 Participants were instructed to rate the 16 items with regard to their recovery experience when playing games at work (e.g., “When I play video or computer games during working hours I forget about work”) on a 5-point scale, ranging from 1, does not apply at all, to 5, does fully apply (Cronbach’s alphas: psychological detachment: $\alpha = 0.74$, relaxation: $\alpha = 0.80$, mastery: $\alpha = 0.85$, control: $\alpha = 0.84$). The scale was presented only to participants who reported using computer games during working hours at least sometimes.

Job control. The job control subscale of the Short Questionnaire for Job Analysis20 was used to measure job control. Participants responded to three items (e.g., “How much influence do you have on the work which is assigned to you?”) on a 5-point scale ranging from 1, very little, to 5, very much (Cronbach’s $\alpha = 0.80$).

Social support at work. Participants responded to the three items (e.g., “I can count on my colleagues if there is a difficult situation at work”) of the social support subscale of the Short Questionnaire for Job Analysis20 on a 5-point scale ranging from 1, does not apply at all, to 5, does fully apply (Cronbach’s $\alpha = 0.79$).

Work-related fatigue. The Need for Recovery Scale16 was used to measure participants’ chronic level of work-related fatigue. Participants rated the 11 items (e.g., “By the end of the working day, I feel really worn out”) on a 4-point scale from 1, never, to 4, always (Cronbach’s $\alpha = 0.87$).

Results

Participants worked in a variety of different fields (e.g., retail, 15.73%; medicine and healthcare, 9.60%; or media and communication, 5.40%) and reported an average working time of 37.6 hours per week ($SD = 12.8$ hours). On average, participants reported considerable levels of job control ($M = 3.64, SD = 0.99$) and social support in the workplace ($M = 3.73, SD = 1.04$) and moderate levels of work-related fatigue ($M = 2.05, SD = 0.51$). Three hundred eighty-eight participants (46.6%) reported playing games during working hours: daily, 10.0%; several times a week, 15.5%; once a week, 7.0%; once per month, 3.6%; less than once per month, 10.6%. Participants who play computer games during working hours associated substantial levels of recovery experience with playing computer games at work ($M = 2.93, SD = 0.85$) and make moderate use of computer games after stressful and exhausting situations ($M = 2.33, SD = 0.94$).

All hypotheses were tested with structural equation models computed with AMOS 7.0. In a first model, H1 and H2 were addressed. The four latent dimensions of recovery experience were each estimated based on the four items of the respective subscales of the Recovery Experience Questionnaire.10 These four latent constructs were then used to estimate the second-order factor recovery experience. As the Recovery Experience Questionnaire was presented only to participants who play computer games in the workplace, all other participants ($n = 445$) who never play during working hours were excluded. Consequently, the model testing H1 and H2 is based on the data of the remaining 388 participants. The 11 items of the Need for Recovery Scale were used to estimate the latent construct of work-related fatigue.16 The latent construct of the use of computer games at work was estimate from the six items described in the method section. The model fit the data well, $\chi^2(489) = 1055.20, p < 0.001$, root-mean-squared error of approximation (RMSEA) = 0.055. Figure 1 presents the standardized beta coefficients representing the statistical relationships outlined in H1 and H2. As predicted in H1, recovery experience associated with gameplay at work showed a strong positive relation to the use of games during working hours ($\beta = 0.63, p < 0.001$). The stronger the recovery experience that an individual gains through the use of games, the more often games are played in the workplace. Furthermore, as predicted in H2, work-related fatigue was significantly related to recovery experience associated with playing games during working hours ($\beta = 0.28, p < 0.001$).

H3, H4, and H5 were tested in a second model based on the data of all 833 participants. Items used to estimate the use of games during working hours and job-related fatigue were the same as in the first model. Social support at work and job control were measured with three items of the respective subscales of the Short Questionnaire for Job Analysis.20 The model fit the data well: $\chi^2(227) = 737.44, p < 0.001$, RMSEA = 0.052. Figure 1 presents the standardized beta coefficients representing the statistical relationships outlined in H3, H4, and H5. As predicted in H3, individuals with higher levels of work-related fatigue showed a stronger tendency to play computer games during working hours than did persons with lower levels of work-related fatigue ($\beta = 0.12, p < 0.01$). As predicted in H4, social support from colleagues and supervisors was negatively related to playing games in the workplace ($\beta = -0.10, p < 0.01$). Accordingly, individuals who received more social support at work used video and computer games less frequently during working hours than did persons who reported lower levels of support from colleagues and supervisors. Finally, as predicted in H5, job control showed a positive statistical relationship to the use of games at work ($\beta = 0.18, p < 0.001$).

Discussion

The aim of this study was to investigate the recovery potential of computer games during working hours. It was predicted that video and computer games elicit four different aspects of recovery experience: psychological detachment, relaxation, mastery, and control. This basic assumption was confirmed by the data. Participants who play computer games during working hours associated substantial levels of recovery experience with this activity. Furthermore, as predicted in H1, recovery experience was a strong predictor for the use of computer games during working hours. The data gathered in this study revealed that, as predicted, the
The relevance of playing games for recovery purposes depends on a number of individual factors. First of all, the individual's level of work-related fatigue had an influence on the use of games at work. As predicted in H2 and H3, higher levels of work-related fatigue were related to higher levels of recovery experience during gameplay as well as a higher tendency to play games at the workplace. The social situation at work was another significant predictor of playing games. Social support is an important coping resource and facilitates recovery. Individuals who lack this support have to rely on other coping resources when facing work-related fatigue. The results of this study illustrate that video and computer games might be such an alternative resource: individuals who receive less social support from their colleagues and supervisors showed a stronger tendency to play games at work than did persons who receive more social support in the workplace. Finally, the structure and organization of work also had an influence on the use of games during working hours. As predicted in H5, job control was positively related to playing games at work. Persons who have more influence on the timing and sequence of their work are better able to choose a recovery activity that best fits their recovery needs, such as playing computer games.

The present study extends existing research on personal computer use at work by applying psychological recovery theories to this field of research. Whereas previous studies have frequently focused on counterproductive or at least nonproductive forms of personal media use during work,²³ the results of the present study support the notion that personal computer use at work may have positive effects on employees' psychological state. Of course, the results of this study do not imply that negative effects of the use of games at work do not exist. Computer games demand high concentration from the player.¹¹ After long gaming sessions, the resources consumed to play the game might exceed the recovery effect of the gaming experience. Hence, instead of facilitating recovery, prolonged gameplay may have the opposite effect and may even increase exhaustion. Frequent and prolonged playing could also cause conflicts with colleagues and supervisors. These potentially harmful effects of playing games at work have to be investigated in future studies. The present research nevertheless demonstrates the usefulness of the recovery concept for research on video and computer games. Future studies must go beyond the recovery potential of games in the workplace and address whether playing games may facilitate recovery from stress.

FIG. 1. Two structural equation models were estimated to test the five hypotheses. Model 1 ($\chi^2(489) = 1055.20, p < 0.001, \text{RMSEA} = 0.055$) tested the relationship between recovery experience and the use of games at work (H1) and job-related fatigue (H2). Recovery experience was measured only for participants who play computer games at work ($n = 388$); the remaining participants ($n = 445$) were excluded from data analysis for this model. Model 2 ($\chi^2(227) = 737.44, p < 0.001, \text{RMSEA} = 0.052$) tested the relationship between the use of games at work and job-related fatigue (H3), social support at work (H4), and job control (H5). The model is based on the data of all 833 participants. All paths are significant at $p < 0.01$. 
and hassles in other contexts, such as leisure time and the private domain.

**Disclosure Statement**

No competing financial interests exist.

**References**


Address correspondence to:

Leonard Reinecke
Hamburg Media School
University of Hamburg
Finkenau 35
22081 Hamburg
Germany

E-mail: l.reinecke@hamburgmediaschool.com