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Comparison of Acceptance vs. Abstinence Self-Control Techniques Effects on Procrastination and Well-Being in Video-Gamers

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ABSTRACT

Activities that bring short-term pleasure, such as video gaming, have an ambiguous effect on long-term goal attainment. From one perspective, they are a source of positive affect, which helps people to overcome procrastination and finally initiate the planned task. However, these short-term pleasure activities may become the source of procrastination themselves, tempting people to engage in them beyond the intended timeframe. The present study attempts to resolve this conflict. It implies a novel "qualitative experiment" methodology in order to test a behavioral strategy; taking 10-minute breaks after each game round, which is aimed to help gamers control their desire to play beyond the self-imposed limit. Over the course of two weeks, participants who used this strategy (Strategy group) reported a similar decrease in procrastination tendencies compared to participants who totally abstained from video gaming (Abstinence group) and a larger decrease in procrastination compared to participants who played in their regular routine (Control group). In addition, the Strategy group reported a higher sense of emotional well-being than both the Abstinence and the Control ones. These results corroborate the effectiveness of the self-control model, oriented on the productive coexistence of hedonic pleasures and long-term goals.

KEYWORDS: emotion regulation, self-control, video-games, hedonic motives, qualitative experiment

Self-control (or self-regulation) is the ability to voluntarily align intentions with actions by coordinating thoughts, emotions, and behaviors (Duckworth & Gross, 2014; Oyserman, 2007). Effective self-control is crucial for overall life success and long-term well-being – having systematic problems with self-regulation, which can be termed "procrastination," leads to lower academic outcomes, health problems, and insufficient retirement savings (see Steel, 2007 for a comprehensive review). The popular techniques of self-control improvement are aimed at either helping people resist the potential temptations to engage in hedonic activities or to exclude the possibility of avoiding the task to the most possible extent (Trope & Fishbach, 2005). The first approach is closely associated with the traditional definition of self-control as an effortful inhibition of short-term impulses in favor of long-term goals (Duckworth & Gross, 2020). The second

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approach is related to a more novel model of self-control—a "situational" one—which includes modifying the workplace, thus minimizing the chance of encountering potential distractions (Duckworth et al., 2016). Both of these models are based on the assumption of a dichotomy between hedonic pleasures and long-term goals, and both of these models pursue an ultimate goal of total elimination of short-term desires—either in the form of creating a person with no impulses or in the form of creating an environment with no distractions.

Although this assumption about self-control is popular in literature, it has been challenged by various pieces of evidence which show that healthy co-existence of short-term desires and long-term aspirations is not only possible but also beneficial for personal well-being and effective goal-attainment (Bernecker & Becker, 2021; Friese & Hoffman, 2016). For example, hedonic activities are viewed to be a significant source of positive affect, which is negatively correlated with procrastination and, thus, contributes to the achievement of long-term goals (Huta & Ryan, 2010; Liu et al., 2020). Additionally, this model views occasional engagement in hedonic activities to be inevitable and suggests that the solution to the conflict between short-term and long-term aspirations is acceptance of the impulses—that is, getting the most joy possible out of hedonic activities rather than trying to resist the temptation and blaming the self for the lack of willpower in case of a failure (Bernecker & Becker, 2021; Friese & Hoffman, 2016). In comparison, the abstinence model involves a significantly higher level of distress. First, the stimulus-deprived person would have to deal with life stress that had typically been relieved by their coping strategy – for example, by cigarette smoking (Piper & Curtin, 2006). Additionally, this distress would be amplified by the need to refrain from engaging in short-term-pleasure activity. Thus, the acceptance model may be viewed as an attempt to address the main disadvantage of the abstinence model, namely, the stress levels associated with self-control and the accumulating life stress associated with giving up on the primary leisure activity.

Despite the benefits of the "acceptance" approach described above, it has a particular shortcoming; it becomes ineffective and potentially counterproductive when the target hedonic activity has addictive properties. In one study on substance users, contrary to predictions, the model of following impulses anytime they arise led to increased substance use and decreased levels of aspirations to reduce the consumption of alcohol and cigarettes (Leigh et al., 2005). The ambiguity of the effect of mindfulness-based interventions on substance use behavior is additionally discussed in a recent systematic review by Goldberg and colleagues (2021). The negative outcomes can be explained through the ultimate goals the acceptance model aims to achieve. This model assumes that continuous engagement in short-term pleasures would eventually fulfill the desire to engage in them, and after this desire is fulfilled, it would no longer need to be suppressed, enabling people to concentrate all of their attention on long-term aspirations. Thus, if the fulfillment requires significant investments of time and effort, involves a too-contingent mechanism of gratification, and/or negatively impacts one's further ability to follow long-term plans, the acceptance model will be ineffective since it would only exacerbate procrastination.

A perfect activity to specifically investigate these limitations and strategies to overcome them would be video gaming. Casual video gaming is considerably widespread (2 billion players worldwide), and its effects on life quality are generally viewed to be either benign or positive (Drew, 2023). At the same time, video gaming has the potential to fall into the problems described above. First, contemporary video games are designed to inspire players to continuously engage in them by implementing reward structures based on chance (Vu, 2017). According to Self-Determination Theory (SDT), video games can meet the players' basic needs for autonomy, competence, and relatedness considerably better than real-world activities, resulting in greater satisfaction achieved by lower effort (Ryan & Deci, 2017). At the same time, the moment of satisfaction is highly dependent on random events inside the game and cannot be met with certainty

even if the player has a specific satisfying outcome planned before the start of the gaming session. For example, in World of Warcraft, the mechanism of prize distribution is based on a variable reinforcement structure, so players may be required to defeat the same opponent multiple times before finally reaching a sense of fulfillment with the gaming process, that is, getting the desired prize. Finally, since the fulfillment occurs randomly, the gaming process may result in physical and cognitive weariness after an unexpectedly long gaming session, decreasing the player's capacity to complete their long-term plans. Thus, each time the potential player starts the game in order to find positive affect that may help them to initiate, endure, and complete their long-term task, they risk (1) playing more than they planned because of the intrinsic pleasure associated with gaming, (2) spending more time and effort than they planned to meet their goals inside the game, and, as a result, (3) becoming too cognitively and emotionally fatigued to engage with the long-term task, thus, putting themselves in a worse situation than when they started.

The present study aims to test a promising method of improving the acceptance self-control model. We propose that increasing the chance of finding satisfaction and decreasing the time the gamers need to realize that they no longer want (or need) to play will significantly favor the acceptance model over the abstinence one. This study proposes that this result may be achieved by introducing gamers to a behavioral strategy, referred to as a "10-minute rule" (McGonigal, 2012, p. 139). The original description states that whenever the person desires to engage in some hedonic activity that may interfere with their long-term commitments, they should wait 10 minutes, and if they still feel the desire, they are allowed to follow through with it (McGonigal, 2012). This strategy assumes that waiting would help to break the "pleasure loop" and make it easier for the person to eventually refuse following the temptation after 10 minutes pass. For our study, we applied the 10-minute rule to the acceptance model, encouraging people to take breaks after they reached some milestone in the game, that is, finished a round of the game.

In order to test whether our idea of the 10-minute rule application could address the shortcomings of the standard acceptance model, we first needed to establish that our participants indeed struggled with the aforementioned downsides of procrastination. Therefore, our first hypothesis was 1) that participants in all conditions would name at least one of the three identified shortcomings: gaming being more pleasant than real life, hard-to-achieve satisfaction, and/or after-match weariness.

Our second and third hypotheses are related to the 10-minute rule. We propose that gamers who follow this "milestone" model of playing would (2) play less than they did without the strategy and (3) feel the same or higher level of emotional satisfaction from the gaming process than they felt without the strategy. Another goal of this study involved exploring the shortcomings of the abstinence model. We hypothesized that the sample would encounter two primary sources of distress: (4) deprivation from gaming and the need to regulate the impulsive wish to return back to playing.

Our final goal considered showing the effectiveness of the acceptance model compared to the abstinence one. Following the arguments described above, we hypothesized that (5) the abstinence model would cause participants more distress than the acceptance model, and (6) the acceptance model would result in the same or lower levels of procrastination compared to the abstinence model. Finally, to see whether the self-control model contributes to productivity, we introduced a control group that did not use any strategy. We assumed that (7) the control group should have a lower level of productivity compared to both the abstinence and the acceptance groups.

Qualitative Inquiry and Self-Regulation Research

The ordinary-language definition of self-control—a voluntary choice to pursue long-term goals at the expense of short-term pleasure/relief (Fujita, 2011)—implies the sense of cognitive decision that accompanies every self-control dilemma. Therefore, additionally considering the current academic trend in social psychology (Morawski, 2012), the problem of self-regulation has been explored predominantly from a cognitivist standpoint. This approach ranges from experimental studies of self-regulation based on delay discounting (e.g., Nordby et al., 2019) to theoretical propositions that represent self-regulation as a chain of implicit computations in which the reward value of completing the task is evaluated against the aversiveness of engaging in this task (Zhang et al., 2019).

Although cognitive models may be effective in establishing objective patterns of behavior and reasoning, they are not sufficient to devise proper self-regulation strategies since they lack qualitative, that is, experiential, evidence about subjective well-being and motivations to imply specific self-regulation techniques in particular situations (Sheppes et al., 2011). At the same time, the existing qualitative studies are mainly observational, pursuing the goal of identifying the strategies that people who are successful in self-regulation are already implying (Foong et al., 2021; Tsai et al., 2018), which limits the applicability of these findings to populations that need to improve their self-regulation abilities. Therefore, we attempt to address the gaps on both sides by using the novel qualitative experiment research design (Robinson & Mendelson, 2012; Steils, 2021) in order to explore the effects of particular self-regulation strategies on the subjective experience of well-being and productivity of subjects who report difficulties with self-regulation.

Method

Study Design Rationale

Our study followed a novel "qualitative experiment" methodology. A qualitative experiment is popularized by Robinson and Mendelson (2012) as a form of mixed-method design that uses traditionally qualitative measures within the structure of a scientific experiment. This form of fusing methodologies was inspired by the need to overcome the limitations of quantitative designs, which traditionally undervalue investigating and interpreting human experience, while still being able to make claims about cause-and-effect relationships (Robinson & Mendelson, 2012).

Since our research goal was to estimate and compare the effects of self-regulation strategies on productivity and emotional well-being, we had to adhere to hypothesis-testing language in accordance with Robinson and Mendelson (2012). Following the historical treatment of variables as the primary source of cause-and-effect claims (Morawski, 2012), we needed the "traditionally quantitative" experiment design, that is, pre-test observation, condition-specific intervention, and post-test observation (Robinson & Mendelson, 2012). This novel methodological approach allows the study to address the rich, in-depth lived experiences of our participants using thematic analysis (Braun & Clarke, 2006) while still comparing different condition-specific strategies (Steils, 2021).

For each of our hypotheses, we were particularly interested in themes of self-regulation, goal pursuit, and future self. The variety of intersecting themes that these concepts aggregate (e.g., the interaction between the aversiveness of the long-term goal and the persuasiveness of a short-term pleasure) inspired us to explore the specific details of individual experience. The evident method for such investigation was qualitative inquiry (specifically thematic analysis), which is designed to capture the specific details of individual experience better than quantitative measures

(Hammarberg et al., 2016). Additionally, the existing research on self-regulation strategies generally happens in laboratory conditions and implies short-term interventions (Sheppes & Levin, 2013), and qualitative inquiry is considered an improved method to explore subjects in their everyday settings (Steils, 2021).

Thus, qualitative experiment study design contributes to both the field of self-regulation and the larger-scale project of qualitative inquiry. For the former, it provides an account of subjective experience that is missing in self-regulation literature and systematizes it in an argument for or against a particular strategy; for the latter, it contributes to the development of a qualitative method to assess subjective experience in a more systematic way that permits stronger claims of robustness.

Participants

For our study, we chose players of the game Defense of the Ancients 2 (DotA2) as the target population. The primary reason for choosing DotA2 was its distinct milestones: the 45-minute rounds. First, it helped to standardize the strategy effect since all participants had the same milestone to stop for a break. Second, we believed (and it was further confirmed in the study) that a single round may sometimes be satisfying enough to stop playing.

Participant recruitment happened in Reddit forums dedicated to DotA2. Our sample contained 15 adult (18 years or older) male participants from the US, India, Singapore, and Malaysia. For all the participants, DotA2 was the primary game they played. At the beginning of the study, the average gaming time of the sample was 4.8 hours per day. In addition, 87% of the sample reported playing DotA2 7 days a week, 6.5% – 6 days a week, and 6.5% – 4 days a week. Also, when participants were asked whether they "find [themselves] procrastinating on important tasks," 12 of them reported "Definitely yes", 2 of them reported "Probably yes", and 1 of them reported "Probably not" (see "Gaming Demographics" for a full description).

Procedures

Subjects participated in the study for two weeks. Participation involved following specific guidelines of the condition the subject was assigned to, completing weekly interviews, filling out daily questionnaires, filling out the "purest" Pure Procrastination scale (Svartdal & Steel, 2017) and sharing their "gaming demographics." At the end of the second week each participant received $75 compensation.

Conditions

Participants were randomly distributed into three conditions: "Strategy," "Abstinence," and "Control" ones. In the Strategy condition, participants were required to use the 10-minute rule, that is, taking 10-minute or longer breaks after every round in the game. Except for this intervention, the Strategy condition played according to their regular gaming routine—their gaming time was not restricted, and they were free to play other games apart from DotA2. Nevertheless, they were required to take 10-minute breaks after each round in games of their choice. Under the Abstinence conditions, participants were restricted from playing ANY games, including DotA2. However, they were still allowed to engage with DotA2 content, such as watching videos of other people playing or calculating their game statistics. Finally, in the control condition, participants played in their regular routine without any restrictions of time or game engagement.

Interviews

Subjects participated in three audio-recorded semi-structured interviews, at the beginning of the study, one week after the beginning of the study, and two weeks after study completion. In the first interview, we asked participants about their procrastination tendencies (e.g., "When you play games, are there consistent tasks you feel like you should be doing?"), their reasons to play the game ("What motivates you to continue playing even though you feel that it is time to stop?"), and their emotions in the game and after it ("To which extent do you need to win or play at a high level in order to enjoy gaming?"). The script was the same for every participant; after the first interview, participants were assigned to one of the three conditions. The recruitment was conducted on a rolling basis, and so too was condition assignment: the first subject to join the study was assigned to Condition 1, the second to Condition 2, etc.

During the second interview, we asked participants about the effects of their intervention. The topics in question were similar to the initial round of questions: emotional satisfaction, progress toward the goal, and whether they plan to continue with the practice. For the third interview, we utilized the same questions as the second interview but additionally asked about changes in comparison to the first week of the study.

Daily Questionnaires

In all conditions, participants completed daily questionnaires. At the beginning of each day, participants received the Qualtrics link to the questionnaire via email. These questionnaires (See Appendix) comprised standard questions and a diary section. Participants filled out the diary section either throughout their day or at the end. The questions were the same for each day and within each condition but different across conditions. The general questions (e.g., overall feelings and changes in productivity) and biometric questions (e.g., whether the participant is hungry and/or drowsy) were the same for all conditions; additional specific questions were adjusted to each condition's gaming behavior instructions (See Appendix for a full list of questions). In the Strategy and Control groups, participants marked down their planned gaming hours, their actual gaming hours, reasons for the possible discrepancy between those hours, and whether they enjoyed the gaming process or not. The Strategy group additionally received questions about the effectiveness of the 10-minute rule. Control group participants, instead, shared their general feelings about filling out daily questionnaires. The Abstinence group questionnaire contained questions about their desire to return to games and what activities they engaged in instead of playing.

"Purest" Pure Procrastination Scale

Two times during the study, before and after the study interventions, participants completed the "purest" version of the Pure Procrastination Scale (pPPS, Svartdal & Steel, 2017) using Qualtrics. This scale includes points 4-8 of the original scale and is regarded as the most effective measure of irrational task delay (Svartdal & Steel, 2017). The scale contains five direct questions and ranges from 1 (very seldom or not true of me) to 5 (very often true or true of me); for example, "In preparation for some deadlines, I often waste time by doing other things."

"Gaming Demographics"

Before the first interview, participants completed a survey on Qualtrics, where they indicated the average amount of hours they spend daily in DotA2 and the average number of days

per week they play DotA2. In addition, they were asked about the "main" task they are currently procrastinating on and their estimation of their procrastination level. For the latter assessment, we used the question, "Do you often find yourself procrastinating on important tasks when playing," with a 4-dimension scale: 1 *Definitely not*; 2 *Probably not*; 3 *Probably yes*; and 4 *Definitely yes* (See Appendix for a full list of questions).

Data Analysis

The audio recordings of interviews were transcribed using the NVivo software; then, the first author listened to the audio recordings and manually edited the transcripts. In order to most flexibly analyze the variety of qualitative data collected, we implied thematic analysis qualitative methodology (Braun & Clarke, 2006) tailored for our study design. First, the qualitative experiment study design entails a set of hypotheses to test, so our primary themes logically emerged from our hypotheses about the effects of the condition interventions on subjects' productivity and well-being. Second, for most questions, we expected straightforward answers — for example, we asked people whether they made progress in their task and whether they found the 10-minute rule to be an effective strategy for controlling their gaming behavior. Thus, in our analysis, we were seeking predominantly semantic themes (Maguire & Delahunt, 2017); however, we stayed open to the emergence of latent themes as well (Braun & Clarke, 2006).

Since we had general and group-specific conditions and questions, as well as general and condition-specific hypotheses, we decided to include two analyses, respectively. The general analysis aimed to determine the common reasons for excessive video-gaming despite having a long-term goal to pursue and understand the effect of daily questionnaires on productivity and well-being. The condition-specific analysis aimed at understanding the effects of condition-specific manipulations on participants' productivity, emotional well-being, and desire to play, as well as identifying the additional routine modifications participants used to adapt to their conditions.

Results

For the purposes of confidentiality and clarity, participants were assigned the rolling numbers during analysis with respect to their condition. Thus, Participants 1-5 belong to the "Strategy" condition; Participants 6-10 to the "Abstinence" condition; Participants 11-15 to the "Control" condition.

Thematic Analysis: General

Theme 1: Acceptance Model Shortcomings

Reviewing the acceptance self-control model, we identified three risk factors that may distort the desired elimination of impulse and lead to procrastination. The first is the risk of over-engagement when the game becomes more satisfying than real life. The second is the problem of pleasure and satisfaction, that is, their hard-to-obtain nature. The third is weariness and fatigue caused by overly intensive and prolonged involvement in hedonic activities. The purpose of our first interview was to explore this hypothesized relation between the acceptance model and procrastination. Since all the participants reported procrastinating with DoTA 2, our interview questions and subsequent analysis were aimed at the described shortcomings of the acceptance model.

Shortcoming 1: Gaming Becomes More Pleasant Than Real Life. The problem of the game becoming more pleasant than real life had never been directly expressed in expected terms. For all the participants, the state of procrastination with DoTA 2 was associated with the wish to return to the tasks they considered important. The rationale behind binge playing would take the form of (1) inability to mitigate the compulsion to play the next game: "[When I am playing], I feel myself not productive, and I do want to change, but the procrastination [would] get me again" (Participant 4); (2) the general lack of motivation to pursue other tasks: "sometimes I just don't want to touch DoTA, but because I have nothing else to do, I just pop into it" (Participant 13); and (3) the attempt to mitigate the aversive emotions associated with tasks: "I just play DoTA 2 instead [of doing tasks]; just play video games to de-stress" (Participant 9). Additionally, almost for every participant (except for Participants 2 and 15), excessive playing was associated with guilt and/or regret for not engaging in more productive activities: either activities with a deadline or those that could bring them personal enrichment. Participant 12 explicitly stated that he had "wasted [his] last 3 or 4 years for playing" and called his gaming tendencies "an addiction." Thus, in line with the classical conceptualization of procrastination, binge-playing was not associated with the voluntary choice to play because of the excessive pleasantness of the game but rather with the aversiveness of the task the person had to complete.

Shortcoming 2: Hard-to-Achieve Satisfaction. In comparison to the first shortcoming, the problem of hard-to-achieve satisfaction, especially its contingent nature, was evident in most of the initial reports (12 out of 15). This result seems logical since these shortcomings are, to some degree, mutually exclusive. The general pattern of starting to play and playing more than planned was associated with two cognitions. The first one can be called "not feeling ready to successfully complete the task." For example, Participants 7, 9, and 14 mentioned that they would start to play when they felt too anxious to do their coursework, but they would only occasionally get enough positive emotions to actually overcome the anxiety and start working. The second cognition can be called "believing in one's abilities to stop whenever they would need to." This can be illustrated through Participant 12, who reported that he had never been able to precisely track the moment when he would lose control and forget about his commitments in favor of pursuing his emotional goals inside the game. Participant 12 would report that "[he is] determined that [he] won't play the game, but suddenly [he] just happens to open DoTA, and once the game is open, [he] cannot stop."

The third pattern involved the continuous seeking of satisfaction, prompted by the delusion that this satisfaction is almost attained. For example, Participant 6 believed that it would be enough for him to win "just two games" in order to experience the necessary positive emotions. However, part of the gaming process is the unknown nature of the outcome, which Participant 6 would try to ignore when planning to quickly finish the session. At the same time, persistence in seeking the perfect game may be present even if the player is aware of the contingent nature of satisfaction with gaming. Participant 14 stated that "one satisfying game [is] really hard to find," but even "when [he and his group] start losing, [they…] keep hoping that [they] will win the next game." Thus, in every described case, participants end up overplaying because they believe that their satisfaction can be achieved easier, faster, and more certain than it actually is.

Developing the theme of contingency further, the main cause of overplaying is ego-involvement. In other words, the more the gaming pattern was result-oriented, that is, the need to win or to perform at a high level to be satisfied, the harder it was for participants to reach satisfaction. Participant 1, for example, stated that he had always felt that "winning [was] something that should naturally happen;" thus, his satisfaction from victories was decreased while his frustration from losses was amplified. The extensive frustration from losses caused by ego involvement can be observed in Participant 13, who confessed that "after three consequent losses [he] may have a breakdown and start to cry." Thus, ego involvement exacerbates the consequences

of both aforementioned cognitions. The ego-involved gamers feel the need to perform exceptionally well in the game to create the necessary positive affect, and, at the same time, any bad session would put them in an even worse mood than they were before the gaming session. Similarly, the ego-involved gamers become overly impulsive when the game is lost, which makes them "rage queue," that is, play an extra round in the hope of restoring their lost sense of competence. Some participants, like Participant 14, would report stopping playing only after a victory since otherwise, the gaming activity would lose its purpose.

Finally, the journals asked participants about their reasons for starting the gaming session and whether they started to play when they were drowsy/alert and hungry/full. Initially, we expected participants to play over their limits more frequently if they were drowsy, hungry, or both; however, this assumption was not confirmed for either strategy or control groups. Participants played shorter or longer sessions regardless of their alertness or satiety.

Shortcoming 3: After-match Weariness. One of the forms of after-match weariness was the general fatigue after a prolonged engagement. This fatigue could take the form of body pain, game frustration, and/or reduced sharpness of the mind. Remarkably, participants who mentioned either of these fatigues reported using them as a sign that they needed to stop their gaming session. Considering the physical aspect, Participant 15 stated that he would stop playing "when the back hurts." Similarly, Participant 10 would continue playing "until [he] feels exhausted," which sometimes made him "fall asleep at the desk." Considering the emotional aspect, Participant 1 would stop playing "when [he] gets too frustrated, too bored." Considering the cognitive aspect, Participant 2 would "always stop after two losses" since he would interpret it as a sign of his decreased gaming performance. Other participants who reported aftermatch weariness tended to play the longest at night or at the weekend, thus avoiding the risk of engaging in chores in a state of exhaustion. For example, Participant 14 indicated 7/14 times in his journal that he was playing "to end off the day and relax," and Participant 3 referred to this reason 11/14 times.

Another form of after-match weariness was the assessment of time left for planned activities after the gaming session. Participant 7, a gamer who played DoTA 2 in order to soothe his stress from school assignments, stated that after a prolonged session, he would begin to doubt his abilities to start the planned task and complete it till the planned milestone, so he would postpone it even further.

Theme 2: Journaling

The potential influence of journaling on participants' procrastination tendencies was the primary reason for introducing the control group in the study. In this section, we identify and compare the effects that journaling had in each of the conditions. Overall, the questionnaires were regarded as useful by the majority of the participants in all of the groups — 4 out of 5 in the "strategy" group, 3 out of 5 in the "abstinence" group, and 4 out of 5 in the control group. All of them regarded questionnaires as something that had made them more mindful about the flow of their day; however, the understanding of this "self-awareness" varied between the participants and the conditions.

Explaining the personal understanding of "self-awareness," Participant 5 stated that questionnaires were "a thoughtful process" that helped him to reflect on his reactions to the 10-minute breaks and observe himself "changing day by day." Participant 2 similarly concentrated on "what is going on in [his] head," reflecting on his feelings during and after the gaming sessions, noticing the reasons behind his reactions to the flow of the session. Conversely, for Participants 3 and 4, questionnaires were associated with reflection on their productivity during the day and how it was affected by their thoughts about gaming.

The "abstinence" condition was less homogenous in its approach to "self-awareness." Participants 7 and 8 associated their self-awareness with planning the day. Participant 7 started to "think about what will happen in [his] day before it happens" because of the need to subsequently fill out the questionnaires. For Participant 8, questionnaires were associated with a chance to prioritize parts of tomorrow based on his today's reflection. At the same time, Participant 10, instead of planning, used the questionnaires as a resource for impulse control. The questionnaire helped him to "remind [himself] that [he] is in the study," which, first, switched his attention from thoughts about gaming to something else and, second, encouraged him to more effortfully inhibit his desire to play.

The majority of the control group, Participants 11, 13 and 14, defined "self-awareness" in terms of becoming more mindful of the time they spend gaming every day. This awareness helped Participants 11 and 14 to plan the amount of time they could afford to play the next day. In turn, Participant 13 was reflecting on the emotions that he got from the act of journaling per se. Specifically, keeping track of gaming hours induced a sense of guilt for overplaying, which motivated him to be more in control of his impulses to play. Participant 15 would also relate to the idea of being in control of his own gaming behavior, which, for him, meant planning a schedule for the next day while filling out the questionnaire.

Analyzing these reports, we concluded that the effect that the questionnaire filling had was usually associated with either the specifics of the condition or with the special concerns of the participant. Indeed, the 10-minute rule was conceived as an intervention to increase self-awareness. Similarly, the game deprivation required participants to find ways to deal with the free time they had previously spent on gaming and/or with the need to refrain themselves from gaming. These circumstances made participants plan new hobbies and/or switch attention from thinking about DoTA2 (See "Abstinence Group" thematic analysis section). Our conclusion would also be true for the control group, whose primary activity was filling out the questionnaires and mostly consisted of gaming time tracking. Thus, it can be seen that the main portion of the effect on thoughts, emotions, and behaviors was caused by the specific condition manipulation, while journaling was only an additional enhancing factor. This thesis may be supported by the fact that neither productivity, gaming time, nor emotional well-being has substantially changed for any of the control group participants (See "Control Group" thematic analysis section).

Thematic Analysis: Condition-Specific

Strategy Condition

Theme 1: Acceptance Model Shortcomings Addressed. First, none of the participants in this condition initially reported the problem of gaming being more pleasant than real-life activities. Therefore, our analysis considered a more general problem of over-engagement, and we found that the 10-minute rule showed a positive effect in helping to mitigate this risk. In interviews, 5 out of 5 participants reported playing less than before, corroborating our study hypothesis. According to the journals of those participants, 4 of them consistently stopped playing when they planned or earlier; 8 times out of 14 or more, and the fifth one played less than before despite playing over his planned time. All participants confirmed our expectation of how the 10-minute rule should work — they stated that the 10-minute rule interrupted the flow of the game, giving them space to switch their attention to real-world tasks. For example, Participants 2 and 3 mentioned that the 10-minute rule "keeps you from getting stuck in the game" and "gives you a lot of time to think what next [activity] you want to do," respectively. We observed Participant 5 to receive the most benefit from this interruption; he stated "ever since I have a 10-minute break, I feel like I should do something

more productive". Thus, we may assume that the 10-minute rule had a positive effect on making subjects more aware of their gaming behavior, which helped them structure it more efficiently.

Considering the problem of hard-to-achieve satisfaction, in specific cases, the 10-minute rule was able to mitigate the intimidation the task caused them – the one that usually prompted participants to enter the gaming session. Participants 4 and 5 reported that they used the 10-minute gap between the matches to familiarize themselves with the work they had to complete. Evidently, 10 minutes of task engagement was sufficient for them to either extend their break and finish the task or to lose interest in starting a new game and completely switch their attention to real-life activities.

Additionally, we found evidence that the 10-minute rule is able to add control over the players' decisions to finish the gaming session. This improvement was associated with an increased amount of pleasure that participants started to get from their sessions. For example, Participant 3 directly reported that "the desire [has been] definitely decreasing," yet "[the gaming] has provided much more pleasure," and Participant 1 stated that he "[is now] able to find more pleasure in fewer sessions." Continuing the discussion on impulsivity, we observed the positive effect the 10-minute rule had on the ego-involvement of the subjects. Participant 5 was clear about those benefits, reporting that the 10-minute rule made him "calmer, like no matter what result [he] got, like win or lose." Participant 2 assumed that "this rule would help [him] against rage queuing," although he did not consider himself particularly ego-involved. He also mentioned a caveat that the 10-minute rule should be negotiated with the members of the gaming group because the user may "[be judged for] hold[ing] the party back." In summary, we may conclude that the 10-minute rule does not harm the pleasure that players get from the games.

Third, the 10-minute rule considerably reduced the levels of after-game fatigue that participants experienced. Participants 1 and 4, who were most explicit about this effect, reported doing physical exercises during the break. Remarkably, both reported wishing to have longer break periods to complete a more involved exercise routine.

Theme 2: Productivity. The interviews and questionnaires suggested that 5 out of 5 participants experienced a slight-to-moderate increase in productivity in tasks they identified for themselves at the beginning of the study. Participant 3 reported that 10-minute breaks reminded him of the tasks, which contributed to his early stops and subsequent task completion. Participant 3 was explicit about this effect; he stated that "10 minutes [is] a lot of time to think what you want to do next", and he reported almost finishing his target task. Participant 4 also mentioned the efficiency of the 10-minute rule in stopping earlier or at the planned time, but his increase in productivity was more modest and stemmed primarily from the activities during the breaks between gaming sessions.

It should be mentioned that increased productivity was not always associated with the early finishing of gaming sessions. For example, Participant 1 reported an increase in productivity on 8/14 days, while he was able to stop on time only once. Conversely, Participant 2 reported stopping earlier or as planned 10/14 times, although he mentioned the increase in productivity only half of those times in his journals. In the interviews, both of the participants referred to their productivity increase as "only slight" (Participant 1) and "only marginal" (Participant 2).

The most remarkable case of the 10-minute rule use was Participant 5, who reported a high increase in productivity and stopped when planned 12/14 days. Participant 5 can be considered a "textbook example" of how the 10-minute rule should work. He explained that every time after a 10-minute break, he would start completing an assignment, and when he immersed himself in the assignment, he had almost never wanted to return to gaming, refusing to play beyond the 10-minute requirement. Participant 5 also mentioned the decreasing motivation to play, which he associated with the wish to spend more time on activities he had previously procrastinated on.

Abstinence Condition

Theme 1: Stress from Deprivation. As expected, the major shortcoming of the abstinence model was a significant increase in stress levels during the first days of stimulus deprivation and the prolonged stress over time. Five out of five participants explicitly reported being more distressed during the first week of the study, and only one of them, Participant 8, said that his stress decreased to pre-study levels at the end of the second week. The most extreme examples of experiencing stress were Participant 7, for whom the deprivation was so stressful that he had seriously considered cheating and playing a game, and Participant 9, who reported longing to play 14/14 times in his journal. Additionally, our analysis found evidence for the two major sources of stress associated with gaming deprivation we identified in the introduction — (1) frustration because of the inability to play and (2) frustration because of the need to effortfully refrain from gaming. All participants reported experiencing these factors; what differed, however, were the stress levels and coping strategies participants relied on.

The most explicitly reported stressor was the frustration of being deprived of gaming. According to all participants, it was discomforting for them to have their regular routine disrupted despite the negative consequences of their excessive gaming. For example, Participant 6, who confessed that he used to skip college classes in order to play an extra game, reported substantial levels of aggression and dissatisfaction associated with his deprivation. Similarly, Participant 10, whose sleeping schedule and personal life were severely affected by excessive time spent in DoTA 2, reported the wish to return to gaming as soon as possible throughout the entire first week. Remarkably, the more intense and intrinsic the pleasure from gaming was, the more stressful the refraining. The most vivid example is the mentioned Participant 6, for whom "Everything is interesting about DoTA 2". He was the one with the highest and most persistent level of distress over the course of the study, and he was the most eager one to return to gaming at the end of the second week, having "no shame admitting this." In comparison, Participant 8, whose gaming was predominantly points-oriented, was the only one from the sample to continue refraining from playing even after the study was finished.

Another source of distress from our list that participants identified was the need to effortfully inhibit the desire to play games. This desire took the form of intrusive thoughts about gaming; Participant 10 described it as "thoughts keeping rambling, [not being able to stop] thinking about playing the game." Importantly, the most intensive thoughts about playing were associated with specific environmental cues that reminded participants of the positive emotions DoTA 2 gives them. For Participant 7, the thoughts about cheating happened when a large group of his friends gathered to play and invited him to join; for Participant 9, the increased distress from refraining was associated with the new award season in DoTA 2 that started in the middle of the study. Thus, we believe that these results support our hypothesis that the "abstinence" group experienced significantly less emotional satisfaction compared to the "strategy" group.

Theme 2: Coping with Deprivation. For all participants, the most intense periods of stress happened during the first few days of the study. Importantly, in the subsequent week, 4 out of 5 participants reported a considerable decline in the amount of stress associated with their refraining from gaming. One of the major reasons for this decline was associated with substitute activities—every participant reported the need to complete some activities during the free from DoTA 2 time. Participant 6 attempted to fill this time with his daily chores; Participants 7 and 8 searched for a substitute leisure activity; Participants 9 and 10 did both. The most remarkable case of a successful leisure activity substitution was the case of Participant 8. He reported that during the first days of deprivation, he was focused on finding out "whether [he] was addicted to DoTA 2," which, after successfully developing a hobby, "turned out to be not." Having newfound time free of gaming, he

found new activities that yielded him more stable and more intense positive affect. Participant 8 described his new hobbies, video-editing and social media design, as something that feels to be more beneficial for his personal growth and something that is able to sustain his interest. As a result of this substitution, Participant 8 said that he may not return to gaming after the study is finished because all of his free time is dedicated to his new hobbies.

One of the factors for this successful substitution was Participant 8's relative emotional independence from DoTA 2. In comparison, Participants 7 and 9, whose attachment to gaming was more significant, were unsuccessful at replacing gaming with a different activity. Participant 9 reported that his productivity had slightly improved because he restrained himself from his "favorite form of procrastination," but the improvement was only marginal since, according to his own report, Participant 9 was "just replacing [DoTA 2] with one and half of hour watching TV shows" which resulted in his overall depressive mood. A more extreme example is Participant 6, who was the only one to experience an increase in dissatisfaction over the course of the study. Interestingly, he could not find an alternate hobby or activity to bring enjoyment in place of gaming. Therefore, he had been missing gaming without having something else to look forward to. Attempting to distract himself from thoughts about playing DoTA 2, Participant 6 started to engage in "main" (e.g., college work) and "side" (e.g., house cleaning) tasks, which over the course of 2 weeks increased his productivity but negatively affected his emotional well-being. Thus, the most popular strategy to reduce the discomfort was to replace the gaming activity with another enjoyable leisure activity, and the more pleasant the gaming was, the more difficult the search for substitution.

Another factor that contributed to the decreasing stress was the general improvement in the capacity to withstand negative emotions. Since most of the participants were not able to find an equivalently pleasant replacement activity, they had to come up with strategies that could allow them to mitigate their negative emotions. Participant 6 directly reported an increased tolerance to stress, learning to mitigate his intrusive thoughts through engaging in household chores that distracted his attention. Participant 9 followed a similar strategy, but he was distracted "from outside," that is, by the approaching deadlines for the projects, which would not have allowed him to play even if he had not been restricted by the study. Participant 10 reported "becoming emotionally tranquil [by stopping] thinking about gaming"; his attention was switched to other emotionally fulfilling activities like friends, family, and health, which allowed him "not [to be] emotionally drained every day." The most remarkable example was Participant 7, who mentioned at the beginning of the study that gaming was his way of dealing with the anxiety his assignments gave him. Participant 7 stated that he learned to overcome this anxiety with no assistance from external stimuli, which changed his approach to his desire to play games, making it a voluntary rather than a compulsive choice.

Concluding this theme, the most prevalent strategy for tolerating the distress of not playing was switching attention from stress by engaging in some kind of activity. If the activity was self-chosen, it usually had to be intrinsically satisfying or at least not stressful; if external circumstances assigned the activity, it had to have some compelling property, like an approaching deadline, in order to capture the attention of the participant for a prolonged time.

Theme 3: Procrastination & Productivity. Since all participants reported engaging in recreational activities and/or daily chores for at least a fraction of the time they would usually spend on gaming instead, it is not surprising that their productivity in these activities has significantly increased. For instance, Participants 7 and 10 reported significantly improving their sleeping schedules since they no longer stayed late to play an extra round of DoTA 2. Participants 6 and 9 reported more engagement in household chores because it helped them to distract themselves from their thoughts about gaming. Finally, Participant 8 could dedicate all his free-from-gaming time to his newly developed hobbies.

Considering the "main" tasks participants identified at the beginning of the study, their productivity had also increased, but this increase was only slight to moderate. Participant 7 gave the most enthusiastic interview report, claiming that he had procrastinated "at least twice [as less]" as at the beginning of the study. However, this account was not entirely in line with his questionnaire entries, according to which his productivity increased 6/14 days and decreased 4/14 days. A similar pattern may be observed in the reports of Participant 6, who claimed an increase in productivity in his interviews yet marked an equal number of increased and decreased productivity days (5/14). Both were explicit about gaming deprivation's positive effect on their productivity. Participant 6 was frustrated about his inability to play, but he "had to admit" that deprivation improved his productivity. Participant 7, during the first week, believed that his productivity improved because of the approaching deadline, but he maintained a similarly high level of productivity during the second week, even after the deadline passed. In contrast to Participants 6 and 7, Participant 9 attributed only a slight increase in productivity to game deprivation. He stated that the main reason for being productive was the approaching deadline, and without it, he would "just look over [his work]." Finally, Participant 10 did not report any changes in his productivity. He stated that the approaching deadline had motivated him to de-install the DoTA 2 app from his desktop; however, without the deadline, his motivation to complete the tasks had just stayed at the same low level.

We must discuss the changes in Participant 8 separately and use a more inferential approach since he did not discern between his productivity at "main" vs. "side" tasks in his journal entries. Participant 8 struggled to identify a specific area in which he would find himself procrastinating. Instead, he was primarily concerned with his excessive engagement with DoTA 2. The general decrease in procrastination could be inferred from his improved ability to create and follow the day plans. Additionally, Participant 8 consistently reported an improvement in his productivity in his journal, claiming an increase 8/14 times and never claiming a decrease.

Control Group

Theme 1: Emotions & Productivity. In line with the concept of a control group, the improvements in productivity and emotional state are, as expected, only slight. Additionally, since the only intervention was filling out the daily questionnaires, these changes correlate with the appreciation of journaling. Thus, Participant 12 reported no effect of questionnaires, as well as no change in either productivity or emotional state. In contrast, Participants 11 and 13 reported moderate-to-high appreciation towards journaling, as well as an improvement in productivity and/or emotional state. Participant 11 used questionnaires specifically as a tracker of how much he played each day, which "made [him] play less because [he became] more generally mindful of how long [he is] planning to play." This change resulted in Participant 11 being more productive; however, the effect, in his opinion, was only slight: "I'm more productive than when we first started the 14 days, but not where I want it to be." In turn, Participant 13 referred to questionnaires as "a way to self-reflect [...] and think of what [he] could have done better." Participant 13 reported experiencing guilt each time he journaled an overplay, which resulted in his "loss of affection [for DoTA 2], knowing that [he is] spending too much time on gaming". As a result, Participant 13 started to engage in activities he considered more productive than playing, which enabled him to both improve his overall level of productivity and become more emotionally satisfied.

Compared to Participants 11 and 13, Participants 14 and 15 were less enthusiastic about journaling and, expectedly, showed less improvement in productivity and/or emotional well-being. Participant 14 mentioned that questionnaires helped him to reflect on the day and plan the next one, although this reflection did not improve either his productivity or emotional state. Nevertheless,

journaling gave him hints about how to control potential overplaying. Over the course of the study, he found that "[winning] is rewarding, but [losing] is twice as punishing," so he decided to continue journaling but also track his statistics of win/loss in order to decide whether DoTA 2 is worth playing. Participant 15 also used journals to self-track and clarify the emotional feedback from gaming. As a result, he found that the source of his pleasure was not the gaming itself but the interaction with friends inside the game. Therefore, he changed his gaming routine to "always play with friends" in order to maximize the positive affect. Nevertheless, his productivity remained the same since he started to "procrastinate because [he] want[s] to hang out with friends." To conclude the experience of a control group, we may state that participants were still able to benefit from journaling, yet its effects were considerably less distinct compared to the ones of a "10-minute rule" or abstinence from gaming.

Hypotheses Summary

To conclude the results section, we would like to present a summary of evidence for the hypotheses we put forward in our study. Our first hypothesis was that engaging in DoTA 2, a hedonically pleasant activity, before completing other tasks or duties would include three shortcomings: (1) the game becoming more pleasant than the real-life activities, (2) hard-to-achieve satisfaction, and (3) after-match weariness. Contrary to our expectations, no participant mentioned wanting to play DoTA 2 instead of completing their assignments or other hobbies. In line with our expectations, all participants elaborated on the problem of hard-to-achieve satisfaction, and the majority of participants (Participants 1, 2, 3, 7, 9, 10, 12, 13, 14, 15) mentioned the weariness that followed their gaming sessions and prevented them from starting the work right after they had finished playing.

Our second hypothesis was that the "strategy" group would reduce their gaming time compared to the beginning of the study. The hypothesis was confirmed; all participants reported playing less, both in journals and in interviews.

Our third hypothesis was that the "strategy" group would feel the same or more emotional satisfaction from gaming than at the beginning of the study. This hypothesis was supported: Participant 2 did not feel any changes in his emotional satisfaction, while Participants 1, 3, 4, and 5 found gaming more pleasant after being introduced to the 10-minute rule.

Our fourth hypothesis was that the "abstinence" condition would feel emotional dissatisfaction because of (1) stress from not being able to play games and (2) stress from the need to refrain from playing. Both assumptions under the hypothesis were confirmed; all participants experienced frustration from being restrained from playing, and were stressed because of the need to control their wish to return back to gaming.

Our fifth hypothesis was that the "abstinence" condition would be more stressed than the "strategy" one. This hypothesis can be considered confirmed as a corollary of the third and the fourth hypotheses. As we see from them, the "strategy" group reported either a neutral or positive influence of the 10-minute rule on their mood, whereas the "abstinence" group was clearly distressed because of the inability to engage in gaming.

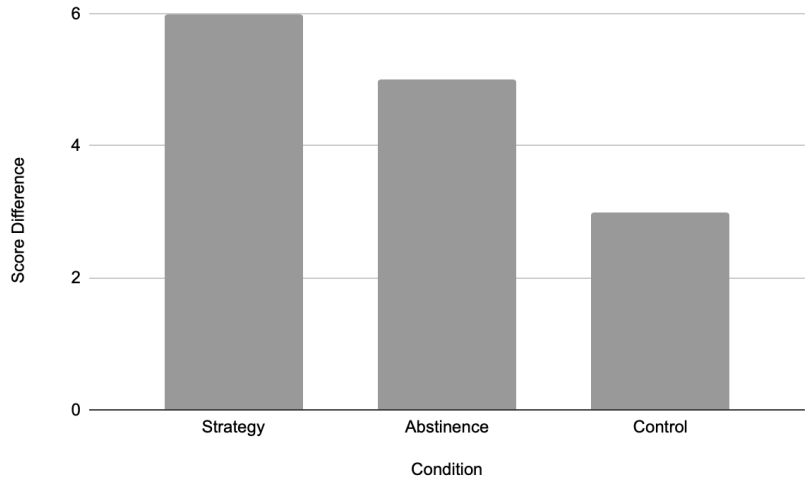
Our sixth hypothesis was that the "strategy" condition would be either as productive as an "abstinence" one or even more productive. Considering the interview and journal reports, both conditions have their distinct outsiders (Participants 2 and 10), below average (Participants 1 and 9), average (Participants 4 and 6), above-average (Participants 3 and 8), and distinct leaders (Participants 5 and 7), that are relatively comparable in their productivity levels. The similarity between the groups' productivity rates is also underscored by the "purest" Pure Procrastination

Scale before and after intervention reports (see Figure 1). Thus, our hypothesis was confirmed, and the "strategy" condition was similarly productive compared to the "abstinence" one.

Finally, our seventh hypothesis was that both the "strategy" and the "abstinence" conditions would be more productive than the "control" one. Similarly to other conditions, the control group had an outsider (Participant 12), a below-average (Participant 15), an average (Participant 14), an above-average (Participant 11), and a leader (Participant 13). However, if we compare their accounts to the respective accounts of the "strategy" and "abstinence" groups, we will find that at each of the positions, subjects from "strategy" and "abstinence" conditions are considerably more excited about the completed tasks and have considerably more days of increased productivity. Additionally, the discrepancy in productivity rates may be observed in the "purest" Pure Procrastination Scale scores (Figure 1). Thus, our hypothesis was confirmed, and the "control" condition was less productive than both the "strategy" and the "abstinence" ones.

Figure 1

"Before-After Intervention" Mean Score Difference by Conditions: "Purest" Pure Procrastination Scale



Discussion

The present mixed-method qualitative experiment study had several goals. First, it aimed to explore the nature of procrastinating with video games. We found that gamers procrastinating with DoTA 2 do not regard the game as excessively pleasant. Instead, they consider themselves emotionally unprepared to start the task they deem important. For this reason, they try to soothe their negative emotions with gaming, but due to the contingent nature of gratification inside the game, they end up playing more than they expected. As a result, gamers who were persistent enough to achieve the rewarding outcome would experience physical, emotional, and/or cognitive weariness that would not allow them to efficiently complete the planned task and result in additional postponement. Thus, our findings challenge the idea that procrastinators choose to engage in short-term hedonic activities because of the mere pleasantness of instant gratification (Duckworth & Gross, 2020; Tice & Bratslavsky, 2000). Instead, our findings are in line with an argument that procrastination is an inability to withstand negative affect and start the task regardless (Eckert et al., 2016; Glick & Orsillo, 2015; Sirois & Pychyl, 2013). Our findings also suggest that positive affect can be intuitively viewed as a performance enhancer, which concords

with the theory that positive emotions enhance cognitive performance (Ashby & Isen, 1999) and is supported by recent evidence that positive emotions evoked by video gaming can improve cognitive performance (Franceschini et al., 2022).

Next, the study aimed to test the strategy of taking 10-minute breaks between the rounds, which should have allowed gamers to receive the emotional reward faster, more consistently, and without after-match weariness, thus increasing their productivity. The strategy yielded each of the hypothesized results – the gamers that took 10-minute breaks played less, were more emotionally satisfied, less tired after the gaming sessions, and more productive compared to the beginning of the study. One of the most important contributions of the "10-minute rule" was the prevention of compulsive game-match queuing since participants used a 10-minute pause to reassess their motivation to play further. Some of the affect and emotion-regulation theorists assume that one of the primary functions of emotions is to accelerate our decision-making by limiting the pool of possible goals and action responses (Gross, 2008; Tomkins, 1962). Therefore, an effective behavior change would involve either a cognitive reframing of the task, for example, via time management, or work with one's emotional state in order to switch attention from the negative patterns (Glick & Orsillo, 2015; Wang et al., 2017). The 10-minute rule was able to address both issues – the pause enabled participants to either start to familiarize themselves with the task, thus breaking its perceived aversiveness, or to mindfully observe their emotional state in order to make a proper decision regarding the continuation of a gaming session.

Also, the project was framed as a comparison of self-control models. The "strategy" group represented the "acceptance" model, that is, the healthy co-existence of short-term hedonic pleasures with long-term commitments, resulting in mutual attainment. The more traditional "abstinence" model, that is, depriving the self of hedonic pleasures that interfere with long-term commitments, was represented by the "abstinence" group that was not allowed to play games throughout the experiment. Although both models resulted in similarly increased productivity levels, the acceptance model yielded significantly more emotional satisfaction than the abstinence one. A similar pattern may be noticed in the classic emotion-regulation study by Gross (1998), in which participants were exposed to a disgust-inducing film, and ones who relied on cognitive reappraisals showed less disgust and distress than their counterparts who tried to suppress their feelings. Some theorists would argue further and consider the attempt to negotiate conflicting goals to be a naturally preferred strategy that the individual would use before pursuing one goal over another (Fishbach & Ferguson, 2006). Thus, we believe that our findings serve as an additional argument in favor of adapting reappraisal and attention-shifting techniques due to their effectiveness in emotional regulation.

Finally, our study contributes to the field of qualitative inquiry by implying and further developing the promising "qualitative experiment" mixed-method design (Robinson & Mendelson, 2012). First, since the study was designed according to established criteria, involving qualitative and behavioral data that complement each other (Steils, 2021) and provided feasible results, it supports the application of this novel qualitative method and expands our understanding of the ways in which qualitative inquiry can be applied. Second, our study shows that qualitative experiment design can be used to systematically explore traditionally qualitative phenomena, such as motivation and affective experience, addressing previous concerns about the feasibility of utilizing this method to answer non-behavioral research questions (Steils, 2021). Third, to our knowledge, our study is the first to use the qualitative experiment methodology as a specific analytical approach. Thus, our study corroborates the established guidelines of the novel method of qualitative inquiry and suggests a new avenue for its implementation.

Further, future studies may imply this qualitative experiment approach when questions of the generalizability of a qualitative inquiry are salient. Additionally, future studies may find a

qualitative experiment design especially useful when they investigate interdependent variables for which establishing a "billiard ball causality" is problematic, such as productivity and well-being, in our case.

The study had its limitations. First, every participant had at least one day when they forgot to fill out the questionnaire, and they had to fill it the next day by reconstructing the missed day in their memory. This notion does limit the accuracy of the journal entries we analyzed. Second, the study took only two weeks, and the second week was clearly pivotal for the "abstinence" group in terms of mastering new self-regulation techniques and developing stronger emotional resilience. Therefore, if the study had taken another week, we could have judged more accurately the effect of the subjects' new abilities to cope with higher stress levels on productivity, well-being, and desire to play.

Given the diversity of variables involved in the phenomenon of self-regulation, not all the possible avenues of inquiry were sufficiently developed in the present study. Future research should more directly investigate the influence of physical state on procrastination, which was left underdeveloped in our study. Future investigations may focus specifically on the questions of emotional regulation strategies and the intensity of the emotional conflict between short- and long-term goals. The study by Sheppes and colleagues (2011) suggests that the degree of aversiveness negatively correlates with the person's willingness to rely on reappraisal strategies, such as the 10-minute rule. Thus, future studies may elaborate on this evidence and test whether the combination of stress-relief techniques with the 10-minute rule may yield more enthusiasm in participants to rely on reappraisal strategies further.

Conclusion

The present study explored the effects of a modified "acceptance" self-regulation strategy, that is, whenever one experiences a conflict between pursuing either a short-term pleasure or a long-term goal, one should wait 10 minutes, and if the desire does not decrease, choose the former one. On productivity and well-being of DoTA 2 players who had reported difficulties with self-regulation. The qualitative experiment corroborated the hypothesis that the "10-minute rule" results in similar benefits for productivity as the "abstinence" self-regulation strategy, that is, actively inhibiting the impulse to engage in a short-term pleasure at the expense of a long-term goal, yet provides the user with more overall emotional satisfaction. These findings allow us to assume that the healthy co-existence between short-term and long-term goals is not only possible but also desirable.

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Appendix

Intake Questionnaire

(1) How many days a week do you play games? (1-7 scale)
(2) How many hours per day do you play? (Answers: write in how many hours)
(3) Do you often find yourself procrastinating on important tasks while playing? (1 – "Definitely not"; 2 – "Probably not"; 3 – "Probably yes"; 4 – "Definitely yes")
(4) What task are you currently procrastinating on that you would like to focus on for the duration of the study? (open-ended)

Strategy Group Daily Questionnaire

Note: All questions were open-ended

Before the game reflection

(1) Do you feel drowsy?
(2) Do you feel hungry?
(3) How long are you planning to play?
(4) Why do you think you want to play?
(5) If you played longer than planned, why do you think this might be?

After-game reflection

(1) What time did you start playing?
(2) What time did you stop playing?
(3) What game(s) did you play?
(4) Did you stop playing when you had planned to?
(5) Did you enjoy playing?
(6) What are your general feelings towards this way of playing video games?
(7) What happened to your productivity? Did it increase, decrease, or stay about the same?

Reflection on the 10-Minute Rule

(1) Did you start working after 10 minutes, or did you continue playing?
(2) How did the 10-minute rule affect your productivity?
(3) Did you find the '10-minute rule' helpful in mitigation of your desire to continue playing?

Deprived Group Daily Questionnaire

Note: all questions were open-ended

(1) Did you feel drowsy during the day?
(2) Did you feel hungry during the day?
(3) Did you want to play games today?
(4) What types of activities are you doing instead of playing games?
(5) What happened to your productivity? Did it increase, decrease, or stay about the same?
(6) What are your general feelings about not playing video games?

Control Group Daily Questionnaire

Note: The questionnaire for this group repeats the questions from the "Before game reflection" and "After game reflection" of "Strategy Group Daily Questionnaire".