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A Study of Correlational Research in Social Science

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Abstract: Despite their widespread use, strategy video games have received few academic attentions. “We hypothesized that strategy games would serve as a kind of virtual training ground for self-regulation skills in real life because of the long play” sessions, the need to plan and manage resources to achieve long-term goals, and so on. In two cross-sectional investigations, we adopted the theoretical framework “of the Strength Model of Self-control (Baumeister, Vohs, & Tice, 2007) to investigate the extent to which strategy video game play predicts self-regulation”. When we accounted for the influence of different types of video games, we found that strategy gaming was positively associated with higher levels of self-control (Study 1). In Study 2, we further explored this connection by adjusting for the impact of participants' unique “personality traits and preferences”. Playing strategy games was also connected favourably with better self-control, as seen in Research 1. Additionally, this correlation persisted statistically after we accounted for the influence of individual as well as personality variations. We explore the implications and potential next steps.
Keywords: Self-regulation, Self-control, Social science, Strategy video games.

Introduction:

One of the most popular ways to pass the time in today's society is through playing video games. There is a "light side" to “playing video games, despite research showing that violent games enhance aggressive ideas, feelings, and behaviors” and prevent players from exercising self-control [1]. Playing action games may improve your basic perceptual skills, “selective attention, and cognitive flexibility, according to a recent literature review. In addition, a meta-analysis found that playing games where the objective is to aid the other characters (i.e., pro-social video games)” can positively affect behavior, with players becoming more helpful and less aggressive as a result. Consistent with the postulated short- and long-term effects via many learning pathways of any stimuli (including video games), this finding supports the General Learning Model. Despite this, academics have only just started looking into the benefits of playing video games. Since it has been hypothesized that playing violent video games can have a bad effect on self-control, it stands to reason that playing video games that place an emphasis on “long-term goal achievement & planning abilities can have the opposite effect” [2].

It is crucial to develop methods “that can positively encourage and increase self-regulation abilities since self-regulation is one of the most significant attributes in the human psyche and one of the best predictors of success in life”, impacting “people's behavior and day-to-day emotional reactions. In line with the GLM line of thought, the current study looks into whether or not strategy video game play is correlated with improved self-regulation skills” [3]. Self-regulation is defined here as the capacity to take action with the end objective in mind. Around 37% of the gaming market is devoted to strategy games, which place a premium on strategic thinking and preparation. The player usually has a bird's eye perspective of the entire map in games that focus on strategy. Games with a strategic focus typically don't have a linear structure like stages or quests, but rather grow and change over time. Players need to be able to adapt quickly to changing game scenarios while keeping track of money, resources, and information [4]. “In order to achieve a long-term goal, such as becoming the conqueror of a virtual globe or the manager of a virtual metropolis, most strategy games incorporate elements of both tactical and strategic considerations”. It's important to remember that studies have shown that playing video games frequently can have long-term impacts including altering one's views,

stereotypes, and other cognitive-emotional structures (e.g., empathy). A recent study found that people stated problem-solving abilities improved in tandem with "the amount of time they spent playing strategic video games" [5]. However, this was not the case with fast-paced games like racing and fighting simulators.

Despite their widespread appeal, strategy games have received very little attention from the field of psychology because of its unique qualities (e.g., lengthy play periods, the need for careful planning and careful management of limited resources). This study tries to bridge this knowledge gap by looking into how playing strategy games may affect self-regulation, which is widely regarded as crucial to one's happiness and success.

Self-Regulation:

Willpower, perseverance, and self-control are all ways that people have described self-regulation. Self-regulation abilities are crucial to mental health, according to studies. Self-control is the habit of making decisions that serve one's own long-term interests. Emotionally, it stands for the capacity to regulate feelings in a socially acceptable way and to hold back on impulsive responses when necessary [6].

"Self-regulation is essential for success, regardless of how it is defined by psychologists". People in today's environment must have self-control if they want to make it. Still, it takes consistent effort to reach that level of mastery. Discipline to work at something or practice it requires one to forego some short-term pleasure in order to reap long-term benefits [7]. Those with strong levels of self-control are more productive than their peers who have less of this trait. Self-disciplined individuals do better in all aspects of life, including academics, careers, health, wealth, and social standing. They are also less likely to become pregnant unintentionally, be incarcerated, or become addicted to drugs. Researchers at Stanford University tested the self-control of toddlers aged four in the now-famous "Marshmallow Experiment." The youngsters in the experiment were given the option of receiving a single little reward (a marshmallow) right away, or waiting for a brief period of time (and receiving two marshmallows) in exchange for their patience. In a follow-up study conducted after the children had completed high school and again after they had completed college, the researchers found that those who had displayed less self-control as children (i.e., who had opted for "an immediate reward) were more likely to experience relationship difficulties, stress, and substance abuse" [8].

"Self-control failures (i.e., ego depletion) can occur even on unrelated activities after extensive acts of self-regulation, as proposed by Baumeister et al. (2007)". According to the theory of ego depletion, sustained exertion of willpower can wear a person down in the long run. It has been proven, for instance, that exercising self-control in making decisions reduces one's future self-control capacity. Several studies lend credence to the notion that one can overcome ego exhaustion. According to Baumeister and colleagues' Strength Model of Self-control, the capacity for self-control can be honed by regular exercise and recovery. Those who have been practicing self-control on a regular basis, by, "for example, trying to improve their posture or by using their non-dominant hand in everyday chores, report less exhaustion after completing an unrelated self-control task" than those who have not been practicing self-control. So, improving one's self-control through self-regulation exercises can benefit one in a wide variety of contexts.

Many hours, perhaps months, are required to complete a mission in a strategy game, as the player must first acquire information, assess their alternatives, develop a strategy, and then determine whether or not to alter their aims and tactics. Using the theoretical underpinnings of the Strength Model of Self-control, we postulated that engaging in strategy gaming will lead to improvements in one's own ability to exercise self-control [9]. In fact, consistent goal-oriented practice in a game like a strategy video game can serve as a training ground for real-world self-control.

Overview of the Present Studies:

"The Strength Model of Self-control provided the theoretical foundation for our hypothesis that video strategy games may serve as a self-control training ground. We looked at the correlation between playing strategy games and restraint in two separate studies". "We performed an exploratory cross-sectional study to test the hypothesis that, controlling for the impact of other types of video games, more time spent playing strategy games is associated with more self-regulation".

We further investigated this link in a correlational study by controlling for a variety of individual and character traits. Previous research has shown that self-regulation is positively related to aspects like temptation "avoidance and the requirement for cognition, whereas impulsiveness and risk-taking are negatively related to these same traits. Furthermore, the Big 5 may explain why type gaming experience is linked to self-regulation: the ability to control one's feelings, actions, and wants appears to be" rooted in one's personality. Recent research has demonstrated that certain of the Big 5 can accurately predict gaming preferences and addiction. Increased contentment is only one of several positive outcomes that have been related to improved self-regulation.

Study 1:

In Study 1, we investigate the hypothesis "that playing strategy video games improves self-control. Participants in a cross-sectional study rated their own levels of self-control and reported on how often they played a variety of video game genres." "We hypothesized that the more time spent playing strategy games, the more practiced a person would become at self-control, and that this correlation would persist even after accounting for the influence of other types of video games".

Method:

Amazon's Mechanical Turk web platform was used to collect the data. The total number of people who took part in the study was 595. Volunteers got $0.60 and were informed that their time commitment would be between 10 and 15 minutes. Using the Lime survey content management system, we provided a link to an online survey. To further prevent participants from completing the study numerous times, Lime survey limits were configured to only allow one response per IP address, in addition to Amazon Mechanical Turk's one worker ID per person and one survey per ID policy. Unsupervised individuals on Mechanical Turk may be less attentive than lab subjects with an experimenter present, which could be a problem for online study. Hence, we included multiple "catch-trials" in our survey (i.e., "Please answer 2 to this question" or "Please answer 5 to this item") to ensure we had a representative sample of responders and to identify those who had not paid careful attention. We also configured Each survey to keep track of the overall time spent on the survey, allowing us to weed out respondents who didn't take their time and posted extremely short response times (i.e., b3 minutes). Just 404 people "(159 females, 245 males; mean age = 30.53 years, SD = 8.41) completed the survey after 187 people failed the attention tests or reported very low response times and 4 people comprehended the purpose of the study".

Participants reported their daily video game time using a single item after providing basic demographic information. "1 = I do not play videogames daily, 2 = I play for less than 15 minutes per day, 3 = I play for less than 30 minutes per day, 4 = I play for less than 1 hour per day but more than 30 minutes, 5 = I play for less than 2 hours per day but more than 1 hour, and 6 = I play for more than 2 hours per day. The participants were then asked to indicate how frequently they played various types of video games (1 = never, 2 = very rarely, 3 = rarely, 4 = occasionally, 5 = often, and 6 = very often)" using a seven-point scale "(1 = never, 2 = very rarely, 3 = rarely, 4 = occasionally, 5 = often, and 6 = very often). Individual self-regulation was measured using the Short Self-Regulation Questionnaire". The SSRQ was developed using the foundational seven-step self-regulation concept. "While the model's origins in the study of addiction, the self-regulatory processes it outlines are intended to serve as universal rules of controlling one's behavior. Thirty-one questions made up the SSRQ (= 0.95). Some examples of items on the scale are "If I wanted to change, I am certain that I could do it" and "I am able to fulfil goals I set for myself" (with 1 being strongly disagreeing and 7 representing strongly agreeing)".

Results:

"All variables were normally distributed (all skewness's 1.35, all SEs 0.12, and all kurtosises 1.22, all SEs 0.24) except for the frequency with which participants played exergames, which was skewed at 2.39 (SE = 0.12) and kurtosis at 5.42 (SE = 0.24)". Given the dearth of relevant a priori predictions, we chose to disregard people's frequency of exergame use. Table 1 shows all measures' descriptive statistics and intercorrelations. As was to be predicted, the more time spent playing strategic video games, the greater the increase in self-control (r = 0.17). After "controlling for the impact of other game genres and player demographics, we conducted multiple regression analysis to assess if playing strategy video games improved players' capacity to self-regulate. on addition to considering the participants' ages and sexes, we also factored on how often they played video games. The total regression is statistically significant, with F (10, 393) = 1.99, p = 0.032, and R_2 = 0.048". Most notably, increasing one's exposure to strategy games was associated "with enhanced

self-control (= 0.12, p = 0.028), whereas increasing one's exposure to logical games, puzzle games, brain-training games, violent games, platforms, or vehicle racing simulations had no influence on the dependent variable (all s N = 0.04, p = 0.186). Neither gender" nor age nor video game time predicted self-control substantially (= 0.03, p = 0.54; = 0.07, p = 0.157; = 0.05, p = 0.334).

Discussion Study 1:

provided some early support for the hypothesis that strategy gaming improves players' ability to self-regulate. Furthermore, the "association remained substantial even after taking into account the individuals' cumulative time spent playing different genres of video games. The amount of time spent playing strategy video games and the ability to self-regulate are correlated, but this could be due to other reasons (i.e., individual differences variables). So, we investigated, in a second study, whether or not the association between playing strategy video games and self-regulation persisted when we" accounted for participants' unique characteristics.

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	1.60	.490										
2. Age	30.57	8.44	-.09									
3. Overall frequency video game play	6.12	1.01	.034	.012								
4. Logic video games	3.25	1.74	-.16**	-.034	-.035							
5. Puzzle video games	3.77	1.88	-.28**	.121*	.055	.488**						
6. Brain-training	2.67	1.60	-.12*	.037	.020	.592**	.383**					
7. Violent video games	4.78	2.01	.20**	-.043	.264**	-.133**	-.172**	-.030				
8. Platforms video games	3.96	1.88	-.17**	-.118*	.051	.206**	.247**	.252**	.007			
9. Car racing video games	3.13	1.88	.04	.137**	.121*	.114*	.141**	.176**	.093	.308**		
10. Strategy video games	4.13	1.98	.15**	-.054	.303**	.121*	.026	.231**	.298**	.058	.130**	
11. Self Regulation	5.36	.90	.030	.060	.113*	.047	.067	.073	.105*	.086	.078	.166**

Note. N = 404; Gender was coded as 1 = female, 2 = male;
* $p < .05$,
** $p < .01$.

Table 1: Calculating bivariate correlations, means, and standard deviations (Study 1).

Study 2:

This was investigated further in Study 2, which controlled for a variety of demographic and personality factors—including life satisfaction, temptation avoidance, the need for cognition, taking risks, impulsiveness, as well as the Big 5—to see if the link between self-regulation as well as strategy computer game exposure still held.

Similar to Study 1, data were gathered via the web-based survey system Lime survey on the Amazon Mechanical Turk platform. Each participant received $0.80 and was informed the study would only take 15 to 20 minutes of their time. The total number of respondents that helped with the count is 563. "A total of 392 participants (221 females, 171 men; mean age = 32.03 years, SD = 10.13) were recruited; however, 170 did not completely respond to the survey (i.e., they did not pass the attention questions or exhibited very short response times)".

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Gender	1.56	0.50																				
2. Age	32.03	10.13	-.11*																			
3. Overall frequency video game play	5.09	1.77	.15**	-.06																		
4. Life satisfaction	4.47	1.62	.02	.03	.01																	
5. Avoidance of temptations	3.41	1.13	.14**	-.07	-.09	-.33**																
6. Need for cognition	4.77	1.19	.00	.06	.12	.23**	-.25**															
7. Risk Taking	3.09	0.83	.21**	-.10*	-.02	.08	.29**	.23**														
8. Impulsiveness	3.08	0.72	.06	-.11*	-.15**	-.25**	.72**	-.43**	.31**													
9. Big 5 extraversion	3.23	1.62	.04	.13**	.05	.33**	-.08	.22**	.17**	-.05												
10. Big 5 agreeableness	5.27	1.18	-.18**	.12*	-.01	.18**	-.23**	-.01	-.25**	-.24**	.09											
11. Big 5 conscientiousness	5.44	1.18	-.05	.07	.06	.26**	-.61**	.21**	-.17**	-.62**	.09	.21**										
12. Big 5 neuroticism	5.05	1.26	-.10*	.02	.07	.07	-.09	.44**	.14**	-.15**	.24**	.13**	.14**									
13. Big 5 openness to experiences	4.85	1.48	.16**	.10*	.05	.49**	-.41**	.33**	-.01	-.42**	.24**	.28**	.36**	.18**								
14. Logic video games	2.92	1.73	-.24**	.07	.00	.09	-.11*	.18**	.07	-.07	.01	.05	.05	.09	-.01							
15. Puzzle video games	3.41	1.90	-.30**	.18**	.04	.03	-.02	-.03	-.05	.00	.06	.13**	.03	-.01	-.04	.49**						
16. Brain-training video games	2.16	1.32	-.14**	.16**	.08	.00	.01	.15*	.04	.03	.07	.01	.00	.16**	-.01	.47**	.44**					
17. Violent video games	3.93	2.22	.34**	-.30**	.47**	.00	.06	.16*	.08	-.07	-.03	-.04	.00	.05	.10*	-.16**	-.23**	-.09				
18. Platform video games	3.46	1.83	-.01	-.23**	.23**	.00	-.01	.08	.01	.02	-.09	.10*	.00	.16**	-.03	.10*	.08	.15**	.30**			
19. Car racing video games	2.60	1.59	.19**	-.11*	.20**	-.05	-.05	.06	.07	-.05	.05	.08	.13**	.07	.09	.04	.10*	.13**	.29**	.43**		
20. Strategy video games	12.87	14.39	.18**	-.14**	.35**	.07	-.08	.14*	.08	-.08	.00	-.16**	.06	.06	.03	-.01	-.08	.05	.33**	.17**	.15**	
21. Self-regulation	5.31	0.81	-.09	.14**	.16**	.33**	-.68**	.46**	-.12*	-.73**	.22**	.26**	.63**	.30**	.46**	.09	.05	.04	.05	.04	.06	.18**

Note. N = 392; Gender coded as 1 = female, 2 = male;
* $p < .05$.
** $p < .01$.

Table 2: Averages, dispersion, and pairwise correlations (Study 2).

Once participants provided their basic information, "they were asked to rate how often they play video games on a scale from 1 (never) to 6 (very often) using just one item. They were then asked to rate how frequently they play various types of video games (1 = never, 2 = very rarely, 3 = rarely, 4 = occasionally, 5 = often, and 6 = very often)" on a 6-point "scale (1 = never, 2 = very rarely, 3 = rarely, 4 = occasionally, 5 = often, and 6 = very often). Participants were subsequently prompted to name two strategy video games they enjoy playing and to rate how often they do so (on a scale from 1 to 6 where 1 meant never, 2 meant extremely seldom, 3 meant rarely, 4 meant occasionally, 5 meant often, and 6 meant very often). The total index of exposure to strategy video games was calculated by multiplying the frequency with which each player engaged in their two preferred strategy video games".

Similar to Study 1, individual self-regulatory processes were evaluated using the "SSRQ (31 questions; Carey et al., 2004; = 0.94). The participants' global cognitive evaluations of life satisfaction were measured using a 5-item scale (Diener, Emmons, Larsen, & Griffin, 1985"; = 0.94). Two such items are, "I am content with my life," with a possible range of responses from "1" (totally disagree) to "7" (absolutely agree). Temptation resistance was measured using the Short Self Control Scale (= 0.86). We can see this in statements like "I am good at avoiding temptation" and "pleasure and fun occasionally prevent me from getting work done" (with 1 representing strongly disagreeing and 7 representing strongly agreeing). To assess the participants' desire for intellectual stimulation, "we used the Need for cognition Scale (18 items; Cacioppo, Petty, and Kao, 1984; = 0.95)". Some of the scale's items are as follows: "I really enjoy a task that involves coming up with new solutions to problems" and "I would prefer complex to simple problems" "(1 = completely disagree to 7 = completely agree). The impulsiveness" of the participants was measured using the Barratt Impulsiveness Scale (30 items; = 0.88). The scale runs from 0 (totally disagree) to 7 (totally agree) on statements like "I act on impulse" and "I make-up my mind swiftly." The Domain-Specific Risk-Taking (Adult) Scale - Risk Taking (short version; 15 questions; = 0.76) created by Blais and Weber was used to assess risk taking (2006). A number of hypothetical scenarios were presented to the participants, and they "were asked to rate the likelihood that they would engage in certain activities or behaviors (such as going down a ski run that is beyond their ability or disagreeing with an authoritative figure on a major issue) if they were put in those situations. Conscientiousness = 0.67, emotional stability = 0.78, openness = 0.50, agreeableness = 0.42, and extraversion = 0.79 were all calculated using a 10-item test".

Results:

All variables were normally distributed (1.35 skewness, 0.16 standard error; 1.78 kurtosis, 0.32 standard error) except for the frequency with which people played exergames. As a result, researchers have ignored the frequency with which people engage in exergames. Descriptive statistics and relationships between measures are shown in Table 2. More time spent playing strategy video games was related to greater impulse control (r = 0.18), supporting the previous study's findings. We used hierarchical regression models to examine whether or not playing strategy video games was associated with increased self-regulation,

controlling for factors such as individual difference assessments, the amount of exposure to other video game genres, and demographics. At the outset, participants indicated their age, gender, level of life satisfaction, propensity to avoid temptation, cognitive need, risk taking, impulsiveness, the Big 5, and the frequency with which they played video games of all genres. Playing strategy games was part of the input for the second stage of regression. At the first step of the hierarchical multiple regression, personality characteristics and exposure to the different types of video games both provided significant contributions to the regression model, with F(19, 199) = 23.61, p 0.001. Experience with strategy games was a strong predictor of later stages of self-regulation. F(20, 198) = 23.52, p 0.001. Self-control, cognitive need, and impulsiveness were significantly associated with temptation resistance, but neither risk taking nor life satisfaction played a role. On the Big 5 scale, agreeableness, emotional stability, and extroversion were not predictive of self-regulation, while conscientiousness and openness to experience were. Participants' self-regulation skills did not differ significantly by age or gender. Finally, as shown in Table 3 (t-tests and p-values), none of the video game genres employed in the regression significantly predicted self-regulation.

	R^2	SE	β	p
Step 1	0.69***			
Gender		0.078	−0.031	0.517
Age		0.004	0.057	0.198
Overall frequency video game play		0.021	0.062	0.188
Life satisfaction		0.024	0.009	0.859
Avoidance of temptations		0.046	−0.268	0.000
Need for cognition		0.038	0.121	0.031
Risk Taking		0.048	0.067	0.173
Impulsiveness		0.079	−0.304	0.000
Big 5 extraversion		0.022	0.080	0.077
Big 5 agreeableness		0.031	0.053	0.242
Big 5 conscientiousness		0.037	0.210	0.000
Big 5 emotional stability		0.029	0.053	0.321
Big 5 openness to experiences		0.030	0.094	0.048
Logic video games		0.023	−0.030	0.546
Puzzle video games		0.022	0.039	0.449
Brain-training video games		0.030	−0.014	0.776
Violent video games		0.019	0.017	0.743
Platform video games		0.021	0.031	0.514
Car racing video games		0.024	−0.044	0.355
Step 2	0.70***			
Strategy video games exposure		0.002	0.121	0.006
Gender		0.077	−0.040	0.403
Age		0.003	0.061	0.159
Overall frequency video game play		0.021	0.033	0.479
Life satisfaction		0.024	−0.002	0.959
Avoidance of temptations		0.046	−0.253	0.000
Need for cognition		0.037	0.115	0.038
Risk Taking		0.047	0.065	0.181
Impulsiveness		0.078	−0.309	0.000
Big 5 extraversion		0.022	0.084	0.059
Big 5 agreeableness		0.031	0.071	0.113
Big 5 conscientiousness		0.036	0.207	0.000
Big 5 emotional stability		0.028	0.061	0.245
Big 5 openness to experiences		0.030	0.091	0.050
Logic video games		0.023	−0.030	0.542
Puzzle video games		0.021	0.043	0.391
Brain-training video games		0.029	−0.021	0.661
Violent video games		0.019	−0.002	0.966
Platform video games		0.021	0.027	0.571
Car racing video games		0.024	−0.048	0.302

*** $p < 0.001$.

Table 3: Self-control as predicted by a multivariate regression model. R2 SE

Discussion:

"The main results from Study 1 were replicated in Study 2. Continuing the findings of Research 1, Study 2 found a substantial association between strategy video game play and self-regulation, even after accounting for life happiness, temptation avoidance, the demand for intellect, risk taking, impulsiveness, as well as the Big 5. Most crucially, playing more strategy games was the only genre of video game" related with improved self-control. In particular, the self-reported score of self-regulation improved with increased frequency of playing strategic video games.

General Discussion:

This study is the first to investigate the link between time spent playing strategy games and improved impulse control. Two studies confirmed our prediction that more time spent playing strategy video games was linked with higher self-reported scores on a measure of self-regulation. In the first study, participants who played strategy games more often than those who played other sorts of games had higher levels of self-regulation. When participants' ages, sexes, personalities, and other unique characteristics were taken into account, Study 2 found the same correlation. Our results confirmed "the predicted correlations between playing strategy games frequently and improved self-regulation, however the degree of this link was only moderate. Nonetheless, most research of video games' effects have indicated small to medium effect" sizes. It's important to note that correlational research is most useful for describing individual differences and how they connect to one another. As a result, we were unable to determine which way "the relationship between playing strategy video games and practicing self-control runs because correlation does not imply causation. There are two competing hypotheses on the effects of playing strategy video games on one's level of self-regulation: the selection hypothesis and the socialization hypothesis". Both possibilities have merit, "so don't rule one out just yet. We hypothesize that people with higher levels of self-regulation are also more inclined to play strategy video games, which produces a positive feedback loop in which both factors strengthen one another. The direction of the link between playing strategy video games and improved self-control has to be" investigated in future studies using experimental and longitudinal approaches.

There are further restrictions on the current job. To begin, there was little consistency between the Big 5 characteristics of sociability and agreement. Future research should think about more reliable measures for this construct, even though the Big 5 only functioned as a control variable in the present study's focus "on the connection between strategy computer games and self-regulation. Second, only self-report measurements were taken into account for this study". The connection between strategic video games and self-regulation is an important area to study further, and researchers should think about experimental designs that "test causation with behavioral measures of self-regulation in their future studies. Yet, it may be challenging to" "demonstrate short-term impacts of strategy video game play on self-control in the laboratory because self-regulation requires recurrent practice in order to develop while strategy video games progress over extended periods of time". So, a longer-term controlled study may yield more useful results than a shorter-term trial. Finally, there are numerous sub-genres within the strategy video game genre. It will be important for future studies to determine which aspects of strategy video games (such as prolonged play, careful planning, resource management, and real-time methods) are most linked to improved self-control. Notwithstanding these caveats, our findings have important implications for the public discussion on the benefits and drawbacks of video game play. It might be difficult for parents to make an informed decision when purchasing video games for their children because the "mass media and popular opinion do not always provide helpful and clear features". Thus, playing strategic video games could "represent an interesting choice in the current video games market, providing not only an immersive and engaging game setting for the youngsters to play with, but also acting as an educational tool for improving individual self-regulation abilities". "We observed that males were more likely to play strategy games more frequently than females in both studies. This statistic implies that men are more likely than women to play video" games that focus on strategy. The most recent study of video game play in the United States confirms that men make up 56% of the demographic (ESA, 2015). Age was found to significantly affect self-regulation in the second study. Several studies have found that as people age, their capacity for self-control grows for a variety of reasons. In addition, there was an inverse correlation between the participants' ages and the frequency with which they played video games focused on strategy. Educators may still gain useful perspective from these factors, even if our sample was primarily comprised of adults. It's possible that young people, who are still acquiring crucial skills in managing their own behavior, emotions, or ideas, would benefit most from the virtual training ground for self-control that strategy games provide. Therefore, next research should focus on investigating the effects of playing strategy video games among teenagers and young adults.

Conclusions:

Playing strategy video games can teach you to plan ahead, think critically, and make calculated decisions. The game requires players to reflect on their past activities and how they fared in comparison to their intended outcomes. Adolescence is a crucial time for the development of executive functions of inhibitory control, so games that require players to pause and think about possible solutions are especially important. Adolescents, who tend to be more drawn to this type of media, may find that playing strategy video games is a great way to get in their daily exercise and boost their self-control, as this theory predicts they will. Video games that focus on strategy have elements of prediction, computation, and objective completion. Players of strategic video games hone skills necessary for developing self-control—including the ability to "call upon higher-order cognitive abilities, examine their own choices and their repercussions, and visualize future possibilities". After all, if you have the ability to plan ahead, you probably won't eat the one marshmallow in front of you but will instead hold out for the plateful. Coelho's comment suggests that self-mastery is possible after achieving global dominance, at least virtually.

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