

LOST IN TIME: HOW DIGITAL INSTANT GRATIFICATION FUELS ACTIVE PROCRASTINATION THROUGH TIME DISSOCIATION

ASHILESH SHARMA¹, DIVYA VASHISTHA², NIDHI KALONIA³,
AKSHAY OHLAN⁴

¹STUDENT, AMITY INSTITUTE OF BEHAVIORAL AND APPLIED SCIENCES, AMITY UNIVERSITY, HARYANA

²ASSISTANT PROFESSOR, AMITY INSTITUTE OF BEHAVIORAL AND APPLIED SCIENCES, AMITY UNIVERSITY, HARYANA

³ASSISTANT PROFESSOR, AMITY INSTITUTE OF BEHAVIORAL AND APPLIED SCIENCES, AMITY UNIVERSITY, HARYANA

⁴ASSISTANT PROFESSOR, AMITY INSTITUTE OF BEHAVIORAL AND APPLIED SCIENCES, AMITY UNIVERSITY, HARYANA

ABSTRACT

Background: In a fast-changing digital world, platforms that are always available and rely on algorithms to optimize have a significant influence on how young adults perceive time and carry out tasks. Unfortunately, this influence is often in such a way that it consolidates procrastination. The literature was found to be associating digital rewards, distorted time perception, and task delay, without however, explaining the mechanisms to such an extent. The latter, especially, in the case of active procrastination in everyday tech-mediated contexts.

Purpose: The current research focused on the interplay between Digital Instant Gratification (DIG), Time Dissociation (TD), and Active Procrastination (AP). It also explored the idea of TD being a mediator in the relationship between DIG and AP, thus resulting in a self-reinforcing procrastination circle among those who frequently use digital media.

Methods: A quantitative cross-sectional survey was carried out among 215 individuals aged 18-30, who were recruited through social media and university mailing list. The study employed three different standardized scales. The Smartphone Addiction Scale–Short Version (SAS-SV) by Kwon et al. For measuring time dissociation, the researchers used a modified version of the Flow State Scale. Lastly, the Active Procrastination Scale (APS) by Choi & Moran (2009) was used to calculate active procrastination levels among young adults. Data were collected via an online form. IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., 2017), and the PROCESS macro-Version 4.2 developed by Hayes (2022) were used to perform all statistical analyses. An alpha level of .05 was utilized as the point of statistical significance for all the analyses.

Results: Participants reported moderate average levels of DIG, TD, and AP. DIG correlated strongly and positively with TD ($r \approx .62$) and AP ($r \approx .54$), and TD was strongly related to AP ($r \approx .51$), indicating that frequent digital rewards co-occur with losing track of time and higher active procrastination. DIG showed a substantial total effect on AP ($\beta \approx 0.66$), with a significant indirect path via TD ($a \times b = 0.207$, 95% BootCI [0.0854, 0.3363]) and a remaining moderate direct effect when controlling for TD ($c' = 0.452$), supporting partial mediation.

Conclusion: There is mainly an indirect connection between digital instant gratification and active procrastination, with the main mediator being time dissociation.

INTRODUCTION

Because of the fast-changing digital/modern world, our time concept has also been changed and this new concept is most of the time incompatible with our tasks. One of the results of this modernization is a procrastination caused by digital media, which means that people are deferring their most important and meaningful obligations and choose to get instant gratification from online activities such as social networking or playing computer/video games.¹ These distractions are always available, optimized by algorithms and without limits and therefore our time management becomes complicated and our productivity is affected.²

Digital instant gratification is the main source of temptation, and the resulting tendency, to give up a future benefit in order to satisfy the short-term pleasure derived from the use of digital technologies. Generally, this gratification is obtained via some platforms like social media, online gaming, or mobile applications, which provide rapid and tangible feedback thus creating a very attractive environment. Both Skinner's idea of Operant Conditioning (1938) and Thorndike's Law of Effect (1911) suggest that when a behavior is pleasurable, it is repeated. A like, a comment, or being the winner of a particular level in a game all give a person a small amount of the reward the more often that these happen, the more the same behavior will be repeated. Even if one is supposed to be working, getting a like or a comment or winning a game level will provide a small reward and this is done more often thus the person will keep doing it. Push notifications and unpredictable rewards are some of the quickest ways to grab

the attention of people and at the same time, they promote addictive behavior patterns.³ Gamified features such as badges and leaderboards serve our need for recognition and progress and at the same time, they distract us from more important tasks.⁴

Time dissociation has been particularly associated with the inability to perceive time while being deeply engaged with digital platforms interaction.⁵ The reasons for this phenomenon are mostly due to the attractive and interactive nature of digital environments. One of the reasons why algorithms for social media have become so successful is because they keep users content by continuously providing the stuff they like which in turn makes breaking away difficult.⁶ Zakay and Block's Attentional Gate Model describes the situation when one is so deeply focused on something that the time passes unnoticed and especially when the activity is a fun one and is fast-moving. Checking something you start with and an hour is gone before you realize it. Sweller's Cognitive Load Theory (1988) is also in line with this and says that our brains can only take a certain amount of input at a time and thus constant notifications, scrolling, and switching of tabs kills the brain's ability for focus.

Active procrastination is a conscious decision, and it is characterized by the absence of behavioral delay that is detrimental to performance, even in tasks undertaken in a tech-mediated academic environment.⁷ Unlike passive procrastinators who delay their tasks because of anxiety, avoidance, or fear of failure, active procrastinators intentionally put off their tasks as they believe that they achieve the best results when they are under the pressure of an imminent deadline.⁸ The endless nature of this kind of procrastination comes from the fact that users of infinite scrolling and real-time feedback are kept engaged in loops thus they lose trace of time especially in remote work and online learning where the setting is not clearly separated.⁴ They are not only limited to behavioral quirks but mostly because of design features.⁹

Digital design has a significant influence on the reinforcement of procrastination by incorporating features that are supposed to keep users mentally overloaded with the engagement of the content presented in these platforms. In a condition of mental overload, even tasks that are simple may be perceived as too difficult and as a result, a person will opt for procrastination as the choice of his/her actions. To solve this problem, users need to know how these designs influence their concentration and habits which is a step toward good digital well-being.¹⁰

Objectives:

- I. To evaluate the level of digital instant gratification, time dissociation, and active procrastination among participants.
- II. To identify the interaction between digital instant gratification, time dissociation, and active procrastination.
- III. To find out if time dissociation mediates the relationship between digital instant gratification and active procrastination.

METHOD

Research Design

This research used a quantitative, cross-sectional survey design. The present study aims to explore the interrelations between the variables Digital Instant Gratification (DIG), Time Dissociation (TD), and Active Procrastination (AP), as well as their contribution to a procrastination self-reinforcement loop. Data were gathered through standardized questionnaires that aimed to assess these variables and their relations.

Sample

The participants were selected through purposive sampling. The criteria for participants were a need to be aged 18–30, students or early-career professionals, English speakers, and regular users of digital media (at least two hours daily). People under 18, those undergoing psychotherapy, or those having a diagnosed mood or attention disorder were not allowed to participate. 215 responses were qualified for the final analysis after these criteria were implemented.

Data Collection

Through such channels as WhatsApp, Instagram, and university mailing lists, participants were invited to join the study. Data was gathered through a well-organized Google Form that had sections for consent, demographics, and responses to three common psychological scales. Participation was free and the identity of participants was kept confidential. To ensure the quality of data, incomplete or inconsistent entries were discarded. The web format allowed easy and flexible participation; thus, people could fill in the questionnaire whenever and wherever they wanted.

Tools

The study employed three different standardized scales. The Smartphone Addiction Scale–Short Version (SAS-SV) by Kwon et al. (2013) through 10 items was used to evaluate digital instant gratification. It was originally on a 6-point scale but for consistency, it was modified to 7 points. The higher the score, the more the user was regarded to be of a problematic smartphone use. Internal consistency was quite strong ($\alpha = .88$).¹¹ For measuring time dissociation, the researchers used a modified version of the Flow State Scale (Jackson & Marsh, 1996; Weibel & Wissmath, 2011). This 8-item version was all about the extent to which the participants felt fully engrossed during the digital engagement and it used a 7-point scale.¹²

Lastly, the Active Procrastination Scale (APS) by Choi & Moran (2009) was used to identify purposeful delay behaviors-such as the decision to work under pressure while still being able to meet the deadline. It had 16 items rated on a 7-point Likert scale and was highly reliable ($\alpha = .85$).¹³

RESULTS AND INTERPRETATION

The sample of 215 people was used to measure the three variables that are shown in *Table 1*, which indicates that the variables were at moderate average levels and that a substantial variability existed. The scores of Digital Instant Gratification (DIG) ranged from 10 to 60 where the mean was approximately 33 and the standard deviation was roughly 10 which indicates that the average participant reported a moderate level of digital instant gratification. The range of Time Dissociation (TD) was from 8 to 56, with a mean of 38 points and a standard deviation of 9 points, thus, the group of participants was characterized by quite a frequent losing of track of time during the digital use. The range of Active Procrastination (AP) scores was from 34 to 96 with a mean close to 70 and a standard deviation approximately 12, therefore, the majority of the participants were those who deliberately delayed the performance of their tasks yet still, they tended to operate within a relatively high-level range of active procrastination.

Table 1: Descriptive statistics for the three primary study variables are presented, the sample ($N = 215$) showed the following distribution

Variable	1. DIG	2. TD	3. AP
DIG	-	.62**	.54**
TD		-	.51**
AP			-

Note: DIG- Digital Instant Gratification, TD – Time Dissociation, AP- Active Procrastination

Table 2 shows that gender is essentially unrelated to Digital Instant Gratification (DIG), Time Dissociation (TD), and Active Procrastination (AP), as all its correlations are very small. DIG is strongly and positively related to TD ($r = .62^{**}$), indicating that higher digital instant gratification is associated with a greater tendency to lose track of time during digital use. DIG is also strongly and positively related to AP ($r = .54^{**}$), and TD is similarly strongly related to AP ($r = .51^{**}$), suggesting that both seeking quick digital rewards and experiencing time dissociation are closely linked to higher levels of active procrastination.

Table 2: A Pearson correlation matrix was computed to examine the relationships among the key variables. All correlations were found to be statistically significant at the $p < .001$ level** p-value<0.01

	N	Minimum	Maximum	Mean	Std. Deviation
DIG	215	10	60	33.19	10.266
TD	215	8	56	38.05	8.579
AP	215	34	96	69.90	12.476
Valid N (listwise)	215				

Note: DIG- Digital Instant Gratification, TD – Time Dissociation, AP- Active Procrastination

Table 3 shows that digital instant gratification (DIG) had a substantial total effect on active procrastination (AP), with a standardized coefficient of approximately $\beta = 0.66$, indicating that higher levels of DIG were associated with higher AP. The indirect path from DIG to AP through time dissociation (TD) was also positive and meaningful ($a \times b = 0.207$), and the bootstrapped 95% confidence interval for this indirect effect [0.0854,0.3363] did not include zero, supporting TD as a significant mediator. Even after accounting for TD, the direct effect of DIG on AP remained moderate and positive ($c' = 0.452$), suggesting partial mediation in which DIG both directly increases active procrastination and indirectly does so by amplifying time dissociation during digital engagement.

Table 3: Showing direct, indirect and total effect between DIG, TD and AP.

Effect	Path	β	95% Boot CI
Total	DIG $\rightarrow$ AP	0.659**	-
Indirect	DIG $\rightarrow$ TD $\rightarrow$ AP	0.207**	[0.0854, 0.3363]
Direct	DIG $\rightarrow$ AP (controlling TD)	0.452**	-

Note: **p-value<0.01

DIG- Digital Instant Gratification, TD – Time Dissociation, AP- Active Procrastination

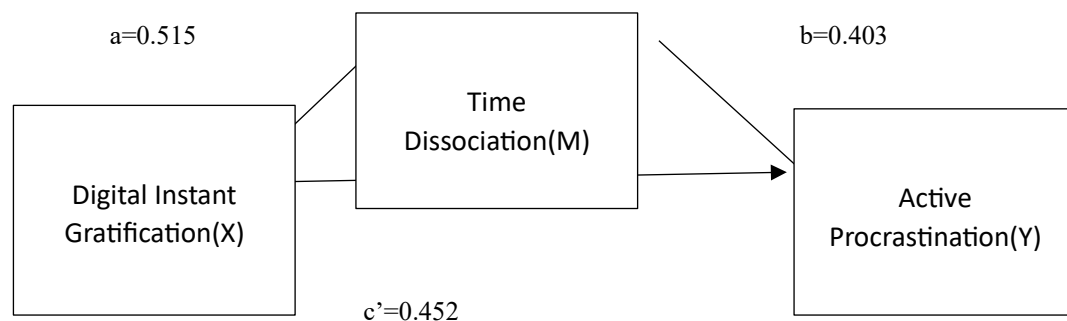


Figure 1: Mediation analysis

Indirect effect ($a \times b$) = 0.207, BOOTCI [0.0854, 0.3363], Direct effect (c') = 0.452

DISCUSSION

Instant digital gratification is widely blamed for procrastination in tech-savvy youth, however, very little is known about the psychological mechanisms behind the relationships among the constructs. The present research aimed to clarify the complex interplay of Digital Instant Gratification (DIG), Time Dissociation (TD), and Active Procrastination (AP) to develop a theory of how instant digital gratifications disrupt time perception and thus facilitate procrastinatory behavior.

Digital distractions, mainly smartphone addiction, have been consistently identified as major factors contributing to academic procrastination, and the studies report that correlations in student samples can go up to 0.75, thus indicating the enormous psychological impact of digital engagement on task avoidance and delay.^{14,15} This huge association means that more than half of the variance in procrastination can be statistically explained by smartphone addiction, thus showing a critical failure of self-regulation that is a consequence of immediate digital gratifications at the cost of long-term academic concentration.¹⁵

Mediation analyses point to Time Dissociation, which is a cognitive disengagement from outside world time, as the main factor through which digital instant gratification leads to procrastination. People who are completely absorbed in digitally rewarding activities have a tendency to forget time, which in turn makes them postpone their important work even more.^{16,17} However, the effect of digital gratification on procrastination is not only on the cognitive side; the behavioral reinforcement is also playing its independent role. The instant psychological rewards in the form of likes, notifications, and entertainment act as stimuli that make individuals give priority to short-term pleasure over future obligations thereby forming a dual-process model of procrastination in which one component refers to cognitive disruption while another one to behavioral reinforcement.^{18,19} Active procrastination which is a delay of an intention followed by a positive effect on the goal is also influenced by the digital environment. Although active procrastinators are able to use deadlines in order to increase their motivation purposely, even members of this group are not immune to distractions and suffer from time distortions caused by digital platforms.^{20,21} These results are moderated by several methodological considerations. The bulk of studies based on self-report measures raises the problem of recall bias and social desirability, while most of them having a cross-sectional design, cannot prove a causal relationship.^{15,16} Besides, considering digital instant gratification as one single phenomenon may cause that the different effects arising from various types of digital activities - e.g., social media, gaming, or streaming- are neglected as well as potentially moderating factors such as personality traits are not taken into account.^{15,17} Moreover, the exclusion of passive procrastination from the research limits the understanding of the procrastination spectrum in digital contexts.²⁰

The present findings have implications for psychological theory, digital health, education, and clinical interventions. Theoretically, this work extends models that locate procrastination within the framework of mood-regulation wherein immediate digital gratifications serve as short-term relief from negative feelings associated with difficult tasks, but at the same time, they interrupt cognitive time awareness necessary for planning and carrying out tasks.^{22,23} From the point of view of digital health, platforms that are full of instant gratification features may, unintentionally, become a source of cognitive distortions which in turn provoke procrastination. Therefore, ethical design solutions such as introducing features that allow users to monitor their screen time, usage nudges, or prompts that encourage users to engage in goal-directed activities rather than passive consumption need to be implemented.^{24,19}

In schools, awareness programs and digital literacy courses that educate students about the cognitive side of instant gratification and teach them time dissociation counteracting strategies may improve students' time management skills and decrease their tendency to procrastinate.^{15,25} Therapists might use cognitive-behavioral interventions focusing on time perception and self-regulation to help patients suffering from media-induced procrastination and related mental health issues such as stress and depression.^{22,26}

One of the recent initiatives in the fight against procrastination is a web-based guided program that yields great results in terms of reducing not only procrastination but also the accompanying psychological distress among students, thus making digital therapeutics directly targeting procrastination a viable option.^{27,28} These initiatives highlight the necessity of an integrated approach which is a combination of technological design, educational, and therapeutic strategies devoted to solving the problem of procrastination which is worsened by digital instant gratification and time dissociation.

CONCLUSION

The link between the digital instant gratification and active procrastination is mostly indirect whereby time dissociation is the main mediator. Time dissociation determines if digital gratification result in cognitive disorientation, behavioral reinforcement, or delayed task completion.¹⁷ Treating the digital instant gratification habits and the changes in time perception as the main factors in the intervention (for example via cognitive behavioral therapy (CBT), digital nudges, or self-regulation training) can facilitate the exit from this vicious circle and the revival of healthier productivity and emotional regulation.^{22,27}

Limitations:

The research was only based on self-report measurements that are susceptible to recall bias and social desirability. Secondly, the cross-sectional design hampers the causal interpretations. Third, the authors considered digital instant gratification as one single construct without differentiating various types of digital behavior. Moreover, the authors of the paper did not take into account the personality traits and individual differences of the participants.

Future Considerations

Subsequent studies may consider utilizing objective usage data, for instance, screen time logs, alongside longitudinal studies, differentiating various digital activities, incorporating both active and passive procrastination, combining personality traits (e.g., impulsivity, conscientiousness, executive functioning) and examining factors that moderate e.g. stress mindset or task satisfaction by means of moderated mediation models.

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Ethical Statement

This study did not require formal ethical approval because participation was voluntary, anonymous, and involved minimal risk. All ethical considerations-including informed consent, confidentiality, and data protection-were ensured by the researchers

Declaration of conflicting interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article'.

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