Foundational Research Report for Pacetodo App

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Background

Kim(alias), a graduate student of Penn Graduate School of Education, has suffered from chronic procrastination and time management failures. Oftentimes she makes ambitious plans and aims to achieve high, only to find out she cannot keep up with her own plans. Then, she blames herself and imposes herself with greater stress, which could cause further delays when she fails to manage the excessive stress and runs away from the suffocating schedule.

It is possible that she is not alone. In Steel's meta-analytic study in 2007, 80%-95% of college students reported themselves as procrastinators, and 50% of them procrastinate consistently ((Steel 2007)). Many of them chose to use time management apps as coping strategies. However, is time management apps truly helpful?

In this brief study, we focused on delay, the direct outcome of time management failure. We investigated that if time management app users experienced frequent delays, common reasons and response for delays, and how well did the apps they use help them to avoid delays in a)planning phase(e.g. making reasonable plans); b)executing phase(e.g. staying focused); c)reflecting on the past(e.g. providing data for reflections); d)providing supports when delays occured(e.g. providing mental supports and coping strategies).

Methodology

Participants description

COVID placed greater demands on students' and remote workers' time management skills. So, we started the foundational research with graduate students in Penn Graduate School of Education. Of the 53 responses collected in total, 52 responses are valid.

Survey

The online survey was sent through Qualtrics, containing 11 multiple choice questions with free response options. The survey questions are listed below:

List of survey questions:

1. How often do you experience delay in your plans?
2. What causes delay to your plans? (Maximum answer: 5)
3. How do you feel when you fail to keep up your original plans?
4. Have you used time management apps before? (*apps which binds your task with dates&time. Google Calendar counts, but to-do list app without a timeline doesn't count)
5. Why you stopped using time management apps?
6. Which app you are using/did you use?

7. How often do you track your time management apps?
8. Do you think the time management app you use helps you to avoid delays in planning phase? (*e.g. give you suggestions on how to schedule time/ reminds you when you planned too little time)
9. Do you think the time management app you use helps you to avoid delays in task executing phase? (*e.g. helps you to stay focus with a timer/ lock the screens)
10. Do you think the time management app you use helps you to reflect on past delays and make better plans next time? (*e.g. provides you with time usage data)
11. Do you think the time management app you use is supportive and caring when you fail to keep up with your plans? (*e.g. encourages you to take a break/ provide coping strategies and mental support)
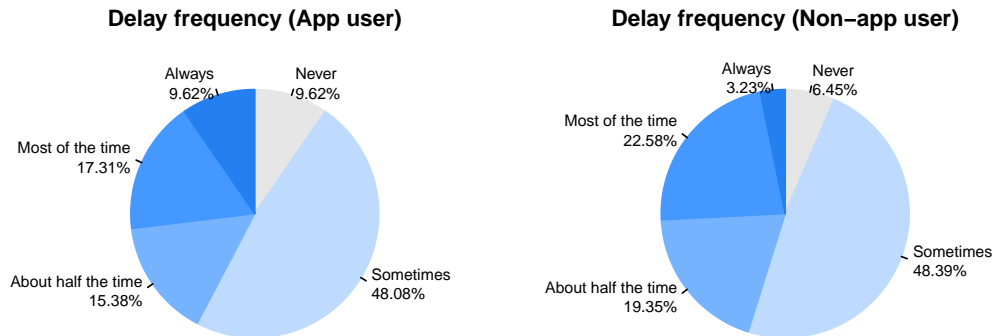
Results

The data reveals some interesting findings. First of all, we confirmed that most people(over 90% of the paticipants) experienced delays to some extent. Secondly, we looked into what were the common reasons for delays. Finally, we asked the participants if they found time management apps helpful in different phases of time management.

Are people experiencing delays?

Unexpected delays are very common. Out of 52 complete responses, 47 subjects reported experiencing delays. 22 subjects find themselves delaying half of the time or more.

Out of 52 participants, 25 participants have used time management apps. We recoded the delay frequency into numbers from 1 to 5, and calculated the average delay scores for app users and non-app users. Compared to people who don't use apps, time management app users experience similar level of delays (*Mean score* = 2.71) as non-app users (*Mean score* = 2.68) ($t(34.2) = .10$, $p = .92$).

Causes of delay

The choices of the causes of delays were adapted from Steel's meta-analysis ((Steel 2007)) on procrastination. The result indicates that lacking self-control and distraction are the most two common reasons for delays.

Common causes of delay
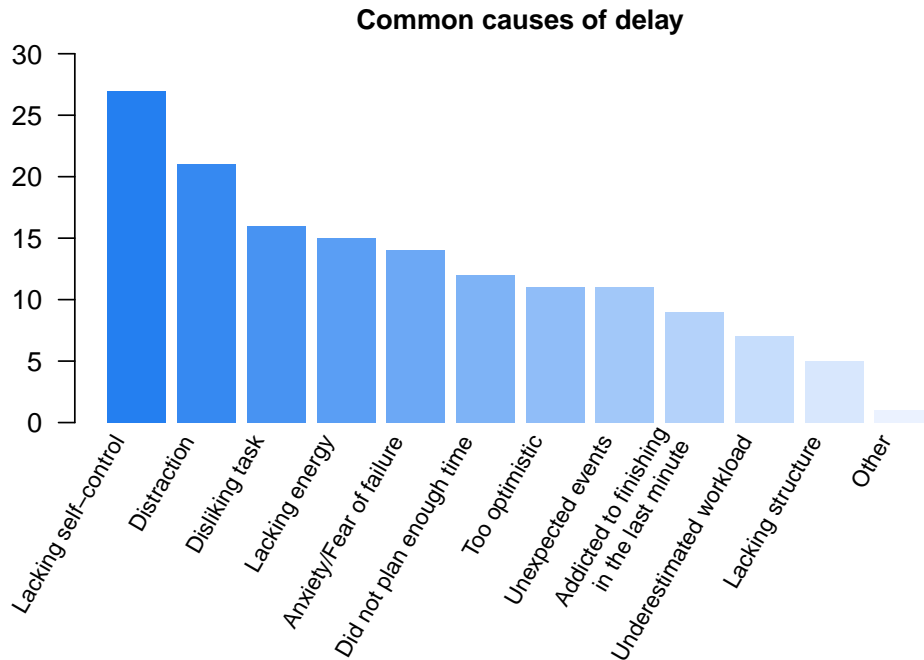
How do people respond to delays?

When the delay occurs, how do people respond to delays? Over 50% participants reported that they blamed themselves when delay occured, indicating that time management failure could lead to extra emotional burden. Moreover, 15 of the 43(34.9%) people who experience delay reported that they blamed themselves. Furthermore, elicited anxiety had negative impact on subsequent time management.

Meanwhile, using time management apps does not seem to help. Among non-app users, 27.8% experienced self-blame and perform worse in subsequent tasks when they failed to keep up with their plans, whereas among app users, this number is 40%. Compared with people who have not used apps, those who have are more likely to blame themselves, experience anxiety, and as a result, perform worse in subsequent tasks.

Table 1: Cross-table for response to delay and app use

| fail_feeling_recode		No, I never used before	Yes, but not currently using	Yes, I am currently using
blame-anxious	N	5	3	7
blame-not-anxious	N	6	0	3
nothing	N	2	0	2
uncomfortable-no-blame	N	5	3	7

Note: Each row represents one type of response to delay, while each column represent one type of user

blame-anxious: Blame myself for delay, and started feeling anxious/fear. Affect my other plans

blame-not-anxious: Blame myself for delay but doesn't affect my other plans

nothing: Nothing, I'll just reschedule

uncomfortable-no-blam: A bit uncomfortable but doesn't make me feel bad about myself
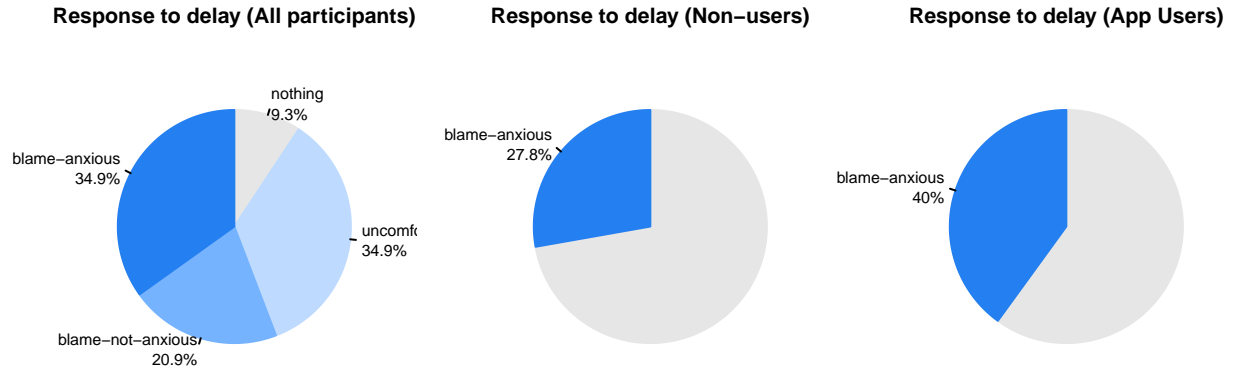
What time management apps do people use?

Below you can find the popularity of different time management apps. Google and IOS calendars are most widely used, followed by Focus Keeper and Focus Tomato.

Number of users
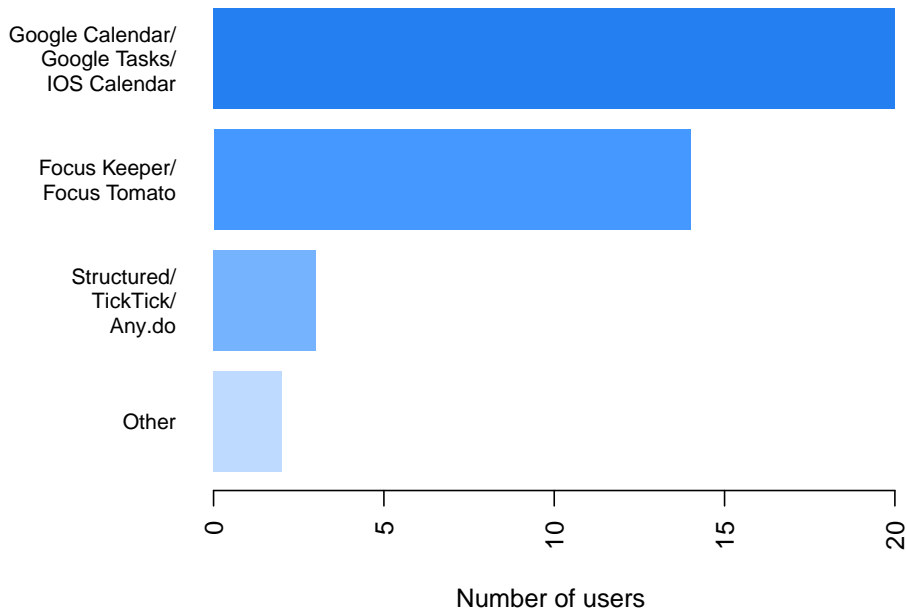
Are time management apps helpful?

Lastly, we asked the participants if they find the time management apps helpful in different phases of time management.

Are time management apps helpful in planning phase?

Out of 27 participants who have used time management apps, 7 (25.9%) found time management apps "probably not" or "definitely not" helpful when it comes to helping users making reasonable plans.

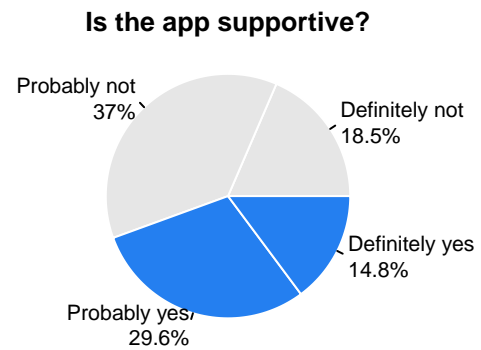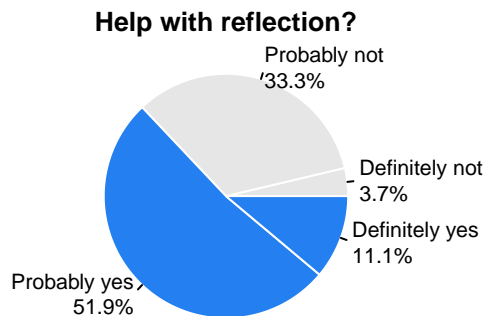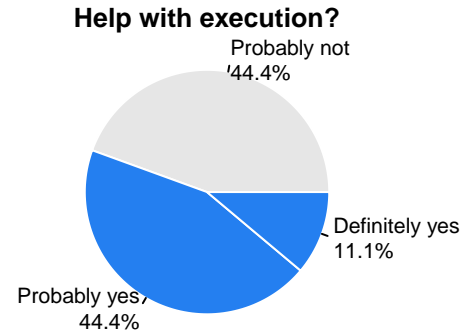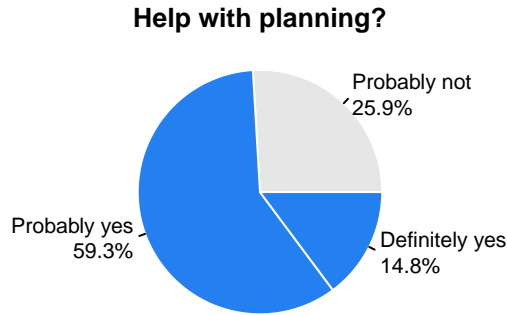### Are time management apps helpful in executing phase?

12 (44.4%) app users found time management apps "probably not" or "definitely not" helpful when it comes to helping users execute the plans better.

Are time management apps helpful in reflection phase?

10 (37.0%) app usersfound time management apps "probably not" or "definitely not" helpful when it comes to providing relavant data for reflection.

Are time management apps supportive and caring?

15 (55.5%) app users found time management apps "probably not" or "definitely not" helpful when it comes to being supportive and caring when frustrating delay occured.

Help with planning?

Probably not
25.9%

Probably yes
59.3%

Definitely yes
14.8%

Help with execution?

Probably not
44.4%

Definitely yes
11.1%

Probably yes
44.4%

Help with reflection?

Probably not
33.3%

Definitely not
3.7%

Definitely yes
11.1%

Probably yes
51.9%

Is the app supportive?

Probably not
37%

Definitely not
18.5%

Definitely yes
14.8%

Probably yes
29.6%

Discussion

Delay increases emotional burden and worsens performance

According to the data, delay is very common. Over 90% of participants experienced delays to some extent. Moreover, 40% of app users reported self-blame and worse performance in subsequent tasks when delay occurred.

Time management apps do not alleviate delay problems

Although time management app users agreed that these apps helped them make better plans, using time management apps did little to help reduce delays. Non-app users and app users showcased similar levels of delay frequency. Below, we suggest two possible explanations why current time management apps failed to address delay problems.

1. Time management apps lack support for task execution

44.4% app users reported that time management apps provided limited help for task execution. Considering the types of apps under investigation, it is possible that most current apps track plans and results, but lack quantified indicators that help the user flexibly adjust time usage as they are performing the tasks.

2. Time management apps are generally not supportive and caring enough when delay occurs

Over half of the respondents (55.5%) did not find the apps supportive and caring when they failed to keep up with their plans. This could be problematic because when they do not feel supported, they may experience self-blame and perform worse in subsequent tasks, as our data suggest.

Limitation

Small sample size

First, the sample size of the study ($N = 52$) is relatively small. More data would be needed to validate the findings above.

Self-report could be biased

Second, we recruited participants using an online survey consisting of multiple choice questions. Thus, the responses are susceptible to self-report biases. For example, our respondents may have misremembered how much delay they experienced, or overestimated the helpfulness of the apps.

References

Steel, Piers. 2007. "The Nature of Procrastination: A Meta-Analytic and Theoretical Review of Quintessential Self-Regulatory Failure." *Psychological Bulletin* 133 (1): 65.