

# **Motivational and Situational Aspects of Active and Passive Social Media Breaks May Explain the Difference Between Recovery and Procrastination**

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Students frequently multitask with social media (SM) during self-study. Such social media multitasking (SMM) has the potential either to support wellbeing by acting as a recovery activity or subvert it by acting as a procrastination activity. It is currently unclear which specific SM behaviours and related factors push SMM towards recovery or procrastination. We conducted semi-structured interviews with 16 undergraduates to explore which SMM behaviours and factors led to recovery or procrastination. We found that both active and passive SM breaks have the potential to be recovery or procrastination activities. Whether a SM break becomes a recovery or procrastination activity partly depends on its automaticity and situational SM factors. This paper contributes empirical evidence that supports emerging criticism of an existing simplistic understanding of the relationship between active/passive SM use and wellbeing, and demonstrates how a richer model can inform the design of technologies that support better SM breaks.

CCS CONCEPTS • **Human-centered computing~Human computer interaction (HCI)~Empirical studies in HCI**

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## **1 INTRODUCTION**

Within the last decade, there has been a proliferation of ubiquitously available social media (SM) technologies. SM has been mass adopted by students who multitask with them in academic settings [30]. SM multitasking (SMM) is a behaviour where an individual switches between their work and SM in an interleaving manner for off-task purposes [1,41,57]. There are concerns that SMM is a distractive and procrastinatory activity that negatively impacts students' wellbeing [1,44,61]. But, the impact of students' SMM on their wellbeing is not completely straightforward, with prior research indicating that SMM can be either positively or negatively associated with wellbeing [14,42].

One reason for these mixed findings is that SMM has the capacity to both be a positive recovery activity and a negative procrastination activity. Recovery refers to “*the process of replenishing depleted resources or rebalancing suboptimal systems.*” [60:331]. Sonnentag and Fritz’s [59] recovery experience framework posits 4 facets of recovery: ‘psychological detachment’ (mentally disengaging from a demand), ‘relaxation’ (a state of low arousal and positive affect), ‘mastery experiences’ (activities that build up internal resources e.g., self-efficacy), and ‘control’ (the level of perceived autonomy over the recovery activity choice). SMM can be a recovery activity as it acts as a ‘microbreak’ (voluntary rest activities that last within the seconds to minutes range) [16,24,26,62,71]. Procrastination, on the other hand, refers to “*the voluntary delay of an intended and necessary and/or [personally] important activity, despite expecting potential negative consequences that outweigh the positive consequences of the delay.*” [33:26]. SM breaks can also act as procrastination episodes [3,44,55].

SMM encompasses a multitude of SM behaviours [58]. These can be categorized as active or passive. ‘Active usage’ involves direct interaction with other users e.g., messaging friends, liking/commenting on posts, or posting status updates or content. ‘Passive usage’ involves consuming SM content without any direct interactions with people e.g., browsing a News Feed [13,35,67]. This active vs passive categorization has been used to explain why SM has mixed effects on wellbeing. Generally, active usage positively impacts wellbeing through social capital building processes (i.e. via sharing behaviours, social and emotional support), whilst passive usage negatively impacts wellbeing through upward social comparison [67,68]. However, recent developments suggest this distinction is too simplistic and fails to consider complexities in SM use e.g. the specific psychological processes and unique information processing dynamics underlying SM behaviour [35]. Following this criticism, the ‘Extended Active-Passive Model’ of SM use was proposed by Verduyn et al. [66]. It posits that active usage is not always wellbeing-promoting and passive usage wellbeing-detracting. Variations in wellbeing are explained by ‘decomposition dimensions’ – factors that moderate the wellbeing potential of SM usage types e.g., dyad reciprocity in active use, media content self-relevance in passive use. Further, it posits psychological mechanisms that explain the link between SM use and wellbeing e.g., social capital in active use, social comparison in passive use. These decomposition dimensions and psychological mechanisms require further explication.

A systematic approach is required to investigate SM behaviours as recovery or procrastination activities. Comprehensive behavioural frameworks [25,45] posit 3 main factors that influence behaviour: 1) ‘environmental factors’ relating to determinants outside of the individual; 2) ‘motivational factors’ relating to internal impulsive (high automaticity: minimal awareness, intentionality, control and effort i.e., habits/impulses) or reflective (maximal conscious presence and awareness i.e., intentions, evaluations and plans) motivational processes during behavioural instigation or execution [27,28]; and 3) ‘capability factors’ relating to individuals psychological and physical abilities. Aside from behavioural determinants, there are also ‘digital media factors’ relating to situational factors that coincide with the enactment of a digital behaviour to influence wellbeing. Each factor helps characterise digital media behaviours as recovery or procrastination activities: environmental factors e.g. notifications, social influence [3,55]; motivational factors e.g. reflective and impulsive processes [43,44,50,55,56]; capability factors e.g. level of media challenge/effort [48,51]; and digital media factors e.g. media content type/valence [53,54]. SM behaviours can be similarly investigated through this lens: environmental factors e.g. notifications [3]; motivational factors e.g., more reflective [39] or impulsive [4,46,52] processes; capability factors e.g. SM interfaces varying in level of effort/challenge [29,31,47]; and SM factors e.g., dyad factors (dyad reciprocity, communion), media content factors (self-relevance, achievement) [66].

It is currently unclear which specific SM behaviours and related factors push SMM towards recovery or procrastination when performed by students in a self-study context. This is important given the stark differences recovery and procrastination activities can have for students' wellbeing and academic performance [43,71]. This study, therefore, aims to answer the following research question: *Which SM behaviours and related factors characterise SMM as a recovery activity or procrastination activity during self-study?* This will contribute empirical evidence that supports emerging criticism of an existing simplistic understanding of the relationship between active/passive SM use and wellbeing, and demonstrates how a richer model can inform the design of technologies that support better SM breaks.

## **2 METHOD**

### **2.1 Participants**

We recruited sixteen participants (aged between 18-21) through adverts posted on SM accounts and the university psychology subject pool. Fourteen were female. Participants were required to be in their first/second year of an undergraduate degree (to control for possible year of study differences in SM multitasking [22,69]), use SM daily, and have no diagnosis of clinical emotional disorders or identify as having a SM, gaming or internet addiction or disorder.

### **2.2 Design/Procedure**

The study adopted a qualitative approach to explore undergraduate's experiences of self-study and the role SM plays within them. A semi-structured interview study design was chosen because: 1) it is a useful technique for understanding an individual's experiences of technologies [8]; and 2) SMM for recovery or procrastination is an under-researched area and so a flexible and in-depth explorative investigation is an appropriate starting point [37].

After reading the study description and providing informed consent, participants responded to an online questionnaire that gathered: 1) demographic data; 2) general SM use [example: "What social media platforms do you engage with for non-study purposes during self-study sessions?"]; and 3) frequency of SMM during self-study [example: "How often do you engage with social media for non-study purposes during self-study sessions?"]. Online interviews were scheduled at participants earliest convenience and conducted by a researcher through the Microsoft Teams platform. During the interviews, participants were asked to recall: 1) a recent/salient self-study session [example: "Think back to your most recent self-study session, could you talk me through what you did?"]; and 2) instances when SM use positively/negatively impacted them [example: "Could you talk me through a time when using SM for non-study purposes positively/negatively impacted the study session?"]. Researchers had various prompts at their disposal based on behavioural frameworks to help structure participants' recollection and to explore how SM behaviours and factors influenced their experience [example: "What triggered the social media use?"]. To reduce confirmation bias, researchers actively pursued lines of inquiry that contradicted past findings, and questions incorporated participant terminology to ground it in their direct experience. Interviews lasted approximately 60 minutes. The sample size was decided a priori using an 'information power' approach – as recently suggested by Braun and Clarke [11]. Information power is the level of information a sample holds that is relevant to the actual study and is based on the study aim, sample specificity, use of established theory, quality of dialogue, and analysis strategy. Fifteen to twenty participants were required for sufficient information power [40].

### 2.3 Data analysis

Descriptive statistics of online questionnaire data was calculated using R. Interview audio files were extracted and transcribed using Scrival. Interview transcripts were analysed on NVivo-12 using reflexive thematic analysis to organise, interpret and generate themes [9,10]. A predominately inductive approach to the analytic process was taken. After immersion through listening and reading transcripts, semantic codes were applied at the sentence level. Codes were then organized and collapsed to develop themes in an iterative and collaborative process between the research team, with candidate themes discussed, refined, and defined.

### 3 RESULTS

Analysis of the interview data led to the development of four themes: 1) 'SM usage types are double-edged swords'; 2) 'The automaticity of SMM for procrastination'; 3) 'SMM trigger types for recovery and procrastination'; 4) 'Not all SMM procrastination episodes are created equal'. Due to limited space and themes 1 and 2's thought-provoking nature, only they have been presented, and in a format contrasting between recovery and procrastination. In Figure 1, we present an extension to the 'Extended Active-Passive Model' of SM use [66] based on these qualitative findings.

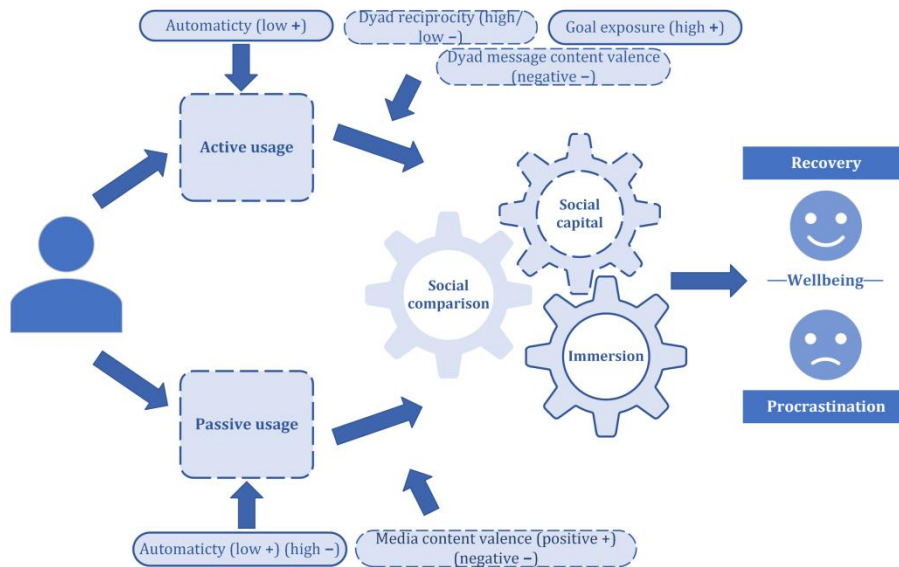


Figure 1: An extension to Verduyn et al.'s Extended Active-Passive Model of SM use [66], depicting how SMM can impact wellbeing through recovery and procrastination. Constructs depicted are SM behaviours (rounded squares), moderating factors (rounded elongated rectangles) and mediating psychological mechanisms (gears). Constructs with no border relate to the original model only, those with a dashed border relate to the original model and were identified, and those with a solid border were identified and are novel. Signs attached to values of each moderating factor indicates whether it supports wellbeing via recovery (+) or subverts it via procrastination (-).

#### 3.1 Which SM behaviours and related factors characterise a recovery activity?

SMM recovery activities were characterised by active and passive SM use, with both break types underpinned by reflective motivational processes (low automaticity) and influenced by dyad message or media 'content valence' (positive/negative valence) respectively (see Figure 1).

Active SM use supported recovery through psychological detachment and mastery experiences, and by increasing overall positive emotions post-break. Conversations with friends and family online helped students to mentally detach from their work: *"It basically gives my mind a little bit of a break."* (P7). Active SM use also upregulated positive emotions and reduced stress by providing feelings of mastery. Replying to messages in breaks supported mastery experiences through a sense of accomplishment and satisfaction which would reduce their relative stress: *"Yeah, that would really help a bit if I have just managed to get some of some stress out of my brain."* (P12). One student explained how creating TikTok videos during breaks engendered feelings of accomplishment, which supported positive emotions: *"If you're creating something, if you're putting it out into the world, that feels like you kind of accomplished something. It's a nicer feeling than if you're just randomly taking in content."* (P12). Two students provided emotional support to others during breaks. This was associated with feelings of accomplishment and positive emotions post-break: *"If I helped someone, then I associate that with, like, you know, feeling a little bit happy with myself..."* (P7). Students also upregulated positive emotions during active breaks by sharing positive media content as doing so: *"makes you feel good"* (P13), or by sharing negative emotions with friends for emotional support: *"I might just tell them how I'm feeling, and their response might be to encourage me. So, like, that way it would make me feel better."* (P11). Students felt that active SM use was less automatic than passive breaks, with students more aware of their actions: *"It's less automatic, I think, because it's not something you can just like do on autopilot. Yeah, which you can do when you're like watching stories and stuff..."* (P5). Active SM use tended to have more positive outcomes than passive SM use. Engaging in prosocial behaviours such as messaging friends led to positive emotions and feelings of refreshment: *"I think definitely most happy is like calling people and then texting people and then it would be, like, just solitary type stuff"* (P8).

Nevertheless, passive SM use also supported recovery through psychological detachment, relaxation, and mastery experiences. For many students, engaging with SM feeds supported immersion (see Figure 1), which allowed them to temporarily forget the academic task at hand and any associated stress: *"Yeah, I would say it like positively impacts me because it just like, gives me time to refresh, gives me time to, you know, forget for a little bit about this work and sort of just be in like my world"* (P15). Psychological detachment was supported by engaging in curated content in main feeds, and random content in explore feeds. Passive SM use supported relaxation for some students, with feed scrolling allowing them to *"just relax and then go back and be ready"* (P15). One student found that watching all of their friends' 'stories' (online highlights from their day) resulted in a sense of mastery: a *"feeling of achievement of watching like finishing to watch all the stories or like, the post of the day"* (P3). Interestingly, passive SM use that was less automatic and more reflective, better-supported recovery (see Figure 1). Reflective passive SM use was characterised as intentionally instigating a passive SM break, actively searching for media content and taking more time to engage with each content piece – instead of mindlessly scrolling: *"It's probably more of a positive thing if I'm actually like consciously, I know what I'm doing. I've scheduled in time to scroll through TikTok or whatever you know, and finding it entertaining and like, it's helping me relax."* (P16).

The recovery capacity of both active and passive SM breaks was moderated by the 'content valence' exposed to (see Figure 1). Exposure to negatively valenced content inhibited recovery outcomes. The exposure to negative content was predominantly random – dependent on the dyad's responses in active use or the newsfeed algorithm in passive use. Exposure to unexpected negative or triggering news from dyads resulted in negative emotions and a reduced motivation to return to their academic task: *"When I get some unexpected bad mistakes or bad news from my friends or family or whatever, I get upset or I get mad or gets tired, and I don't feel like [...] continue my work anymore."* (P3). One student described exposure to negative media content during passive use as a lottery: *"And it*

*also depends on the content that I've happened to see if I have just seen like loads of cat videos, then I'll probably be quite happy. But like if I've seen horrible news stories or something then I'll be like not in a great state of mind. You know, it just depends. It's like a lottery.” (P12).*

### **3.2 Which SM behaviours and related factors characterise a procrastination activity?**

SMM procrastination activities were characterised by both active and passive SM use, with active SM breaks influenced by dyad reciprocity (low/high reciprocity) and goal exposure (high exposure), and passive SM breaks underpinned by impulsive motivational processes (high automaticity) (see Figure 1).

For active SM use, the situational SM factors of 'dyad reciprocity' and 'goal exposure' influenced the risk of a break being a procrastination activity. Low reciprocity from dyads via delayed responses supported procrastination by increasing cognitive vigilance and task-switching back to SM: *“But if they are replying staggered, then I'll go sort of sometimes back and forth between the reading and then the messaging and the reading and then the messaging every time that they reply.” (P13).* Also, high reciprocity from dyads prolonged active breaks, increasing the risk of procrastination. Immediate dyad responses set up a conversation dynamic, increasing feelings of commitment to the conversation which then resulted in prolonged breaks: *“Most of the time, like it always starts off related to work and then it either turned into, like, a one hour call. You know about anything, or we'll get side-tracked a little bit.” (P8).* Conversely, high goal exposure during active breaks e.g., exposure to plans later that evening or week whilst messaging, would decrease the risk of active SM procrastination. Goal exposure increased students' internal motivation to work during a study session, supporting greater SM self-regulation: *“And basically, he just pushed me to, just get out of my phone and just do the essay. And then he just gave me a motivation like, oh, we're gonna be together this weekend, so you need to get things done, that sort of thing.” (P2).*

For passive SM use, the very same immersive effects that supported psychological detachment and relaxation would also support procrastination. Students described becoming sucked into SM feeds, losing track of time, and struggling to then disengage from SM breaks: *“By going on my like feed on my page and like, just because especially a lot of the videos are very short, so you kind of lose track of time. You're like watching one, and then you're like, oh, I'll watch another one or which, and you don't really realise how long you're spending on the app.” (P5).* Interestingly, these passive breaks often felt highly automatic for students, indicating an automaticity-based immersion underlying procrastination. Automatic passive SM use was characterised by minimal awareness in the instigation and execution of these breaks: *“I actually do that more automatically rather than making a conscious choice like, yes, I'm going to go on social media and I'm going to scroll” (P11).* Students explained that awareness-inducing prompts during SM use, such as awareness of time spent, hunger, or the absurdity of their behaviour, was required to snap them out of the procrastination activity: *“But it's usually just because, some other factor just makes me certainly aware that I've been in my phone too much.” (P2).* Automaticity was also reflected in students' language which conveyed a loss of control in the transaction: *“Yeah, it's just most of the time. It's just allowing whatever comes up, and that's it. And especially even with social media and all that, I don't actively search for something. It's... I just wait for something else to hit me, and that's it.” (P2).* This immersion would result in negative wellbeing outcomes: *“I just get into this, like, cycle in my head. It's like, oh, you wasted time like you shouldn't have done that. And then I just feel bad so then I am less productive” (P5).*

#### 4 DISCUSSION OF STUDY RESULTS

Overall, this study found that both active and passive SM breaks have the potential to be a wellbeing-promoting recovery or wellbeing-detracting procrastination activity. Whether a SM break becomes a recovery or procrastination activity partly depends on its automaticity and/or cooccurring situational SM factors. These findings support emerging criticism of an overly simplistic understanding of the relationship between active/passive use and wellbeing – whereby active use always supports wellbeing and passive use always subverts it. Critics highlight that more detailed observations of how SM use and the moderating factors (decomposition dimensions) and underlying psychological processes impact wellbeing are required [35,66]. The study presented in this paper contributes new data that supports this more nuanced perspective. It demonstrates that motivational factors (automaticity) and situational SM factors (content valence, dyad reciprocity, goal exposure) may act as additional moderating factors that influence whether passive/active SM use supports or subverts wellbeing. Further, the study identifies ‘immersion’ as a novel psychological mechanism that mediates the relationship between passive SM use and wellbeing (see Figure 1).

The effect of active and passive SM use on wellbeing may be influenced by the underlying level of ‘automaticity’. This study found that low automaticity positively supports wellbeing through recovery and high automaticity negatively impacts it through procrastination. In terms of low automaticity, active SM behaviours were associated with more conscious, reflective processes i.e., low automaticity, during break execution. Digital media-based recovery is more likely when an individual engages in more mindful (autonomous and voluntary) media behaviours [6,34]. Further, passive SM breaks were more likely to support recovery when they were engaged in consciously rather than automatically. Whilst this supports previous evidence of media-based recovery through immersion [17,18,48], it challenges existing narratives that passive SM use is generally negative for wellbeing [67,68]. Further, this reinforces the notion that more mindful technology use is important in supporting recovery and wellbeing [6,34]. In terms of high automaticity, highly automatic and immersive passive SM breaks were shown to negatively impact wellbeing via procrastination. Automatic immersion may seem contradictory at first, given that media cognition is usually more automatic or immersive, with these cognitive states lying on opposite sides of the unconscious-conscious spectrum respectively. But, these states can be intertwined during technology use, such that an individual can have both an automatic and immersive orientation [7]. For example, automatic habitual processes can be linked to immersive states such as flow during technology use [65]. The findings support past studies showing passive SM use is often automatic [2,70], supports procrastination [2], and that digital media use automaticity, e.g. technology habits, are linked to procrastination [43,44,56]. The effect of ‘content valence’ on wellbeing has been identified in the Extended Active-Passive Model through ‘communion’ level in active SM use – which can be warmer (agreeable) or colder (quarrelsome) – and ‘achievement’ level in passive SM use – where content relates to success (positive) or failure (negative) [66]. However, whilst negatively valenced content can support aspects of recovery and wellbeing [53], this study found it reduces the overall recovery capacity of SM breaks. This may be due to the unpredictability of negative content exposure, which may reduce students’ feelings of control over the SM break [34]. High ‘dyad reciprocity’ during active SM use has been shown to positively support wellbeing in the Extended Active-Passive Model [66], but also negatively impact it through procrastination [2]. This study found excessive dyad reciprocity reduced the wellbeing potential of active SM breaks through procrastination, confirming the latter findings. The effect of ‘goal exposure’ in supporting wellbeing by reducing procrastination risk during active SM use has not been previously identified. High goal exposure may reduce SM procrastination through increased ‘control motivation’ (motivation to control behaviour), an important component

of self-control that overrides automatic media use and in turn, reduces procrastination [49,56]. Lastly, this study found that active SM use supports wellbeing through 'social capital' (social and emotional support) and passive SM use through 'immersion' psychological mechanisms. Whilst the former confirms past findings [68], the latter moves beyond the normative view of passive SM use only as an opportunity for harmful social comparison and posits 'immersion' as a psychological mechanism that supports wellbeing [35,66].

## **5 IMPLICATIONS FOR DESIGN**

In terms of SM design, the findings reported here suggest that platforms should be designed to support more conscious, reflective use and minimise automatic, impulsive use. For example, SM platforms could include optional friction and mindful-inducing prompts to support disengagement [19,47,64]. Platforms could also allow users greater active control over the valence of content exposed during breaks, e.g., allowing users to notify dyads of their openness to negative content, and options to filter feeds based on content valence. SM could reduce the risk of active SM procrastination by designing with dyad reciprocity and goal exposure in mind. For example, platforms could be sensitive to prolonged conversations impacting pre-defined study goals and provide nudges to continue the conversation later offline whilst scheduling a future meet-up. Findings also have implications for students' SM practices: active SM use and less automatic SM breaks could be supported by assistive break-taking software such as a conversational agent [32]. Agents could suggest active SM break activities e.g., responding to friends' messages, and promoting more mindful SM usage e.g., providing prompts to be more intentional when instigating SM breaks [20], supporting students' awareness of their SM break patterns [39], and helping to counter procrastinatory automatic SM usage patterns with implementation-intentions [36].

## **6 LIMITATIONS**

Several factors may reduce the generalisability of these findings. First, data were collected whilst participants were under lockdown during the Covid-19 pandemic. Whilst there is evidence Covid-19 has influenced engagement in types of media multitasking (MM) [72], this study was focused on explicating the mechanistic relationship between SM behaviours (active/passive usage), their underlying (behavioural) and cooccurring (SM) factors, and wellbeing via recovery/procrastination. It is unlikely Covid-19 influenced the fundamental relationships identified. Further, Covid-19 has permanently shaped our relationships with technology in the learning/work domain, making the findings relevant for the foreseeable future [5,63]. Second, a large proportion of students recruited for this study were female. Past evidence suggests there are gender differences in some measures of MM behaviour (frequency, time spent multitasking) [15,23]. Future work should explore SMM with a more balanced gender sample. Third, although this study aimed to support accurate recall by focusing on specific SMM episodes [21], there is a possibility of recall bias when recollecting affective experiences using technologies [12]. However, this study was not focused on measuring precise changes in affective states, but rather, broad shifts between positive-negative. Additionally, semi-structured interviews may not afford an accurate report of the actual SM behaviours and related factors that impact wellbeing [8]. Future work should support data validation using naturalistic observational or diary studies that measure SMM episodes in the moment [38]. Lastly, the identified novel moderating factors and mediating psychological mechanisms, and their relationships to active/passive SM use and wellbeing through recovery and procrastination, are tentative. Future work should test the extended model (presented in Figure 1) to establish causality. Possible future lines of research include testing the relationship between SMM automaticity and



recovery/procrastination, the role of immersion as a mediator between passive SM use and recovery, and the impact of identified situational SM factors on recovery and procrastination experiences.

## 7 CONCLUSION

It is currently unclear which specific SM behaviours and related factors push SMM towards recovery or procrastination in students in a self-study context. We conducted semi-structured interviews with 16 undergraduates to explore which SM behaviours and factors led to SMM recovery or procrastination. Our results suggest that both active and passive SM breaks can be wellbeing-promoting recovery activities and wellbeing-detracting procrastination activities. Thus, whether SM use is active, or passive does not by itself determine its impact upon wellbeing. Motivational and/or situational SM factors seem to characterise instances of recovery and procrastination. This supports an emerging, more nuanced perspective on the impact of active/passive SM use on wellbeing. We propose that design interventions targeting SM platform interfaces, and technologically supported behavioural interventions targeting an individual's SM use, can help to support better SM breaks.

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