Social Networking Use and RescueTime: The issue of Engagement

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Abstract
The dramatic rise in the use of social network sites (SNS) has resulted in a number of users feeling stressed about the extent of their personal use. Previous work has established that daily retrospective estimations of SNS use and access to RescueTime not only improve accuracy of estimations but also reduce perceived stress. The present study aimed to extend this by also exploring the influence of prospective estimations on stress and perceived time management. However, the study was thwarted by incredibly low engagement with RescueTime and consequently, no improvement in estimation accuracy and no reduction in stress. This indicates substantial individual differences in engagement and a requirement for external sources of motivation for using personal informatics, beyond the tasks of the study.

Author Keywords
Personal informatics; social networking; stress; time management

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Background

Social networking sites (SNS) are often a source of considerable stress [2], particularly for students, who are the most prolific users [4]. This is predominantly because of the negative impacts that time spent on SNS can have on other activities, such as work or studies [4, 5, 7]. Most users therefore report the desire to reduce or limit use [3].

However, despite this awareness of potential negative consequences, users tend to be highly inaccurate when attempting to estimate the extent of their SNS use. Junco [3] found that self-reported SNS usage was almost six times higher than actual use, as measured by logging software. While in that case this may be due to smartphone use not being logged, investigations that do include smartphone use also find dramatic over-estimations [8]. This is likely to be due to a number of factors, including the absorbing nature of SNS and the tendency for users to access them alongside other applications, and while performing other activities.

Our previous work [8] has investigated the impact of having access to accurate SNS usage data through the personal informatics tool RescueTime, as well as the benefit of asking participants to provide daily estimations of how long they had spent on SNS that day. It was found that estimation accuracy significantly improved following two weeks of providing estimations. Interestingly, although participants did not reduce the time they spent on SNS, their perceived stress decreased, alongside an increase in satisfaction with SNS use. This suggested that a lack of awareness of the actual time spent on SNS could be an important factor in the relationship between SNS use and subjective stress.

While interesting, we wanted to attempt to investigate whether this finding would be the same for other kinds of estimation. In the previous study, participants were telephoned at random times of day and asked to give an estimate of their SNS usage since they had woken up. This meant they could use RescueTime to check whether their estimation had been correct straight after they had made it. However, personal informatics systems are frequently used to monitor behavior and enable participants to set future goals, which requires estimations to be made regarding future rather than past usage. We therefore carried out an experiment that compared three groups: one providing retrospective estimations of their SNS usage; one prospective estimations; , and a control group who provided no estimations.

Method

Participants

A total of 30 participants were recruited (18 of whom were female), aged between 18 and 25 (M=20.33, $S.D.$=1.54). All were undergraduate students at University College London who owned an Android smartphone (to ensure compatibility with RescueTime) and mostly used their own personal laptops and computers.

Materials

As in the previous study, the Time Management Behavior scale (TMB; α=.819-.855) was used to measure self-perceived time management skills [6], and the Perceived Stress Scale (PSS; α=.892-.894) measured subjective stress [1].

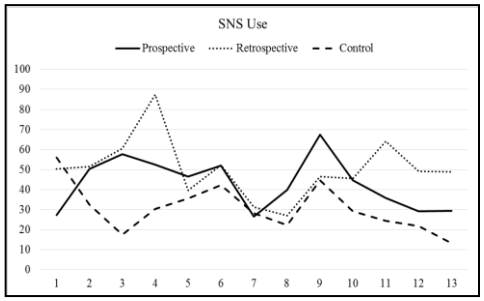

Figure 1. Actual SNS use (in seconds) across the two week experimental period

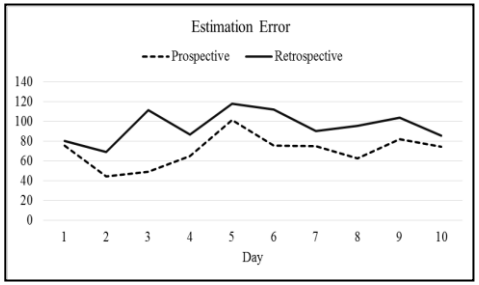

Figure 2. Estimation error (in seconds) across the experimental period for prospective and retrospective conditions

	Mean time per day (SD)	**Mean total time (SD)**	**Mean number of days accessed (SD)**
Present Study	4.68s (12.03)	60.9s (156.43)	2.93 (12.03)
Zhou et al [11]	26.66s (12.95)	266.63s (129.53)	6.94 (1.73)

Table 1. RescueTime use across the present and previous studies

Participants were also asked about their attitudes towards SNS, their perception of SNS as a stressor and how satisfied they were with their current level of use.

Procedure

Participants first installed RescueTime on all their personal devices. Information on their SNS use was measured for a total of one week to provide baseline information. Following this week, participants were required to indicate whether they had been able to view and interpret their RescueTime data, and were instructed further where necessary.

The first set of questionnaires (the TMB, PSS and additional questions about SNS attitudes) were then completed. Participants received one text message every week day at random times during working hours for a total of two weeks. This text asked them to estimate how much time they spent on SNS yesterday (for the retrospective group) or how much they thought they'd spend on SNS tomorrow (the prospective group). This was slightly different to the previous study, in which estimations were made in relation to that day from when they had woke up. The control group did not receive any texts, but their SNS usage was still monitored during this period. The final set of questionnaires was then completed.

Results

There were no significant changes in any of the questionnaire measures before or after the experimental period, and this did not differ with condition. Moreover, actual SNS behavior (see figure 1) did not change, nor did accuracy of estimations (see figure 2).

Discussion

The findings of the present investigation ran counter to both the hypotheses and the results of the previous study [8], and were therefore unexpected. While many of the features of the two studies were deliberately kept constant (for instance, the questionnaires, incentives, the frequency of requests for estimations and the target population, namely undergraduate students), there were several differences that may be responsible for the discrepant findings. When inspecting the amount of time spent looking at RescueTime, it became clear that engagement was substantially lower in the present investigation compared to the first (see table 1). Some participants in the present study did not access RescueTime at all beyond the initial check to see if they were able to. This contrasts sharply with the sample included in the previous study, who at the very least checked their RescueTime accounts four times during the study. This had been an unanticipated outcome, as it had been assumed that the estimation task would encourage participants to become interested in their actual SNS use and consequently, consult RescueTime. This is clearly not the case.

Therefore, while the failure to replicate the previous finding may be due to a lack of a reliable effect, the substantial differences in engagement with RescueTime in the two studies might indicate that this is the root of the discrepancy; it is unlikely that participants will be able to improve the accuracy of their estimations when they are not accessing the information that provides the necessary feedback.

The lesson

The two studies indicate that there can be substantial individual differences in the level of engagement with personal informatics systems, beyond those that would be immediately obvious (for instance, age or student status, which were comparable across the studies). One possibility for the differences in engagement between the studies is that in the first, many of the participants knew the researcher; this may have created a social obligation to perform well at the estimation task. Therefore, future studies may wish to replicate this on non-familiar samples.

Moreover, simply providing participants with a task in the hope that this will be sufficient motivation to engage with personal informatics systems may not guarantee they will actually be used. Creating external sources of motivation may be the most effective way to ensure personal informatics tools are being used in the way that is most likely to create the effect being measured. This could take the form of leader boards, penalties for inaccurate estimations or rewards for accurate ones, or a specified minimum number of accesses.

While unexpected and problematic for the line of research, these findings hopefully serve as a warning to those assuming a minimum level of engagement with personal informatics systems. Recruiting those interested in monitoring their behavior may be a solution (as they are likely to be more engaged), but this may present alternative problems when attempting to generalize to those without this prior interest. Therefore, attempts to instill an interest and reason to contribute to the study fully may be the best solution.

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