
The *Do Not Disturb* Challenge - A Day Without Notifications

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Abstract

We report from the first holistic study of the effect of notifications across services, devices, and work and private life. We asked 12 people to disable notification alerts on all computing devices for 24 hours. Data was collected through open post-hoc interviews, which were analyzed by Open Coding. The participants showed very strong and polarized opinions towards the missing notification alerts. During work, some participants felt less stressed and more productive thanks to not being interrupted, however outside of the work context, some became stressed and anxious because they were afraid of missing important information and violating expectations of others. The only consistent findings across the participants was that none of them would keep notifications disabled altogether. Notifications may affect people negatively, but they are essential: cant live with them, can't live without them.

Author Keywords

Notifications; Alerts; Availability; Do not Disturb

ACM Classification Keywords

H.5.3 [Group and Organization Interfaces]: Asynchronous Communication.

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Background and Motivation

Notifications are visual, auditory, or tactile alerts intended to draw attention to new online content [3]. Traditionally used in text messaging, email clients and desktop instant messengers, notifications are becoming essential means to engage the user, both on desktop and mobile devices.

Previous work has studied the effect of notifications in the context of work email. Mark *et al.* [4] employed a most radical approach: for 5 work days, they completely cut off 13 information workers from email usage. The results show that without email, the workers multitasked less, spent more consecutive time on tasks, and had a decreased stress level. More closely related to this work, Iqbal and Horvitz [3] asked information workers to disable notifications in Outlook for one week. While the participants acknowledged that email notifications are disruptive, all of them turned them back on after the study because they valued the awareness they provide.

While these study show clear and strong affects of taking notification alerts out of a working environment, notifications are no longer confined to just one context (e.g. work) or one device (e.g. the work computer). They now fuel all kinds of services, including social networks, games, news papers, and they are present across devices and contexts at all times. There have been studies on notifications in the context of work email [3, 4], messaging [1, 2, 5], and mobile phones in general [6, 7]. However, what is missing is a study using a holistic approach to notifications: studying their effect across services, across work and private life, and across mobile and fixed devices.

To fill this gap, we launched the *Do Not Disturb* Challenge. In this work-in-progress, we report from a pilot, where we asked 12 participants to go without notifications for one day. Using existing mechanisms, such

as Do Not Disturb on iOS and OS X, as well as the settings of application, we disabled all notification sources. In this work-in-progress, we report our insights derived from recruitment surveys and post-hoc interviews.

Methodology

Twelve participants (6 female, 6 male) took part in the study. Their ages ranged from 22 to 36 ($M = 29.4$, $SD = 4.0$). The professions were 4x researchers, 3x students, medical doctor, marketing manager, human resources business partner, psychologist, and engineer.

Once they had read the consent form and agreed to take part in the study, we assigned them a participant ID to preserve their identify. At the beginning, they filled out a pre-study questionnaire asking for demographics and habits relevant to notifications.

Then, we walked participants through all their devices and applications that create notifications and made sure that they knew how to disable them. To ensure the absence of alerts, we required the following steps: (1) Computing devices running iOS or OS X were set into *Do Not Disturb* Mode, (2) Android devices (only Lollipop) were set into *Priority* Mode, and (3) finally we sat down with each of the participants, went through all notification-generating applications on their desktop computers, and them in finding settings or strategies for disabling notifications in applications that were not affected by above settings. These steps ensured that on arrival of a new notification, including phone calls, there was no sound, vibration, or visual alerts.

Next, we agreed on one evening to start the experiment. We instructed participants to begin their *Do Not Disturb* Challenge in the evening, and keep notifications disabled for 24 hours. Finally, we invited people for an open

I receive a lot of notifications from

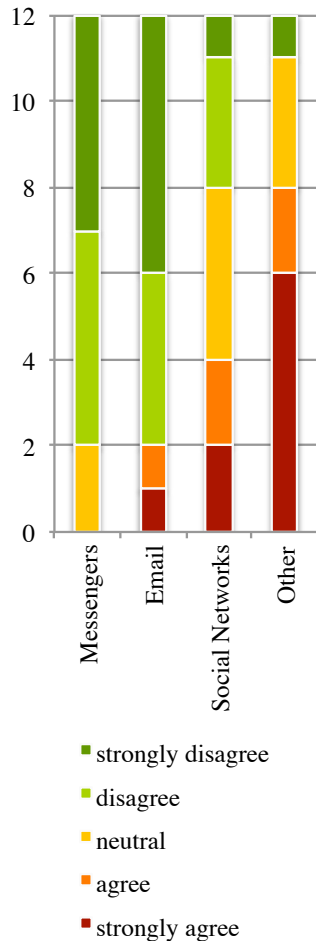


Figure 1: Subjective notification volume per type.

post-study interview. To also capture insights that arise from being back to notification, we let another 24 hours past before conducting the interview.

Results

We used Open Coding [8] to identify codes and categories from the interview responses. We organize the presentation of the results along the identified categories.

Usual Behaviour

Notification prevalence: Figure 1 shows the subjective volume of notifications, as indicated in the pre-study questionnaire. The numbers are split by the categories that we identified in previous work [6]. Our participants perceived that notifications are frequent and mostly originate from communication services.

Notification checking: As shown in Figure 2, our participants were largely able to check notifications at all times. 11 of the 12 participants indicated that they are able check for new notifications most of the time during the day, 10 of 12 including at work. However, only 4 of 12 agreed that checking their phone for notifications is part of work.

Notification management: During the interview, 4 participants indicated that they were already managing notifications on their mobile phones. However, this was limited to managing the sensory modality of the notification, such as “I always keep my phone in vibration mode at work” (P07) or “Normally the phone is mute, but the LED lights up when there is a notification” (P15), and two participants turning off their phone at night.

Expectations towards the Study

Mixed anticipations: Prior to the study, we asked in the recruitment survey, whether the participants were

looking forward to being without notifications for a day. 5 of them disagreed, 3 responded neutral, and 4 agreed. 7 participants indicated that they were afraid to miss urgent information and 6 to miss important information.

Meeting social expectation: Without notifications, 9 of 12 participants were afraid to not be able to meet other’s expectations. For example, P09 stated that “I am afraid to be considered ‘rude’ if I do not reply timely.” Several comments stressed that timely responses appears to be the norm. For example, P17 who said that “people do not expect me to respond timely” considered himself to be “an outlier.”

Informing peers: Prior to the study, some participants informed peers of taking part in the *Do Not Disturb Challenge*: P10 informed his girlfriend that he “probably won’t respond as fast as usual.” P08 reported that “I had a lunch out [and] told the person that I might not receive texts or calls.”

Expectations of superiors: The boss was named by 4 participants as one special source of expectations. “In general, my bosses expect fast responses” (P09) and P07 confirmed that “notifications from my boss need to be replied to immediately”. P10 said that since “My boss was not here, so [participating] was fine.”

Declined participation: We attempted to recruit 14 people to the study, however, two declined because they were afraid of missing important information. Further, one of our participants (P09) said that she “thought of saying ‘no’ to take part” because she was “worrying to miss calls from work” and she “thought it would be horrible.”

The Do Not Disturb Challenge Day

Anxious to miss important information: During the day without notifications, 7 participants experienced

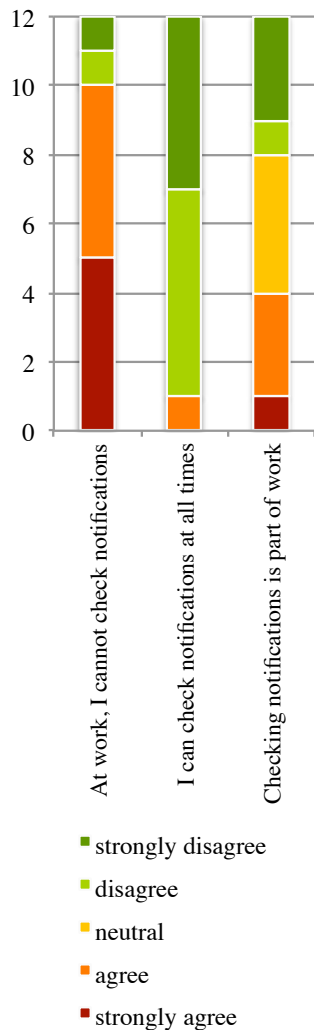


Figure 2: Subjective ability to check notifications.

anxiety to miss important information. Some participants were waiting for deliveries, e.g., P03 was “waiting for a package and the delivery service would call to notify of the arrival.” P01 had been asked by a friend “to give my phone number as contact for an online order. Thus, I was anxious to miss a call or a text.” Others had appointments and were afraid of missing messages from the people they were appointed with. For example, P04 stated that “I was meeting with a girl for lunch, and I knew that I was going to receive something from here.”

Missed content: And indeed, half of the participants missed information. For example, P10 “missed a WhatsApp group discussion, where my group decided to meet to sign a birthday postcard.” A friend of P02 “was angry, saying that ‘we had a conversation and you forgot about it’.” The girlfriend of P10 “understood [that this was part of a study], so it was fine.”

Kept checking continually: As a consequence, 9 of our participants reported to check their devices for new notifications more often than usual. This ranged from “frequently checking my phone manually” (P07) or “Checked email ca. every 30 minutes” (P15) to “I even left the screen on not to miss [a friend’s] notifications ... otherwise she would get angry” (P04). In particular people getting angry triggered extreme reactions: “because of the reaction of my friend, I was the whole afternoon with phone in my hand” (P12).

Participation unnoticed: In contrast, 5 participants found that “nobody noticed that I was less responsive” (P15). In addition, P11 realized that “people were noticing that I was missing calls, but nobody mentioned that I was less responsive.”

Phone calls: 6 participants indicated that they would not consider calls as notifications, with P09 saying that

“It was a bad surprise that the Do Not Disturb mode rejects calls” and “calls should have priority.”

Positive effects: 6 of the 12 participants reported from positive effects of not having notifications. P09 said that “Usually, I feel stressed, but in fact, today, I feel less stressed.” P03 found himself feeling “more relaxed.” P11 realized that “later, I stopped checking, felt more productive.” P07 said that without notifications it was “easier to concentrate, especially when working on the desktop.” P02 even “forgot my phone at work” because of not being reminded of the phone by notifications.

Group chats: 4 participants appreciated that distractions from group chats were gone. “Being without WhatsApp notifications was relieving. In particular, not having group notifications - the silly stuff” (P09) and appreciated it “because I didn’t get distracted by ‘nonsense’.”

Post-Study Reflections

Notifications are essential: Reflecting on the day without notifications, 2 of the 12 participants explicitly stated that they desire notifications. P08 “cannot think of any reason why I do not want to have notifications.” and P03 does “not see the point of a phone without notifications.” 4 participants did not consider notifications as interrupting: “I do not feel it as an interruption” (P08) and “[being without notifications] does not change much for me” (P17).

Disabling of notifications selectively: After the experiment, 6 participants expressed their plans to manage notifications more consciously. P04: “I would not like to turn all notifications off, but I am more conscious, and I would like to have control over my notifications.” P09 disabled notifications from Outlook and Skype and several participants disabled or considered disabling

WhatsApp group notifications. Reasons include “*I realized I do not need [notifications at work]*” (P02) and for group notifications “*I got aware how much they are stressing me*” (P09).

Timeout: 3 participants reflected on the importance of timeouts, “*because I want to have more time for myself, not for whenever people want my attention*” (P12).

Nevertheless, in the end, none of the participants considered keeping notifications disabled altogether.

Discussion

The results of this pilot study revealed very strong and polarized experiences and opinions on notifications. For some participants, being without notifications was a positive experience: being more relaxed, less stressful, and more productive at work. In particular, being without notifications of group chats, which are often considered to mostly convey ‘silly’ content, was appreciated.

On the other hand, for other participants, it had been a true challenge to take part in the study. Many participants were anxious to miss information from significant others and superiors. As a consequence, some informed friends prior to the study, others adopted the strategy to keep checking the phone.

Regardless of how the participants acted themselves, being always online was found to be the norm. Participants who did not frequently check their phone considered themselves ‘outliers’ and being offline for an extended period of time made people anxious or to appear rude and selfish. There were cases when the anxiety to miss information and make others angry was so strong that people kept the checking the phone continually. Expectations to respond timely are no longer only be

found in personal relationships – the boss has become a new source of this.

Our insights relate to and advance previous work in the following ways. As in previous work, we found that expectations towards responsiveness are high [1, 2, 6], however, some of our participants felt that they do not assume these expectations for themselves. We also confirm previous work that notifications can be interruptive [3, 6], at least for some participants. However, also many participants in our study expressed that they did not feel interrupted by notifications.

Previous studies in the work context [3, 4] confirm our positive findings that without notifications people can feel less stressed, more focussed, and more productive. However, outside of the work context, the lack of notifications actually had the opposite effect by making people anxious to miss important information. Further, in the context of being without email notifications at work [3], none of the participants kept notifications disabled. After our study, however, some of the participants disabled notifications in selected applications, including Outlook, Skype, and WhatsApp groups.

Conclusions and Future Work

With the *Do Not Disturb* Challenge, we aim at learning more on the effect and importance of notifications to our lives. To this end, we used the most radical approach to create awareness on our participants: taking them away. And, in contrast to previous work [3, 4], which studied email in the work place, our study extended to all devices and applications generating notifications.

The most significant insight from this pilot study is that there are no clear behavioral patterns yet. Notifications have enabled a general expectation towards timely

responses to asynchronous messaging. Without notifications, many participants did not feel able to meet these expectations, so some were informing others before the study, others keep checking the phone. However, these expectations are no explicit rules and people subordinate to them to different extents. For example, some participants weren't anxious at all and others didn't even consider notifications an interruption.

We are still living in the 'wild-west land-grab phase' of notifications: more and more OSes introduce notification centers and more and more apps generate notifications. We found little awareness that not all notifications are the same and deserve the same treatment. After the *Do Not Disturb* Challenge, many participants realized that notifications should be managed in different ways. Further, our study reveals a lack of widely accepted rules for people to follow when engaging (or not) with others through asynchronous communication services. Participants had wildly different expectations and perceived very different levels of social pressure.

In general, we see two strategies for future work: first, focusing on raising awareness so that users start considering how to manage notifications better. Second, there is an opportunity towards making those rules, which are currently implicit and subjective, more explicit. That is, to create spaces that allow people being offline and unresponsive without feelings of anxiety and guilt. Our next step is extending this study by increasing the number of participants, including a baseline condition, and collecting quantitative data.

Acknowledgements

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