

Chapter 47

Notification Display Choice for Smartphone Users: Investigating the Impact of Notification Displays on a Typing Task

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ABSTRACT

Notification displays have the potential to make smartphone notifications easier to manage when a user is committed to a primary task. The authors investigate the impact of negotiating notifications with six notification displays on a typing task. The results from their lab experiment with 30 participants show that desktop pop-ups were preferred significantly most, the display choice that required the fewest actions to read notifications, and the most actions to respond. The notification bar was least preferred, which required the most actions to read a notification, and the fewest actions to respond. This work is a well-controlled pre-cursor to the application of notification displays in social scenarios. The results motivate the use of external notification displays to manage attention around a smartphone.

INTRODUCTION

Smartphone notifications provide awareness of important events and messages. However, without consideration of the context of a user in the physical environment, notifications can be distracting, and frequent interruptions can result in stress (Yoon et. al., 2014). Negotiated interruptions (McFarlane, 2002) let the user to decide the onset of an interruption, and is an approach to managing notifications that can improve attention to a primary task.

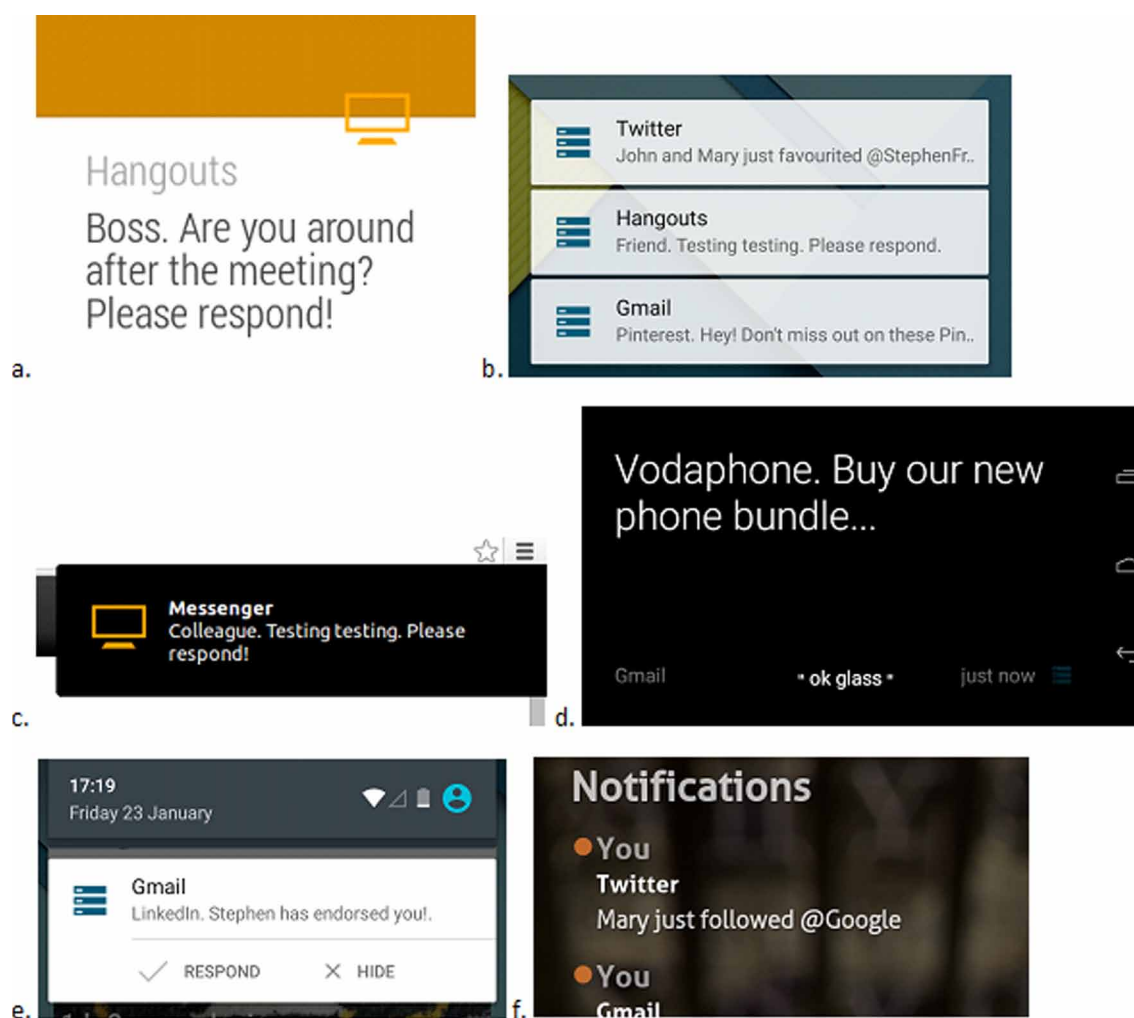
On an Android smartphone, users negotiate interruptions via the notification bar. The notification bar displays a list of recent notifications in a pull-down menu, and is always one step away when the

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device is in use. However, when the smartphone is not in use, the notification bar can require many actions to read the notification. Displaying notifications on the lockscreen can reduce the cost of reading a notification when the device is in hand but not unlocked. Compared to the notification bar, the cost of responding to the notification is increased, as the device has still to be unlocked. By making it simpler to consume notifications, but more difficult to act, notification display choice has the potential to encourage the user to focus on a task, and be less likely to engage in prolonged smartphone habits when attention is committed to a task, whether a co-located social situation or an individual typing task.

External displays create new opportunities to deliver notifications to the user. Smartwatches and smart eyewear allow users to read notifications when the device is not in hand, by looking towards the wrist or glancing upwards. Notifications can also be displayed on a monitor as desktop pop-ups, or on a situated display in the user environment. As new ways of reading smartphone notifications become available, it is important to consider the impact that they will have on attention to everyday tasks.

Figure 1. Notification displays



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