

DOCTORAL THESIS

Exploring the Process and Predictors of On-Task and Off-Task Smartphone Multitasking in Real-Time University Classroom

ZHOU, Yujie

Date of Award:
2022

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ABSTRACT

Smartphone multitasking has become prevalent under real-time class contexts, yet its manifestation and antecedents have not been fully investigated. The purpose of this exploratory sequential mixed-method study is to explore Chinese undergraduates' in-class smartphone multitasking behavior and its predictors. By adopting the "multitasking cycle" perspective, this study regards multitasking as a cyclic process of interruption (i.e., switching from class to other activities) and resumption (i.e., switching back to class). In the qualitative phase of this study, 15 Chinese undergraduate students were recruited as key informants via purposeful sampling. The interview findings revealed four themes related to students' in-class smartphone multitasking behavior, namely, smartphone activities, smartphone multitasking modes, duration, and frequency of in-class smartphone multitasking. A total of 20 themes related to the driving force behind off-task smartphone multitasking (at both interruption and resumption stages) and 14 themes related to the predictors of on-task smartphone multitasking were also identified. Qualitative themes were then selected and transformed to guide the development of quantitative research models and the survey instrument. Four research models and a questionnaire instrument were eventually constructed in the interim phase.

In the quantitative phase, the developed survey instrument was used to collect data from a large population of undergraduates from Mainland China to validate the qualitative findings. To further prove the reliability of the collected behavioral data, the experience-sampling method (ESM) approach was adopted to triangulate the findings by collecting "at the moment" data regarding students' in-class smartphone behavior.

The integrated results (qualitative, quantitative, and ESM) regarding in-class smartphone multitasking behavior revealed three smartphone activity types involved in smartphone multitasking, namely, course-unrelated, course-related, and course-unrelated yet learning-related smartphone activities. Three in-class smartphone multitasking modes were also identified, namely, frequent switching, concurrent smartphone multitasking, and immersive smartphone multitasking. Students have a high frequency yet short duration of multitasking with their smartphones. Results regarding the smartphone multitasking predictors indicate that positive and negative affects (i.e., pleasure and boredom, usefulness, and academic stress) act as reinforcers

that play an essential role in driving the interruption stage of both off- and on-task smartphone multitasking. The resumption stage of off-task and on-task smartphone multitasking was predicted by sense of guilt, perceived course value, vigilance, educational cue, perceived cost, relative usefulness, task completion, and leadership of instructors. However, internal drives, such as sense of guilt and perceived course value, greatly influenced students' off-task switching back intention and subsequent switching back behavior, whereas external drives, including leadership of instructors and task completion, greatly influenced students' on-task switching back intention and its actual switching back behavior.

Theoretically, this study advances the conceptualization of “smartphone multitasking” and reveals various aspects of in-class smartphone multitasking behavior. This work contributes to the smartphone multitasking literature by proposing two integrated research models of multitasking predictors, which pave new ways for future explorations of the reasons behind multitasking. Practically, this study proposes some possible ways for teachers to inhibit students' problematic smartphone behaviors during class. The findings of this work can also help students concentrate on classroom learning and mitigate internal and external interruptions to their learning.

Keywords: smartphone multitasking, predictors, multitasking cycle, real-time classroom, undergraduate students.