Full length article

In search of a measure to investigate cyberloafing in educational settings

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ABSTRACT

Cyberloafing is among the problematic tech-trends in contemporary work-based and educational settings. The current study administered an existing three-factor scale to three samples. The factor structure was not confirmed among high school teachers (n: 33), high school students (n: 479) and undergraduates (n: 86). A new and more comprehensive scale to address contemporary cyberloafing behaviors during lectures was developed through literature review, expert panels and observations. Data from undergraduate students (n: 471) were used for construct validation with an exploratory factor analysis (EFA), which revealed a five-factor structure and explained 70.44% of the total variance. Factors were sharing, shopping, real-time updating, accessing online content and gaming/gambling. The scale was administered to another undergraduate student sample (n: 215) and a social networker student group (n: 515). The structure was validated in these new samples through confirmatory factor analyses (CFA). The scale and current findings are expected to facilitate further cyberloafing research in educational settings.

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1. Introduction

Proliferation of internet technologies brought about many socio-psychological phenomena such as technology anxiety, Internet addiction and cyberbullying. Among these phenomena, intentional use of Internet access for personal purposes during work or lectures has become an issue of concern. Referred to as cyberslacking (Block, 2001; Greengard, 2000) or cyberloafing (Lim, 2002; Polito, 1997), this counterproductive use is one of the most common ways employees waste time at work (Weatherbee, 2010). Moreover, the density of cyberloafing is expected to trend upward due to constant advances in online connectivity opportunities and increasing availability of high-tech mobile devices.

Prevalence and predictors of cyberloafing in work-based settings have been documented well with empirical studies (Andreassen, Torsheim, & Pallesen, 2014; Garrett & Danziger, 2008; Sheikh, Atashgah, & Adibzadegan, 2015; Vitak, Crouse, & LaRose, 2011). While some scholars considered it as a counterproductive

act which can cause economic loss (Block, 2001; Greengard, 2000) and reduced system performance due to excessive use of bandwidth (Sipior & Ward, 2002), others addressed its restorative and pleasurable consequences as well (Lim & Chen, 2009; Mastrangelo, Everton, & Jolton, 2006; Page, 2015). Recent work further investigated countermeasures to address cyberloafing such as blocking websites in the black list, providing reminder mechanisms to reduce misuse (Glassman, Prosch, & Shao, 2015), employing security systems to monitor Internet activity or enforcement of sanctions on those who caught cyberloafing (Ugrin & Pearson, 2013).

Though the issue has been primarily investigated in work-based settings, cyberloafing is catching attention from the field of education owing to massive technology integration investments and students' increasing access to digital technologies. Nevertheless, cyberloafing studies in educational settings are relatively novel. Online searches through relevant terms (i.e., cyberloafing, cyberslacking) reveal only a few studies in educational settings where university teachers (Zoghbi-Manrique-de-Lara, 2012), classroom teachers (McBride, Milligan, & Nichols, 2013), or in-service teacher training students (Page, 2015) are taken into consideration. That is, work-based settings are again the primary source of empirical data as observed in the previous literature.

Recent studies began to evaluate the non-academic technology

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use of students in educational settings (Baturay & Toker, 2015; Karaoglan-Yılmaz, Yılmaz, Öztürk, Sezer, & Karademir, 2015; Taneja, Fiore, & Fischer, 2015). For instance, Baturay and Toker (2015) studied with 282 high school students to investigate the potential predictors of cyberloafing, which revealed that male, advanced and frequent users tend to cyberloaf more than female, novice and less frequent users. Similarly, Karaoglan-Yılmaz et al. (2015) studied with 288 freshman students, administered similar data collection tools and retained the findings regarding the predictive power of gender and Internet use frequency. In addition, the department was a significant predictor of cyberloafing. Finally, Taneja et al. (2015) administered a multifactor survey to 274 undergraduate students to investigate the factors influencing students' intentions to use technology for non-class related purposes. The structural equation model sheltered several predictors of cyberloafing attitudes such as consumerism, escapism, lack of attention, cyberloafing anxiety, and distraction by others' cyberloafing behavior. In addition, the role of motivation, engagement and course apathy on students' lack of attention was also explored. These studies either involved limited number of indicators within each factor (e.g., Taneja et al., 2015) or typical online behaviors addressed in previous scales (e.g., Baturay & Toker, 2015; Karaoglan-Yılmaz et al., 2015), whereas current affordances of social networking tools and mobile technologies are not adequately addressed through contemporary indicators.

Contemporary students or so-called digital natives are regarded intuitively as skillful multitaskers who can process multiple sources of information (Prensky, 2001; Veen & Vrakking, 2006). Nonetheless, this assumption is empirically challenged through a recent review (Kirschner & van Merrienböer, 2013). In addition, detrimental effects of multitasking on learning have been reported in different contexts such as mobile phone use and texting during leassons (Rosen, Lim, Carrier, & Cheever, 2008), laptop use (Sana, Weston, & Cepeda, 2013) and online messaging (Wang et al., 2012). A negative relationship with grades was also proposed (Junco & Cotten, 2012; Ravizza, Hambrick, & Fenn, 2014). Students may be switching between different sources of course-related information sequentially or they may be processing such information concurrently at the expense of effective learning. On the other hand, they may also be engaged in electronically-mediated activities that the instructor would consider non-academic such as tweeting and checking Facebook, both of which could be used for academic purposes as well (e.g., Aydin, 2012; Sharma, Joshi, & Sharma, 2016). As soon as students are allowed to use their laptops and mobile phones in the classroom, it is hard to differentiate between academic and non-academic online behaviors without tracking the mobile devices, which can be both unethical and illegal in some contexts. Furthermore, when the course content require students to use their mobile devices or the computer laboratory, the misuse may be indispensable.

In order to explore the nature and prevalence of such non-academic activities during lectures, reliable and valid scales to investigate the construct in educational settings are necessary. Majority of the previous frameworks and measures resorted to employees whereas students are not considered adequately. Moreover, some indicators which address cyberloafing in comfortable office environments (e.g., visiting adult websites) may not be applicable in school settings due to social desirability issues. In this regard, a frequently used cyberloafing scale was administered to different student and teacher populations to see its construct validity in educational settings. Upon unsuccessful validation of the scale with these samples, a new and more comprehensive scale was developed, exploratory and confirmatory analyses on different student samples were conducted, and the proposed factor structure was confirmed for educational contexts.

2. Theoretical background

2.1. Types of cyberloafing

Different types of cyberloafing have been proposed. One of the pioneering studies in the literature was conducted by Lim (2002), who classified cyberloafing as either a browsing or e-mailing activity. While the former included behaviors pertaining to how often individuals used the Internet to surf non-work sites (e.g., investment, news, sports, shopping), the latter involved checking, sending or receiving non-work related e-mails. The structure was quite useful at the time of scale development whereas current social networking technologies and accompanying online behaviors are not available in the scale.

Anandarajan, Devine, and Simmers (2004) examined personal web usage behaviors within two dimensions as 'opportunities versus threats' and 'organizational versus interpersonal'. Based on these two dimensions, personal web usage in the work-based settings was categorized as disruptive, recreational, personal learning and ambiguous use. The classification was useful as it addressed the underlying purpose of cyberloafing. However, the clusters were developed through respondents' perceptions about the appropriateness of a specific behavior rather than through investigating their actual behaviors (Blanchard & Henle, 2008).

Upon reviewing above classifications and relevant empirical work, Blanchard and Henle (2008) revisited the construct and surveyed 222 employed graduate business students. They identified two types of cyberloafing as minor and serious. While the former involved deviant acts like sending and receiving personal e-mails, visiting news or sports sites, online shopping and auctions; the latter involved misuse such as online gambling, surfing adult websites, participating in chat rooms, checking personals and reading blogs. Even though the classification was useful for further studies, differentiating between what is minor and what is serious may depend on the purpose of the action. That is, an employee may participate in chat rooms and read blogs for professional development which may not count as counterproductive for the organization.

Kalaycı (2010) tried to adapt the scale of Blanchard and Henle (2008) for educational settings through her dissertation. She resorted to responses of 205 Turkish undergraduate students. She eliminated non-adaptive items and proposed a new structure within three factors: personal works, socialization and newsreading. While the measure was easy to administer, its content validity was somewhat problematic due to elimination of many items from the original scale. In this regard, further studies in similar contexts employed modifications on the scale (e.g., Baturay & Toker, 2015; Karaoglan-Yılmaz et al., 2015).

In brief, there seems to be different types of cyberloafing which occur at different rates in different settings. Majority of these classifications were generated through resorting to employee data whereas student cyberloafing during lectures have been somewhat disregarded. Besides, these measures do not involve contemporary online behaviors that have become prevalent through constant advances in social networking tools. Thus, the prevalence and nature of the construct should be identified and examined through contemporary and plausible measures in educational contexts.

2.2. Explaining cyberloafing

Antecedents of cyberloafing have been explained through different perspectives. For instance, Lim (2002) resorted to the theoretical frameworks offered by social exchange, organizational justice and neutralization; and developed a model in which the primary source of cyberloafing was perceived justice. That is, when