



## Full length article

# Extending the social cognitive model—Examining the external and personal antecedents of social network sites use among Singaporean adolescents



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## ABSTRACT

This research draws upon the extended social cognitive model to examine how external factors such as adolescents' relationship with their parents, and personal antecedents including depression, loneliness, self-reactive outcome expectation, self-identity, deficient self-regulation, and habit strength, relate to Singaporean adolescents' time spent on social network sites (SNSs). We used multi-stage cluster sampling to recruit a nationally representative sample of adolescents between 13 and 17 years old ( $n = 4920$ ) to complete a self-administered survey. Our extended model achieved good psychometric properties and we found support for most of the proposed hypotheses. Most notably, we found a nuanced difference in how paternal and maternal relationships were associated with adolescents' SNSs use through dependence on SNSs for identity formation—only positive relationship with father has a negative association with adolescents' dependence on SNSs for identity formation. Dependence on SNSs for identity formation has the strongest association with deficient self-regulation and SNSs habit strength, which are antecedents of adolescents' time spent on SNSs. Findings suggest that it is important to account for both external and personal antecedent factors of SNSs consumption. Theoretical and practical implications are discussed.

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Using social network sites (SNSs) has become one of the dominant online activities for young people in recent years (Balakrishnan & Shamim, 2013; Cheung, Chiu, & Lee, 2011). SNSs such as Facebook or Myspace, are defined as web applications that allow users to construct a public profile and connect them with others within the communication system (boyd & Ellison, 2007). Compared to other types of web applications, SNSs' exponential growth are unparalleled (Krishnan & Atkin, 2014). Since the introduction of the first SNS—sixdegrees.com—many people have adopted and integrated SNSs use into their daily lives (De Souza & Dick, 2009). As SNSs have grown to become a popular feature of the web, people's daily routines and SNSs use are almost inextricable (Amichai-hamburger & Vinitzky, 2010; Cheung et al., 2011). The popularity of SNSs flourishes even beyond the North America and the European regions; they are also widely adopted by users in the Asia-pacific regions (Balakrishnan & Shamim, 2013; Lin, Chiu, & Lim, 2011).

Using the social cognitive model as the theoretical framework, we seek to examine the types of antecedent factors that are related to adolescents' SNSs use. The social cognitive model of media attendance—first conceptualized by LaRose, Lin, and Eastin (2003)—is one of the more prominent theoretical models used to

examine media consumption behavior (Bandura, 2001a, 2001b; LaRose et al., 2003). To date, it has been demonstrated to have adequate psychometric properties in media consumption as well as problematic media use<sup>1</sup> research (LaRose, Kim, & Peng, 2010; LaRose

<sup>1</sup> Problematic media use is a multidimensional concept that describes both cognitive and behavioral symptoms of excessive media use, resulting in negative consequences in individuals' social and professional life (Caplan, 2007; Lee et al., 2016). This means that a problematic media user is someone who exhibits signs such as an excessive preoccupation with the media (cognitive symptoms), as well as a lack of efficacy in controlling their time spent on the media (behavioral symptoms), which result in various negative consequences such as impaired family and social relationships, poor performances in school or at work. The dimensions of problematic use have been identified as (a) excessive time spent, (b) compulsivity, (c) withdrawal symptoms, and (d) negative outcomes, and they have been extensively tested in varying problematic media use context (Caplan, 2002, 2005; Caplan, Williams, & Yee, 2009). In the context of SNSs, even though there are conceptual similarities (e.g., withdrawal symptoms, significant negative impact in day to day living) between problematic SNSs use and SNSs addiction (Andreassen, Torsheim, Brunborg, & Pallesen, 2012; LaRose et al., 2010), they are distinct as the usage of the term *problematic SNSs use* avoids a premature diagnosis of a pathological problem, in which its existence is currently debatable. Moreover, scholars need to further address issues on etiology, comorbidity, and treatment, before it can be listed as a behavioral disorder (Ho et al., 2014; Lee et al., 2016). In this manuscript, we choose to focus on time spent on SNS as the outcome of interest as opposed to problematic SNSs use because problematic users only made up a small minority of all SNSs users (Lee et al., 2016).

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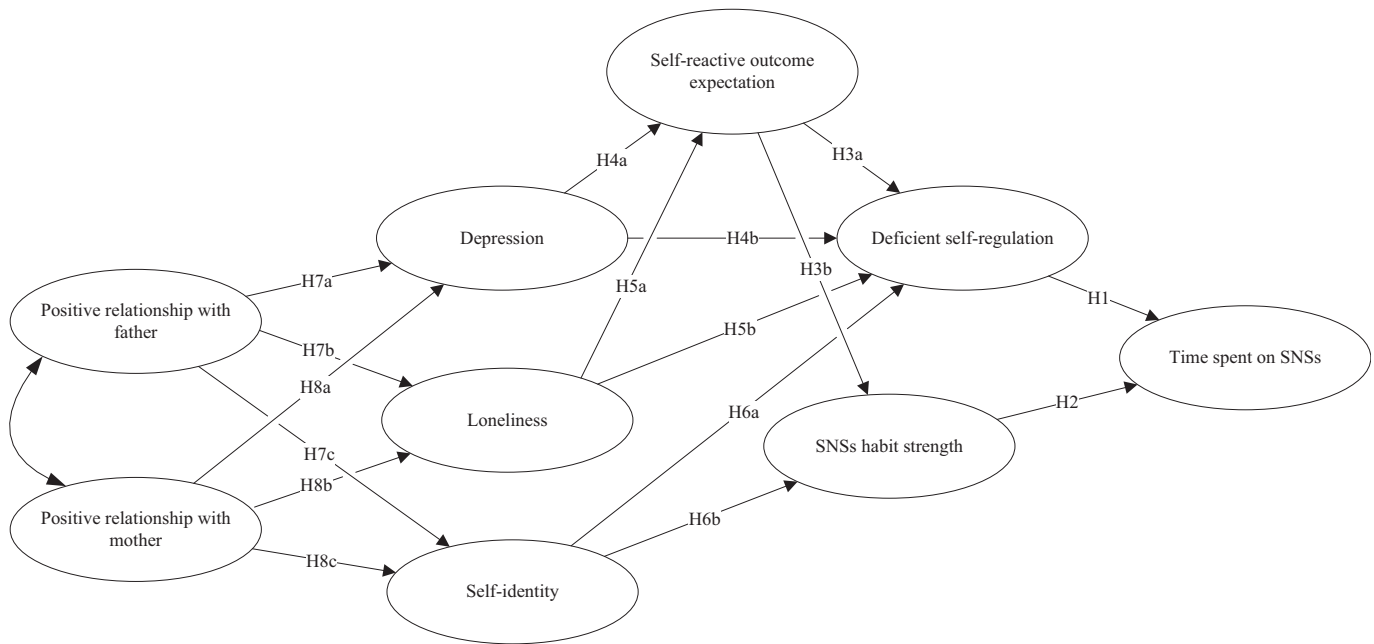


Fig. 1. Hypothesized social cognitive model.

et al., 2003; Lee & LaRose, 2007). It has also been tested in a variety of media consumption contexts such as general internet usage (LaRose & Eastin, 2004), video games (Lee & LaRose, 2007), and SNSs in recent years (LaRose et al., 2010).

The underlying premise of this study is that there is much potential for extending the social cognitive model in the context of SNSs use, as the original model suffers from three major weaknesses. The first and most prominent weakness is that only one main psychosocial problem—depression—was treated as the main antecedent<sup>2</sup> of media consumption through self-reactive outcome expectation, deficient self-regulation, and habit strength in the original model. The effects of other types of psychosocial factors were not examined. Second, the original model primarily focused on individual level constructs and did not account for the role of environmental factors, or the interplay of both personal and external variables in contributing to time spent on media. A third problem is the lack of rigor in the type of statistical analyses used to test the model. The original—as well as subsequent variants of the social cognitive model—were analyzed using path analysis (LaRose et al., 2003; Lee & LaRose, 2007). While there are recognizable benefits of path analysis, one of the major shortcomings of this technique is that the measured variables are assumed to be error free (Kline, 2011; MacCallum & Austin, 2000). There are other statistical issues that are not addressed, such as the failure to correct for common method variance (CMV),<sup>3</sup> which is a prevalent

<sup>2</sup> Apart from depression, the original model includes internet self-efficacy as an additional antecedent factor of internet usage. We did not examine the influence of internet or SNSs self-efficacy in order to achieve a degree of parsimony in our model building.

<sup>3</sup> CMV refers to variances induced by the method of data collection rather than the hypothesized construct (Podsakoff et al., 2003). For instance, in a cross sectional survey, variances among the indicators may be explained by the survey method instead of the hypothesized common latent factors. As such, CMV is a form of measurement error and its presence can have serious confounding effect on the findings of research. To ensure an acceptable level of validity, researchers should control for CMV using various available statistical techniques (Kline, Sulsky, & Rever-Moriyama, 2000; Richardson, Simmering, & Sturman, 2009).

problem that can diminish the validity of the results of cross-sectional behavioral sciences (Lindell & Whitney, 2001; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

This study seeks to address some of the gaps highlighted, and there are four main objectives. First, we examine how key variables in the original model (LaRose et al., 2003)—depression, deficient self-regulation, habit strength, self-reactive outcome expectations—relate to adolescents' time spent on SNSs in Singapore. Second, we propose that loneliness<sup>4</sup> and dependence on SNSs for identity formation<sup>5</sup> are additional personal antecedent factors. Third, we extend the social cognitive model by incorporating external determinants such as adolescents' relationship with father and mother,<sup>6</sup> as explanatory factors that can partially explain adolescents' SNSs use. Fourth, we test our hypothesized social cognitive model using covariance structure modelling that accounts for the influence of CMV (see Fig. 1).

<sup>4</sup> We choose to examine loneliness as an additional personal antecedent factor as lonely people may suffer deficits in offline communication and thus show a preference for online communication on SNSs, which is a risk factor identified in problematic internet use research (Caplan, 2005; Clayton et al., 2013).

<sup>5</sup> We postulate that dependence on SNSs for identity formation may be an antecedent of time spent as one of the developmental goals of adolescents is to achieve identity formation, and SNSs provide the opportunities for adolescents to do so through self-presentation (Kim & Lee, 2011; Santrock, 2008).

<sup>6</sup> We acknowledge that peers may have a direct influence on adolescents' time spent on SNSs (Lee et al., 2016). However, we choose to focus only on the role of parents in this manuscript as the influence of peers on adolescents' time spent on SNSs may not necessarily be activated through the mechanism of deficient self-regulation, which is a key variable in this study. Moreover, studies have found strong empirical links between family environment and self-regulation development as well as how they ultimately influence the growth of problematic media use (Li, Dang, Zhang, Zhang, & Guo, 2014; Yu et al., 2013).

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