

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

This article is a post print version.

Gender and Facebook Motives as Predictors of Specific Types of Facebook Use: A Latent
Growth Curve Analysis in Adolescence

Eline Frison* and Steven Eggermont

Leuven School for Mass Communication Research, Faculty of Social Sciences, KU Leuven,
Leuven, Belgium

Please cite as follows:

Frison, E., & Eggermont, S. (2016). Gender and Facebook motives as predictors of specific
types of Facebook use: A latent growth curve analysis in adolescence. *Journal of
Adolescence* (in print).

Eline Frison, Aspirant FWO Vlaanderen (corresponding author)

E-mail: Eline.Frison@soc.kuleuven.be

Leuven School for Mass Communication Research

Faculty of Social Sciences, KU Leuven

Parkstraat 45 (PO box 3603)

B-3000 Leuven (Belgium)

Phone: +32(0)16-32-32-30

Fax: +32(0)16-32-33-12

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Abstract

Despite increasing evidence that specific types of Facebook use (i.e., active private, active public, and passive Facebook use) are differently related to adolescents' well-being, little is known how these types function over the course of adolescence and whether gender and Facebook motives may predict the initial level and changes in these types over time. To address these gaps, Flemish adolescents (ages 12 to 19) were questioned at three different time points, with six months in between ($N_{\text{Time1}} = 1,866$). Latent growth curve models revealed that active private Facebook use *increased* over the course of adolescence, whereas public Facebook use *decreased*. Passive Facebook use, however, remained *stable*. In addition, gender and Facebook motives were related to initial levels of specific types of Facebook use, and predictive of dynamic change in specific types of Facebook use over time. The discussion focuses on the understanding and implications of these findings.

Keywords: active private Facebook use, active public Facebook use, passive Facebook use, gender, Facebook motives

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Gender and Facebook Motives as Predictors of Specific Types of Facebook Use: A Latent Growth Curve Analysis in Adolescence

The use of social networking sites (SNSs) among adolescents has grown fast in recent years. Reports indicate that 92% of European adolescents report being a member of at least one SNS (Tsitsika et al., 2014). Of these SNSs, Facebook remains the most widely used (Lenhart, 2015). Due to the high amount of time spent on Facebook (e.g., Junco, 2013), concerns have been raised about the potential outcomes of Facebook use on teens' well-being. However, studies have shown that specific types of Facebook have been related to different well-being outcomes (e.g., Frison & Eggermont, 2015). Nevertheless, these studies disregarded the possibility that specific types of Facebook use may display different dynamic processes throughout adolescence. Besides that, it is also unknown whether these types of Facebook use develop differently for boys and girls and for adolescents with specific Facebook motives. This three-wave panel study therefore aims to examine dynamic changes in adolescents' active private, active public, and passive Facebook use over time, and to explore whether adolescents' gender and Facebook motives may predict (the dynamic changes in) these types of Facebook use over time.

This study hereby extends prior research in the following ways. First, by using a developmental framework to examine specific types of Facebook uses over multiple measurement occasions in adolescence, this study not only offers a deeper understanding of potential trends in specific types of Facebook use over time, but may also inform future prevention and intervention programs that aim to reduce harmful types of Facebook use (e.g., Verduyn et al., 2015). Second, by examining adolescents' gender and Facebook motives as predictors of variation in use and trends, this study allows to acquire greater insight in adolescents' gender as a potential vulnerability factor of their Facebook use and how Facebook motives can help explain the impact of using Facebook on teens' well-being.

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Specific Types of Facebook Use: Prevalence

It is not surprising that concerns have been raised about the potential negative outcomes of adolescents' SNS use, as spending time on SNSs, including Facebook, has become part of many teenagers' daily activities. For instance, Junco (2013) indicated that college students report spending an average of more than two hours per day on Facebook. However, scholars (e.g., Burke, Marlow, & Lento, 2010) argue that time spent on Facebook can be filled out in various ways; some use Facebook primarily to interact with others, whereas others mainly use Facebook to know what is going on in other people's lives. In line with the study of Frison and Eggermont (2015), this study differs between active and passive Facebook use.

Active Facebook use refers to "activities that facilitate interaction between the user and other Facebook friend(s)" (Frison & Eggermont, 2015, p. 4). These activities can occur either in a public or private Facebook setting. Active private Facebook use thus includes activities such as Facebook messaging, whereas active public Facebook use refers to activities such as status updating or photo sharing. *Passive* Facebook use, on the other hand, refers to "the monitoring of other people's lives by viewing the content of others' profiles without direct exchanges between the users" (Frison & Eggermont, 2015, p. 4). A passive Facebook user thus consumes content on Facebook but does not communicate with the content owner about it. According to Frison and Eggermont (2015), adolescents engage the most in active private Facebook use, followed respectively by passive and active public Facebook use. In line with these findings, other studies indicated that Facebook users engage more in passive, than in active (public) activities (Pempek, Yermolayeva, & Calvert, 2009; Tobin, Vanman, Verreynne, & Saeri, 2014; Verduyn et al., 2015).

Facebook Use in Adolescence: Developmental Considerations

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Adolescence is characterized by various changes; biological, psychological, and social (Steinberg, 2008). One of the central developmental tasks facing adolescents is that of achieving a coherent identity, i.e., a strong and stable sense of self (Erikson, 1950, 1968). A second major task is that of developing close relationships with peers (Brown, 2004), as teens face an increasing need for autonomy and independence. At the same time, research has shown that when entering adolescence, teens spend greater amount of time on SNSs (Rideout, 2015). This is not surprising as SNSs offer adolescent users an ideal social context to cope with the developmental tasks they are facing (Borca, Bina, Keller, Gilbert, & Begotti, 2015; Subrahmanyam & Smahel, 2011). We therefore believe that adolescents will turn to specific types of Facebook use to cope with these developmental challenges and will even change their Facebook habits to meet their specific developmental needs. These expectations are built on *the co-construction model* (Subrahmanyam & Smahel, 2011). This model argues that adolescents construct and co-construct their online worlds, which may lead to psychologically connected online and offline lives. As a result, online worlds offer adolescents a new social setting to combat the developmental tasks faced in their offline worlds.

First, we expect that teens will turn to *active private Facebook use* throughout adolescence, as interacting on Facebook in a private setting is the ideal tool to satisfy teens' growing need to establish and maintain close relationships with peers. However, we expect that teens will turn away from *active public Facebook use* throughout adolescence. The public Facebook setting in particular offers adolescents a perfect platform for self-presentation and thus for satisfying their need for identity exploration. Especially during young adolescence, self-presentation becomes particularly important, as teens are just starting to explore their identity (Brinthaup & Lipka, 2002). Livingstone (2008), for instance, found that younger adolescents presented their identity more often on SNSs compared to older

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

adolescents. Similarly, Subrahmanyam and Smahel (2011) suggested that sharing photos to manage one's self-presentation may be especially important for younger adolescents.

Second, we expect that teens will turn to *passive Facebook activities* throughout adolescence, as Facebook browsing allows users to be easily reminded of one's personal connections and thus to satisfy adolescents' need to belong to a peer group. In other words, through passive consumption of Facebook content, users can constantly update themselves about other people's lives, which may fulfill teens' belongingness needs (Nadkarni & Hofmann, 2012). In addition, teens may also turn to passive Facebook features more during the course of adolescence, as it provides them a convenient tool for coping with increased feelings of boredom (Spaeth, Weichold, & Silbereisen, 2015).

Gender as a Predictor

Although little is known about why some adolescents use Facebook more than others, the literature does suggest that adolescents' gender may partly account for these differences. Based on previous studies, we particularly expect that girls will have higher initial levels of all three types of Facebook use than boys. Moreover, various studies reported that girls spend more time on SNSs than boys (e.g., Rideout, 2015; Sampasa-Kanyinga & Lewis, 2015; Tsitsika et al., 2014). With regard to Facebook, research showed that female college students use Facebook more than male college students (e.g., Sheldon, Abad, & Hirsch, 2011). For instance, studies have shown that female Facebook users spent more time passively using Facebook (e.g., McAndrew & Jeong, 2012), but also report more active Facebook use (e.g., Simoncic, Kuhlman, Vargas, Houchins, & Lopez-Duran, 2014).

Motives as Predictors

Uses and gratifications theory (Katz, Haas, & Gurevitch, 1973) argues that individuals actively select specific media content that satisfies their psychological needs. Based on this theory, Facebook use can be considered as motivated behavior with people

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

purposefully selecting Facebook or specific Facebook activities. Recently, however, scholars have suggested that Facebook users may attend to different Facebook features for different reasons (e.g., Baek, Holton, Harp, & Yaschur, 2011; Smock, Ellison, Lampe, & Wohn, 2011). Given that adolescents are facing specific developmental tasks throughout this life stage, we expect, in line with this scholarly claim, that specific motives relate to teens' developmental tasks, which in turn may drive specific Facebook uses.

First, we expect that relationship maintenance and escapism predict all three types of Facebook use. As adolescents are facing an increasing need to belong to a peer group, we expect that maintaining close peer relationships becomes particularly important. Facebook is the perfect platform to maintain friendships (Yang & Brown, 2013), as active Facebook features allow users to interact with their peers and passive Facebook features allow users to be constantly reminded about what others are doing. In addition, adolescence is a turbulent period with increasing stress (Compas, 1987). As a result, there is a great need to find ways to escape the stresses of daily life. Facebook offers adolescents such a place where one can go to escape the unpleasant aspects of everyday life (Papacharissi & Mendelson, 2010).

Second, we expect that information sharing additionally predicts active public Facebook use, whereas passing time further explains passive Facebook use. On the one hand, information sharing may become especially important in adolescence, as teens are exploring their identity and develop a specific need for self-presentation. The public Facebook platform offers adolescents an ideal platform to present themselves to others (Smock et al., 2011), as it allows to easily share interests, feelings, etc. with others. On the other hand, during adolescence, finding appropriate tools to pass time may become also important, as teens are confronted with increasing leisure boredom during this developmental period (Spaeth et al., 2015). Passive Facebook tools allow teens to easily kill time and to cope with these feelings of boredom.

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Aims and Hypotheses

To conclude, this three-wave panel study aims to examine dynamic changes in adolescents' active private, active public, and passive Facebook use over time, and to explore whether adolescents' gender and Facebook motives may influence these types of Facebook use and/or predict the dynamic changes in these types of Facebook use over time. More specifically, in line with previous findings which highlight the need to consider specific types of Facebook use not as constant, fixed influences, but rather as dynamic, developmentally driven behaviors in itself, we hypothesize that, over the course of adolescence, active private and passive Facebook use will *increase*, whereas active public Facebook use will *decrease*. In addition, we hypothesize that gender, relationship maintenance, and escapism motives will predict all three types of Facebook use, whereas information sharing and pass time motives will be additionally related to respectively adolescents' active public and passive Facebook use. Given that no study thus far examined the relationship between gender and Facebook motives as predictors of trends in specific types of Facebook use, we will explore whether they are related to changes in specific types of Facebook use over time.

Method

Procedure

A three-wave panel study of adolescents in Flanders (i.e., the northern part of Belgium) was conducted. A two-step approach was used. First, a random school sample was drawn. Second, schools willing to participate were visited during regular school hours. Participants filled out a paper-and-pencil questionnaire at three time points, with six months in between (i.e., T1 = October 2013; T2 = March 2014; T3 = October 2014). Informed consent was obtained in accordance with the customary guidelines in Belgium. The participants were assured that all responses would be treated confidentially. All procedures were approved by the institutional review board of the host university.

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Participants

The final sample comprised of 1,866 adolescents in the first wave, 1,840 adolescents in the second wave, and 1,577 adolescents in the third wave; 1,102 adolescents participated at all three time points (59% of the first wave). As this study aims to explore trends in Facebook use, we only included the 85% of participants who had a Facebook account at all three time points. At baseline, these participants (49% boys) ranged in age between 11 and 18 years old ($M = 14.39$; $SD = 1.39$) and 46% followed a general educational program. In addition, the majority of this sample (93%) was born in Belgium.

Differences were explored between adolescents who participated in all waves ($N = 1,102$) and those who participated only in one or two waves ($N = 1,248$) regarding all relevant variables (all Time 1). A multivariate analysis of variance using Pillai's trace revealed significant differences, $V = .01$, $F(7, 1158) = 2.06$, $p < .05$, $h_p^2 = .01$. Follow-up univariate analyses showed that adolescents who participated in all three waves scored lower on escapism motives ($M = 3.03$; $SD = .86$), compared to those who participated in only one or two waves ($M = 3.11$; $SD = .92$), $F(1, 1620) = 2.76$, $p < .10$.

Measures

Types of Facebook Use. The 10-item Multidimensional Scale of Facebook Use (Frison & Eggermont, 2015) assesses three types of Facebook activities. Using a seven-point Likert Scale (1 = *never* to 7 = *several times per day*), *active private Facebook use* was measured with two items: "How often do you send someone a personal message on Facebook" and "How often do you chat with someone on Facebook". *Active public Facebook use* was measured with three items: "How often do you post a message on your own Facebook timeline", "How often do you post a photo on your own Facebook timeline" and "How often do you post something else (e.g., a picture or video) on your own Facebook timeline". *Passive Facebook use* was measured with five items: "How often do you read

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

your news feed”, “How often do you visit a Facebook profile of a Facebook friend”, “How often do you visit a Facebook profile of a non-Facebook friend”, “How often do you watch photos of a Facebook friend” and “How often do you watch photos of a non-Facebook friend”. An exploratory factor analysis however showed that the item “How often do you read your news feed” loaded highly on private Facebook use. Because the content of this item does not match the item content of the active private Facebook use items, we decided, in line with Frison and Eggermont (2015), to exclude this item from our analyses. For each type, the item scores were averaged (*active private Facebook use*: $\rho_{\text{Time1}} = .73$; $\rho_{\text{Time2}} = .84$; $\rho_{\text{Time3}} = .82$; *active public Facebook use*: $\alpha_{\text{Time1}} = .86$; $\alpha_{\text{Time2}} = .85$; $\alpha_{\text{Time3}} = .86$; *passive Facebook use*: $\alpha_{\text{Time1}} = .86$; $\alpha_{\text{Time2}} = .87$; $\alpha_{\text{Time3}} = .88$).

Facebook Motives. We used four subscales of Papacharissi and Mendelson (2010) Facebook motives scales: Relationship maintenance (two items), escapism (three items), information sharing (five items), and pass time (five items). Participants indicated on a five-point Likert Scale (1 = *strongly disagree* to 5 = *strongly agree*) how likely they are to use Facebook for each of the four motives. All items in the scales began with “I use Facebook ...”. Examples of items are: “... to keep in touch with friends and family” (i.e., relationship maintenance; $\rho_{\text{Time1}} = .76$); “... so I can get away from what I’m doing” (i.e., escapism; $\alpha_{\text{Time1}} = .70$); “... to provide information” (i.e., information sharing; $\alpha_{\text{Time1}} = .89$); “... when I have nothing better to do” (i.e., pass time; $\alpha_{\text{Time1}} = .80$). Based on the average of the items of each scale, an estimate for each motive was created.

Analyses

We used the full-information maximum likelihood approach to latent growth curve modeling (AMOS) to examine the initial level (i.e., intercept) and the change (i.e., slope) in specific types of Facebook use over time (Duncan, Duncan, & Strycker, 2011). Model fit was evaluated using the chi-squared to degrees of freedom ratio (χ^2/df), the root mean square

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

error of approximation (RMSEA), and the comparative fit index (CFI) (Byrne, 2010). First, we tested an unconditional model (i.e., a model without the predictors). Given the correlations between the three types of Facebook use (Frison & Eggermont, 2015), we tested three growth curves (i.e., active private, active public, and passive Facebook use) in one overall model, instead of testing three growth curves in separate models. This allows us to control for the correlations between the three types of Facebook use. The means of the intercepts in this model represent the average level of the types of Facebook use at baseline. The means of the slopes represent the average rate of change in the types of Facebook use across the three waves. Non-linear change was not estimated, because there were only three time points. The variance around the intercept and slope was also modeled. Second, we tested in a conditional model whether gender and Facebook motives were related to the intercepts and slopes, and we controlled for adolescents' age. This was done by regressing the intercepts and slopes of the three types of Facebook use on adolescents' gender, Facebook motives, and age.

We conducted curve-of-factor models (McArdle, 1988), also called latent variable longitudinal curve models (Meredith & Tisak, 1990) or second-order latent growth curve models (Hancock, Kuo, & Lawrence, 2001). These models allow us (1) to use multiple indicators instead of a composite score for each type of Facebook use and hereby estimate and account for the measurement error associated with each indicator, and (2) to examine the factorial invariance of the indicators over time (Hancock et al., 2001). For example, in the unconditional curve-of-factors model, the observed indicators at each time point were factor-analyzed to produce factor scores of active private, active public, and passive Facebook use at each time point. The intercepts and slopes of these types of Facebook use were then used for modeling three growth curves.

Results

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Descriptive Statistics

Means, standard deviations, and zero-order correlations for all study variables are presented in Table 1.

[Table 1 about here]

Because participants were nested in schools, we assessed intra-class correlation coefficients (ICCs) of the outcome variables. The ICC describes “the proportion of variance that is common to each unit, as opposed to variation that is associated with individuals within their unit” (Heck, Thomas, & Tabata, 2011, p. 73-74). If there exists substantial variability between schools (i.e., $p < .05$), it is necessary to conduct multilevel modeling to analyze the data (Heck et al., 2011). Results showed that the schools accounted for 5.3% of the variance in passive Facebook use (Wald $Z = 1.81$, $p > .05$), 2.2% of the variance in active private Facebook use (Wald $Z = 1.94$, $p > .05$), and 9.1% of the variance in active public Facebook use (Wald $Z = 2.44$, $p < .05$). Although most of the variance of passive and active private Facebook use was accounted for at the individual level, results revealed that the intercept of active public Facebook use varied significantly across schools. A multilevel model for active public Facebook use is therefore warranted.

Unconditional Model

The unconditional model showed a good model fit, $\chi^2(289) = 1112.72$, $p < .001$; RMSEA = .056; CFI = .95; $\chi^2/df = 3.85$. First, for *active private Facebook use*, results revealed significant variability in both the starting point, $\beta_0 = 5.51$, $p < .001$, and the change over time, $\beta_1 = .11$, $p < .05$. In others words, active private Facebook use significantly increased over time. Second, for *active public Facebook use*, results revealed significant variability in both the intercept, $\beta_0 = 2.90$, $p < .001$, and the change over time, $\beta_1 = -.43$ $p < .001$. Active public Facebook use thus significantly decreased over time. Third, for *passive Facebook use*, results revealed significant variability in the starting point, $\beta_0 = 4.40$; $p < .001$,

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

but not in the change over time ($p > .05$). In addition, the variances of intercept and slope of active private, active public, and passive Facebook use were also significant ($p < .05$), which indicates that not all individuals increase or decrease at the same rate.

Conditional Model

A conditional model (see Figure 1) was tested and revealed an excellent fit, $\chi^2(829) = 2659.22, p < .001$; RMSEA = .049; CFI = .92; $\chi^2/df = 3.21$. First, for *active private Facebook use*, results indicated that girls ($\beta_0 = .13, p < .001$) reported more active private Facebook use than boys. In addition, escapism ($\beta_0 = .36, p < .001$) and relationship maintenance ($\beta_0 = .27, p < .001$) both positively predicted active private Facebook use. Furthermore, escapism ($\beta_1 = -.13, p < .05$) and relationship maintenance ($\beta_1 = -.14, p < .05$) were positively related to a slower increase in active private Facebook use. Second, for *active public Facebook use*, results showed that escapism ($\beta_0 = .21, p < .001$) and information sharing ($\beta_0 = .17, p < .001$) positively predicted active public Facebook use. In addition, information sharing ($\beta_1 = .12, p < .05$) was positively related to a slower decrease in active public Facebook use. Third, for *passive Facebook use*, results showed that escapism ($\beta_0 = .47, p < .001$) and relationship maintenance ($\beta_0 = .19, p < .001$) positively predicted passive Facebook use.

[Figure 1 about here]

Additional Analysis: Multilevel Modeling for Active Public Facebook Use

Given that the intercept of active public Facebook use varied significantly across schools, we conducted multilevel modelling for active public Facebook use to partial out any interdependency effects. The SPSS MIXED procedure and restricted maximum likelihood estimation were used (Heck et al., 2011).

First, to examine individual change in active public Facebook use over time, we added a measure of time to our null-model. We further controlled for participants' passive and

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

active private Facebook use. The fixed effect results revealed a significant intercept ($\beta_0 = 1.21, p < .001$) and slope ($\beta_1 = -.21, p < .001$). Results were thus in line with the unconditional SEM model. Second, to explain the observed differences in participants' initial level of active public Facebook and their growth trajectories, we added a measure of time and a set of predictors to our null-model. More specifically, we included adolescents' gender, age, escapism at Time 1, relationship maintenance at Time 1, and expressive information sharing at Time 1 as covariates in the model. In line with the conditional SEM model, the fixed effect results showed that escapism ($\beta_0 = .13, p < .01$) and information sharing ($\beta_0 = .34, p < .001$) positively predicted adolescents' active public Facebook use. Different from the conditional SEM model, relationship maintenance positively predicted active public Facebook ($\beta_0 = .10, p < .05$) and a more rapid decrease in active public Facebook use over time ($\beta_1 = -.10, p < .05$).

Discussion

This study applied a developmental perspective to explore dynamic changes in active private, active public, and passive Facebook use over the course of adolescence, and to examine whether these types of Facebook use develop differently for boys and girls, and for adolescents with specific Facebook motives. Results showed that active private Facebook use *increased* over the course of adolescence, whereas public Facebook use *decreased*. These findings are consistent with our expectations, based on *the co-construction model* (Subrahmanyam & Smahel, 2011). According to this model, adolescents construct and co-construct their online worlds. As a result, they may turn to an online setting to combat the developmental challenges faced in their offline worlds.

First, results confirmed that private Facebook interactions *increased* over the course of adolescence, whereas public Facebook interactions *decreased*. Our findings hereby provide evidence that this growth in active private Facebook use may be due to adolescents'

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

increasing need for establishing and retaining close relationships with peers, whereas the descent in active public Facebook use may be due to the fulfillment of identity exploration needs in young adolescence. However, this decrease in adolescents' public Facebook use may be additionally explained by the fact that today's teenagers are moving to alternative online platforms, such as Instagram and Snapchat, for engaging in public interaction.

Research has shown that half of American teenagers report using Instagram, whereas 41% report using Snapchat (Lenhart, 2015). This recent shift towards other social media may be because of Facebook's omnipresence; everyone we have ever met (e.g., parents and teachers) or will meet (e.g., future employers) can have access to our lives via Facebook. As a result, teens have become more cautious about what they share publicly on Facebook and may therefore engage more in public sharing on Instagram and Snapchat but less on Facebook. Although future research is needed to investigate this potential explanation more in-depth, our results are in line with recent scholarly claims that teens are diversifying their SNS use (e.g., Lenhart, 2015).

Second, somewhat unexpected, passive Facebook use remained stable during adolescence. Based on this finding, we may recommend prevention and intervention programs that aim to reduce this harmful Facebook use (e.g., Verduyn et al., 2015) to target their programs at adolescents of all ages, instead of focusing on a specific adolescent age group, as it is during this entire developmental period that adolescents passively use Facebook at a constant, but high rate.

Gender as a Predictor

In line with our expectations, results confirmed that girls have higher initial levels of active private Facebook use, compared to boys. This difference between boys and girls is not surprising, as private Facebook activities such as Facebook messaging may particularly fulfill girls' social role expectations. According to Eagly, Wood, and Diekmann (2000) differences

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

in social behaviors are embedded in social roles. People have specific expectations about female and male characteristics: whereas males are expected to develop traits that manifest agency (e.g., being independent), females are expected to develop traits that manifest communal behavior (e.g., being social). These gender roles may further predict sex differences in social behavior. Given that online behaviors are new forms of social behaviors, scholars argue that gender roles may also predict sex differences in online behaviors (e.g., Kimbrough, Guadagno, Muscanell, & Dill, 2013). Our findings confirm this reasoning, as active private Facebook use is the perfect tool to maintain peer relationships, which fit in perfectly with the expected traits for girls.

Motives as Predictors

On the one hand, this study examined whether specific Facebook motives predicted specific types of Facebook use. As expected, escapism motives positively predicted all three types of Facebook use. Relationship maintenance additionally predicted active private and passive Facebook use, whereas information sharing additionally predicted active public Facebook use. These findings provide support for the suggestion that teens' developmental needs may drive their Facebook use. During adolescence, teens are facing an increasing need to belong to a peer group and to explore their identity, but they also have to cope with new stressors. To combat these different developmental challenges, our results showed that Facebook may be an ideal platform.

Results particularly revealed that escapism motives were the only type of motives that predicted all three types of Facebook use. This implies that when adolescents want to escape the stresses of daily life, different types of Facebook use can fulfill this need. In other words, Facebook offers users various tools to escape the unpleasant aspects of everyday life. However, somewhat unexpected, relationship maintenance was not a predictor of active public Facebook use. Thus, interacting in a public setting on Facebook is especially driven

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

by a desire to share information with others or to escape the stresses of daily life, rather than to maintain relationships. This can be explained by the fact that private and passive Facebook use, but also private messaging apps, such as WhatsApp, offer adolescents alternative platforms for social interaction, which may be more suitable for relationship maintenance and therefore more attractive than a public Facebook setting. In addition, pass time motives were not a predictor of passive Facebook use. Although finding appropriate tools to pass time becomes particularly important during adolescence, our findings revealed that passive Facebook tools are not used to combat adolescents' feelings of boredom. Other social media, such as Snapchat might be more used to pass time than Facebook. However, future research is needed to further explore these suggestions.

On the other hand, this study also explored whether these motives are related to change in Facebook use over time. Results indicated that escapism and relationship maintenance motives were related to a slower increase in active private Facebook use, whereas information sharing motives were associated to a slower decrease in active public Facebook use. However, more research is needed to identify other factors that could stimulate the growth or slow down the descent in *beneficial* types of Facebook use (i.e., active private and public Facebook use) (e.g., Frison & Eggermont, 2015), as we found that only information sharing motives were capable to slow down the descent in active public Facebook use. Personality characteristics, for instance, could be such factors, as studies already identified personality characteristics as predictors of specific types of Facebook use (e.g., Winter et al., 2014).

Limitations and Conclusions

The findings of this study need to be considered with an understanding of its shortcomings in mind. Although this study is the first to examine how active private, active public, and passive Facebook use function over time, we did not examine whether this

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

dynamic change may further harm or protect adolescents' well-being. To provide a more complete picture of the antecedents and outcomes of the dynamic change in adolescents' Facebook use, future studies should assess whether these trends in specific types of Facebook use over the course of adolescence are related to negative or positive well-being outcomes. Additionally, although this study relied on the Multidimensional Scale of Facebook Use to measure active private, active public, and passive Facebook use, the private Facebook use subscale, in particular, may be limited by its small amount of items (i.e., two items). These items may not have fully covered all the activities that could be understood as active private Facebook use. We recommend that active private Facebook use is assessed with a larger number of items in future studies. Lastly, this study is limited by the fact that our data only cover three measurement points, over a 1.5-year period. The estimations of our latent growth curve models would be more precise and reliable with more measurement points (Byrne, 2010). It is important that future studies use data gathered over a longer period over time, in order to more accurately explore how Facebook activities may change or remain stable over the course of adolescence.

Despite these limitations, this study is the first to show that active private Facebook use *increases* over the course of adolescence, whereas active public Facebook *decreases* over time. Passive Facebook use however remains *stable* during adolescence. Additionally, gender and Facebook motives were related to initial levels of specific types of use, and predictive of dynamic change in specific types over time. We believe that these results offer valuable insights to prevention and intervention programs that aim to reduce some types of Facebook use and/or stimulate other types of Facebook use.

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

References

- Baek, K., Holton, A., Harp, D., & Yaschur, C. (2011). The links that bind: Uncovering novel motivations for linking on Facebook. *Computers in Human Behavior, 27*, 2243–2248. doi: 10.1016/j.chb.2011.07.003
- Borca, G., Bina, M., Keller, P. S., Gilbert, L. R., & Begotti, T. (2015). Internet use and developmental tasks: Adolescents' point of view. *Computers in Human Behavior, 52*, 49–58. doi: 10.1016/j.chb.2015.05.029
- Brinthaup, T. M., & Lipka, R. P. (2002). Understanding early adolescent self and identity: An introduction. In T. M. Brinthaup & R. P. Lipka (Eds.), *Understanding early adolescent self and identity: Applications and interventions* (pp. 1–21). Albany, NY: State University of New York Press.
- Brown, B. B. (2004). Adolescents' relationships with peers. In R. R. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology* (pp. 363–394). Hoboken, NJ: John Wiley & Sons.
- Burke, M., Marlow, C., & Lento, T. (2010). Social network activity and social well-being. In *Proceedings of the 2010 ACM conference on human factors in computing systems* (pp. 1909–1912). Atlanta, USA: ACM.
- Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Lawrence Erlbaum.
- Compas, B. E. (1987). Stress and life events during childhood and adolescence. *Clinical Psychology Review, 7*, 235–302. doi: 10.1016/0272-7358(87)90037-7
- Duncan, T. E., Duncan, S. C., & Strycker, L. A. (2011). *An introduction to latent variable growth curve modeling: Concepts, issues, and applications*. New Jersey, NJ: Lawrence Erlbaum Associates.

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

- Eagly, A. H., Wood, W., & Diekmann, A. (2000). Social role theory of sex differences and similarities: A current appraisal. In T. Eckes & H. M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 123–174).
- Erikson, E. H. (1950). *Childhood and society*. New York: Norton.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.
- Frison, E., & Eggermont, S. (2015). Toward an integrated and differential approach to the relationships between loneliness, different types of Facebook use and adolescents' depressed mood. *Communication Research, 1*, 1–36. doi: 10.1177/0093650215617506
- Hancock, G. R., Kuo, W-L., & Lawrence, F. R. (2001). An illustration of second-order latent growth models. *Structural Equation Modeling, 8*, 470–489.
- Heck, R. H., Thomas, S. L., & Tabata, L. N. (2013). *Multilevel and longitudinal modeling with IBM SPSS*. New York: Routledge.
- Junco, R. (2013). Comparing actual and self-reported measures of Facebook use. *Computers in Human Behavior, 29*, 626–631. doi: 10.1016/j.chb.2012.11.007
- Katz, E., Haas, H., & Gurevitch, M. (1973). On the use of the mass media for important things. *American Sociological Review, 38*, 164–181.
- Kimbrough, A. M., Guadagno, R. E., Muscanell, N. L., & Dill, J. (2013). Gender differences in mediated communication: Women connect more than do men. *Computers in Human Behavior, 29*, 896–900. doi: 10.1016/j.chb.2012.12.005
- Lenhart, A. (2015). *Teens, social media and technology overview 2015*. Washington, D.C.: Pew Internet & American Life Project.
- Livingstone, S. (2008). Taking risky opportunities in youthful content creation: Teenagers' use of social networking sites for intimacy, privacy and self-expression. *New Media & Society, 10*, 393–411. doi: 10.1177/1461444808089415

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

- McAndrew, F. T., & Jeong, H. S. (2012). Who does what on Facebook? Age, sex, and relationship status as predictors of Facebook use. *Computers in Human Behavior, 28*, 2359–2365. doi: 10.1016/j.chb.2012.07.007
- McArdle, J. J. (1988). Dynamic but structural equation modeling of repeated measures data. In R. B. Cattell, & J. Nesselroade, J. (Eds), *Handbook of multivariate experimental psychology* (pp. 561-614). New York, NY: Plenum Press.
- Meredith, W., & Tisak, J. (1990). Latent curve analysis. *Psychometrika, 55*, 107–122.
- Nadkarni, A., & Hofmann, S. G. (2012). Why do people use Facebook? *Personality and Individual Differences, 52*, 243–249. doi: 10.1016/j.paid.2011.11.007
- Papacharissi, Z., & Mendelson, A. (2010). Toward a new(er) sociability: Uses, gratifications, and social capital on Facebook. In S. Papathanassopoulos (Ed.), *Media perspectives for the 21st century* (pp. 212–230). New York, NY: Routledge.
- Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009). College students' social networking experiences on Facebook. *Journal of Applied Developmental Psychology, 30*, 227–238. doi: 10.1016/j.appdev.2008.12.010
- Rideout, V. (2015). *The common sense census: Media use by tweens and teens*. San Francisco, CA: Common Sense Media.
- Sampasa-Kanyinga, H., & Lewis, R. F. (2015). Frequent use of social networking sites is associated with poor psychological functioning among children and adolescents. *Cyberpsychology, Behavior, and Social Networking, 18*, 380–385. doi: 10.1089/cyber.2015.0055
- Sheldon, K. M., Abad, N., & Hinsch, C. (2011). A two-process view of Facebook use and relatedness need-satisfaction: Disconnection drives use, and connection rewards it. *Journal of Personality and Social Psychology, 100*, 766–775. doi: 10.1037/a0022407

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Simoncic, T. E., Kuhlman, K. R., Vargas, I., Houchins, S., & Lopez-Duran, N. L. (2014).

Facebook use and depressive symptomatology: Investigating the role of neuroticism and extraversion in youth. *Computers in Human Behavior*, *40*, 1–5. doi:

10.1016/j.chb.2014.07.039

Smock, A. D., Ellison, N. B., Lampe, C., & Wohn, D. Y. (2011). Facebook as a toolkit: A

uses and gratification approach to unbundling feature use. *Computers in Human*

Behavior, *27*, 2322–2329. doi: 10.1016/j.chb.2011.07.011

Spaeth, M., Weichold, K., & Silbereisen, R. K. (2015). The development of leisure boredom

in early adolescence: Predictors and longitudinal associations with delinquency and

depression. *Developmental Psychology*, *51*, 1380–1394. doi: 10.1037/a0039480

Steinberg, L. (2005). *Adolescence*. New York, NY: McGraw-Hill.

Subrahmanyam, K., & Smahel, D. (2011). *Digital Youth*. New York, NY: Springer.

Tobin, S. J., Vanman, E. J., Verreynne, M., & Saeri, A. K. (2014). Threats to belonging on

Facebook: Lurking and ostracism. *Social Influence*, 1–12. doi:

10.1080/15534510.2014.893924

Tsitsika, A. K., Tzavela, E. C., Janikian, M., Ólafsson, K., Iordache, A., Schoenmakers, T.

M., ... Richardson, C. (2014). Online social networking in adolescence: Patterns of use

in six European countries and links with psychosocial functioning. *Journal of*

Adolescent Health, *55*, 141–147. doi: 10.1016/j.jadohealth.2013.11.010

Verduyn, P., Lee, D. S., Park, J., Shablack, H., Orvell, A., Bayer, J., ... Kross, E. (2015).

Passive Facebook usage undermines affective well-being: Experimental and longitudinal

evidence. *Journal of Experimental Psychology: General*, 1–9. doi: 10.1037/xge0000057

Winter, S., Neubaum, G., Eimler, S. C., Gordon, V., Theil, J., Herrmann, J., ... Krämer, N. C.

(2014). Another brick in the Facebook wall – How personality traits relate to the content

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

of status updates. *Computers in Human Behavior*, 34, 194–202. doi:

10.1016/j.chb.2014.01.048

Yang, C., & Brown, B. B. (2013). Motives for using Facebook, patterns of Facebook activities, and late adolescents' social adjustment to college. *Journal of Youth and Adolescence*, 42, 403–416. doi: 10.1007/s10964-012-9836-x

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Table 1

Descriptive Statistics and Zero-Order Correlations.

	Min	Max	M (SD)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Active private FB use (T1)	1	7	5.04 (1.55)	1	.64**	.51**	.47**	.33**	.19**	.51**	.42**	.40**	.34**	.27**	.16**	.33**
2. Active private FB use (T2)	1	7	5.18 (1.54)		1	.61**	.33**	.40**	.17**	.40**	.55**	.38**	.28**	.23**	.32**	.29**
3. Active private FB use (T3)	1	7	5.43 (1.47)			1	.27**	.30**	.24**	.36**	.40**	.51**	.24**	.24**	.26**	.24**
4. Active public FB use (T1)	1	7	2.79 (1.23)				1	.59**	.37**	.45**	.36**	.30**	.29**	.34**	.39**	.30**
5. Active public FB use (T2)	1	7	2.60 (1.20)					1	.50**	.37**	.45**	.33**	.23**	.25**	.50**	.23**
6. Active public FB use (T3)	1	7	2.44 (1.14)						1	.24**	.22**	.41**	ns	.22**	.27**	.13**
7. Passive FB use (T1)	1	7	3.75 (1.36)							1	.70**	.60**	.24**	.31**	.29**	.39**
8. Passive FB use (T2)	1	7	3.81 (1.36)								1	.62**	.27**	.27**	.38**	.33**
9. Passive FB use (T3)	1	7	3.89 (1.38)									1	.18**	.21**	.29**	.22**
10. Relationship maintenance (T1)	1	5	3.97 (.85)										1	.35**	.23**	.25**
11. Escapism (T1)	1	5	3.04 (.86)											1	.30**	.51**
12. Information sharing (T1)	1	5	2.91 (.91)												1	.28**
13. Pass time (T1)	1	5	3.48 (.80)													1

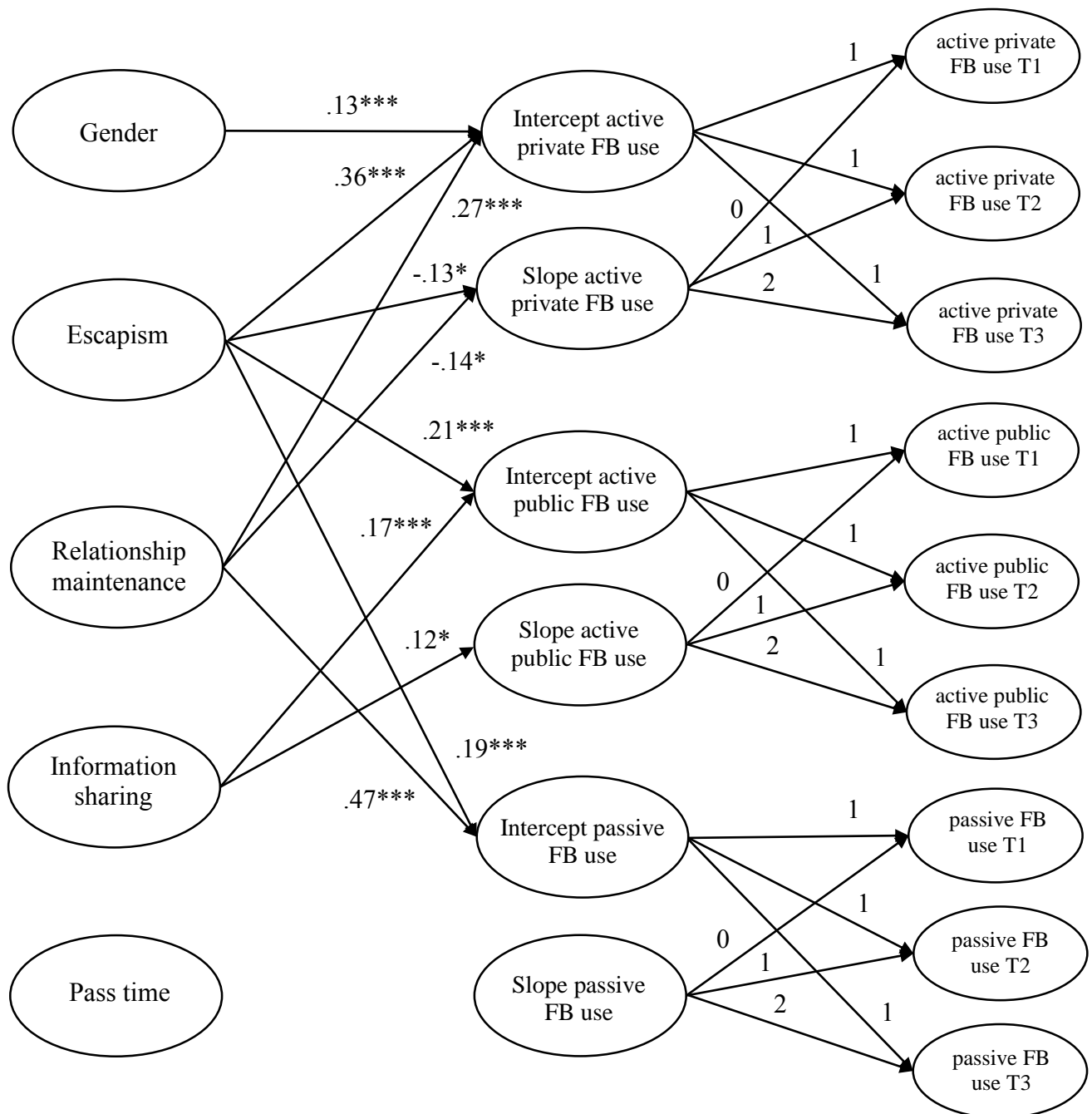
Note. $N_{\text{Time1}} = 1,866$

FB = Facebook; T1 = Time 1; T2 = Time 2; T3 = Time 3

* $p < .05$; ** $p < .01$

TYPES OF FACEBOOK USE: A LATENT GROWTH CURVE ANALYSIS

Figure 1. Conditional latent growth curve model.



Note. Values reflect standardized coefficients. Ovals represent latent constructs. For clarity of presentation, covariances, control variables, observed indicators, and error terms are not shown.

FB = Facebook; T1 = Time 1; T2 = Time 2; T3 = Time 3

All paths are significant at $p < .05$; * $p < .05$; ** $p < .01$; *** $p < .001$