Psychosocial consequences of adolescents’ online communication
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CHAPTER 6

discussion
For a healthy psychosocial development, it is crucial that adolescents acquire adequate levels of self-esteem and social competence (e.g., Steinberg, 2011). Both are largely shaped in social interactions with peers (Harter, 2012), which increasingly take place through the internet. Because characteristics of online communication have the ability to change social behavior (e.g., Walther, 1996), it is important to know whether and how online communication may influence relevant developmental issues in adolescence (e.g., Valkenburg & Peter, 2011). The overarching aim of this dissertation was therefore to investigate the possible consequences of adolescents’ online communication for their psychosocial development. More specifically, this dissertation aimed to examine (1) the longitudinal relationships between adolescents’ online communication and their social competence and self-esteem, (2) the underlying processes that may explain these relationships, and (3) individual differences and precursors that may predict which adolescents are mostly likely to experience positive or negative consequences of their online communication.

These issues were investigated in two parts. The first part of this dissertation focused on the longitudinal relationships and their explanatory mechanisms, investigating how online communication may, over time, be related to adolescents’ social competence (Chapter 2) and social self-esteem (Chapter 3). The second part zoomed in on the role of online feedback in adolescents’ online communication. This section investigated specific online behavior as well as individual characteristics of adolescents that may elicit negative feedback (Chapter 4). In addition, this second part tested the effects of positive and negative online feedback on young adults’ self-esteem, and whether their responses to this feedback play a role in the effect on self-esteem (Chapter 5).

In investigating these issues, this dissertation employed a multi-methodological approach, combining cross-sectional survey data with longitudinal panel studies and experimental data. Moreover, it examined different possible outcomes of online communication for adolescents’ psychosocial development, as well as (parts of) various processes that may play a role in producing these outcomes. With this combination of methods, online communication platforms, outcome variables, and explanatory and predictive factors, this dissertation aimed to provide insights into how, why, and for which adolescents online communication influences psychosocial development.

In this dissertation, online communication was defined and investigated in a broad way. Although focusing on one particular communication platform can provide important insights into the role of such platforms in adolescents’ social lives, the results easily become outdated in the current fast-changing online environment. This dissertation therefore intended to examine online communication in a more generalizable way, by looking at social media in the sense of their characteristics (e.g., reduced cues, controllability) and what these characteristics may do with adolescents’ social behavior (e.g., increased intimate self-disclosure; more positive feedback). Below, the main
findings of this dissertation are discussed together with their scientific and societal implications, as well as the directions they point out for future research.

Positive psychosocial consequences

Longitudinal relationships and underlying mechanisms

In the past decade, a burgeoning number of studies have investigated the relationship between adolescents’ online communication and their psychosocial development (for a review, see, e.g., Valkenburg & Peter, 2011). However, although promising, the existing literature is characterized by two important gaps. First, because most previous studies were based on correlational data, a first step toward insight into the causal direction is to establish the temporal order of the relationship between online communication and psychosocial development through research on the longitudinal consequences of online communication for adolescents’ psychosocial development. An important aim of this dissertation was to fill this gap in knowledge by using longitudinal panel designs to provide more information on whether (a) adolescents’ online communication precedes changes in their psychosocial development (i.e., social competence in Chapter 2 and social self-esteem in Chapter 3), or (b) psychosocial development precedes online communication, or (c) whether the two occur concurrently.

A second gap in the existing literature involves a lack of studies investigating why adolescents’ online communication may affect their psychosocial development. Another important aim of this dissertation was, therefore, to examine the underlying mechanisms that may (partly) bring about these effects. Previous studies have examined possible effects of adolescents’ online communication or internet use by focusing on the mere frequency of online communication or internet use. However, it may be more fruitful to investigate what adolescents do and what actually happens when they are online. When investigating the psychosocial consequences of online communication, it is therefore important to recognize the factors that may facilitate or impair these consequences. In this context, the present dissertation investigated several explanatory mechanisms that have been suggested in earlier research but have rarely been tested in longitudinal research. For the effects on social competence (Chapter 2), these factors pertain to what adolescents talk about online (i.e., intimate self-disclosure) and with whom they talk (i.e., characteristics of their online communication partners, such as their diversity). For social self-esteem (Chapter 3), these factors involve the role of feedback (i.e., the tone of the reactions) that adolescents receive on what they share online.
Social competence

Chapter 2 investigated whether adolescents' online communication (i.e., instant messaging) stimulates the development of their social competence over time. As online communication makes it particularly easy to initiate contact and conversations with others, this chapter tested whether online communication may positively predict one crucial aspect of social competence, namely the ability to initiate offline friendships. The findings presented in this chapter showed that, when it comes to making new friends, practice can make perfect, as the frequency of adolescents' use of instant messaging increased their ability to initiate offline friendships over time (six months later). In addition, Chapter 2 investigated whether this positive effect of online communication on the ability to initiate offline friendships could be explained by the opportunities provided by online communication (a) to communicate with a diverse group of individuals (that is, individuals who are not like them, for example, with respect to age, cultural background, or geographical proximity), and (b) to disclose intimate information (e.g., about being in love, the things they are proud of or ashamed about). Although no explanatory role was found for intimate self-disclosure, adolescents' tendency to communicate online with a more diverse group of people did explain the positive effect of online communication on offline social competence. The relationships did not differ between boys and girls and younger and older adolescents.

Together, the results of Chapter 2 suggest that through online communication adolescents can (a) practice social skills, notably those related to initiating contact and conversations with a diversity of people, and (b) apply these skills in initiating friendships in offline situations, which corresponds with conclusions from other research (e.g., Valkenburg & Peter, 2011; Valkenburg, Sumter, & Peter, 2011). An interesting venue for future research could be to further specify these effects by investigating the possible moderating role of dispositional factors, such as adolescents' level of sociability. It is possible that the effects found in this dissertation are even more apparent among adolescents who are already more sociable (i.e., rich-get-richer hypothesis; e.g., Kraut et al., 2002). At the same time, online communication may particularly provide less sociable adolescents with opportunities to develop their social skills (i.e., social compensation hypothesis; e.g., Kraut et al., 2002; McKenna & Bargh, 1999).

Self-esteem

Chapter 3 investigated how adolescents' online communication (i.e., their social network site use) may positively influence their self-esteem. Earlier correlational studies suggested a positive relationship between adolescents' social media use and self-esteem (e.g., Apaolaza, Hartmann, Medina, Barrutia, & Echebarria, 2013; Gonzales, 2014; Gross, 2009; Valkenburg, Peter, & Schouten, 2006). However, because such
studies are unable to single out the direction of this relationship, it is also possible that adolescents with higher self-esteem are more attracted to social network sites. Chapter 3 therefore aimed to investigate the longitudinal relationship between social network site use and self-esteem, and in doing so, indicate whether social network site use enhances adolescents’ self-esteem over time, whether adolescents with higher self-esteem are more attracted to social network sites, or whether both directions of the relationship hold. Chapter 3 focused on an important sub-dimension of self-esteem that is particularly likely to be affected by adolescents’ interactions with peers: social acceptance self-esteem, that is, the extent to which adolescents feel accepted and liked by their friends and feel successful in forming and maintaining friendships.

With respect to possible underlying processes of online communication effects, one specific aspect of online communication that has particularly been under-researched is the feedback that adolescents receive online. This is striking, especially as feedback may be a crucial underlying mechanism of the psychosocial consequences of adolescents’ online communication for their self-esteem. After all, not only what adolescents do and share online may predict the outcomes of their online communication, but also how others respond to it. Moreover, in the process of developing their identity and self-esteem, adolescents can be extremely preoccupied with how their peers perceive them (Harter, 2012). Previous studies suggested that adolescents’ social network site use may be positively related to their self-esteem, and that receiving positive reactions explains this relationship (e.g., Valkenburg et al., 2006), but this underlying process has not been investigated over time. To fill this gap in knowledge, Chapter 3 investigated the explanatory role of online feedback in the longitudinal relationship between social network site use and adolescents’ social self-esteem.

In line with earlier cross-sectional studies (e.g., Apaolaza et al., 2013; Gross, 2009; Valkenburg et al., 2006), the results of Chapter 3 confirmed that, when looking at the cross-sectional data within the three data waves, social network site use had a positive relationship with adolescents’ self-esteem. In addition, this relationship was indeed explained by the amount of positive feedback that adolescents received online. However, longitudinal analyses showed that adolescents’ social network site use did not increase their self-esteem. In contrast, adolescents’ initial self-esteem was related to an increase in social network site use over time. In addition, the longitudinal relationships between social network site use and self-esteem could not be explained by online feedback. These results suggest that, when looking at immediate or short-term relations, social network site use is positively associated with adolescents’ self-esteem through the positive feedback they receive online. In the long run, however, adolescents’ self-esteem predicts their subsequent activity on social network sites. This resembles a selective-exposure pattern where adolescents seek out media that fit their individual characteristics, including their level of self-esteem (e.g., Klapper, 1960; Valkenburg & Peter, 2013; Zillmann & Bryant, 1985). This result
also suggests that adolescents who feel more confident about their offline social interactions with peers may also be more interested in online ways to engage in such interactions.

Elaborating on these findings, future studies could further investigate the short-term and long-term relationships between social network site use and adolescents’ self-esteem. It is, for example, possible that shorter time spans than those employed in this dissertation may show some longitudinal effects of SNS use on adolescents’ self-esteem. In addition, future research could look into how concurrent changes in adolescents’ self-esteem, as a consequence of the online feedback they receive, might affect their self-esteem and well-being (e.g., life satisfaction) over time, and whether these effects differ based on their individual differences, such as their need for (positive) interpersonal feedback.

When can it go wrong?

**Predictors of receiving negative feedback**

The results in Chapter 3 suggest that the more adolescents communicate online, the more positive feedback they receive. However, although this is in line with earlier research showing that adolescents’ online feedback is predominantly positive (for example in the form of supporting comments and likes; Valkenburg et al., 2006), this is not always the case. The reduced feelings of inhibition that people generally experience online makes it easier to respond more positively in interactions with others, but also more negatively (e.g., Suler, 2004). This may, in turn, facilitate negative social behavior, such as flaming or cyberbullying. Moreover, as negative feedback in online interactions is relatively public and stays visible for a longer period of time, it may exert a particularly powerful negative influence on one’s self-esteem. Therefore, an important first step in an attempt to minimize such negative consequences is to identify why some adolescents receive negative feedback. Chapter 4 investigated two online behaviors that may increase the risk of receiving negative feedback: online social exploration (i.e., exploring new social contacts and initiating conversations through social network sites) and risky online self-presentation (i.e., posting pictures of oneself with a strong focus on sexuality and physical attractiveness). The results of Chapter 4 showed that engaging in online social exploration and risky online self-presentation more often increased the likelihood of receiving negative feedback on social network sites.

In addition to knowing which online behavior may increase the risk of receiving negative feedback, it is important to know which adolescents are most inclined to engage in these behaviors and thus are, indirectly, more likely to receive negative
feedback. To investigate this, Chapter 4 focused on three types of precursors that may predict the two online behaviors under study that may lead to negative feedback: demographic (i.e., sex and age), dispositional (i.e., sensation seeking and inhibitory control), and social precursors (i.e., peer problems and family conflict). The results of Chapter 4 showed that online social exploration was more prevalent among the older adolescents in the sample and those characterized by higher sensation seeking and more family conflict. In addition, risky online self-presentation was more prevalent among adolescents high in sensation seeking. As a result, these adolescents’ online behavior put them at a greater risk of receiving negative feedback in social network sites. Together, these findings suggest that risky online behavior can elicit negative peer feedback, and that certain adolescents are more inclined to engage in such risky behavior and are therefore more at risk of receiving negative feedback. In addition to these indirect effects, there were also precursors that directly predicted receiving negative feedback. Receiving negative feedback was more common among boys, adolescents who had more problems inhibiting their impulses, and those with more peer problems.

What if it goes wrong

The role of responding to feedback

As online feedback is generally under-researched, much remains unknown about its consequences for adolescents’ self-esteem. While Chapter 4 examined adolescents’ online behavior and individual differences that may lead to negative feedback, Chapter 5 focused on what may happen immediately after adolescents receive feedback in online or face-to-face settings. More specifically, Chapter 5 experimentally investigated how young adults’ self-esteem is affected by receiving positive or negative feedback from a communication partner (i.e., a confederate of the experimenter) on something they shared about themselves online or face-to-face. In addition, following theories that have argued that the effect of feedback on an individual’s self-esteem may also occur indirectly through the individual’s reciprocal response to this feedback (e.g., Walther, 1996), Chapter 5 also investigated this indirect effect of feedback on young adults’ self-esteem. More specifically, it aimed to systematically compare the immediate and indirect effects of feedback on young adults’ self-esteem between online (i.e., instant messaging) and face-to-face communication.

The results of Chapter 5 showed that, although feedback has no immediate effect on young adults’ self-esteem, it did influence self-esteem indirectly through their reciprocal feedback. This indirect effect of feedback was moderated by the communication mode. That is, in online communication, young adults responded
more negatively to negative feedback than in face-to-face communication, and this response, consequently, increased their self-esteem in online communication but not in face-to-face communication. Young adults were thus more likely to respond negatively to negative feedback if they received it online, which boosted their self-esteem. These results suggest that online communication stimulates young adults’ coping behavior and triggers some form of retaliation. Online communication may thus make young adults (and adolescents) more likely to respond negatively to negative feedback, which consequently makes them less susceptible to self-denigration after receiving such feedback. A possible venue for future research could be to examine these processes using longitudinal panel designs, to see whether the way in which adolescents respond to (occasional) negative feedback may affect its influence on their self-esteem.

Conclusions and societal implications

Today’s adolescents spend on average three hours per day with social media, such as Facebook, WhatsApp, and Instagram (Valkenburg, 2014). The findings in this dissertation suggest four ways in which this use may positively affect their psychosocial development: (1) online communication can be a way for adolescents to practice social skills, (2) online communication is positively related to adolescents’ self-esteem through the positive feedback they receive, (3) most adolescents receive predominantly positive feedback in online communication, and (4) if young adults receive negative feedback in online communication, they respond more assertively, which increases their self-esteem. In spite of public concern about possible negative consequences of this avid use of online communication for adolescents’ psychosocial development, the findings in this dissertation thus suggest predominantly positive consequences of online interactions. In addition, if presented with negative feedback, young adults’ own responses (albeit also negative) to this feedback where able to make them feel better about themselves. Although these findings still need to be replicated and extended in future studies, it is important to know that online communication can play a positive role in adolescent development. In line with earlier research on the consequences of online communication for psychosocial development (e.g., Valkenburg & Peter, 2011), this dissertation suggests that, for the majority of adolescents, some characteristics of online communication help them practice interpersonal communication skills that are important to their psychosocial development.

However, there are two general exceptions to these positive results. Chapter 4 of this dissertation showed that, although the majority of the adolescents mostly received positive feedback on their posts on social network sites, a small group did sometimes receive negative feedback. Considering that negative peer feedback may have detrimental consequences at this developmental stage, it is important to identify this
Chapter 6

group of adolescents. This dissertation showed that boys, older adolescents, those high in sensation seeking and low in inhibitory control, and those high in peer problems and family conflict, were more likely to belong to this risk group. In profiling target groups, it may be valuable for developers of prevention or intervention programs to use this information.

Another group of adolescents that may not benefit from the positive consequences of social media use is the small group of compulsive social media users, that is, adolescents whose social media use takes on addictive proportions and characteristics. A recent study has estimated that about ten percent of adolescents can be identified as compulsive social media users (Van den Eijnden, Lemmens, & Valkenburg, 2016). Based on earlier research, there is reason to assume that the positive effects found in this dissertation only hold for adolescents who use online communication in an average, non-compulsive way (for a summary, see Valkenburg & Peter, 2011). Several earlier studies have shown that the positive effects of social media disappear or even become negative (e.g., Blomfield Neira & Barber, 2014; Van der Aa et al., 2009) when adolescents use social media in a compulsive way. It is, therefore, important to teach young adolescents how to regulate the amount of their social media use.

Adolescents’ parents can play an important role in teaching them how to regulate their social media use. If parents help adolescents regulate their social media use within average time limits, adolescents’ may be more likely to benefit from online communication in the development of their social competence and from positive feedback in the development of their social self-esteem. With respect to the amount of use media use, parents can help their children by setting a good example themselves (e.g., Hill, Hawkins, Catalano, Abbott, & Guo, 2005) and by setting rules that are created together with their children (i.e., autonomy-supportive strategies; e.g., Duerager & Livingstone, 2012; Kalmus, Blinka, & Ölafsson, 2015; Lee & Chae, 2007; Valkenburg, 2014; Valkenburg, Piotrowski, Hermanns, & de Leeuw, 2013).

With respect to behavior that may put children and adolescents at increased risk of receiving negative peer feedback, proactive parental media monitoring seems necessary. Proactive media monitoring is most effective when it is attuned to the developmental needs of children and teens (Sameroff, 2009). For teens, it implies that parents closely supervise what their children are doing on social media, while they should, at the same time, acknowledge and respect adolescents’ developmentally-based need for privacy and autonomy. Effective proactive media monitoring occurs when parents (1) are aware of their children’s media consumption and habits, (2) establish consistent rules in dialogue with their children to regulate and restrict their media use, and (3) are willing to reflect on their children’s needs and experiences, and, if necessary, update their rules to best fit in with their child’s needs and experiences (Valkenburg & Piotrowski, in press).
To conclude

This dissertation aimed to investigate longitudinal relationships between adolescents’ online communication and their social competence and self-esteem, and to examine possible underlying mechanisms and precursors of these relationships, with a particular focus on the role of feedback in such processes. The findings presented suggest that online communication can stimulate adolescents’ psychosocial development, particularly their social competence and self-esteem. In addition, whereas some adolescents’ online behavior may elicit negative peer feedback, online communication may also increase young people’s ability to react assertively and protect their self-esteem if they receive negative feedback. As online communication becomes increasingly intertwined with our offline social lives, future research has the complex but interesting task to further disentangle offline and online communication processes and effects, and to advance our knowledge on how, why, and for whom online communication may influence psychosocial development.
References


Chapter 6


