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Relations between parental privacy invasion and identity formation during adolescence

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Abstract

Privacy is necessary to develop a personal domain in which adolescents can explore their own identity. Adolescents and their parents act upon different definitions of privacy boundaries, which might have consequences for the child's identity development and sense of autonomy. This cross-sectional study is the first to investigate the nature of the relations between direct and subversive parental privacy invasion and identity formation, also considering the role of autonomy, with 183 self-reports of adolescents. The results showed that autonomy mediated the relation between subversive privacy invasion and exploration and commitment. We suggest that subversive privacy invasion is an unhealthy kind of invasion, which reduces the adolescents' sense of control. In contrast, direct parental privacy invasion predicted higher levels of exploration and commitment. These differential effects provided insight in the different ways adolescents experience these invasion behaviors.

Keywords: direct parental privacy invasion, subversive parental privacy invasion, exploration, commitment, reconsideration of commitment, autonomy

Relations between parental privacy invasion and identity formation during adolescence

Adolescents need privacy to develop a sense of independence and achieve a healthy identity (Pedersen, 1997). Privacy provides adolescents the opportunity to explore the self and try new behaviors, like hanging around with new friends, without fear of social condemnation (Parke & Sawin, 1979, cited in Petronio, 1994). Privacy facilitates the possibility to create a personal domain over which adolescents have their own autonomy and control (e.g. Lagattuta, Nucci, & Bosacki, 2010; Pedersen, 1997; Petronio, 1994; Smetana, Metzger, Gettman, & Campione-Barr, 2006). During adolescence, individuals have an increasing need for privacy and autonomy (Fleming, 2005; Petronio, 1994). Parents also want to give the adolescent more independence, while at the same time feeling obligated to ensure adequate adjustment by staying informed about their child's life (Hawk, Hale, Raaijmakers, & Meeus, 2008; Smetana et al., 2006; Steinberg, 2002). Privacy and the individuation process, in which the adolescent create his independent identity, are related to each other (Finkenauer, Engels, & Meeus, 2002; Petronio & Caughlin, 2006). Although privacy invasion and identity formation have been studied separately, no study has examined the relation between those two concepts. The present research is the first that examines the relation between perceived parental privacy invasion and identity formation during adolescence, considering different kinds of invasion. Additionally, this is the first study that uses behavioral measures instead of subjective measures. The results may provide more insight in the effect parents might have on the adolescents' identity development through privacy invasion.

Privacy is defined as the amount of information and the kind of information that is shared with others or is kept to oneself (Petronio, 1994). During childhood, controlling access to information becomes increasingly integral to children's privacy conceptions and it is a dominant theme in adolescence (Wolfe & Laufer, 1974, as cited in Petronio, 1994). A theory that is relevant for understanding adolescents' perceptions of privacy is the communication privacy management theory (CPM). This theory states that individuals regulate the amount of information that is shared with others by creating boundaries, which represents the level of control of others' access to the private information of the individual (Petronio, 2002). Privacy boundaries can be expressed in different ways (Petronio, 1994). First, nonverbally by acting in a particular way that is recognized as privacy maintenance, for example by closing the door. Secondly, they can be expressed verbally, by communicating and making decisions about rules for privacy regulation. Parental privacy invasion occurs when parents infringe upon the personal domain of the adolescent, thus when parents and the adolescent act upon different privacy boundaries (Hawk, Keijsers, Hale, & Meeus, 2009; Pedersen, 1997).

Parental privacy invasion can occur in two different ways, namely direct privacy invasion and subversive privacy invasion (Petronio, 1994). Direct invasion is defined as excessive open intrusion by parents into private matters, and refers to tactics like asking personal questions, giving unsolicited advice and making demands. Subversive invasion refers to tactics that are hidden from the adolescent, such as listening to telephone conversations, going through personal belongings, eavesdropping on adolescents' conversations and opening e-mail. When parents use direct tactics, adolescents can react in two ways: they can confront their parents by, for example, tell them to stop, or they can use preventative manners, like having meetings with friends outside of the home. In respect of subversive privacy invasion, adolescents can only react confrontationally, because they have less control over when the invasion occurs. The adolescent must rely on discovery and is therefore unable to protect his privacy proactively.

Privacy is a critical factor in children's ability to develop a sense of independence and to be able to explore their own identity (Parke & Sawin, 1979, cited in Petronio, 1994). Since exploration is one of the key processes of identity formation, besides commitment and reconsideration of commitment, the identity development of the adolescent might be influenced by parental privacy invasion (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2010; Marcia, 1966; Meeus, van de Schoot, Keijsers, Branje, & Schwartz, 2010). Exploration indicates the extent to which the adolescent considers various alternatives. Commitment, one of the other key processes of identity formation, refers to the degree to which the adolescent has made choices. Reconsideration of commitment involves the comparing of present commitments to alternatives and the decision whether they need to be changed. Those three concepts of identity formation are included in the recently-proposed dual-cycle model of identity development (Crocetti, Rubini, & Meeus, 2008; Klimstra et al., 2010; Luyckx, Goossens, & Soenens, 2006; Luyckx, Goossens, Soenens, & Beyers, 2006; Meeus et al., 2010). The first cycle refers to the formation phase in which exploration and commitment-making occurs. In the second cycle, the evaluation phase, the adolescent reconsiders the current commitments. For example, an adolescent seeks new friends by considering friendship with different peers. After the exploration, the adolescent commits to a friendship and finally reconsiders if he has made the right choice.

In the identity formation process, personal space for the adolescent is needed, which can be facilitated by privacy (Pedersen, 1997). Few studies have examined parental privacy invasion, in general, and it is thus difficult to make literature-based predictions about the relations between the two different kinds of privacy invasion and identity development. A concept that is closely linked to direct parental privacy invasion is parental monitoring (Hasebe, Nucci, & Nucci, 2004; Hawk, Hale, Raaijmakers, & Meeus, 2008). Parental monitoring can be divided into two components: Solicitation

(parents ask their adolescents questions) and control (parents set rules and restrictions) (Keijsers, Frijns, Branje, & Meeus, 2009; Kerr & Stattin, 2000; Kerr, Stattin, & Burk, 2010; Stattin & Kerr, 2000). Since parental monitoring and direct privacy invasion are positively related to each other, the results of studies that investigated the link between parental monitoring and identity formation can provide support for predictions about the relation between direct privacy invasion and identity formation. Moderate levels of parental monitoring are essential for a healthy identity formation, but excessive levels (e.g., not allowing youth to make independent decisions) undermine independent identity formation (Zimmer-Gembeck, 2001). The results of a longitudinal study with early and late adolescents (i.e. 12-16 years old) showed that high levels of monitoring inhibit identity formation (Benson & Johnson, 2009). This suggests that, through tight monitoring of the adolescents' activities, parents do not only limit adolescents' autonomy, but also influence their child's identity development. A cross-sectional study with adolescents of 12 and 16 years old, which stated that high levels of monitoring are related to lower levels of exploration, support these findings (Berzonsky, Branje, & Meeus, 2007). Adolescents show lower levels of exploration and commitment when there is an inadequate personal domain (Mayseless & Scharf, 2009). Since exploration is necessary for reconsideration of commitment, according to the dual cycle model, it can be expected that with lower levels of exploration, there will be lower levels of reconsideration of commitment (Luyckx et al., 2006). Exploration is not necessary for commitment making, therefore privacy invasion does not necessarily influence the commitment making. In this study only direct predictions of privacy invasion on exploration and reconsideration of commitment are made.

Only one study included subversive privacy invasion (Petronio, 1994), but no study has investigated the relation between subversive parental privacy invasion and identity formation. For subversive privacy invasion there is no base to make predictions, thus the same is predicted for subversive privacy invasion as for direct privacy invasion. However, it is valuable to examine both forms of invasion separately because differences between the effects of both kinds of invasion may be found and new information about subversive privacy invasion will be added to the literature. It is predicted that both direct and subversive parental privacy invasion are negatively related to exploration (Hypothesis 1) and reconsideration of commitment (Hypothesis 2).

As stated by CPM theory, privacy management is important for adolescents to succeed in the paradox of the need to be close to parents while gaining a sense of autonomy, which ensures their independence (Petronio, 2010). For example, privacy management allows the adolescent to decide on being open about personal matters or keeping the information from others (Petronio, 1994). A cross-sectional study with college students showed that the restricting kind of privacy boundary management, like

separating themselves from others, serves autonomy (Pedersen, 1997). In other words, privacy might be related to autonomy. Additionally, research findings point out that autonomy is related to identity formation (Lichtwarck-Aschoff, van Geert, Bosma, & Kunnen, 2008; Luyckx et al., 2007; Mullis, Graf, & Mullis, 2009; Smits, Soenens, Vansteenkiste, Luyckx, & Goossens, 2010). A longitudinal study with college students suggested that autonomy has a potential moderating role in identity formation (Luyckx et al., 2007). Another study put forward a positive relation between autonomy and identity development (Lichtwarck-Aschoff et al., 2008). This is supported by results of cross-sectional research with adolescents (13-15 and 16-18 years old) that showed that autonomy is positively related to exploration and commitment (Mullis et al., 2009). An additional cross-sectional study with late adolescents (16 years) also showed that autonomy supportive parenting is an antecedent of commitment (Smits et al., 2010). Combining these results about privacy invasion, autonomy and identity formation, it is predicted that autonomy plays a mediating role in the relation between direct and subversive parental privacy invasion and identity formation (Hypothesis 3). Although there is some literature about the relation between autonomy and exploration and commitment, this is not a sufficient amount to base a differential prediction on for the three identity stages. Therefore, the same is predicted for all the three identity stages. Additionally, the results are only about privacy invasion, in general, no distinction is made between predictions about direct and subversive privacy invasion.

Cross-sectional research with a sample of early adolescents (12-13 years) and late adolescents (18-19 years) showed that there is normative increase in autonomy during adolescence (Fleming, 2005). Because late adolescents are more autonomous than early adolescents, it is expected that age might play a moderating role in the relation between direct and subversive parental privacy invasion and autonomy, and in the relation between autonomy and identity formation (Hypothesis 4). In other words, we expect a moderated mediation effect with autonomy as mediator and age as moderator. Again, no distinction is made between direct and subversive privacy invasion. The present study addressed first-year high school students (early adolescents) and high school students who would graduate within two years (late adolescents). It was expected that the latter group would have more autonomy and a different relation with privacy invasion. Additionally, the violation of their autonomy through privacy invasion might have different effects on their identity formation due to their different social context; late adolescents are for example more confronted with decisions about the direction of their school career. It is predicted that late adolescents show a stronger negative relation between privacy invasion and identity formation.

Past research provides information about privacy invasion in general, about identity formation, and about the role of autonomy in these separate concepts. This

cross-sectional study addresses the gap in the literature that links these concepts. The main goal of the present study is to clarify the nature of the relations between direct and subversive parental privacy invasion and the three concepts of identity formation (i.e. exploration, commitment and reconsideration of commitment). In this study the focus of identity formation lies on peer relations and school and career choices, since these are important domains during adolescence (Arnett, 2010).

Method

Participants

Participants were 183 adolescents (112 boys and 71 girls) from four different secondary schools in urban areas in the middle of the Netherlands. The mean age of the total sample was 14.75 years (S.D. = 1.67, minimum = 12.00 years, maximum = 18.33 years). The mean age of the early adolescents was 13.17 years with a standard deviation of 5.72 and the mean age of the late adolescents 16.42 years with 8.08 as standard deviation. Children were recruited from various educational levels: 41.6% was preparing for blue-collar work, 13.0% was preparing for higher education, 13.0% was at a combined level of preparing for blue-collar work and higher education and 30.8% were at a combined level of preparing for higher education and university. The family situation was for 81.6% living with both parents, 15.1% living with mother, 1.1% living with father and 1.1% living in another family situation. The distribution of ethnicity was 74.6% Dutch, 8.6% Turkish, 5.4% Moroccan, 4.3% Surinamese, 2.7% Indonesian and 2.2% reporting another ethnicity.

Measures

The frequency of perceived parental privacy invasion. Eleven items on a 5-point Likert scale (1 = *never*, 5 = *often*) inspired by Petronio (1994) were used to assess the frequency of parents' direct and subversive privacy invasion. Examples of the questions are "My parents ask personal questions about my personal life" and "My parents read my e-mail or text messages without my permission." A principal component factor analysis was applied and the results supported the expected two-factor model, which explained 49.5% of the variance, namely direct and subversive privacy invasion. Two items, "My parents demand that I share my e-mail or Hyves/Facebook password with them" and "My parents enter my room when I am not there", were deleted because they loaded low on the expected factor. This resulted in a nine-item questionnaire with five questions about direct privacy invasion and four questions about subversive privacy invasion. Both Cronbach's *alpha*'s were sufficient: $\alpha = .78$ for the direct subscale and $\alpha = .79$ for the subversive subscale.

Identity formation. The Utrecht – Management of Identity Commitments Scale (U-MICS) (Meeus, 2011), with 25 items on a 5-point Likert scale (1 = *totally untrue*,

5 = *totally true*) measured identity formation. The questionnaire consisted of three different subscales (exploration, commitment and reconsideration of commitment) and two different domains (school identity and relational identity). Examples of the school identity and relational identity domain of the exploration subscale are respectively "I think often about the education I attend" and "I often talk with others about my best friend", of the commitment subscale "The education I attend gives me self-esteem" and "My best friend makes me feel confident about myself", and of the reconsideration of commitment subscale "Actually I am looking for a different school" and "I often think that a different best friend would make my life more interesting." Three studies supported the validity of the three-factor identity model for early and middle adolescents (Crocetti, Rubini, Luyckx, & Meeus, 2008; Crocetti et al., 2008; Crocetti, Schwartz, Fermani, & Meeus, 2010). The reliability of the exploration and commitment subscales were respectively $\alpha = .76$ and $\alpha = .82$. The item "I often think that another (best) friend would make my life more interesting" of the reconsideration of commitment subscale was deleted, based on a low item-rest correlation ($r_{ir} = -.05$) and an increase of Cronbach's *alpha* from $\alpha = .54$ to $\alpha = .68$. A principal component factor analysis resulted in the expected six factor model based on the three identity statutes and the two identity domains and explained 63.7% of the variance.

Autonomy. A mix of items of the Worthington Autonomy Scale was used to measure autonomy (Anderson, Worthington, Anderson, & Jennings, 1994). The questionnaire consisted of 21 items on a 5-point Likert scale (1 = *totally untrue*, 5 = *totally true*). Some questions of the original questionnaire (40 items) were removed because the topics in these questions did not fit the age-group (e.g. marriage). Examples of the questions include "My parents always encourage me to set my own goals" and "I choose my own friends, rather than having someone else choose them for me." The construct, factorial, predictive, discriminatory, cross-racial validity of the original scale were supported (Anderson et al., 1994). The questionnaire had a sufficient Cronbach's *alpha* ($\alpha = .80$).

Procedure

Fourteen secondary schools in the urban areas of Amstelveen, Utrecht, Driebergen, Nijkerk and Amersfoort were approached for participation in this study. Four schools (one in Utrecht, one in Nijkerk and two in Amersfoort) agreed and assigned one or two classes of junior and/or senior high school. Eventually, 191 participants received a consent form on average a week before the actual data collection. By this form the parents could object for participation of their child. Seven parents and/or participants declined to participate. A paper-pencil method was used for this self-report measurement. The participants received verbal and written instructions prior to testing.

After completing the questionnaire the participants received a chocolate as compensation. The questionnaire took approximately thirty minutes to fill in.

Strategy of analyses

The reliability of the questionnaire was tested on internal consistency with Cronbach's *alpha*. Items were tested on their item-rest correlation and content. Based on these two factors, it was decided if an item should be deleted or not. An ANOVA was conducted to test for gender and age differences in the frequency of direct and subversive parental privacy invasion. To test the aforementioned hypotheses, including possible gender and age differences in autonomy or identity, we implemented hierarchical regression analyses. Four separate analyses were performed with respectively autonomy, exploration, commitment, and reconsideration of commitment as dependent variables. All variables were standardized prior to all the regression analyses, and in all tests an *alpha* of 5% was used. To test whether autonomy should be included in the regression analyses on the identity stages as a mediator, we first computed a regression analyses with autonomy as dependent variable. For autonomy, the variables gender (dummy-coded) and age group (dummy-coded) were entered in Step 1, to control for demographic differences. Direct and subversive parental privacy invasion were entered in Step 2. Step 3 included all 2-way interaction effects. For the regression analyses of the three identity statuses, Step 1 and Step 2 were similar to Step 1 and 2 in the analyses on autonomy. In Step 3 autonomy was entered. In Step 4 all 2-way interaction effects were entered. When relevant, a Sobel test was computed to test for a mediation effect between privacy invasion and the identity stages.

Results

Descriptive statistics

Table 1 shows the descriptive statistics per subscale of privacy invasion, identity, and autonomy, and the correlations between the aforementioned variables. The results of the ANOVA showed that boys and girls did not significantly differ in their score on direct or subversive privacy invasion. On the other hand, there were age differences on both types of privacy invasion. Namely, late adolescents scored significantly higher (mean = 2.73, SD = 0.77) than early adolescents (mean = 2.38, SD = 0.67) on direct parental privacy invasion ($F(1, 181) = 11.11, p < .01$). Additionally, late adolescents had a higher score (mean = 1.46, SD = 0.75) than the early adolescents (mean = 1.26, SD = 0.48) on subversive parental privacy invasion, as well ($F(1, 181) = 4.73, p = .03$).

The relation between direct and subversive parental privacy invasion and autonomy

In the multiple regression analysis with autonomy as dependent variable

(Table 2), Step 1 was not significant ($Adjusted R^2 = .00$, $F(2,179) = 0.97$, $p = .38$), but Step 2 was significant ($\Delta R^2 = .08$, $F(4,177) = 4.14$, $p < .01$). Step 3 was non-significant, so the results of Step 2 were used, including gender, age, direct privacy invasion, and subversive privacy invasion. Only the negative relation between subversive privacy invasion and autonomy was significant ($\beta = -.29$, $p < .01$). This means that adolescents who perceived more subversive privacy invasion also reported lower levels of autonomy. Age had the lowest non-significant p -value of the other variables in Step 2 ($p = .10$). In contrast with the prediction, age had no moderating role in the links with autonomy due to the absence of significant interaction effects. The results showed that autonomy and subversive parental privacy invasion were related to each other, thus it was meaningful to include this variable as a potential mediator in the subsequent regression analyses.

The effects of direct parental privacy invasion, subversive parental privacy invasion and autonomy on exploration

As showed in Table 3, Step 1 of the multiple regression analysis with exploration as dependent variable was not significant ($Adjusted R^2 = .01$, $F(2,179) = 1.65$, $p = .19$). Step 2 and Step 3 were significant, respectively: ($\Delta R^2 = .08$, $F(4,177) = 4.75$, $p < .01$) and ($\Delta R^2 = .10$, $F(5,176) = 8.48$, $p < .01$). Since Step 4 was not significant, the results of Step 3 were used, which included the two background variables, the two privacy invasion variables, and autonomy. These results showed that late adolescents scored significantly lower on exploration than early adolescents ($\beta = -.24$, $p < .01$). Direct parental privacy invasion significantly and positively predicted exploration ($\beta = .08$, $p < .01$). Thus, higher levels of direct parental privacy invasion predicted higher levels of exploration. Autonomy was also a significant positive predictor of the level of exploration ($\beta = .33$, $p < .01$). Subversive privacy invasion had no significant direct relation with exploration in Step 2 ($\beta = -.02$, $p = .81$) or Step 3 ($\beta = .08$, $p = .35$), but the Beta of this variable changed from negative to positive when autonomy was added to the model in Step 3. This suggested a cancellation effect, which could mask the total effect of subversive privacy invasion on exploration in the multiple regression analysis (Hayes, 2009). A Sobel test was performed to test whether the cancellation effect masked a mediation effect of autonomy. The results showed that there was a significant indirect effect of subversive privacy invasion on exploration, via autonomy ($Z = -2.81$, $p = .01$).

Thus, although there was no significant direct link between subversive privacy invasion and exploration, there was still an indirect relation via autonomy. Autonomy was positively related to exploration but subversive parental invasion was negatively related to autonomy. Thus, when adolescents perceived higher levels of subversive parental privacy invasion, they had lower scores on autonomy, and related lower levels of exploration. The results regarding the direct positive link between direct privacy invasion

and exploration contradicted the prediction that direct and subversive invasion negatively predict exploration. However, the results supported the prediction about a mediating role of autonomy. In contrast with the prediction, no significant interaction effects were found in Step 4, thus age had no moderating role in the mentioned relations.

The effects of direct parental privacy invasion, subversive parental privacy invasion and autonomy on commitment

The results from the hierarchical regression analyses with commitment as the dependent variable (Table 4), showed that the first three steps were significant: Step 1 (*Adjusted R*² = .06, *F*(2,179) = 7.10, *p* < .01), Step 2 ($\Delta R^2 = .04$, *F*(4,177) = 5.83, *p* = .02) and Step 3 ($\Delta R^2 = .11$, *F*(5,176) = 10.19, *p* < .01). Step 4 was not significant, thus the results of Step 3 were used, with gender, age, direct privacy invasion, subversive privacy invasion and autonomy as independent variables. These results showed that girls scored significantly higher on commitment than boys ($\beta = .18$, *p* = .01). Early adolescents had significantly higher levels of commitment than late adolescents ($\beta = -.28$, *p* < .01). Direct parental privacy invasion positively predicted commitment, as did autonomy respectively: ($\beta = .22$, *p* < .01) and ($\beta = .34$, *p* < .01). In Step 3, subversive privacy invasion was non-significant ($\beta = -.07$, *p* = .41), although it had been significant in Step 2 ($\beta = -.17$, *p* = .04). This result suggested a classic mediation effect, with autonomy as the mediator between subversive privacy invasion and commitment. The results of a Sobel test confirmed this suggestion (*Z* = -2.89, *p* < .01). Thus, in line with the prediction, autonomy mediated the relation between subversive privacy invasion and commitment. Higher levels of perceived subversive parental privacy invasion predicted lower levels of autonomy, and lower autonomy predicted lower levels of commitment.

In the non-significant Step 4, which also included all the interaction effects, there was a significant interaction effect ($\beta = .30$, *p* < .01) between direct and subversive privacy invasion, and the pre-existing significant main effect of direct parental privacy invasion was reduced to non-significance. Although Step 4 was not significant, additional post-hoc analyses were conducted to explore this result. The interaction is depicted in Figure 1. When direct privacy invasion was relatively low, there was a difference in the levels of commitment between adolescents who reported relatively high and who reported relatively low subversive privacy invasion. Adolescents who scored relatively low on direct and high on subversive invasion had lower scores on commitment than adolescents with relatively low scores on direct and also relatively low scores on subversive privacy invasion. In the case of a relatively high score on direct invasion, the levels of subversive privacy invasion did not make a difference in the commitment score. Thus, differential effects of the levels of direct privacy invasion on commitment were

found for the different levels of subversive privacy invasion. The prediction about the moderating role of age was not supported due to the absence of significant interaction effects with age.

The effects of direct parental privacy invasion, subversive parental privacy invasion and autonomy on reconsideration of commitment

Step 1 which included gender and age was the only significant step in the multiple regression analyses with reconsideration of commitment as dependent variable (*Adjusted R*² = .09, *p* < .01) (Table 5). The results of this model were used and showed a significant positive relation between age and reconsideration of commitment ($\beta = .30$, *p* < .01). This means that late adolescents scored higher on reconsideration of commitment than early adolescents. Gender was not significantly related to reconsideration of commitment (*p* = .10). None of the predictions concerning reconsideration of commitment were supported.

Discussion

The aim of this study was to clarify the relations between perceived parental privacy invasion and identity formation during adolescence. For a healthy identity formation it is necessary that the adolescent becomes autonomous, and develops a sense of privacy (Pedersen, 1997; Petronio & Caughlin, 2006). Adolescents want to gain more privacy and independence to develop their own identity, while parents want to remain informed about their child's life and stay connected to their child (Petronio, 1994). Therefore, parents and adolescents might act upon different definitions of privacy boundaries, and we predicted that this might have negative consequences for the adolescents' identity formation. Since early and late adolescents differ in the amount of autonomy they have, we further expected that age might be involved in the relations between privacy invasion, autonomy and identity formation (Fleming, 2005; McLean, Breen, & Fournier, 2010). Although there are several studies which have separately investigated parental privacy invasion and identity formation, this was the first study which investigated the relation between those concepts. We found that subversive privacy invasion negatively predicted youths' perceptions of autonomy, and autonomy positively predicted exploration and commitment. Additionally, direct privacy invasion was positively related to exploration and commitment. In general, these findings suggest that subversive privacy invasion had a more negative effect than direct privacy invasion on identity formation.

For subversive privacy invasion, the results showed no direct relations with exploration and reconsideration of commitment, thus Hypothesis 1 and Hypothesis 2 were not supported. However, the results showed an indirect effect of subversive privacy

invasion upon exploration and commitment, mediated by youths' perceptions of autonomy. Several investigators have noted the positive relation between privacy and autonomy (Pedersen, 1997; Petronio, 1994; Petronio, 2010). Furthermore, research has shown positive relations between autonomy and exploration and commitment (Mullis et al., 2009). Our results supported these findings, and added new findings regarding the mediating effect of autonomy. Experiencing subversive privacy invasion, negatively predicted autonomy and adolescents who reported lower levels of autonomy also reported lower levels of exploration and commitment. The CPM theory suggests that the concept of 'control' is involved in privacy management, because it is about controlling boundaries to protect a sense of autonomy (Petronio, 2002). Concerning the present findings, when parents use invasion tactics that are hidden from the adolescent, the adolescent cannot control his privacy boundaries and therefore his sense of autonomy is violated. This is in contrast with direct privacy invasion, in which the adolescent knows when the invasion happens and remains in control about which information he discloses or not (i.e. his privacy boundaries). This might be an explanation for the absence of the relation between direct privacy invasion and autonomy and the presence of it in the relation between subversive privacy invasion and autonomy. Concluding, Hypothesis 3 was supported for subversive privacy invasion but not for direct privacy invasion.

A clarification of the relationship between autonomy and commitment in the mediation model might lie in the overlap between our results of subversive privacy invasion and autonomy, and results of previous studies on psychological control. Both constructs had a negative relation with autonomy. An explanation for these relations might lie in the sense of control the adolescent experiences with both parental behaviors. Parental psychological control inhibits the sense of autonomy in adolescents (Barber, 1996, 2002; Vansteenkiste, Zhou, Lens, & Soenens, 2005). The findings from a longitudinal study with late adolescents support our finding about the direction of the link between autonomy and commitment (Luyckx et al., 2007). The findings of this study suggested that parents probably use psychological control to pressure their child to make commitments. However, such controlling tactics seem to hinder rather than facilitate commitment-making. For the present study, this might mean that higher levels of parental control inhibit autonomy and consequently commitment-making. However, further research is necessary to clarify the negative relation between autonomy and commitment and also between autonomy and exploration. Our finding that the mediation effect is absent in reconsideration of commitment, is in line with the findings of the aforementioned longitudinal study (Luyckx et al., 2007). These results namely did not show a significant relation between psychological control and reconsideration of commitment, just as we found no significant relation between autonomy and reconsideration of commitment. In contrast with the findings on subversive privacy

invasion, we did find a direct positive link between direct privacy invasion and exploration. This is in contrast with Hypothesis 1, which predicted a negative relation. This result also contradicts the findings in the literature which show a negative relation between parental monitoring, which is related to parental privacy invasion, and exploration (Benson & Johnson, 2009; Berzonsky et al., 2007). The results of the present study also showed that direct privacy invasion is directly positively related to commitment. In contrast with Hypothesis 2, no direct relation between direct parental privacy invasion and reconsideration of commitment was found.

That direct parental privacy invasion was not negatively related to exploration and commitment might be explained by the kind of parent-child relation. Feldman and Wood (1994) suggested that the parent-child relationship might be involved in the link between privacy invasion and exploration and commitment. In organized and structured families, adolescents see parental monitoring as reasonable and concerned, instead of intrusive. In other words, when direct privacy invasion occurs in the context of a good parent-child relationship, it might be interpreted as positive instead of intrusive. This suggestion is supported by Barber's model (1997) of parenting and identity development that stated that behavioral control, which is related to direct parental monitoring and thereby somewhat related to direct parental privacy invasion, serves a socialization function. Namely, through reasoning and encouraging adolescents to become aware of the consequence of their actions, it predicts self-regulation (Barber, 1997; Sartor & Youniss, 2002). Additionally, monitoring behaviors in the context of a positive parent-child relation promote the development of identity by encouraging self-reflection and independent thinking. Concluding, a good parent-child relationship might act as a moderator on the relation between direct privacy invasion and identity formation. Further research should include characteristics of the parent-child relationship, to examine its role in the relation between direct privacy invasion and identity development.

An unexpected result was a significant interaction effect between direct and subversive privacy invasion on commitment. Although this step in the regression analysis was not significant, this finding tentatively suggests that subversive privacy invasion moderated the relation between direct privacy invasion and commitment. When adolescents reported lower levels of direct privacy invasion, the negative effect of subversive privacy invasion on commitment was stronger. When adolescents reported higher levels of direct privacy invasion, the difference in effects reduced. This implies that direct and subversive privacy invasion might have different kind of effects. We suggest that subversive privacy invasion is a negative type of invasion that mostly appears when adolescents have problematic relations with their parents. This is supported by findings that suggest that adolescents with a problematic parent-child relationship respond untruthfully to parental solicitations and disobey the disclosure rules

(Kerr, Stattin, & Trost, 1999; Kerr & Stattin, 2003). Additionally, their parents do not trust them to do so, they are suspicious and this could lead them to the use of tactics like eavesdropping and snooping (McKinney, 1998; Petronio, 1994). In contrast, it seems that direct privacy invasion might not be interpreted as intrusive, but might even have a socialization function that positively affects identity development. Concluding, the origin of the two parental behaviors seems to differ. A family relationship in which trust is missing, might lead to subversive privacy invasion while direct privacy invasion might be associated with the interest or involvement of the parents in their child.

The results did not support Hypothesis 4, which stated that age act as a moderator on the mediating role of autonomy. This could be due to the age span of the sample (mean age of the early adolescents 13.17 years and of the late adolescents 16.42 years). Perhaps, the social context of the adolescents did not differ sufficiently enough to assess the predicted differential effects. When secondary school students would be compared to college students, an effect of age would likely be found (Beyers & Goossens, 2008; Fleming, 2005). Additionally, the used statistical strategies might have contributed to this result. Because age is used as a nominal group variable, instead of a linear factor, it could be that a modest linear effect of age was reduced to non-significance.

Strengths and Limitations

This was the first study that elaborates upon the relation between parental privacy invasion and identity formation. This study could serve as a pilot to inform longitudinal investigations of these relationships. The results showed some clear relations, and the significant mediation role of autonomy is an especially important implication for further research. The current investigation reiterates the influence parents could have on identity formation and autonomy by respecting privacy or not. With the interpretation of the results, however, some limitations should be kept in mind.

Because this was a cross-sectional study, the directions of the relations remain unclear and the mediation model cannot be confirmed. For that reason, the results should be interpreted with caution. Longitudinal research could help to determine the direction of the relations, and could possibly identify any developmental pattern. It might be, for example, that subversive privacy invasion does not predict lower levels of autonomy, but that when the adolescent is quite dependent on the parents, his parents are encouraged to avoid direct invasion tactics to protect their child and use subversive tactics instead.

Although self-report is a sufficient method to tap into the construct of perceived parental privacy invasion (Petronio, 2002), common method variance is a threat to self-report validity. Because the same person is used to assess privacy invasion, identity formation and autonomy, it could be that the results show a higher correlation between

the concepts than actually exists. Future research should also include other informants than the adolescent, for example parents, to get a more valid result.

This was the first study to combine direct privacy invasion and identity formation. Because the 'direct privacy invasion' that is measured in the present study was positively related to exploration and commitment, and is probably not really experienced as intrusive, the use of the term 'direct privacy invasion' might be reconsidered. Because the definition of monitoring behaviors showed overlap with questions in the questionnaire about direct privacy invasion and aforementioned results about parental monitoring were consistent with the present findings, a more appropriate term for the phenomenon measured in the present study might be 'parental monitoring' (Benson & Johnson, 2009). Further research should have a detailed examination of the concept 'direct privacy invasion' and how it should be measured. These limitations should be kept in mind when advice is given to parents, researchers or practitioners.

In conclusion, direct parental privacy invasion is directly and positively related to commitment and exploration. In contrast, subversive parental privacy invasion is indirectly negatively related to commitment and exploration, via an association with lower autonomy. Because privacy invasion and autonomy appear to have a significant role in the identity development of the adolescent, these concepts should be further examined. Future research could provide more insight in the suggested mechanisms of these relations and thereby a valuable adding to the literature. Parents should be careful with using subversive tactics to monitor their child because this could have negative effects for the identity development and autonomy of the adolescent. To stay informed, parents could probably better use direct monitoring behaviors because those mostly do not have a negative effect. Practitioners should assess the kind of tactics parents use, and when they monitor their child subversively, make them aware of the negative consequences this might have. Concluding, be aware of the negative effects subversive tactics might have on identity development and autonomy, respect the adolescents' privacy and consider direct monitoring behaviors.

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Table 1

Descriptive statistics and correlations

	Mean	S.D.	Min.	Max.	Age	Direct PI	Subversive PI	Exploration.	Commitment	Reconsi- deration	Autonomy
1. Age in years	14;9	1;8	12;0	18;4	-						
2. Direct PI	2.55	.74	1.00	4.80	.24**	-					
3. Subversive PI	1.35	.63	1.00	4.50	.11	.48***	-				
4. Exploration	2.71	.56	1.40	4.30	-.11	.24**	.09	-			
5. Commitment	3.50	.55	1.80	4.80	-.23**	.08	-.08	.42***	-		
6. Reconsideration	1.87	.65	1.00	3.60	.30***	.10	.13	.07	-.30***	-	
7. Autonomy	3.57	.43	1.95	4.81	.09	-.08	-.25**	.26***	.33***	-.06	-

Note 1. * $p < .05$, ** $p < .01$, *** $p < .001$.

Note 2. PI refers to privacy invasion.

Table 2

Results regression analyses with autonomy as dependent variable

	Predictor	B	S.D.	β	Adjusted R^2	ΔR^2
Step 1	Gender	.12	.15	.06	.00	
	Age Group	.17	.15	.09		
Step 2	Gender	.16	.15	.08	.07	.08**
	Age Group	.25	.15	.13		
	Direct privacy invasion	.03	.08	.03		
	Subversive privacy invasion	-.29**	.08	-.29		
Step 3	Gender	-.08	.22	-.04	.07	.04
	Age Group	.04	.19	.02		
	Direct privacy invasion	.15	.13	.15		
	Subversive privacy invasion	-.39*	.17	-.39		
	Age x direct	-.26	.17	-.19		
	Age x subversive	.13	.19	.11		
	Gender x subversive	.03	.17	.02		
	Gender x direct	-.05	.18	-.03		
	Direct x subversive	.04	.06	.07		
	Gender x age	.56	.31	.22		

Note. * $p < .05$, ** $p < .01$.

Table 3

Results regression analyses with exploration as dependent variable

	Predictor	B	S.D.	β	Adjusted R^2	ΔR^2
Step 1	Gender	.03	.15	.02	.01	
	Age Group	-.27	.15	-.13		
Step 2	Gender	.10	.15	.05	.08	.08**
	Age Group	-.41	.15	-.20**		
	Direct privacy invasion	.30*	.08	.30***		
	Subversive privacy invasion	-.20	.08	-.02		
Step 3	Gender	.04	.14	.02	.17	.10***
	Age Group	-.49	.14	-.24**		
	Direct privacy invasion	.29	.08	.08***		
	Subversive privacy invasion	.08	.08	.08		
	Autonomy	.33	.07	.33***		
Step 4	Gender	.10	.21	.05	.15	.01
	Age Group	-.45	.18	-.23*		
	Direct privacy invasion	.20	.13	.20		
	Subversive privacy invasion	.11	.17	.11		
	Autonomy	.43	.12	.43***		
	Age x direct	.17	.16	.13		
	Age x subversive	-.11	.18	-.09		
	Gender x subversive	-.02	.16	-.02		
	Gender x direct	.02	.17	.02		
	Direct x subversive	.02	.06	.04		
	Gender x age	-.12	.30	-.05		
	Autonomy x age	-.15	.15	-.12		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4

Results regression analyses with commitment as dependent variable

	Predictor	B	S.D.	β	Adjusted R^2	ΔR^2
Step 1	Gender	.36	.15	.18*	.06**	
	Age Group	-.41	.14	-.20**		
Step 2	Gender	.43	.15	.21**	.10	.04*
	Age Group	-.47	.15	-.23**		
	Direct privacy invasion	.23	.08	.23**		
	Subversive privacy invasion	-.17	.08	-.17*		
Step 3	Gender	.37	.14	.18**	.20	.11***
	Age Group	-.55	.14	-.28***		
	Direct privacy invasion	.22	.08	.22**		
	Subversive privacy invasion	-.07	.08	-.07		
	Autonomy	.34	.07	.34***		
Step 4	Gender	.42	.20	.20	.23	.06
	Age Group	-.54	.17	-.27**		
	Direct privacy invasion	.11	.12	.11		
	Subversive privacy invasion	-.20	.16	-.20		
	Autonomy	.35	.11	.35**		
	Age x direct	.21	.16	.15		
	Age x subversive	-.15	.17	-.12		
	Gender x subversive	-.02	.15	-.01		
	Gender x direct	.07	.16	.05		
	Direct x subversive	.18	.06	.30**		
	Gender x age	-.14	.29	-.06		
	Autonomy x age	.01	.14	.01		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5

Results regression analyses with reconsideration of commitment as dependent variable

	Predictor	B	S.D.	β	Adjusted R^2	ΔR^2
Step 1	Gender	-.24	.15	-.12	.09***	
	Age Group	.60	.14	.30***		
Step 2	Gender	-.26	.15	-.13	.09	.01
	Age Group	.58	.15	.29***		
	Direct privacy invasion	-.04	.08	-.04		
	Subversive privacy invasion	.11	.08	.11		
Step 3	Gender	-.25	.15	-.12	.09	.00
	Age Group	.59	.15	.30***		
	Direct privacy invasion	-.03	.08	-.03		
	Subversive privacy invasion	.09	.08	.09		
	Autonomy	-.05	.07	-.05		
Step 4	Gender	-.27	.22	-.13	.09	.03
	Age Group	.63	.19	.32**		
	Direct privacy invasion	-.04	.13	-.04		
	Subversive privacy invasion	.14	.17	.14		
	Autonomy	-.04	.08	-.04		
	Age x direct	.15	.17	.11		
	Age x subversive	.05	.18	.04		
	Gender x subversive	.01	.17	.01		
	Gender x direct	-.19	.18	-.13		
	Direct x subversive	-.08	.06	-.14		
	Gender x age	-.01	.32	-.01		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

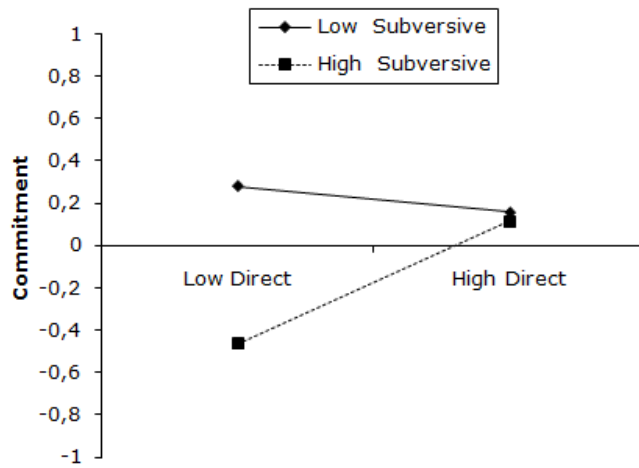


Figure 1. The interaction effect between direct and subversive parental privacy invasion on commitment.