

Relationship 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 relationship between direct and subversive parental privacy invasion and identity formation that also considers the role of autonomy, on the basis of 183 self-reports of adolescents. The results showed that autonomy mediated the relationship between subversive privacy invasion and exploration and commitment. We suggest that subversive privacy invasion is unhealthy, because it reduces adolescents' sense of control. In contrast, direct parental privacy invasion predicted higher levels of exploration and commitment. These differential effects provided insight into the different ways that adolescents experience these invasive behaviors.

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

Introduction

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 makes it possible for adolescents to forge a personal domain within which they 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 typically experience an increasing need for privacy and autonomy (Fleming, 2005; Petronio, 1994). Parents also usually want to give their adolescent children more independence, while at the same time feeling obligated to ensure adequate adjustment by staying informed about their lives (Hawk, Hale, Raaijmakers, & Meeus, 2008; Smetana et al., 2006; Steinberg, 2002). Privacy and the individuation process, in which the adolescent creates his or her 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 relationship between those two concepts. The present study is the first that examines the relationship between perceived parental privacy invasion and identity formation during adolescence that considers *different kinds* of invasion of privacy. In addition, this is the first study that uses behavioral measures instead of subjective measures. It is hoped that this research will provide more insight into the effect parents have on their adolescent children's identity development as a result of the way they invade their privacy.

For the purposes of the present study, privacy is defined as the amount and the kind of information that is shared with others or kept to oneself (Petronio, 1994). During childhood, controlling access to information becomes increasingly integral to children's privacy conceptions, and it becomes a critically important issue in adolescence (Wolfe & Laufer, 1974, as cited in Petronio, 1994). A conceptualization that is useful for understanding adolescents' perceptions of privacy is the communication privacy management theory (CPM). This framework states that individuals regulate the amount of information that is shared with others by creating boundaries that represent the level of control of others' access to private information about an individual (Petronio, 2002). Privacy boundaries can be expressed in two fundamental ways (Petronio, 1994): first, nonverbally by acting in a particular way that is recognized as privacy maintenance, for example by closing the door; and verbally, by communicating and making decisions about rules for privacy regulation. Parental privacy invasion occurs when parents infringe upon the personal domain of their adolescent children: in other words, when parents and the adolescents act in accordance with different notions of privacy boundaries

(Hawk, Keijsers, Hale, & Meeus, 2009; Pedersen, 1997).

Parental privacy invasion can occur in two different ways: directly and subversively (Petronio, 1994). Direct invasion is defined as open intrusion by parents into their children's 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, telling them to stop, or they can act preventively by doing things like meeting friends outside of the home. In cases of subversive privacy invasion, adolescents can only react confrontationally, and they can only do this if they discover that their parents are engaging in such behavior. For this reason, adolescents cannot typically engage in proactive behavior to protect themselves against subversive privacy invasion. Privacy is a critical factor in children's ability to both develop a sense of independence and explore their own identity (Parke & Sawin, 1979, cited in Petronio, 1994). Since exploration is one of the key processes of identity formation (in addition to 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 a decision as to whether

commitments 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 his or her 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 whether he or she has made the right choice.

In the identity formation process, personal space for the adolescent is needed, and this 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 relationship between the two different kinds of privacy invasion examined in the present paper, on the one hand, and identity development, on the other. 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 relationship 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 parental monitoring inhibit identity formation (Benson & Johnson, 2009). This suggests that, through close monitoring of the adolescents' activities, parents do not only limit adolescents' autonomy, but also influence their children's identity development. A cross-sectional study with adolescents 12 and 16 years old, which concluded that high levels of monitoring are related to lower levels of exploration, are consistent with these findings (Berzonsky, Branje, & Meeus, 2007). Adolescents show lower levels of exploration and commitment when development of their personal domain is inadequate (Mayselless & Scharf, 2009). Because, according to the dual cycle model, exploration is necessary for reconsideration of commitment, 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 making commitments. Therefore, privacy invasion does not necessarily influence the undertaking of commitments. The present paper makes only direct predictions regarding the effects of privacy invasion on exploration and reconsideration of commitment.

Only one study reviewed for the present research included subversive privacy invasion (Petronio, 1994). However, no study has investigated the relationship between subversive parental privacy invasion and identity formation. Therefore there is currently no basis to make distinctive predictions on the basis of parents' subversive, as opposed to direct, privacy invasion. However, it is useful to examine both forms of invasion separately, given that differences between the effects of both kinds of invasion may be found,

and because valuable new information about subversive privacy invasion may emerge. It is predicted that both direct and subversive parental privacy invasion will be negatively related to both exploration (Hypothesis 1) and reconsideration of commitment (Hypothesis 2).

As stated by CPM theory, privacy management is important for adolescents to successfully meet their paradoxical need to be close to parents while gaining a sense of autonomy, which helps them progressively attain independence (Petronio, 2010). For example, privacy management allows the adolescent to decide to be open about personal matters, or to refrain from sharing such information (Petronio, 1994). A cross-sectional study with college students showed that the restricting kind of privacy boundary management, that involved behavior such as distancing oneself from others, reinforces a sense of personal autonomy (Pedersen, 1997). In other words, privacy may be related to autonomy. Additionally, other research findings have indicated 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 found a positive relationship 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 year-olds) 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 will be found to play a mediating role in the relationship between direct and subversive parental privacy invasion, on the one hand, and identity formation, on the other (Hypothesis 3). Although there is some literature about the relationship between autonomy, on the one hand, and exploration and commitment, on the other, there is insufficient evidence for differentially predicting the effects of the former on each of the three identity stages. Therefore, the same effect is predicted for all three identity stages. In addition, because 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 old) and late adolescents (18-19 years old) showed that there is typically an increase in autonomy during adolescence (Fleming, 2005). Because late adolescents are more autonomous than early adolescents, it is suspected that age plays a moderating role in the relationship between direct and subversive parental privacy invasion and autonomy, as well as in the relationship between autonomy and identity formation (Hypothesis 4). In other words, we would 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 subjects of the present study were 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 relationship with privacy invasion, as compared to the former group. 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, confronted with pressing decisions about the direction of their lives following graduation. It is thus predicted that, among

late adolescents, there will be a stronger negative relationship 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 relationship between direct and subversive parental privacy invasion, on the one hand, and the three concepts of identity formation (i.e. exploration, commitment and reconsideration of commitment), on the other. In this study, the focus of identity formation is on peer relations and school and career choices, since these are important functional domains during adolescence (Arnett, 2010).

Method

Participants

The subjects in this study were 183 adolescents (112 boys and 71 girls) from four different secondary schools in urban areas in the interior 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% were preparing for blue-collar work, 13.0% for higher education, 13.0% were preparing for a combination of both blue-collar work and higher education and 30.8% were preparing for a combination of university and other forms of higher education. The family situation of participants broke down along the following lines: 81.6% living with both parents, 15.1% living with mother, 1.1% living with father and 1.1% living in other

family situations. The distribution of ethnicity was as follows: 74.6% Dutch, 8.6% Turkish, 5.4% Moroccan, 4.3% Surinamese, 2.7% Indonesian and 2.2% other.

Measurements

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* values 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 items on 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.” Examples of items on the commitment subscale are “The education I attend gives me self-esteem” and “My best friend makes me feel confident about myself.” One of the reconsideration of commitment subscale items was “Actually I am looking for a different school.” 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 items of the original questionnaire (40 items) were removed because they addressed issues that did not fit the age-group (e.g. marriage). Examples of the items used 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 asked to participate in this study. Four schools (one in Utrecht, one in Nijkerk and two in Amersfoort) agreed to do so, and each designated one or two classes of junior and/or senior high school to serve as study subjects. Eventually, 191 participants received a consent form an average a week before the actual data collection. This form offered parents the opportunity to object to their child’s participation. 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, each participant received a candy bar as compensation. The questionnaire took approximately thirty minutes to fill in.

Strategy of analyses

The reliability of the questionnaire was tested for 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 respect to the following dependent variables: autonomy, exploration, commitment, and reconsideration of commitment. 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 analysis 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 among 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 ($F(1, 181) = 11.11, p < .01$). In addition, 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 ($F(1, 181) = 4.73, p = .03$).

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.

Relationship between direct and subversive parental privacy invasion and autonomy

In the multiple regression analysis with autonomy as the dependent variable (Table 2), Step 1 was not significant ($Adjusted R^2 = .00$, $F(2,179) = 0.97$, $p = .38$), but Step 2 was ($\Delta R^2 = .08$, $F(4,177) = 4.14$, $p < .01$). Step 3 was non-significant. Thus, the results of Step 2 were used, including gender, age, direct privacy invasion, and subversive privacy invasion. Only the negative relationship 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 what had been predicted, 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.

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

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

As shown 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 relationship 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 relationship via autonomy. This latter variable 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, with associated 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, and thus age had no moderating role in the previously mentioned relationship.

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***		
Step 3	Subversive privacy invasion	-.20	.08	-.02	.17	.10***
	Gender	.04	.14	.02		
	Age Group	-.49	.14	-.24**		
	Direct privacy invasion	.29	.08	.08***		
	Subversive privacy invasion	.08	.08	.08		
Step 4	Autonomy	.33	.07	.33***	.15	.01
	Gender	.10	.21	.05		
	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. * $p < .05$, ** $p < .01$, *** $p < .001$.

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 relationship 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.

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**		
Step 3	Subversive privacy invasion	-.17	.08	-.17*	.20	.11***
	Gender	.37	.14	.18**		
	Age Group	-.55	.14	-.28***		
	Direct privacy invasion	.22	.08	.22**		
	Subversive privacy invasion	-.07	.08	-.07		
Step 4	Autonomy	.34	.07	.34***	.23	.06
	Gender	.42	.20	.20		
	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. * $p < .05$, ** $p < .01$, *** $p < .001$.

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 difference in the levels of commitment between adolescents who reported relatively high and 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, given the absence of significant interaction effects with age.

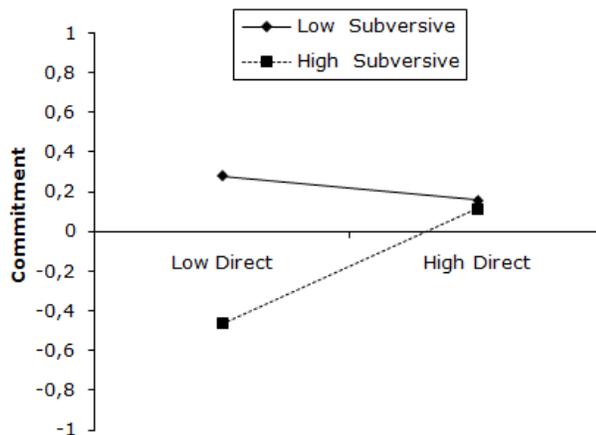


Figure 1. The interaction effect between direct and subversive parental privacy invasion on commitment.

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 relationship 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.

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

Discussion

The aim of this study was to clarify the relationship between perceived parental privacy invasion and identity formation during adolescence. Healthy identity formation requires that adolescents become autonomous and develop 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 in accordance with different definitions of privacy boundaries, and we

had 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 relationship 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 relationship 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 relationship 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 relationship between privacy and autonomy (Pedersen, 1997; Petronio, 1994; Petronio, 2010). Furthermore, research has shown a positive relationship between autonomy, on the one hand, and exploration and commitment, on the other (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 invasive 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 explain the absence of a relationship between direct privacy invasion and

autonomy, on the one hand, and the presence of a relationship between subversive privacy invasion and autonomy, on the other. In conclusion, 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 relationship with autonomy. An explanation for these relationships 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 relationship 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 results of the aforementioned longitudinal study (Luyckx et al., 2007). Luyckx and his colleagues did not show a significant relationship between psychological control and reconsideration of commitment, just as we found no significant relationship 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 result disconfirmed Hypothesis 1, which predicted a negative relationship. This result also contradicts the findings in the literature, which show a negative relationship 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 and positively related to commitment. Contrary to Hypothesis 2, no direct relationship between direct parental privacy invasion and reconsideration of commitment was found.

That direct parental privacy invasion was not found to be negatively related to exploration and commitment might be explained in terms of different kinds of parent-child relationship. 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, which holds 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 consequences of their actions, it predicts self-regulation (Barber, 1997; Sartor & Youniss, 2002). Additionally, monitoring behaviors in the context of a positive parent-child relationship promote the development of identity by encouraging self-reflection and independent thinking. In conclusion, a

good parent-child relationship might moderate the relationship between direct privacy invasion and identity formation, perhaps by ameliorating tensions typically resulting from invasions of privacy. Further research should include characteristics of the parent-child relationship, to examine its role in the relationship between direct privacy invasion and identity development.

An unexpected finding 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 suggests that subversive privacy invasion may have moderated the relationship 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. Conversely, when adolescents reported higher levels of direct privacy invasion, the difference in effects was 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 relationships 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 obey those rules, 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 acts as a moderator on the mediating role of autonomy. This could be due to the age range 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. If secondary school students were compared to college students, an age effect would likely be found (Beyers & Goossens, 2008; Fleming, 2005). Additionally, the statistical methodology employed in the present study might have contributed to this result. Because age was 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 focused upon the relationship between parental privacy invasion and identity formation. This study could serve as a pilot for longitudinal investigations of these relationships. The results showed some clear relationships, and the significant mediating 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 relationships 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 relationship, 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, the latter 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 informants other than the adolescent (e.g, parents) in order to obtain more valid results.

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” ought to be reconsidered. Because the definition of monitoring behaviors showed overlap with items in the questionnaire about direct privacy invasion, and the 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 carefully examine 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 into the suggested mechanisms of these relationships, and thereby make a valuable contribution to the literature. Parents should be careful about using subversive tactics to monitor their adolescent children, because this could have negative effects on their identity development and autonomy. To stay informed, parents

would probably be better advised to 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. Finally, it would seem critically important that parents and practitioners be aware of the negative effects subversive tactics might have on identity development and autonomy, respect adolescents' privacy, and consider relying mainly on direct monitoring in order to keep themselves informed of how their adolescent children are functioning.

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