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*International Journal of Behavioral Development* 2010; 34; 302 originally published online Apr 29, 2010;  
DOI: 10.1177/0165025409347987

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# Truancy in late elementary and early secondary education: The influence of social bonds and self-control—the TRAILS study

René Veenstra,<sup>1</sup> Siegwart Lindenberg,<sup>2</sup> Frank Tinga,<sup>2</sup> and Johan Ormel<sup>3</sup>

International Journal of Behavioral Development  
34(4) 302–310

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DOI: 10.1177/0165025409347987  
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## Abstract

Some pupils already show unexcused, illegal, surreptitious absences in elementary education or the first years of secondary education. Are weak social bonds (see also Hirschi, 1969) and a lack of self-control (Gottfredson & Hirschi, 1990) indicative of truancy at an early age? Of the children in our sample, 5% were persistent truants in late elementary education and early secondary education. Using multivariate analyses the influence of various predictors on persistent truancy was examined. Lack of attachment to norm-relevant significant others (parents and teachers) and lack of prosocial orientation were indicative of truancy. Social bonds with classmates had no effect on truancy. Other risk factors for truancy were: being a boy, early pubertal development, family breakup, and low socio-economic status. The effect of self-control on truancy was partially mediated by social bonds. The impact of social bonds to norm-relevant significant others suggests that early truancy can partly be prevented by focusing on children's relations with parents at home and with teachers at school. Prevention of truancy is desirable because the likelihood of involvement in other deviant behavior increases for truants.

## Keywords

adolescence, effortful control, elementary school children, goal-framing, relationship between parents and adolescents, school environment, self-control, social control, truancy

## Introduction

Staying away from school without a valid reason, tends to be increasingly more common in the final years of secondary education (Wagner, Dunkake, & Weiss, 2004). However, some pupils already show unexcused, illegal, surreptitious absences (Kearney, 2008) in elementary education or the first years of secondary education. If pupils start at such an early age with truancy, the likelihood of their involvement in other deviant behavior increases highly (Farrington, 1980; Henry, Caspi, Moffitt, Harrington, & Silva, 1999). To prevent pupils from dropping out of school and persisting in antisocial behavior, attention must be focused on the process that leads to dropout and criminal involvement. This process seems to begin to take place at an early age (Sweeten, Bushway, & Paternoster, 2009). Early truancy might be an important aspect of that process.

Several researchers have looked at predictors of truancy. These studies are mostly exploratory rather than theory-based (see for an exception Wagner et al., 2004). Apart from a few exceptions (Farrington, 1980; Fergusson, Lynskey, & Horwood, 1995; Fogelman, Tibbenham, & Lambert, 1980; McNeal, 1999), most previous publications on truancy are based on cross-sectional research. Besides the work of Farrington (1980) no other studies have examined truancy in elementary education. Farrington (1980) monitored truancy development in boys from a working-class neighborhood in London. Almost 6 per cent of the boys, aged 8 to 10, were considered to be truants in the last year. In secondary education, this share tripled. Farrington found strong indications that for some children truancy in elementary education persists in secondary education.

In line with Farrington (1980), we examined truancy at an early age. By truancy we refer to unexcused, illegal, surreptitious absences (Kearney, 2008). We formulated the following research question: What is the role of social control and self-control on truancy? Are weak social control (Hirschi, 1969) and a lack of self-control (Gottfredson & Hirschi, 1990) indicative of truancy? The point of departure of social control theory and self-control theory is not the question why people violate social rules, but rather why they obey them. The social control theory holds that when people are attached to others, the emotional bond to these others makes them want to conform to their expectations. The self-control theory holds that people's stable ability to restrain their impulses makes them conform to norms they themselves share.

Though the control approaches were used initially to explain juvenile delinquency, they can be applied to other kinds of deviant behavior (compare Matsueda & Heimer, 1987). These approaches seem appropriate for research on truancy. Truancy is after all unlawful behavior. From the perspective of self-control theory, it can be maintained that truancy yields many easy rewards in the

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short term, such as leisure time, excitement, and dodging obligations. The rewards of non-truancy are primarily paid out in the long term (involvement in the school, good achievements, and other people's trust).

There has been much written about the contradictions and compatibilities between the two control theories which we will not repeat here (see Taylor, 2001). The consensus seems to be that it would be more fruitful to integrate the two rather than to pit them against each other (Sampson & Laub, 1993). Recent developments in cognitive psychology have given rise to a synthesis between the two that is based on the role of goals and significant others for self-regulation (Lindenberg, 2008, forthcoming). Particularly relevant for this 'goal-framing' approach are the studies by Baldwin and Holmes (1987), Baldwin, Carrel, and Lopez (1990), and Shah (2003a, 2003b) which have shown that significant others (e.g., parents) can activate expectations and that thinking of significant others can influence a person's goals. Goals that significant others approve of are activated and goals they disapprove of are inhibited in the attached person. This lowers the accessibility of goals associated with 'temptations' and strengthens the goal pursuit endorsed by the significant other. Thus, for dealing with temptations, self-control (trait) can be seen as facilitator of self-regulation (state) that works through the psychological presence of significant others and the influence of their goals on cognitions, expectations, and evaluations of the person exercising self-control. Self-regulation is aided by the psychological presence of significant others not only because of their approval or disapproval but also because thinking of them reduces the attractiveness and accessibility of the deviant goal and increases the accessibility of the endorsed goal. This effect will be strengthened by a stronger prosocial orientation (paying attention to others, being attuned to their expectations, see Seeley & Gardner, 2003).

The interesting implication of this approach is that without the aid of significant others, self-control should only be a help for highly internalized norms and not for social norms for which self-regulatory capacity is relevant (Schwartz, 1977). Conversely, being attached to a person makes that person a significant other, but, contrary to the social control theory, just being attached to that person should not help against deviant behavior if the significant other is not identified with the specific norm against this behavior. In fact, it might be that the major contribution of self-control to self-regulatory capacity lies in its facilitating attachment to significant others. This view is supported by a recent finding by Eisenberg et al. (2007) that self-control (also named effortful control) correlates with sympathy (referring to caring for others and for what they want). If true, this would mean that trait self-control is a vehicle for acquiring the instruments (attachment to significant others) for state self-regulatory capacity. Hirschi himself has also moved in this direction by seeing social bonds more as means of state self-regulation than as emotional attachment that elicits a 'conventional' response (see Hirschi, 2004).

In order to examine early truancy, we derived hypotheses from the goal-framing approach just presented. From this approach it follows for self-regulation that there must be both attachment and a clear normative position of the significant others to whom a child is attached. It follows that in order to be a significant other that helps self-regulation with regard to truancy, there has to be attachment to this other and he or she has to disapprove of truancy. Parents and teachers can be assumed to disapprove of truancy at elementary school age (Croninger & Lee, 2001; Crosnoe, Kirkpatrick Johnson, & Elder, 2004; Jenkins, 1995; Lee & Burkam, 2003;

McNeal, 1999). When children form a stable attachment to these adults, these adults become significant others with regard to truancy and the likelihood of truancy should be low. By contrast, classmates are likely to show no clear disapproval of truancy (some disapprove, some do not). Thus, when children form a stable attachment to their classmates, these classmates do not become significant others with regard to truancy. We can now hypothesize that:

*Hypothesis 1:* The likelihood of truancy decreases as attachment to parents and teachers is stronger.

*Hypothesis 2:* The likelihood of truancy is unrelated to the degree of attachment to classmates.

As discussed earlier, children's prosocial orientation should also diminish the likelihood of truancy because the more they care about people, the better they will be aware of what is expected of them, which renders self-regulation easier. The hypothesis then is the following:

*Hypothesis 3:* The likelihood of truancy decreases as young people have a stronger prosocial orientation.

Because we suggested that self-control as a temperament trait contributes to state self-regulation mainly by aiding the attachment to significant others, it would follow from this that:

*Hypothesis 4:* The effect of self-control on truancy is mediated by attachment to parents and teachers.

When we test these hypotheses we will also take other predictors of truancy into account because prior research indicates that they are correlated with truancy (Fergusson, Horwood, & Shannon, 1986; Henry, 2007); predictors such as sex (boys more truant than girls), socio-economic status (SES, negatively correlated with truancy), pubertal development, familial vulnerability to externalizing deviant behavior, and family breakup (all positively correlated with truancy).

## Method

### Sample

The present study involved the first two assessment waves of TRAILS, which started in 2001. TRAILS is designed to chart and explain the development of mental health and social development from pre-adolescence into adulthood. The TRAILS target sample involved pre-adolescents living in five municipalities in the north of the Netherlands, including both urban and rural areas (De Winter et al., 2005).

Of all children approached for enrollment in the study (selected by the municipalities and attending a school that was willing to participate,  $N = 3,145$  children from 122 schools, response of schools 90.4%), 6.7% were excluded because of incapability or language problems. Of the remaining 2,935 children, 76.0% were enrolled in the study, yielding  $N = 2,230$  (consent to participate: both child and parent agreed; mean age of child: 11.09,  $SD = 0.55$ ; gender: 50.8% girls; ethnicity: 10.3% children who had at least one parent born in a non-western country; parent education: 32.6% of children had parents with a low educational level, at maximum a certificate of a lower track of secondary education). No non-response bias was

found in our study for the estimation of the prevalence rates of truancy in elementary education (De Winter et al., 2005). Of the 2230 baseline participants, 96.4% ( $N = 2,149$ , 51.0% girls) participated in the second measurement wave, which was held two and a half years after T1. Mean age at the second wave was 13.56 ( $SD = 0.53$ ).

Well-trained interviewers visited one of the parents (preferably the mother, 95.6%) at their homes to administer an interview covering a wide range of topics, including the child's developmental history and somatic health, parental psychopathology, and care utilization. The parent was also asked to fill out a questionnaire (the participation rate of parents was 98.1% for the interview and 92.2% for the questionnaire). Children filled out questionnaires at school, in the class, under the supervision of one or more TRAILS assistants. Absent children completed the questionnaires as soon as possible afterwards. Teachers were asked to fill out a brief questionnaire for all TRAILS children in their class (the participation rate of teachers was 86.7%). The measures used in the present study are described more extensively later in this article.

## Variables

**Truancy (T1 and T2)** Truancy was the dependent variable in this study. By truancy we mean that a child was absent one day or more from school without a valid reason and this was reflected in the questions about truancy. To assess information about truancy, children (2 items), parents (1 item), and teachers (1 item) were asked whether, in their view, the child was currently (last six months) playing truant (in Dutch 'spijbelen'). In both waves, children reported truancy most often (T1: 9.2%; T2: 14.6%). The number of teachers who did so was smaller (T1: 4.7%; T2: 9.3%), and the number of parents was the smallest (T1: 1.2%; T2: 2.0%). The answers of teachers and children were associated at T1,  $\chi^2(1, N = 1903) = 26.87, p < .001$ , as well as T2,  $\chi^2(1, N = 1436) = 75.39, p < .001$ : 12.4% of the children who said that they played truant were also categorized as such by teachers at T1. This percentage increased to 25.2% at T2. For parents and children, the answers were also associated at T1,  $\chi^2(1, N = 2031) = 12.15, p < .001$ , as well as T2,  $\chi^2(1, N = 1889) = 110.60, p < .001$ . For parents and teachers the association was at T1,  $\chi^2(1, N = 1770) = 33.91, p < .001$ , and at T2,  $\chi^2(1, N = 1306) = 73.20, p < .001$ . The range of Cohen's kappa was from .05 to .22. As in many other studies involving different groups of informants, there proved to be little agreement between children, parents, and teachers. Fogelman, Tibbenham, and Lambert (1980) found also low agreement between informants.

We decided to combine the answers of the three informants into a single truancy measure. In view of the small number of truants, it seemed inadvisable to us to work with several groups. Moreover, to create a robust outcome measure we decided to focus our analyses on two groups: the children who played truant at T1 and T2 (persistent truants) and children who were non-truants at both waves. This means that the children who played truant only in either elementary or secondary education were excluded from the analyses.

**Family background (T1).** The TRAILS database contains various variables for socio-economic status: income level, educational level of both the father and the mother, and occupational level of each parent, using the International Standard Classification for Occupations (Ganzeboom & Treiman, 1996). Socio-economic status was measured as the average of the five items (standardized).

The scale captured 61.2% of the variance in the five items, and had an internal consistency of .84. Missing values (e.g., when there was only one parent in the family) did not affect the association of this scale with other variables. The percentage of children who had lived with the same parents from birth to pre-adolescence was 76.6. The 23.4% for whom this was not the case were divided into children who had always lived with a single parent (4.6%), who had experienced a divorce and lived with a single parent since then (10.4%), and who had experienced a divorce and lived with a step-parent (8.6%). We combined these three categories and labeled it 'family breakup'.

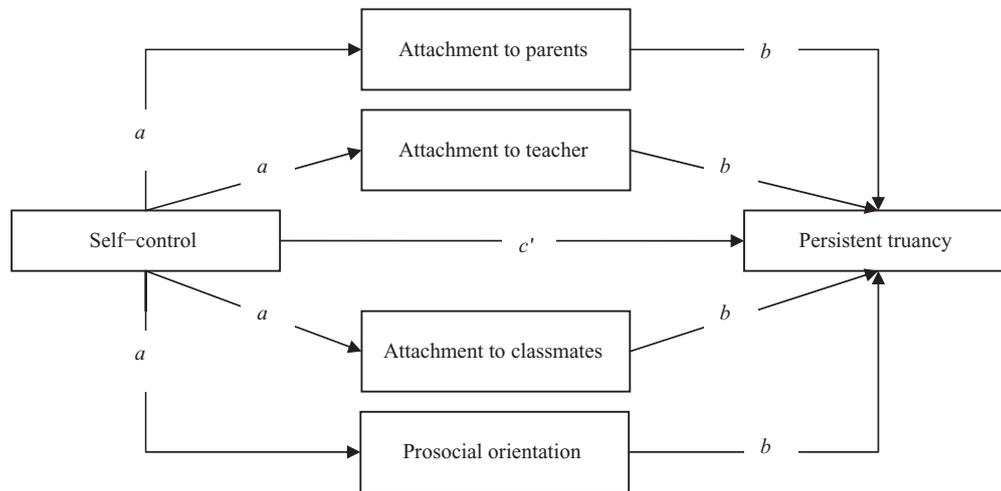
Familial vulnerability to externalizing behavior was measured using the Brief TRAILS Family History Interview, administered at the parent interview (Ormel et al., 2005). The parents' self-report scores for substance abuse and antisocial behavior were used to construct the index. For substance abuse and antisocial behavior, parents were assigned to any of the categories 0 = (probably) not, 1 = (probably) yes, and 2 = yes and treatment/medication (substance abuse) or picked up by police (antisocial behavior). The Brief TRAILS Family History Interview yielded lifetime rates that were by and large comparable to those found in studies in which CIDI interviews were employed, with the exception of fathers' rates for substance abuse, which were relatively low (Ormel et al., 2005).

**Pubertal development (T1).** Stage of pubertal development was assessed in the parent interview using schematic drawings of secondary sex characteristics associated with the five standard Tanner stages of pubertal development (Marshall & Tanner, 1969, 1970). Tanner stages are a widely accepted standard for assessment of pubertal development, and have demonstrated good reliability, validity, and parent-child agreement (Dorn, Susman, Nottelmann, Inoff-Germain, & Chrousos, 1990). A parent (usually the mother) was provided with gender-appropriate sketches, and asked to select which of the sketches 'looked most like the child'. Based on the parent ratings, children were classified into five stages of puberty, in which stage 1 corresponded to infantile and stage 5 to complete puberty (Tanner & Whitehouse, 1982). Boys and girls differed in pubertal stage,  $t(2112) = 9.18, p < .01$ . On average, girls were in a more advanced stage than boys.

**Attachment (T1).** To measure children's attachment to parents, we used two self-report scales based on Social Production Function (SPF) Theory (Nieboer, Lindenberg, Boomsma, & Van Bruggen, 2005). A five-point scale is used in the SPF list, with answer categories ranging from 1 (never) to 5 (always). Children's attachment to parents was measured using four items per parent, including 'he/she likes being with me' and 'I can really trust him/her'. As the scores they gave for both parents correlated strongly ( $r = .68$ ), we combined them ( $\alpha = .76$ ). We also used the SPF list to measure children's attachment to teachers ( $\alpha = .78$ ) and classmates ( $\alpha = .84$ ). No test-retest data of the SPF list are available.

**Prosocial orientation (T1).** As a proxy for children's prosocial orientation we used two items in questions to teachers. These were the items 'takes the interests of other children into account' and 'apologizes when something goes wrong' ( $r = .68$ ).

**Self-control (T1).** Self-control was assessed using the parent version of the Early Adolescent Temperament Questionnaire-Revised (Ellis, 2002; Putnam, Ellis, & Rothbart, 2001). Self-



**Figure 1.** Graphical presentation of the effects of self-control on social bonds (path *a*), social bonds on truanacy (path *b*), and the direct effect (path *c'*) of self-control on truanacy. The total effect (*c*) of self-control on truanacy is the sum of the direct and indirect effects:  $c = c' + ab$ .

control as a temperamental trait is the capacity to voluntarily regulate behavior and attention (11 items,  $\alpha = .86$ ). Sample items are ‘usually gets started right away on difficult assignments’ and ‘finds it easy to really concentrate on a problem’. Previous research by Rothbart, Ahadi, Hershey, and Fisher (2001) has indicated that parent reports of these temperament traits in younger children (as indexed with the Children’s Behavior Questionnaire) remain fairly stable over a two-year period (with test-retest *r*s between 0.50 and 0.79), and this seems to indicate that they reflect enduring characteristics in youths (see also Muris & Meesters, 2009).

## Analyses

First, differences in individual and family characteristics between persistent and non-truants were investigated using *t*-tests. Second, we tested our hypotheses using multivariate analyses. We used logistic regression to examine the effects of independent variables on persistent truanacy, a dichotomous outcome. To interpret the outcomes of the logistic regression we used marginal effects (Borooah, 2001; Liao, 1994). The marginal effect for a dummy variable is the difference between being in category 1 and being in category 0. The marginal effect for a continuous variable is the effect of a variable on an outcome with one point of increase in the score of the variable. We started the analyses with a model with background characteristics and self-control. Then, we added the social bonds to the model. The idea behind this order was that on the basis of the theory, we expect self-control to influence a person’s ability to form attachments.

To test multiple mediation (Baron & Kenny, 1986), we tested first whether there was a direct effect of self-control on truanacy (path *c'* in Figure 1). Furthermore, we tested the effects of self-control on social bonds (path *a* in Figure 1) and social bonds on truanacy (path *b* in Figure 1). Finally, we tested whether the effect of self-control was mediated. Mediation occurs if the indirect effect of self-control on truanacy through social bonds is significant. To test whether the indirect effect was significant we applied a bootstrap approach (Preacher & Hayes, 2008), which enabled us to calculate the 95% confidence intervals of the indirect effect. A macro for this procedure was downloaded from the internet (see Hayes, n.d.).

We employed corrected-item-mean (CIM) imputation to handle missing data at the item level (Huisman, 2000). At the scale level we performed multiple imputation using the MICE method of multivariate imputation (Allison, 2002; Royston, 2004). It is assumed in these procedures that the data are missing at random. As a result of the imputations, we were able to use all cases in our analyses.

## Results

### Prevalence and development of truanacy

Truanacy is more common in early adolescence (T2, average age of 13.5) than in childhood (T1, average age of 11). The combined children’s, parents’, and teachers’ reports put the percentage of truants in the first wave (T1) at 12.8%. The second wave (T2) was after the transition to secondary education, and the prevalence of truanacy was then 19.4%. There is a significant increase in prevalence between the waves,  $t(2146) = 6.60, p < .001$ .

Truanacy at T1 and T2 are not independent of each other,  $\chi^2(1, N = 2147) = 83.71, p < .001$ : 72.9% never played truant (non-truants) up to the start of secondary education. The group that played truant at both times (persistent truants) was 5.1%. The remaining 22% of the children played truant at T1 (7.7%), or T2 (14.3%). We excluded these children from further analyses, because we wanted to focus on differences between non-truants and persistent truants.

### Descriptives of the predictors

Table 1 contains means and standard deviation of all predictors. Because SES was based on a standardized score, the mean is close to 0. Familial vulnerability to externalizing deviant behavior was highly skewed to the right, with a mean of 0.14 and a maximum of 4.32. All other means represent mean item scores with a range of 1 to 5. Correlations between the predictors are weak or moderate (available upon request). The highest correlations are between attachment to parents, teachers, and classmates. These correlations range from .35 to .39.

**Table 1.** Individual and family background of persistent and non-truants: means (and standard deviations) or percentages

Variable	Persistent truants (N = 109)	Non-truants (N = 1566)	Differences between categories
Sex (1 = boy)	60.6%	46.7%	$\chi^2(1, N = 1675) = 7.79^{**}$
SES	-0.36 (1.04)	0.09 (0.96)	$t(1653) = -4.64^{**}$
Family vulnerability to externalizing behavior	0.29 (0.58)	0.12 (0.38)	$t(1639) = 4.34^{**}$
Family breakup	51.4%	19.2%	$\chi^2(1, N = 1675) = 62.83^{**}$
Pubertal development	2.10 (0.87)	1.84 (0.74)	$t(1603) = 3.35^{**}$
Self-control	2.95 (0.68)	3.26 (0.68)	$t(1515) = -4.30^{**}$
Attachment to parents	4.06 (0.75)	4.34 (0.61)	$t(1642) = -4.38^{**}$
Attachment to teacher	3.45 (0.95)	3.89 (0.75)	$t(1639) = -5.66^{**}$
Attachment to classmates	3.39 (0.91)	3.50 (0.80)	$t(1637) = -1.34$
Prosocial orientation	3.15 (0.84)	3.56 (0.77)	$t(1447) = -4.82^{**}$

Note. All independent variables were measured at T1.

\*\*  $p < 0.01$ .

**Table 2.** Logistic regression on truancy (N = 1675)

Variable	Model 1		Model 2	
	Marginal effect (SE)		Marginal effect (SE)	
Baseline level	4.8%		4.2%	
Sex (1 = boy)	3.2%	(1.0) **	2.1%	(0.9) *
SES	-1.2%	(0.5) *	-0.9%	(0.5)
Family vulnerability to externalizing behavior	0.1%	(0.4)	0.2%	(0.3)
Family breakup	7.8%	(2.0) **	6.9%	(1.8) **
Pubertal development	1.4%	(0.5) **	1.2%	(0.4) **
Self-control	-1.2%	(0.5) *	-0.7%	(0.5)
Attachment to parents			-1.0%	(0.4) **
Attachment to teacher			-1.6%	(0.4) **
Attachment to classmates			0.7%	(0.5)
Prosocial orientation			-1.0%	(0.5) *

N = 1675; \*\*  $p < .01$ ; \*  $p < .05$ .

### Univariate differences between persistent and non-truants

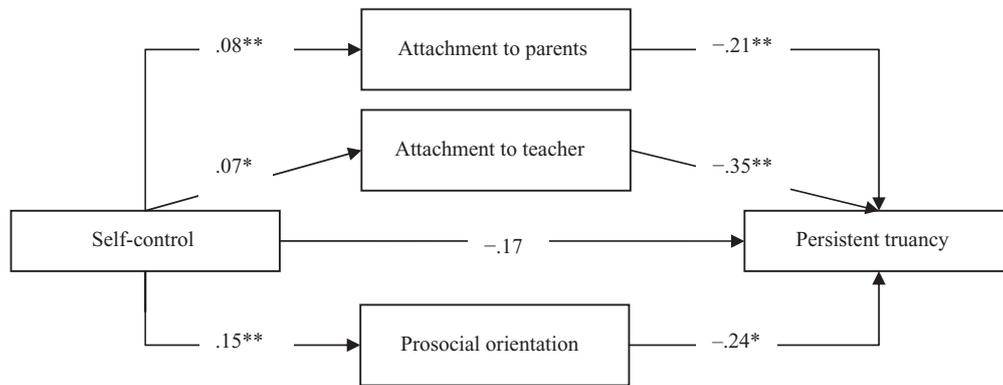
We examined the extent to which persistent truants and non-truants differed in individual and family background. The variables found in the literature to affect truancy also did so in this study. Table 1 shows that boys are overrepresented among persistent truants and underrepresented among non-truants. It can also be seen that the parents of non-truants on average had a significantly higher SES than the parents of persistent truants. The parents of non-truants were significantly less vulnerable to externalizing behavior than the parents of persistent truants. A family breakup had occurred in the families of more than half of the persistent truants. For non-truants, the level of family breakup was 19.2%. Compared to non-truants, persistent truants were more advanced in their pubertal development.

As hypothesized, the non-truants scored higher on self-control than the persistent truants. The hypotheses about the relation of attachment to truancy are also borne out in the univariate analyses. The non-truants were more attached to their parents and teachers than the persistent truants. As expected, we found no group differences for attachment to classmates. Our results about prosocial orientation were also in line with our hypothesis. The non-truants had a higher prosocial orientation than the persistent truants.

### Multinomial logistic regression analysis

We wanted to know whether the hypothesized effects would remain in a multivariate analysis and whether the effect of self-control is indeed mediated by social bonds. Using logistic regression on persistent truancy, we first estimated a model, using sex, SES, familial vulnerability to externalizing behavior, family breakup, pubertal development, and self-control. Table 2 represents the marginal effects of the logistic regression. The standard error is indicated between brackets in each case. Only familial vulnerability to externalizing deviant behavior was not significantly related to persistent truancy in the multivariate analysis. The baseline level of persistent truancy was 4.8% (calculated for girls with average scores on the four continuous variables and coming from intact families). Boys scored 3.2 per cent higher on persistent truancy. Thus, their prediction of truancy was 8.0%. Children who scored one standard deviation above the mean on SES were 1.2% less likely to be a persistent truant. Children from broken families scored 7.8% higher on persistent truancy. Children with high self-control (+1 SD) were 1.2% less likely to be a persistent truant, whereas children with high pubertal development (+1 SD) were 1.4% more likely to be a persistent truant.

In the second model we added the four social bonds characteristics. Table 2 shows that attachment to parents as well as to teachers is related to persistent truancy, in line with hypotheses 1 and 2.



**Figure 2.** Graphical presentation of the unstandardized effects of self-control on social bonds (path *a*), social bonds on truantcy (path *b*), and the direct effect (path *c*) of self-control on truantcy. The total effect of self-control on truantcy is  $-.25$ .

Again, attachment to classmates had no effect on truantcy. Children with a lower prosocial orientation were more likely to be persistent truants.

With regard to the mediation hypothesis, see Figure 2, it is important to note that self-control was directly related to truantcy ( $b = -.25$ ,  $t = -2.33$ ,  $p = .02$ ). There are also direct associations between self-control and social bonds: self-control was positively associated with attachment to parents ( $b = .08$ ,  $t = 3.26$ ,  $p < .01$ ), attachment to teachers ( $b = .07$ ,  $t = 2.40$ ,  $p = .02$ ), and prosocial orientation ( $b = .15$ ,  $t = 5.32$ ,  $p < .01$ ). Attachment to classmates was excluded from the mediation analysis, because it was unrelated to truantcy. As can be seen in the second model and consistent with hypothesis 4, self-control was no longer related to persistent truantcy when social bonds were taken into account ( $b = -.17$ ,  $t = -1.46$ ,  $p = .14$ ). The reduction of the association between self-control and truantcy after including attachment was statistically significant. Bootstrapping showed that the indirect effect of self-control through social bonds was significant ( $ab = -.08$ ; CI 95% between  $-0.04$  and  $-0.14$ ). In summary, our multivariate findings are in line with the attachment hypotheses, the prosocial orientation hypothesis and the mediation hypothesis concerning the effect of self-control on truantcy.

### Extra analyses

To determine how sensitive our outcomes were to the categorization of truantcy, we performed analyses with a categorization of truantcy based on the self-reports of children only: 79.1% of the children were non-truant and 3.7% were persistent truants. Most of our findings were the same, but there was a difference. Attachment to classmates had a significantly positive effect on persistent truantcy in these extra analyses.

### Discussion

Our aim was to gain a better understanding of truantcy at a relatively early age, and to investigate to what extent such risk behavior can be predicted by a goal-framing theory that combines social control (Hirschi, 1969) and self-control (Gottfredson & Hirschi, 1990) theories in the light of insights from cognitive psychology. Goal-framing theory takes self-regulation as the central mechanism of self-control and it emphasizes the important role of attachment to significant others for self-regulation. Indeed, the expectations

generated by this theory were strongly supported by the data, but first, we turn to the prevalence of truantcy.

At the end of elementary education, 13% of children were reported to be occasional truants by at least one informant. Two and a half years later, 19% of the participants were reported to be truants. These percentages are comparable to those for 8th and 10th graders in the USA (Henry, 2007). On the basis of numerous studies, we expect that truantcy at the next TRAILS measurement wave (which will take place when the participants have reached the age of 16) will be prevalent among a considerably greater share of pupils (Farrington, 1980; Fergusson et al., 1995). Fergusson, Lynskey, and Horwood (1995) observe that the percentage of truants grows exponentially in the course of the secondary school period, and they draw a parallel with drug use, juvenile delinquency, and mental health issues.

Reports of truantcy by children were supported by parents and teachers only to a small degree. This finding is in agreement with the findings of other studies involving different groups of informants (Farrington, 1980; Fergusson et al., 1995; Fogelman et al., 1980). Furthermore, Farrington (1980) found a strong indication that truantcy in elementary education in a London low-SES neighborhood is followed by truantcy in secondary education to an above-average degree. This supposition is consistent with our Dutch data with virtually the same percentages. Two-fifths of children who were reported to be truants in elementary education were again reported to be truants at a more advanced age. Of those children who did not engage in truantcy initially, only one-sixth commenced to do so subsequently (see for similar percentages Robins & Ratcliff, 1980). Five per cent of our sample were persistent truants.

Boys were more often persistent truants than girls. From this we may deduce that early truantcy, like early antisocial behavior (Veenstra et al., 2008), is especially prevalent among boys. Children whose onset of physical puberty had commenced to a lesser degree, who came from intact families, and who had high-SES parents would more likely be non-truants. Relatively more children with disadvantaged family backgrounds were found among truants (see also Henry, 2007). Thus, background characteristics such as sex and family composition remained important predictors of whether children were persistent or non-truants. In their study of absenteeism in elementary education, Fergusson, Horwood, and Shannon (1986) arrived at a similar finding. Independent of several health indicators, children with disadvantaged social backgrounds proved to fall into the high-absence group to an above-average degree.

The explanation of truancy by a goal-framing approach led to quite specific hypotheses. The most important expectations were that attachment to people per se would not have an influence on truancy and that the effect of self-control would be mediated by attachment to significant others regarding truancy. Both expectations help to integrate the social control theory and the self-control theory. In order to aid in self-regulating school attendance, children would only be helped by attachment to those significant others whose goals support school attendance and disavow truancy. This can be said of parents and teachers but not of classmates (Croninger & Lee, 2001; Crosnoe et al., 2004; Jenkins, 1995; Lee & Burkam, 2003; McNeal, 1999). The latter are likely to have various opinions on truancy, for or against or neutral. The results clearly supported our expectation on attachment.

Our expectation on mediation was based on the idea that self-control would help to establish attachments to significant others rather than aid in self-regulation for conforming to social norms. This implies that the influence of self-control on truancy would be mediated by attachment to parents and teachers. The findings of this study were in line with this expectation. The results also supported the auxiliary hypothesis about prosocial orientation. Being socially oriented means that children take the interest of others into account and thus would be better aware of what is expected of them, which, in turn, increases their self-regulatory capacity.

We argue that self-control affects social bonds, which then impact upon truancy behavior. Although this is a reasonable sequence of events, it is also possible that social bonds affect self-control, which then has an impact on truancy. This alternative sequence is suggested by Finkenauer, Engels, and Baumeister (2005). Future research using longitudinal data on self-control and social control may want to contrast these two possible models. Of course, both sequences may operate simultaneously.

In general, the impact of social bonds with significant others representing the goal to go to school suggests that early truancy can partly be prevented or combated by focusing on children's relations with parents at home or with teachers at school. The development of prosocial orientation also appears to play a role. This leads to the question of how social bonds can be reinforced or restored. The results suggest that parents and teachers should be supportive of children (including high-risk children: Veenstra, Lindenberg, Verhulst, & Ormel, 2009) in order to gain their attachment. At the same time, parents and teachers should send out clear signals of their norms against truancy and their goals concerning school attendance (compare McCluskey, Bynum, & Patchin, 2004; Stamm, 2006). In order to do this, they should know about children's attendance and discuss their absences from school (see also Sentse, Dijkstra, Lindenberg, Ormel, & Veenstra, 2010). The teachers would thereby also send out signals that they care about absenteeism (compare Fallis & Opatow, 2003). In the American 'Check & Connect' program (Anderson, Christenson, Sinclair, & Lehr, 2004), high-frequency truants in elementary schools were supervised once a week over a period of two years by so-called monitors: professionals who closely monitored the pupils' behavior and focused on establishing positive relations between pupil, family, and school. The aim of the program was to re-instill in these pupils an awareness of the overriding importance of education. Anderson and her colleagues particularly investigated the possible effects of good relations between the monitor and the child on the child's involvement in school (attendance, achievements, and well-being). In line with our theory about attachment and self-regulation, they found that, having taken into account a variety of

factors, the perception of the relation's quality appeared to be associated with reduced school absenteeism and more positive teacher assessments of the pupil's involvement. In addition, a recent study on truancy of 14-year-olds, showed that schools can have an impact on truancy levels by imposing clear demands on their pupils in combination with a caring and warm school environment (Claes, Hooghe, & Reeskens, 2009).

This study was based on a major survey involving over 2000 boys and girls and combined information from pre-adolescence and early adolescence (the transition from elementary to secondary education). Truancy is relatively hard to measure, like other rule-violating behavior that may evoke sanctions once it has been admitted. For this reason, it is an advantage that in both waves children, parents, and teachers were asked to indicate whether truancy occurred. Virtually all previous studies were based on a single informant (self-reports) or school registrations. Furthermore, we used a stringent criterion for categorizing participants as truants (we regarded a child as truant when a child was seen as truant in late elementary and in early secondary education). A limitation is that we have no information on the construct validity of our truancy measure. Future studies may want to link a truancy measure to outside criteria, such as archival school records and children's daily diaries. However, we could demonstrate that our truancy measure is related to other constructs, such as social bonds, in a meaningful and predicted way, thus bolstering its concurrent validity. Furthermore, our findings only generalize to persistent truants and not to occasional truants. Children who played truant in only elementary or secondary education were excluded from our analyses. Future research that also uses school records and children's daily diaries may be able to look at these occasional truants as well. Finally, the present findings are based on a Dutch sample and further cross-validation using samples from other countries is warranted.

In addition, it is of course wasteful to throw out all pupils who played truant at only one time point. An alternative idea to retain all the available data would be to model truancy on two different levels using multilevel modeling, with six observations, referring to two time points with three raters nested within individuals. The intercept on the individual level would then be modeled as a probability that a given rater at a given time point describes the target person as truant. An advantage of this method is that multilevel modeling would give a direct estimate of the reliability of this intercept. On Level 1, it would then be possible to include time (a dummy variable with a value of zero for T1 and one for T2 would make it possible to test whether truancy increases across time) and raters (e.g., using the teacher estimates as a reference group) as covariates. On Level 2, it would be possible to conduct the analyses that were the focus of the present study. It would be interesting to see the results of such a multilevel model in future research.

Despite these limitations, TRAILS holds unique opportunities for long-term monitoring of the behavior and the position of children involved in truancy. At the next measurement wave, our respondents will be in the final stages of their secondary education careers, and they will be questioned in detail on their truancy (including counts of absences). It will then also be possible to examine the long-term outcomes of early truancy.

Finally, our findings show that children from disadvantaged social backgrounds (in particular family breakup) and with inadequate social bonds (lack of attachment to parents and teachers) and a low prosocial orientation are at greater risk of early truancy. Bearing in mind that such pupils also often show weak achievements and many kinds of deviant behavior, we conclude that those pupils

who are in need of most attention are also the ones with the lowest attendance rates at school, which makes attention to truancy an important challenge for research and a central instrument of social intervention.

### Funding and acknowledgements

This research is part of the TRacking Adolescents' Individual Lives Survey (TRAILS). Participating centers of TRAILS include various departments of the University Medical Center and University of Groningen, the Erasmus University Medical Center Rotterdam, the University of Utrecht, the Radboud Medical Center Nijmegen, and the Trimbos Institute, all in the Netherlands. Principal investigators are Professor J. Ormel (University Medical Center Groningen) and Professor F. C. Verhulst (Erasmus University Medical Center). TRAILS has been financially supported by various grants from the Netherlands Organization for Scientific Research NWO (Medical Research Council program grant GB-MW 940-38-011; ZonMW Brainpower grant 100-001-004; ZonMw Risk Behavior and Dependence grant 60-60600-97-118; ZonMw Culture and Health grant 261-98-710; Social Sciences Council medium-sized investment grant GB-MaGW 480-01-006 and project grants GB-MaGW 457-03-018 and GB-MaGW 452-04-314; NWO large-sized investment grant 175.010.2003.005); the Sophia Foundation for Medical Research (projects 301 and 393), the Dutch Ministry of Justice (WODC), and the participating universities. An earlier version was presented at the ECSR/Transeurope Conference on *Globalization, Inequality and the Life Course*, Groningen, the Netherlands, September 2007. We are grateful to all the adolescents, their parents and teachers who participated in this research and to everyone who worked on this project and made it possible. We are grateful to Jaap Denissen for his suggestion about the possible use of multilevel modeling.

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