Educational attainment, school delinquency, and the role of peers

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Chapter 1

Introduction: Educational attainment, school delinquency and the role of peers

1.1 Educational attainment and school delinquency

Adolescence is an important developmental phase with the overarching task of equipping adolescents with the values, attitudes and competencies for a successful transition into adulthood (Zarrett and Eccles, 2006). How this transition is managed can have far reaching consequences into adulthood and is an important determinant for the social position individuals will hold, making it a topic of general interest for (social) scientist (Hogan and Astone, 1986).

My dissertation takes into focus two outcomes that are prominent in adolescence and are important in setting the course for future life chances and the social position: Educational attainment and delinquency.

Educational attainment marks an important transition into adulthood (Zarrett and Eccles, 2006). The mere timing of the completion of (initial) schooling has consequences for other life transitions, such as leaving the parental home, union formation, parenthood and entry into the labor market (Hogan and Astone, 1986). Moreover, the level of educational attainment is crucial in determining adolescents' social position in adulthood. It determines labor market outcomes such as earnings, occupational position and (un-)employment, as well as socio-cultural participation or regional mobility (Hillmert, 2009).

Delinquency is wide spread in adolescence (Neubacher, 2020) due to the physiological and psychological changes that mark the transition into adulthood. The physiological changes of puberty influence behavior, mood and social relationships (Zarrett and Eccles, 2006). Subsequently, adolescents are faced with the psychological challenging task of forming an identity independent of their parents and come to a sense of who they are (Crosnoe and Johnson, 2011). In their quest for autonomy and control, adolescents experiment with new behaviors, including delinquent ones (Massey et al., 2008). They have a desire for strong emotional arousal making risky behaviors, including delinquency, being perceived as highly rewarding (Modecki and Uink, 2018; Luciana, 2013). This draw towards delinquency is supported by the rewiring of the brain in adolescence that leads to developmental changes in impulse control and motivation (Wikström and Treiber, 2019).

While delinquency in adolescence include manifold behaviors such as vandalism, shoplifting, or violence, the focus in my dissertation is on *delinquency in the school*

context. This focus is warranted because school is the key institution in adolescence and the place where adolescents spend most of their time awake (Wikström et al., 2012; Eccles and Roeser, 2011). More specifically, I focus on two behaviors that are connected to educational attainment: Cheating and truancy.

Cheating, or the wrongful use of cheat sheets, undermines educational goals by interfering with learning progression and leading to unreliable grading. Thus, it hampers the acquisition of human capital. In addition, it is possible for these kind of behaviors to spill over to other domains, e.g. into work (Sattler et al., 2015).

Truancy, or staying away from school without consent, is also connected to educational attainment. It has negative consequences for educational achievements because adolescents who are not in school have less exposure to schooling. This puts them into a disadvantage for their learning gains and consequently, their achievement. In addition, indirect effects of truancy are supposed to work through feeling not integrated and struggling to interact with peers and teachers (Klein et al., 2022; Sosu et al., 2021).

1.2 The role of peers for educational attainment and school delinquency

Due to their potentially far reaching consequences into adult life, it is important to understand what influences these behaviors to be able to target them effectively. One important influencing factor, that I focus on in my dissertation, is the role of *peers*.

In general, the influence of peers is especially strong in adolescence and has been found for all sort of domains, like anti- and prosocial behavior, mental and physical health, attitudes and values (Brechwald and Prinstein, 2011: 167). This is due to an increase of the general importance of peers. Not only does the mere time adolescents spend with their peers increase. Along with the increased need for autonomy and independence of their parents, comes an increase in the importance of the peer group as a source of identity and self-evaluation (Zarrett and Eccles, 2006). Imitating peers' behavior and adhering to the social norms perceived in one's peer group, helps to provide adolescents with an intrinsically rewarding, favorable sense of themselves (Festinger, 1954). Moreover, peers function as a source of information and feedback. Through modeling, social reward, punishment, and observational learning (Bandura, 1986), adolescents learn consequences of certain behaviors and opinions. This makes

adolescents especially susceptible to influences of their peers. They are more likely to engage in behaviors that are viewed high status, that match the norms of one's peer group, are reinforced by their peers or contribute to a favorable self-identity (Brechwald and Prinstein, 2011).

The influence of peers is established for educational attainment and school delinquency as well (for educational attainment, e.g. Epple and Romano, 2011; Sacerdote, 2011; for (school) delinquency, e.g. Beier, 2016a; Flaherty et al., 2012; O'Rourke et al., 2010; Henry and Huizinga, 2007; McCabe, 1992). Nevertheless, important research gaps remain that I seek to fill with my dissertation.

1.2.1 Research gap I: Peers and aspiration realization

For educational attainment, the role of peers has been of scientific interest for decades. While studies operationalize peers in all sorts of ways, one group that is of particular importance are peers in the classroom (Sacerdote, 2011). They have been found to matter for test scores (e.g. Hanushek et al., 2003; Hoxby, 2000), educational attainment (e.g. Marotta, 2017; Burke and Sass, 2013; Rodkin and Ryan, 2012; Hanushek et al., 2003) and the choice of educational pathways (e.g. Fletcher, 2012; Riegle-Crumb et al., 2006; Hanson, 1994). Besides their empirical importance, focusing on the composition of classrooms has another advantage. It can be more easily targeted with policy interventions than other peer relationships, such as friendships or siblings (Dollmann and Rudolphi, 2020).

Despite this wealth of research, the role of peers in the realization of educational aspirations has not received much attention. But recent research from the U.S. suggests that peers, or more specifically, heterogeneity of peers educational aspirations, plays a role in adolescents' failure to realize their aspirations (Harding, 2011; Harding, 2010). Because unmet aspirations are associated with negative outcomes such as mental health problems (e.g. stress and anxiety), negative labor market outcomes (e.g. lower lifetime earnings), increased risk of substance use (see for example Hardie, 2014; Massey et al., 2008), and deviant coping (e.g. Cundiff, 2016), it is important to understand what determines whether adolescents are successful in realizing their aspirations.

The first goal of my dissertation is therefore to contribute to the understanding of failure to realize educational aspirations in an European context, i.e. Germany. The German school context provides an interesting case for this endeavor because routes to *Abitur* are diverse. This could mean that adolescents are especially vulnerable to

the distracting influence of cultural heterogeneity.

1.2.2 Research gap II: Integrating the role of peers into a comprehensive explanation of school delinquency

For delinquency in adolescence, the importance of peers can be considered to be secured as well. Numerous studies found peers' delinquency to be associated with delinquency and their role is specified in various theoretical approaches (for an overview see Hoeben and Thomas, 2019; Beier, 2016a). The same is true for the school delinquency outcomes under study. Numerous studies exists that underline the importance of peers for adolescents' cheating (e.g. Freiburger et al., 2017; O'Rourke et al., 2010; McCabe and Trevino, 1997; McCabe, 1992) and their truancy (e.g. Henry and Huizinga, 2007; Wagner et al., 2004). However, these studies fail to integrate the role of peers in a comprehensive, action-theoretical framework. They often do not address the causal mechanisms and lack a proper differentiation between factors that are causally relevant and factors that are merely correlated with the true causes for school delinquency (Wikström, 2017). But without a clear understanding of the mechanisms that cause people to break rules, there is a risk of developing ineffective crime intervention and prevention measures (Wikström, 2011).

Situational Action Theory (SAT; Wikström, 2014; Wikström et al., 2012; Wikström, 2006) has the potential to fill this gap by putting peer influence into a comprehensive theoretical model of why people break rules. It provides a mechanism-based explanation by incorporating both personal and environmental approaches and putting their situational interplay at its center. Because SAT asserts the claim of being a general theory for explaining why people break all kinds of rules, it should be equally applicable in the context of cheating and truancy. But so far, SAT has mostly been tested in the explanation of breaking rules defined in law (for a review see Pauwels et al., 2018). What has been missing largely is the application of SAT to those outcomes not defined in law.

Therefore, the second goal of my dissertation is to fill this gap by invoking SAT in the explanation of cheating in school as well as the truancy-delinquency relationship.

1.3 Aim and overview of dissertation studies

Summing up, the overarching aim of my dissertation is to examine whether recent theoretical developments can live up to their potential for adding to our knowledge about the role of peers in educational attainment and delinquency in the school context.

My dissertation consists of three self-contained papers that contribute to this goal. The first paper (Chapter 2) turns to educational attainment and tests a new concept that could help explain the role of peers in the classroom for the realization of educational aspirations in Germany. Cultural heterogeneity in class, i.e. 'the presence of a diverse array of competing and conflicting cultural models with respect to education' is invoked as an explanatory variable (Harding, 2010; Harding, 2007). It has been successfully applied to explain the realization of college aspirations in the U.S. (Merolla, 2016; Berg et al., 2013; Harding, 2011). It is unclear whether it is generalizable to different institutional contexts and can add to our understanding of why adolescents on non-standard routes to *Abitur*, the German qualification for enrolling in tertiary education, end up realizing their aspirations.

The second paper (Chapter 3) turns to cheating, a behavior of broad interest for researchers of various disciplines. SAT is applied as an action-theoretical framework in order to enhance our understanding of the interaction between cheating of peers in class (who constitute the moral context) and adolescents' propensity for cheating.

In the third paper (Chapter 4), the relationship between truancy and delinquency is the outcome of interest. While it is often assumed that truancy is a stepping stone to delinquency (Garry, 1996; Tannenbaum, 1938), SAT is applied as a theoretical framework to gain a more nuanced picture of this relationship and investigate whether changes in peers' delinquency and time spent with peers in criminogenic settings can explain how this relationship comes about.

In order to tailor the data sets most suitable, I rely on data from different surveys (see Table 1.1). What my analytical approaches all have in common is a longitudinal perspective. This allows me to determine the temporal order and track the inter-individual dynamics of change. Moreover, fixed-effects models allow for a better handling of unobserved heterogeneity (Brüderl, 2010).

All three papers have been published (see Table 1.1).

Table 1.1 Overview of dissertation studies

Title	Is what they aspire what they get? The role of cultural heterogeneity in the classroom for the realization of *Abitur* aspirations *(Chapter 2)*	Explaining cheating in schools with Situational Action Theory: Within-estimations using a German school panel *(Chapter 3)*	Does truancy make the delinquent? A situational and longitudinal analysis of the truancy–delinquency relationship *(Chapter 4)*
Research Question(s)	Does cultural heterogeneity in the classroom play a role in the realization of *Abitur* aspirations of students on a non-standard route to *Abitur*?	Does the interaction between morality and the cheating norms as hypothesized by SAT apply to cheating? Is self-control conditional on this interaction?	Is the relationship between truancy and delinquency situational? Can SAT explain the longitudinal relationship between truancy and delinquency?
Dependent variable(s)	*Abitur* attainment	Frequency of cheating	Frequency of offending / substance use
Main independent variable(s)	Cultural heterogeneity in classroom	Morality, self-control, descriptive norm on cheating in classroom	Prevalence of truancy, propensity, exposure
Data	CILS4EU (Germany) Age of respondents: 15-20	FuGJ (Germany) Age of respondents: 15-16	PADS+ (England) Age of respondents: 13-17
Analytical strategy	Longitudinal linear probability models	School fixed-effects, person fixed-effects	Descriptive analyses of truancy time and truancy onset, person fixed-effects
Co-Author	Single authored	André Ernst	Single authored
Current status	Published on *SocArXiv* (2022)	Published in *European Journal of Criminology* (2021)	Published in *European Journal of Criminology* (2020)

1.3.1 Is what they aspire what they get? The role of cultural heterogeneity in the classroom for the realization of *Abitur* aspirations

The first paper (Chapter 2) tests whether the concept of cultural heterogeneity in the classroom can be invoked to explain the non-realization of *Abitur* aspirations for students on non-standard paths to *Abitur*. While students are increasingly taking those non-standard routes (Biewen and Tapalaga, 2017; Schindler, 2017; Buchholz and Schier, 2015), evidence suggests that even more students on those paths aspire than actually attain *Abitur* (Domina et al., 2011; Reynolds and Johnson, 2011; Jacob and Wilder, 2010; Schoon, 2010; Schneider and Stevenson, 1999).

David Harding (2011; 2010) developed the concept of cultural heterogeneity in the context of neighborhood disadvantage. He argued that in those cultural heterogeneous neighborhoods a variety of educational models is present. Because social support exists for many different educational models, the social environment does not give a clear direction for which path to follow. Moreover, information and examples for each path are limited. This hampers the realization of adolescents' own educational goals because it makes it harder for them to stick to their original plan and easier to switch to a less demanding path. Given the importance of peers in the classroom (see for example Burke and Sass, 2013; Rodkin and Ryan, 2012; Sacerdote, 2011), I expect that the results on the realization of college aspirations in disadvantaged U.S. neighborhoods can be replicated for the German school context.

Using panel data from CILS4EU (Kalter et al., 2021; Kalter et al., 2017; Kalter et al., 2015; Kalter et al., 2014), I take a longitudinal approach and test whether cultural heterogeneity in class 9 is related to the realization of *Abitur* aspirations after the standard period of schooling. I follow Harding's approach (Harding, 2011) and operationalize cultural heterogeneity in educational models as the ordinal variation in classmates' educational aspirations. I only use data for respondents with *Abitur* aspirations visiting *Haupt-*, *Real-* and *Gesamtschulen* in 9^{th} grade because these school types are not considered the standard pathway to *Abitur*.

I do not find convincing evidence for the hypothesis that in classrooms, where educational aspirations are diverse, adolescents will be less likely to realize their *Abitur* aspirations. Applying subgroup analyses and robustness checks does not change this picture. Hence, my findings suggest that the concept of cultural heterogeneity hampering aspiration realization cannot be readily applied to the German school context. I discuss possible reasons for this non-finding. This includes the

possibility that within the highly stratified German education system (Buchmann and Dalton, 2002), classroom environments are more homogeneous than it is the case in U.S. neighborhoods, and the variance on the heterogeneity variable is simply not pronounced enough.

1.3.2 Explaining cheating in schools with Situational Action Theory: Within-estimations using a German school panel

The second paper puts cheating in school into focus. Cheating has been of broad interest for researchers of various disciplines but a mechanism-based action theoretical framework is missing. Therefore, Situational Action Theory (SAT; for example, Wikström, 2006; Wikström, 2005, Wikström et al., 2012: 3-43) is applied in the explanation of cheating in school. In addition, the paper puts a part of SAT to a test that has not received much attention, the interaction between personal morality and the moral context, and is one of the few papers that apply SAT to a rule-breaking behavior that is not defined in law. Both contributions are crucial in evaluating SAT's potential as a general action-theory for rule-breaking.

In brief, SAT explains rule-breaking as an outcome of a situational person-environment interaction. It claims that the situational interplay of a person with a certain propensity for delinquency and the criminogeneity of the setting to which they are exposed to is causally relevant in explaining rule-breaking. A person's propensity for delinquency is determined by their moral rules as well as by their ability to stick to those moral rules when externally pressured to break them (i.e. their ability to exercise self-control). The criminogeneity of a setting depends on the moral context, that is, the moral norms it conveys and the ability to enforce these norms in a specific situation (Wikström et al., 2012: 11-12). The influence of peers can be conceptualized as part of the setting (Wikström et al., 2012: 151).

SAT's situational model claims that the interaction between personal morality and the moral norms of the setting determines whether students act habitually or choose deliberately between action alternatives (Wikström et al., 2012: 22-29). This 'moral filter' determines whether controls are relevant. If personal morality and the moral norms are in accordance, people follow their morality unconditionally (principle of moral correspondence). But if personal morality and the moral norms of the setting conflict, people deliberate and self-control (as an internal control) and deterrence (as an external control) matter (principle of the conditional relevance of

controls).

Peers in class are an important part of the moral context and determine what moral norms of the setting are present. Observing peers' cheating can increase the pressure to cheat oneself because an unfair disadvantage is perceived (Sattler et al., 2015). It can also influence the moral judgment regarding cheating, making it seem okay because everybody does it (O'Rourke et al., 2010). Observing classmates' cheating can also teach adolescents the tools to do it effectively (Sutherland, 1956: 9).

Using data from a large-scale panel study in five German cities ('Friendship and Violence in Adolescence') (Kroneberg et al., 2016), the study examines whether those principles apply to cheating as well. The setting's moral norms are conceptualize as classmates' cheating behavior. This ensures the linkage between the moral context and the situation in which the rule-breaking occurs. This situational convergence is a crucial dimension of SAT. By employing person and school fixed-effect models, selection into settings (i.e. schools) with different levels of criminogeneity as well as heterogeneity across persons and schools is controlled.

The findings are mostly in line with SAT's predictions. In cases of a correspondence between personal morality and the moral norms of a setting, i.e. the cheating of classmates, students with rule-abiding morality are least likely to cheat, whereas students with a rule-breaking morality are the most likely to cheat. Also, in line with SAT, self-control only matters for students with rule-abiding morality when they are exposed to classrooms in which cheating of peers is high, deeming it acceptable.

Contribution of co-author

While I was responsible for the literature review on cheating, André Ernst was responsible for preparing the data and conducting the analyses. I developed the theoretical framework, and prepared the manuscript together with my co-author, André Ernst. We both equally contributed to the remaining parts of the paper.

1.3.3 Does truancy make the delinquent? A situational and longitudinal analysis of the truancy–delinquency relationship

The third paper (Chapter 4) is devoted to a better understanding of the truancy-delinquency nexus. Extensive prevention and intervention efforts have been taken

(see for example Bennett et al., 2018; Gottfredson, 2000; Garry, 1996) to prevent adolescents' delinquency by reducing their truancy. However, we still lack a proper understanding of how this relationship comes about, so those efforts might be misdirected. Although truancy is frequently linked to delinquency (e.g. Ellis et al., 2019), a comprehensive, mechanism-based explanation is missing. SAT allows me to integrate a variety of arguments that have been put forward to make sense of the relationship between truancy and delinquency (Wikström et al., 2012).

For the truancy-delinquency nexus, peers play a role in several ways. In the situation of truancy, adolescents are supposed to be unsupervised, engaged in unstructured activities and with their peers (Flaherty et al., 2012; Henry and Thornberry, 2010; Henry et al., 2009; Henry and Huizinga, 2007) which is connected to higher delinquency (Osgood et al., 1996). In the long run, truancy could lead to high criminogenic exposure above and beyond the actual truancy time. By being more likely to be friends with delinquents (Baier, 2016; Henry et al., 2009; Kandel, 1978), truants might learn from their peers the tools to commit crimes (Sutherland, 1956). This could increase the likelihood of perceiving crime as an action alternative. Moreover, spending a lot of unstructured and unsupervised time with peers during truancy, or becoming friends with other delinquent adolescents, can also influence adolescents' propensity for delinquency because they adopt norms that are encouraging of crime (Wikström, 2019a).

By using a unique combination of situational and longitudinal data - the 'Peterborough Adolescent Development Study' (PADS+; Wikström et al., 2012), I contribute to the research on the truancy-delinquency nexus in important ways. First, by employing linear fixed-effects models, I show that SAT is suitable as a comprehensive and mechanism-based explanation for the truancy–delinquency nexus. The longitudinal relationship between truancy and delinquency (where delinquency subsumes both offending and substance use) is fully explained by changes in adolescents' personal morality, their ability to exercise self-control (i.e. their propensity for delinquency), the time they spend with their peers in criminogenic settings and their peers' involvement in delinquency. Second, using space-time budgets, I show that delinquency during truancy is extremely rare. This raises doubt on the notion that truanting adolescents are involved in delinquent activities. Third, I show that for a large share of adolescents, the onset of delinquency is prior to their truancy onset which raises doubt on the notion of truancy being a stepping stone to delinquency.

1.4 Discussion

Considering the influence of peers is important for understanding adolescents' behavior and has been of scientific interest for decades. Thanks to scientific progress, new theoretical developments are advancing. The aim of my dissertation was to test whether those can add to our knowledge on two outcomes that are very prominent in adolescence and set the course for adult life: Educational attainment and delinquency in the school context.

1.4.1 Key findings on the role of peers for educational attainment and delinquency in the school context

For educational attainment, my research suggests that cultural heterogeneity among peers in the classroom does not play a pivotal role in explaining why students on non-standard routes to *Abitur* realize their aspirations (Chapter 2). This finding contradicts research from the U.S. that found cultural heterogeneity in the neighborhood to be relevant for explaining failure to realize college aspirations (Harding, 2011; Harding, 2010; Harding, 2007).

However, when it comes to the explanation of delinquency in school, the research of my dissertation suggests that peers in the classroom play the role expected by SAT. The descriptive classroom norm concerning cheating, an important component of the moral context, influences cheating - but only under certain configurations of individuals' morality and self-control (Chapter 3). When adolescents' own morality is in line with the moral context (whether this means that both encourage or discourage cheating), they will act accordingly. But when students with a rule-abiding morality are in classrooms with a moral context that encourages cheating, they are likely to follow these norms, and cheat as well when their self-control is low. When the moral context discourages cheating, contrary to the expectations of SAT, students do not cheat, regardless of adolescents' morality.

Peers are relevant in explaining the relationship between truancy and delinquency as well (Chapter 4). Peers' substance use respectively their offending play an important part in explaining the longitudinal relationship between truancy and delinquency. Changes in peers' delinquency have a strong positive connection to changes in delinquent behavior and contribute to 'explaining away' the positive coefficient of truancy. I do not find support for the often assumed situational relationship of truancy and delinquency, i.e. the idea that truancy is connected to

delinquency because adolescents spend their truancy time being delinquent. Both offending and substance use are extremely rare during week days, whether they are spent truanting or in school. This suggests that peers do not exert the strong negative influence they are assumed to have during truancy.

1.4.2 Theoretical contributions and implications

These findings make important contributions to the advancement of the theoretical frameworks I applied. Regarding David Harding's concept of cultural heterogeneity (Harding, 2011; Harding, 2010; Harding, 2007), my study suggests that it cannot be readily applied to the German school context. This suggests that differences between U.S. neighborhoods and the German school context exist, that lead to these contradicting findings. A possibility is that within the comparatively highly stratified German education system (Buchmann and Dalton, 2002), classroom environments are more homogeneous than it is the case in U.S. neighborhoods and the missing variance explains the lack of support for the role of cultural heterogeneity. Another possibility is that due to the higher stratification in the German school system, cultural heterogeneity does not play out the same way because institutional barriers are too high. However, the concept of cultural heterogeneity does not provide a clear framework about what the relevant differences could be. While it centers around how adolescents interpret and understand the world around them (Small et al., 2010), it does not inform about how adolescents make educational decisions. But if educational careers are viewed as a series of educational decisions (Hillmert and Jacob, 2010) that result in actions, the same applies to them as to the explanation of rule-breaking: 'people are the source of their action; therefore to explain their actions, we need an adequate action theory' (Wikström et al., 2012: 10).[1] Such an action-theory would need to specify the persons' characteristics and the characteristics of both the immediate environment and the wider social context (Wikström et al., 2012). Without clear mechanisms it is difficult to establish next steps in the understanding of the non-finding of my analyses.

Regarding SAT, which provided the theoretical foundation for my studies on delinquency in the school context, my results are generally in line with what would be expected by SAT. While these findings fit into the existing research that overwhelmingly found support for SAT (Pauwels et al., 2018), they provide important additional insights. By showing that SAT is applicable in the explanation of cheating

[1] For discussions on the value of action-theories, refer e.g. to Ernst, 2022; Wikström and Kroneberg, 2022

in school, I provide evidence for a claim that has not been paid attention much: the claim of being a general theory of rule-breaking. Another dimension that has not received much attention is the principle of moral correspondence specified in SAT. Even under the strict test that the second paper puts it up to, we find mostly findings in line with SAT predictions.

Moreover, by applying SAT to the relationship between truancy and delinquency, I find support for SAT's recent efforts in embedding the situational model into a developmental perspective, the Developmental Ecological Action Model (DEA model, e.g. Wikström, 2019a). Its premise that stability and change in people's crime involvement is a consequence of (patterns of) stability and change in people's crime propensity and/or criminogenic exposure is supported by my analyses.

1.4.3 Methodological contributions and implications

Methodologically, the studies on delinquency in the school context have important implications as well. When claiming situational connections, like truants being delinquent during their truancy time, it is important to test those with situational data. While repeated claims by practitioners as well as scientists attribute the truancy time itself as relevant for its connection to delinquency (e.g.Henry, 2010; Henry and Thornberry, 2010), my analyses that rely on space-time budgets (hence, allowing a direct test of this claim) suggest that this is not the case.

Moreover, the SAT tests highlight yet another time the importance of longitudinal analyses by allowing to establish the order of events. The popular notion of truancy being a stepping stone to delinquency can easily be disproved when looking at the onset of both behaviors.

In addition, school- and person fixed effects as used in the cheating paper, allow for an especially strict test of classroom norms by dealing with the problem of unobserved heterogeneity and selection of certain kinds of people into certain kinds of settings (Ernst, 2022).

1.4.4 Critical reflections and research perspectives

The issue of selection is worth further exploring. Although SAT is very particular in stressing that the immediate causes of action are situational (Wikström and Treiber, 2019), it acknowledges the importance of understanding why people acquire different propensities for rule-breaking and why certain kinds of people take part in

certain kind of settings. Recent theoretical efforts have been concerned with spelling these processes out more precisely (e.g. Wikström, 2019a; Wikström and Treiber, 2019). The approach of using schools as strategic research sites and accounting for the selection of certain adolescents into certain kinds of schools by using school-fixed effects should inspire future investigations of the situational model of SAT. In addition, there is the need to put the recent theoretical advances to an empirical test. While my study on the truancy-delinquency does so, more research is need that tests the assumptions of SAT's DEA model.

Through the use of three different data sets, my aim was to utilize the most suitable data for studying each specific research question respectively each specific outcome. Nevertheless, as I argued in the introduction, important interconnections exist between the behaviors I studied in my dissertation. Therefore, it would be an interesting departure for future research to use one data set to study the outcomes of this dissertation jointly. This would allow answering questions such as 'Do the same peers have different influence on different outcomes?' or ' Does peer influence in one dimension indirectly affect other domains?'

While the focus of my dissertation is on peer influences in the developmental phase of adolescence, adolescence is often framed in a life-course perspective (Crosnoe and Johnson, 2011; Mayer, 2009; Sampson, 1997). As I stated in the introduction, my focus on educational attainment and (school) delinquency is not only due to its relevance during adolescence; it is also due to its relevance for adult lives. However, studying those consequences was outside the scope of my dissertation. Nevertheless, it would be worthwhile to study if and how these peer influences in adolescence spill over to adult live. For example, it would be important to know whether adolescents who are distracted from *Abitur* initially (in the time frame of my study), make up for the distraction later in life by finding other ways later to attain *Abitur*? Or more generally speaking: What determines how far-reaching the consequences are? And under which circumstances do they influence later life, for example in terms of shaping social stratification (Buchmann and Kriesi, 2011)?

Chapter 2

Is what they aspire what they get? The role of cultural heterogeneity in the classroom for the realization of *Abitur* aspirations

Abstract

Even though the German education system is characterized by strong between-school tracking, routes to tertiary education are diverse. Students not initially placed in a school track leading straight to the qualification for enrolling in tertiary education, i.e. the *Abitur*, are able to revise their initial track placement and attain *Abitur* after all. While students are increasingly taking those non-standard routes to *Abitur*, evidence suggests that even more aspire than actually attain it. In this paper, I test whether cultural heterogeneity in educational models can account for this. For disadvantaged neighborhoods in the US, it has been shown that cultural heterogeneity contributes to decreased realization of college aspirations because adolescents have a harder time to stick to their educational goals. To test whether this explanation is equally applicable to the aspiration realization of German students, this paper uses longitudinal data of CILS4EU. Linear probability models are estimated to test whether cultural heterogeneity in class contributes to the non-realization of aspirations for students on non-standard routes to *Abitur*. I do not find strong support for this hypothesis. Several robustness checks do not yield a substantially different picture.

2.1 Introduction

Germany is often viewed as a prime example of a highly stratified education system (Buchmann and Park, 2009), characterized by early between-school tracking and a clear hierarchy between the different types of secondary schools. Notwithstanding, educational reforms from the 1960s onward have introduced alternative pathways that allow for the revision of initial track placement and offer students a 'second chance' to attain the qualification for enrolling in tertiary education, i.e. the *Abitur* (Schindler, 2017). Those reforms were successful in that they were ensued by an increase of students taking non-standard routes to attain *Abitur* (Biewen and Tapalaga, 2017; Schindler, 2017; Buchholz and Schier, 2015). However, there has been an increasing misalignment of adolescents' educational aspirations and the degrees they attain (Domina et al., 2011; Reynolds and Johnson, 2011; Jacob and Wilder, 2010; Schoon, 2010; Schneider and Stevenson, 1999), suggesting that even more students aspire *Abitur* than attaining it.

So why do some students on a non-standard route to *Abitur* end up realizing their aspirations while others do not? One possible explanation that has recently been put forward centers around cultural heterogeneity in educational models students are exposed to (Harding, 2011; Harding, 2007). It suggests that being surrounded by a wide array of competing and conflicting cultural models of education, hampers constructing and following coherent educational pathways that successfully lead to the realization of adolescents' educational goals.[1] While this explanation has been successfully applied for cultural heterogeneity on the neighborhood level in the U.S. (Berg et al., 2013; Harding, 2011), it is an open question whether adolescents face similar struggles in translating their educational aspirations when they are exposed to a heterogeneous environment in school. Although neighborhood and school context are correlated, research finds that they independently influence adolescents' outcomes (Kirk, 2009). Moreover, it is unclear whether results based on US-American samples (Merolla, 2016; Berg et al., 2013; Harding, 2011; Harding, 2010) are applicable to other educational contexts, such as Germany. Especially within the highly stratified

[1] Along similar lines, Buchmann (1989) argued that homogeneous social groups give their members a clear sense regarding opportunities and boundaries of given roles and positions. Social groups who are more diverse in their lifestyles, action orientations and values on the other hand are not able to provide the same clear picture, resulting in a looser coupling of educational expectations and attainment.

German education system, where track placement is early and routes to *Abitur* are diverse, students might be vulnerable to cultural heterogeneity. Therefore, this study asks *whether cultural heterogeneity in class hampers the realization of Abitur-aspirations for students on non-standard educational pathways.*

Using panel data of the German CILS4EU study (Kalter et al., 2021; Kalter et al., 2017; Kalter et al., 2015; Kalter et al., 2014), this study does not find strong evidence for an influence of cultural heterogeneity on the realization of adolescents' *Abitur* aspirations in Germany. To gain a better understanding of these results, several post-hoc analyses are conducted.

2.2 The role of cultural heterogeneity in educational goal attainment

In the study of neighborhood disadvantage, Harding (2010) introduced the concept of cultural heterogeneity as an explanation for lower educational outcomes of adolescents in those neighborhoods. He proposed that disadvantaged neighborhoods are cultural heterogeneous environments, in which a variety of cultural models regarding education are present, i.e. receive social support. Those cultural models are conceptualized as frames and scripts (Harding, 2010: 141-148) that help people interpret and react to events (frames) and provide templates for sequences of behavior to solve problems or achieve goals (scripts). In disadvantaged neighborhoods, a wide array of those, often contradicting and inconsistent, educational models exists and adolescents acquire them through social interaction or direct observation of others in their social context. But this variety of frames and scripts exacerbates their decision-making process and results in delayed action or decision-making (Harding, 2010: 158). Because fewer person have taken a specific educational path, each path is less clearly defined, there will be on average less information about how to carry through with it, and less examples of how to follow a particular script exist (Harding, 2010: 157). Because social support exists for different models, the social environment will send a weaker signal about which option is the best one. When there is less consensus or agreement for a certain option, adolescents will have a harder time deciding. With a wider array of cultural models comes a weaker commitment to a chosen educational option because there are always other options available, approved and successfully adopted by the social environment (Harding, 2010: 156). And especially during adolescence, willingness to 'try on' various cultural models is high (Harding, 2010: 160). Therefore,

adolescents struggle with developing coherent and clear strategies to achieve their goals. It is easy to switch to different educational pathways when problems arise, lowering adolescents' commitment to the educational path they once chose. While this might be beneficial in the short-term (e.g. through resolving current frustration with failing), it might be detrimental in the long run, by making it less likely to follow through with the more ambitious educational goal.

This argumentation can be applied to the research question of this paper. For cultural heterogeneity to matter, the cultural models need to be contradictory and lead to different pathways (Harding, 2010: 160). Those conditions are met in the school context in Germany as well. Choosing lower or intermediate secondary tracks will enable students to take on vocational training but only degrees from upper secondary tracks give them access to higher education. Especially adolescents should be affected by cultural heterogeneity among their peers because they try to establish themselves independent of their parents and rely on their friends as role models and are willing to accept their advice (Hallinan and Williams, 1990). Given the importance of classroom composition for shaping adolescents' educational outcomes (Burke and Sass, 2013; Rodkin and Ryan, 2012), I expect that cultural heterogeneity in the classroom as well hampers adolescents' aspiration realization in Germany.

So when educational aspirations in class are heterogeneous, social support should be weaker for *Abitur* compared to classrooms with homogeneous *Abitur* aspirations. Moreover, information regarding the pathway to attain an *Abitur* is more limited when classmates aspire different degrees. At the same time, degrees other than *Abitur* are a viable alternative when difficulties are faced on the road to *Abitur*. It follows that in classrooms with high aspiration heterogeneity, adolescents will have difficulties to follow through with their *Abitur* aspirations, making it less likely for them to translate their aspirations into an educational degree. Classrooms in which the educational goals of the members are more aligned, will not provide as many distracting alternatives to the ones adolescents originally chose. Therefore, it will be easier for them to follow their plan to attain *Abitur*, making it more likely for those students to realize their educational aspirations. Therefore, I hypothesize that *in classrooms, where educational aspirations are diverse, adolescents will be less likely to realize their Abitur aspirations compared to classrooms with a greater homogeneity in educational aspirations.*

2.3 Literature Review

When it comes to peers in school, a large body of research supports the importance of classroom composition for adolescents' achievement (e.g. Marotta, 2017; Burke and Sass, 2013; Rodkin and Ryan, 2012; Hanushek et al., 2003) and their choice of educational pathways (e.g. Fletcher, 2012; Riegle-Crumb et al., 2006; Hanson, 1994). There is even a longstanding debate about the advantages and drawbacks of homogeneous versus heterogeneous classroom environments (see Scharenberg, 2012). However, this research usually centers around ability grouping and finds different effects, depending among other things on subject (e.g. Lehmann, 2006), grade (e.g. Scharenberg, 2012) or own achievement (e.g. Marotta, 2017; Burke and Sass, 2013), with some studies finding no effect at all (e.g. Kiss, 2013; Hanushek et al., 2003). To the authors' knowledge, no study exists that specifically examined heterogeneous educational goals in school as influencing factor of aspiration realization.

But the influence of cultural heterogeneity is supported when it comes to the neighborhood environment. Conducting unstructured, in-depth interviews with sixty black and Latino adolescent boys in 2003/2004, Harding (2010) contrasted the experience of adolescents from poor neighborhoods in Boston with those from lower middle-class neighborhoods. He found that in disadvantaged neighborhoods, models for alternative pathways to college (like dropping out of high school, taking the GED and go to community college) as well as alternatives to college (e.g. the star career) were present and received social support. This led boys to develop strategies to college that were inconsistent, shift educational models when they encountered problems or take riskier educational pathways due to misinformation. Building on those qualitative findings, Harding (2011) used longitudinal data from AddHealth to find that cultural heterogeneity was associated with a lower likelihood of realizing one's college goals in a large and representative sample of US-adolescents as well. Those living in more cultural heterogeneous neighborhoods (operationalized as neighborhoods in which other adolescents are less likely to implement their plans to go to college), were less likely to attend college. Using a similar analytical strategy, this finding was replicated for a sample of roughly 700 Black adolescents in Iowa and Georgia (Berg et al., 2013). When using self-efficacy, i.e. an individual's belief about their ability to shape their own lives, to measure cultural heterogeneity, NELS data from 1988 and 1990 revealed that cultural heterogeneity matters for adolescents' realization of their educational goals as well (Merolla, 2016).

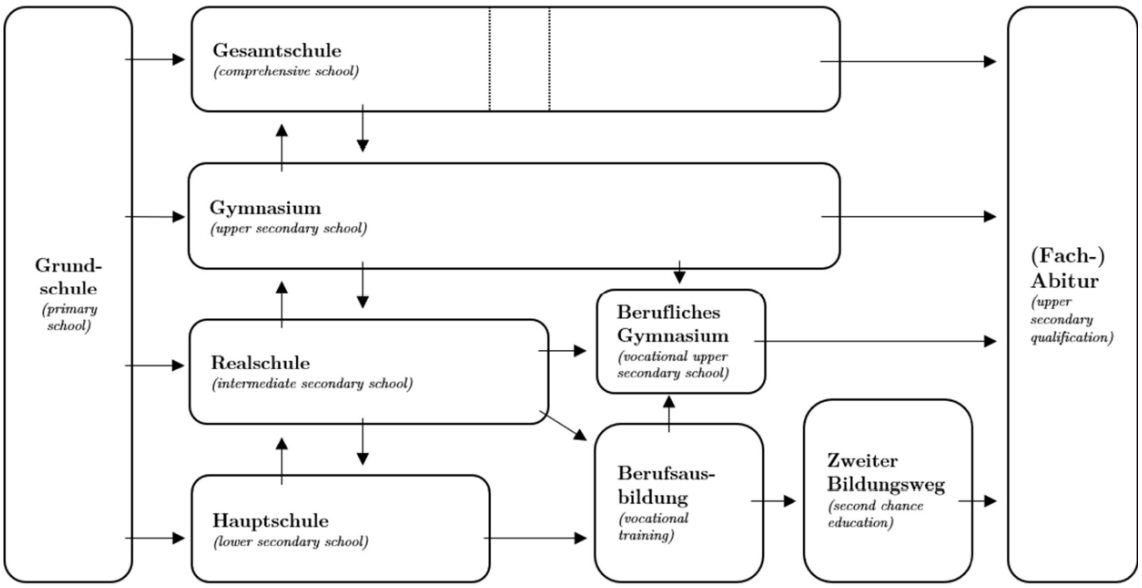
While these results strengthen our confidence in the theoretical model, it is an

open question whether they can also be applied to the German school context.

2.4 Present study and the German context

As stated in the Introduction, the German school system is highly stratified and characterized by early between-school tracking. After four years of primary school[2], students are assigned to a secondary school track (by the age of 10). The least academically demanding track is *Hauptschule*, which ends after 9th grade and has a very practical orientation. More academically demanding, but still with a focus on preparing students for vocational training, *Realschule* ends after 10th grade. The *Gymnasium* is the track most academically demanding and qualifies students after the 12th respectively 13th grade (depending on the federal state) with an entrance certificate for university, the *Abitur*. Besides those three tracks, *Gesamtschulen* have been established that provide its students with the opportunity to earn each secondary school exam within the same school.

Figure 2.1 Schematic representation of the pathways to *Abitur*



Source: Based on Schindler (2017)

While the standard route to attain *Abitur* is attending *Gymnasium*, students being placed in lower school tracks can revise their initial placement by switching between tracks later on (refer to Figure 2.1 for a schematic representation of the

[2]In some federal states, primary education lasts six years.

pathways to *Abitur* in Germany). Moreover, the strong vocational education system in Germany offers the possibility to earn *Abitur* at one of the *berufliche Gymnasien*. At those schools, students with an intermediate secondary degree can earn *Fachabitur*, qualifying them for entrance to universities of applied science. With a lower secondary degree, it is possible to earn an intermediate secondary degree along with the vocational training and then continue to *Abitur* via second chance education.

Due to the study's interest in explaining the realization of *Abitur* aspirations for students not taking the standard path, i.e. attending *Gymnasium*, the focus is on students at *Haupt-*, *Real-* and *Gesamtschulen*.[3] For the same reason, the focus is on students holding aspirations for a university entrance certificate. This includes both general higher education entrance qualifications and those that qualify for entering universities of applied sciences.

To examine the influence of cultural heterogeneity on the realization of *Abitur* aspirations, this study examines whether aspirations students hold when they are in 9th grade (when respondents are typically 15 years old), are realized five years later (when the majority of respondents is 20 years old) after the standard period to achieve an *Abitur* is over. Because in Germany compulsory general education ends after 9 years[4], 9th grade serves as a good point of reference. Students are approaching the time where they need to make a decision about their future school career and if necessary change schools. So in this decision process, adolescents should have a reasonably clear sense of what education they aspire.

2.5 Data and measurement

This study uses the German 'Children of Immigrants Longitudinal Survey in Four European Countries' (CILS4EU) (Kalter et al., 2021; Kalter et al., 2017; Kalter et al., 2015; Kalter et al., 2014) which started in 2010 with a sample of 9th graders in Germany.[5] Within a sample of all schools enrolling the target population (participation: 144 schools, resp. 99 percent), two classes were selected randomly (participation: 271 classes, resp. 99 percent) and all students in theses classes were asked to participate (participation: 5,013 students, resp. 81 percent). This sampling approach allows

[3]Moreover, due to its purpose to qualify students for university, *Gymnasien* are culturally homogeneous environments, where virtually all students aim for Abitur, which leads to no variation on the independent variable heterogeneity in the respective classrooms.

[4]In some federal states, compulsory education ends after 10 years.

[5]Due to its focus on the integration of migrants, schools with high shares of immigrant students have been over sampled.

for the systematic investigation of differences between school classes with different levels of aspiration heterogeneity. Moreover, this makes it possible to rely on peers' own statements about their educational values and aspiration rather than students' perceptions of their peers' values and aspirations. This is a more reliable measure because students' reports about their peers are prone to projection bias, leading to an overestimation of the similarity of oneself with one's peers (Bauman and Fisher, 1986).

Because wave 1 was collected when adolescents were in 9th grade and data collection took place before the end of each subsequent school year, adolescents' first report of attaining *Abitur* was by the time there were interviewed in wave 5. To account for federal states in which time to *Abitur* is 13 years, I use information from wave 6 as well to assess whether adolescents aspiring to attain a *Abitur* actually did so. If not stated otherwise, all independent measures are taken from wave 1. Due to panel attrition, sample size in wave 6 dropped to 2,307.[6] Linear probability models with clustered standard errors are employed to take into account the nested data structure. Weights are applied that correct for sampling probability in wave 1 (the initial design weight) as well as drop out due to panel attrition in wave 6 (a panel weight that adjusts for participation probability in wave 6) (CILS4EU-DE, 2021).

As stated above, the analyses are restricted to students attending *Haupt-*, *Real-* and *Gesamtschulen* holding *Abitur* aspirations in 9th grade.

2.5.1 Key variables

Abitur aspirations were operationalized using adolescents' responses regarding the highest level of education they wish to get when they attended 9th grade. Students who wished to get a degree from upper secondary school or a university degree were coded as aspiring *Abitur*. Students indicating that they wish to get no degree, a degree from lower or from intermediate secondary school were coded as not having aspirations for a university entrance certificate and were not considered in the analyses.

Realization of Abitur aspirations: In wave 6, a life history calendar has been administered in which adolescents were asked to give a detailed record of their school career since wave 1 (including all different schools they visited and the degrees they have earned). If the highest degree they earned was *Abitur* or *Fachabitur*, they

[6] A refreshment sample was drawn in wave 6. However, this is not suitable for my analyses because information on the key independent measure is missing.

were coded as having realized their aspirations. If they did not attain a degree, or the highest degree they attained was a lower (*Hauptschulabschluss*) or intermediate secondary degree (*Realschulabschluss*) or an 'other' degree, they were coded as not having realized their *Abitur* aspiration.

Students who did not participate in the life history calendar were administered a short version of the questionnaire in which they were asked whether they earned a degree since the last time they were interviewed- and if they did so which type of degree this was. For adolescents that participated in waves 5 and 6, the highest degree reported was used to determine whether they attained a *Abitur*. In cases of non participation in wave 5, only information of wave 6 was used.

Cultural heterogeneity: The measure of cultural heterogeneity in class is based on the aspiration variable, distinguishing between students aspiring a lower secondary[7], an intermediate secondary, an upper secondary and a tertiary degree. Due to the ordinal nature of this variable, using the variance is inappropriate. Therefore, I follow Harding's (2011) strategy, and use a measure that captures the ordinal variation (Blair and Lacy, 2000) in classmates' self-reported educational aspirations. It reflects the difference between the distribution of aspirations that is observed and one where all aspirations are evenly divided between all levels of aspiration:

$$l^2 = \frac{\sum_{i=1}^{k-1} (F_i - .5)^2}{(k-1)/4}$$

where k represents the number of response categories (in my case $k = 4$) and F_i represents the cumulative share for category i. It is normalized to a range from 0 to 1 and adjusted for bias in small samples with small values of l^2 using the following formula: $l^2_{adj} = \frac{(1-l^2)}{(N-1)}$. Because l^2 is a measure of concentration, $1 - l^2$ is taken as the measure of educational heterogeneity.

14 classes were excluded due to a participation rate of less than 50 % on the class level.

2.5.2 Control variables

Because selection into schools is associated with socioeconomic status (Juvonen, 2019) and socioeconomic status is associated with realization of educational aspirations (Rosenbaum, 2011; Hanson, 1994), parental education and migration background are

[7] This includes one respondent who responded 'no degree'.

Table 2.1 Descriptive statistics for sample of analyses (N=1,079)

		Mean	SD	Min	Max
Abitur attained		0.48		0	1
Cultural heterogeneity in class		0.49	0.11	0.1	1.0
Average aspiration in class >=*Abitur* (Ref: < *Abitur*)		0.94	0.23	0	1
Average cognitive ability in class		19.09	1.65	13.1	22.6
% *Abitur* aspirations in class		62.82	16.99	8.3	96.2
Individual cognitive ability		19.58	3.50	6.0	27.0
German grade:	very good/good	0.33			
	satisfactory	0.47			
	sufficient/poor	0.20			
Female (Ref: male)		0.43		0	1
Age		14.68	0.70	13.0	17.0
Academic parent(s)		0.82		0	1
Migration background		0.53		0	1
% Academic parent(s) in class		11.72	10.42	0.0	75.0
% Migration background in class		38.13	22.45	0.0	95.7
School track:	*Hauptschule*	0.20			
	Realschule	0.47			
	Gesamtschule	0.33			

Source: CILS4EU (unweighted)

controlled.

Parental education: Besides the questionnaires administered to adolescents in school, telephone interviews were conducted with one parent in wave 1. While parents' reports of their own and their partner's education is available from this source, total parental participation rate was 78 percent. So in cases, in which no information was provided by the parents, information provided by the adolescents was used. Information on parental education was available in the youth questionnaire in wave 1 and wave 3. If parents' reports were missing, the information provided by the child in wave 3 was used, assuming that children's knowledge of their parental education increases with age. Only if this information is not available as well, I rely on children's reports from wave 1.

Migration status: Students who immigrated themselves or who have at least one foreign-born parent, therefore having less experience with the German school system,

are coded as having a migration background. All other adolescents are treated as having no migration background. While this information is initially taken from wave 1, in cases in which student have missing information in wave 1 but non-missing information in a later wave, this information is used. The same holds true for students who give inconsistent information across waves. In those cases, information from the most recent wave is used, assuming that knowledge increases with higher age.

Depending on the *school track* individuals attend, they have different opportunities to realize the same educational aspiration. Moreover, there is evidence for a school track-effect on the development of educational goals (Bittmann and Schindler, 2021; Karlson, 2015). To capture those differences, I control for school track, distinguishing between *Haupt-*, *Real-* and *Gesamtschulen*.

Moreover, *cognitive ability*, is included to control for the fact that the influence on students' aspiration realization is limited by their cognitive abilities. This measure is a sum index of the correct answers of all the items from the cognitive ability test and is provided by CILS4EU. For the same reason, the *school grade in German* in wave 1 is controlled. Because peer influences work differently for boys and girls (Kiuru et al., 2007), *gender* is held constant as well. If information in wave 1 was not available, information is taken from a latter wave. To measure respondent's *age*, information was also used from other waves. Although date of birth is a constant characteristic, information was not always identical across waves. Therefore I took the birth month and year that was mentioned the most often (assuming that this information is the most reliable one). Only if this was not possible, I took the information of the most recent wave.

To rule out that variables correlated with heterogeneity drive the results, various controls on the class-level are added as well: *average educational aspirations, share of students holding Abitur aspirations, average ability, share of academic parents and share of students with migration background* within each classroom.

2.6 Results

Before establishing whether heterogeneity influences realization of *Abitur* aspirations, I investigate the share of students realizing their aspirations at all (Table 2.2). In total, about half the students with *Abitur* aspirations actually finish school with an *Abitur* degree. Because students are sorted into the different school tracks based on their ability, it can be expected that the share of realized *Abitur* aspirations differs

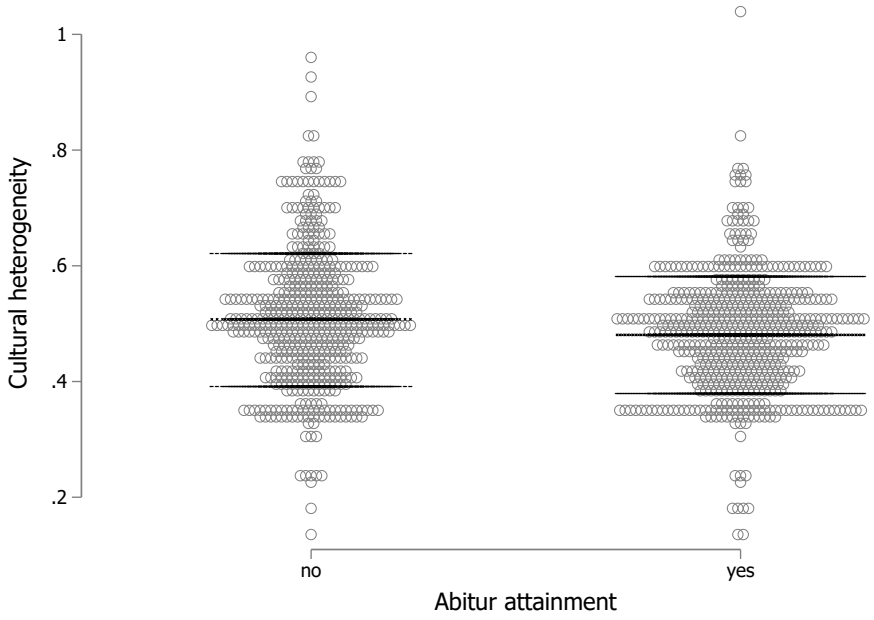
Table 2.2 Realization of *Abitur* aspirations, by school track attended in 9th grade grade

	Hauptschule		*Realschule*		*Gesamtschule*		Total	
	N	%	N	%	N	%	N	%
Abitur	28	18.4	361	63.3	163	45.5	552	51.1
No *Abitur*	122	81.6	209	36.7	196	54.5	527	48.9
Total	150	100	570	100	359	100	1,079	100

Source: CILS4EU (unweighted)

between tracks with different levels of academic demand. The expected picture is found. At *Realschulen*, the academically most demanding track, almost two thirds realized their *Abitur* aspirations. This share is substantially lower at *Hauptschulen*, with a fifth realizing their aspirations. The share of students realizing their aspiration at *Gesamtschulen* is in between, with half the students realizing their aspirations.

Figure 2.2 Distribution of cultural heterogeneity, by *Abitur* attainment



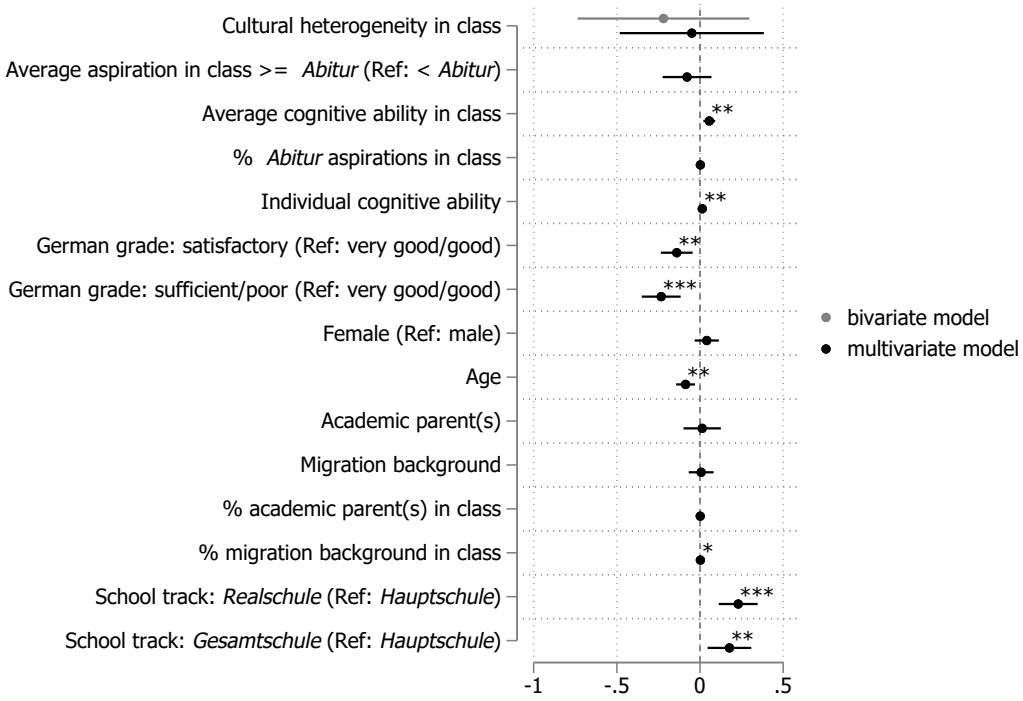
Notes: Dotted lines at mean; solid lines at one SD above resp below mean
Source: CILS4EU (unweighted)

What role does heterogeneity in aspirations play on *Abitur* realization? A comparison of the heterogeneity distribution for students who realized their aspirations

and those who did not (Figure 2.2) suggests that the role is not substantial. While students with an *Abitur* seem to come from slightly more homogeneous classrooms, differences are not very pronounced.

This impression holds when looking at the results of the linear probability model visualized in Figure 2.3 (numeric regression results in Table A.2 in the Appendix). While the coefficient of heterogeneity is negative, suggesting a lower likelihood of realizing one's *Abitur* aspirations with higher heterogeneity in class, the coefficient is rather small (-0.220 in the bivariate and -0.049 in the multivariate model). Moreover, confidence intervals are large and include zero, therefore the coefficients do not reach significance. This indicates that heterogeneity does not play a substantial role in the realization of students' *Abitur* aspirations.

Figure 2.3 Coefficient plot of linear probability models on *Abitur* attainment



Notes: * p < .05, ** p < .01, *** p < .001; lines represent 95% confidence intervals
Source: CILS4EU (weighted)

This result holds under different specifications of the model (see Table A.2 in the Appendix). The former model treated students still in education as not having attained *Abitur*. This could bias the results because they might succeed in achieving their aspirations after wave 6. While this would still be consistent with the theoretical framework to the extent that people are less straightforward in realizing their goals when cultural heterogeneity is high, it could disguise an effect of heterogeneity.

To check for this possibility, two different model specifications are estimated: one excluding adolescents still in school and one that extends the time frame of *Abitur* attainment to wave 7. Neither model yielded substantially different results.

To get a greater contrast between different levels of cultural heterogeneity, a categorical version of the variable is constructed that distinguishes between classrooms with high, medium and low heterogeneity.[8] Again, results are similar to the original model and do not support the hypothesis of a negative effect of cultural heterogeneity on the realization of *Abitur* aspirations.

2.6.1 Are there differential effects for certain groups?

Even though the analyses above do not support the hypothesis that cultural heterogeneity hampers the realization of *Abitur* aspirations, my analytical approach could hide effects for certain groups who are especially susceptible to peer influence because they receive less reliable information from their parents. One such group are students with migration background. Research shows that the aspiration-achievement gap is more pronounced for this group of students: they hold higher aspirations than students with no migration background but at the same time, they are less likely to translate their high aspirations into respective degrees (Salikutluk, 2016; Morgan, 2004; Kao and Tienda, 1998). Subgroup analyses for students with and without migration background (Figure 2.4; regression table in Table A.2 in the Appendix) show that the (non-) effect of cultural heterogeneity is the same for both groups. Neither for students with nor for students without migration background, heterogeneity seems to decrease their likelihood of realizing their *Abitur* aspirations.

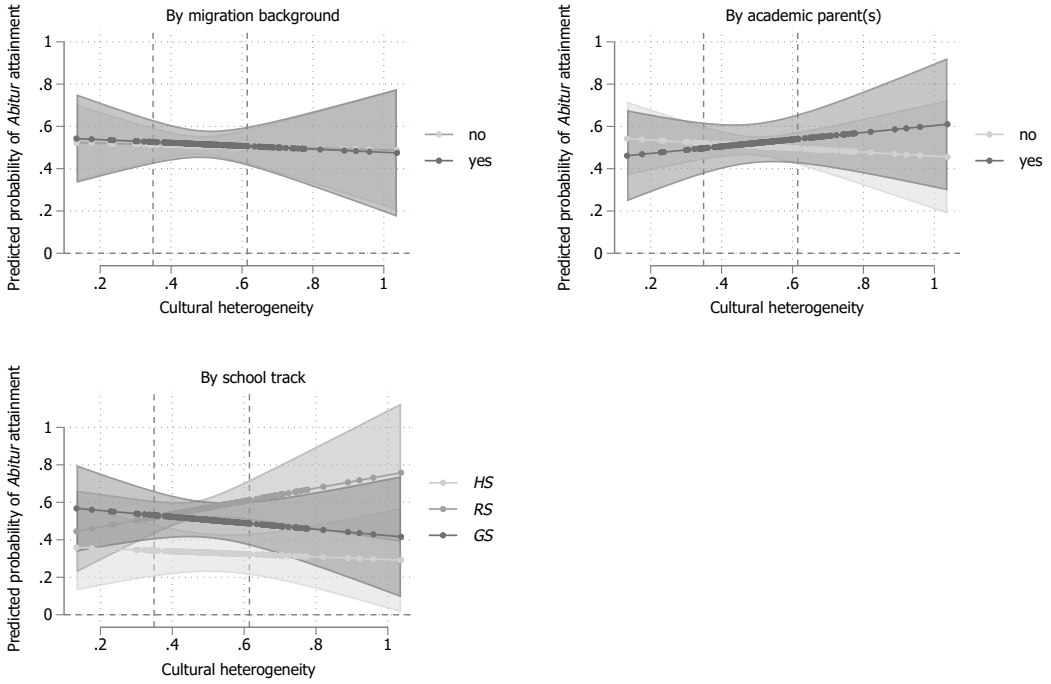
Another group that could be especially susceptible to the influence of aspiration heterogeneity are students whose parents are not academics. For those students, attaining *Abitur* is not necessary to maintain the status of their parents (Breen and Goldthorpe, 1997), so they might not have such a pronounced preferences for *Abitur* to begin with. This could mean that this group is especially susceptible for distractions from their original educational pathway. While results hint to contrary effects for students with and without academic parents in such a way that heterogeneity is

[8] I experimented with different versions of heterogeneity categories. For the version presented in the appendix, the entire sample was split into thirds. Alternative versions were created by building categories within each school track. A version that grouped classes with one standard deviation and more above the mean versus classes with one standard deviation and less below the mean versus all classes in between was constructed as well. All specifications yielded results that are not substantially different from the one presented in the appendix.

more detrimental for students without an academic background, differences are not very pronounced.

Another possibility are differential effects by school track due to different extents of barriers for attaining *Abitur*. *Gesamtschulen* have less barriers compared to *Haupt-* and *Realschulen* because changing to a different track can be achieved within the same school. On the other hand, barriers at *Hauptschulen* should be highest given their distance to *Gymnasium*. While there are differences between school tracks, the results do not favor a negative heterogeneity effect. Instead, effect sizes at *Haupt-* and *Gesamtschulen* are again very small and not significant, suggesting that cultural heterogeneity does not play a role in the realization of *Abitur* aspirations. The coefficient for *Realschulen*, although not reaching significance, even favors an interpretation of a positive heterogeneity effect.

Figure 2.4 Predicted probability of *Abitur* attainment: Subgroup analyses



Notes: between vertical dashed lines: 80 % of the sample; each dot represents a classroom; additional variables: average aspiration in class, average cognitive ability in class, % *Abitur* aspirations in class, individual cognitive ability, German grade, gender, age, academic parent(s), migration background, % academic parent(s) in class , % migration background in class, school track
Source: CILS4EU (weighted)

2.7 Conclusion

Building on the research on cultural heterogeneous neighborhoods, this article tested a new explanation of what enables students in Germany's stratified secondary school system to realize their *Abitur* aspirations when they follow non-standard paths to *Abitur* (i.e. those attending *Haupt-*, *Real-* and *Gesamtschulen*). Applying a longitudinal perspective, I tested whether cultural heterogeneity in 9th grade (when the majority of adolescents is 15 years old) is related to attainment of *Abitur* after the standard period of schooling. My analyses found no evidence for a substantial effect of heterogeneous aspiration in class on *Abitur* attainment, neither for the total sample nor when considering different subgroups. This suggests that findings on the importance of cultural heterogeneity in U.S. neighborhoods are not readily applicable to the German school context.

Different explanations can account for this. While I argued in the Introduction that high stratification and diverse pathways to *Abitur* should make adolescents especially vulnerable to the influence of cultural heterogeneity, the opposite could be true as well. High stratification leads to relatively homogeneous peer environments (Buchmann and Dalton, 2002), so variance on the heterogeneity variable could be not pronounced enough. This would be consistent with research that find peer effects in comprehensive school systems but not in highly tracked ones (Dollmann and Rudolphi, 2020; Lorenz et al., 2020).

Another possibility is that those students, who were the most affected by heterogeneity were those who dropped out of the study due to an unobserved trait influencing both. While the comparison of the drop out sample (see Appendix A, Table A.3) to the sample of analyses (see Table 2.1) does not reveal substantial differences between both groups and I took precautions by applying respective weights, it would be worthwhile to test the research question with different data that has less panel attrition.

Taking a step back from the methodological issues, there is also a theoretical issue worth exploring. What is missing in the current discussion on cultural heterogeneity and educational success is the possibility of heterogeneity having a positive influence as well – depending on one's own level of educational aspirations. Harding developed his theory in the context of aspirations to go to college. When looking at the highest educational degree one can earn, more heterogeneity equals more aspirations below ones' own, so the assumption of a negative effect of heterogeneity is reasonable. however, in the case of aspirations for lower degrees, the case could be different.

In this case, more heterogeneity could implicate exposure to higher aspirations than one's own. So being distracted from the original educational path could mean achieving more than aspired. A student aspiring to earn an intermediate secondary degree might even gain more from being in a cultural heterogeneous environment with peers who want to earn higher degrees, while educational models for attaining an upper secondary degree might not be in his toolkit in a homogeneous environment in which all his peers aim for an intermediate secondary degree as well. This relates to earlier findings, that especially adolescents with high levels of self-efficacy are negatively affected by cultural heterogeneity (Merolla, 2016) and that weak students profit most from heterogeneous learning environments.

Against this backdrop, the present study is a first important step in testing whether Harding's (2011) idea of cultural heterogeneity can be generalized to different countries and contexts, and provides a contribution to our knowledge of students educational success on non-standard paths to *Abitur*.

Chapter 3

Explaining cheating in schools with Situational Action Theory: Within-estimations using a German school panel

Abstract

Wikström's Situational Action Theory (SAT) explains rule-breaking by reference to the cognitive perception-choice process, which indicates how a person's propensity to break rules interacts with the setting's criminogeneity. SAT's situational model claims that the interaction between personal morality and the moral norms of the setting, the so-called moral filter, is critical in the explanation of rule-breaking, and that the influence of self-control is subordinate to this process. Self-control becomes relevant when individuals whose personal morality discourages rule-breaking are exposed to settings in which the moral norms encourage rule-breaking, that is, if the moral filter is conflicted. Whereas most previous studies have equated the moral filter with personal morality, we consider the moral norms of the setting as well. This allows for a more rigorous test of the moral filter, and thus the conditionality of self-control. Here, we investigate student cheating, using data from two waves of a large-scale German school panel study, and we conceptualize the setting's moral norms by reference to the descriptive norm: other students' cheating behavior. This ensures the spatio-linkage between the setting's criminogeneity and rule-breaking, which is necessary for investigating SAT. Additionally, our estimation strategy – person and school fixed-effects – controls for alternative explanations by the selection of people into settings with different levels of criminogeneity. Moreover, it controls for heterogeneity across persons and schools. The findings are in line with SAT's predictions. In cases of a correspondence between personal morality and the moral norms of a setting, students with rule-abiding morality are least likely to cheat, whereas students with a rule-breaking morality are the most likely to cheat. Also, in line with SAT, self-control only matters for students with rule-abiding morality when they are exposed to moral norms that encourage rule-breaking.

3.1 Introduction

Crime is increasingly explained by reference to the interplay between person and environment (Ernst and Lenkewitz, 2020; Barnum and Solomon, 2019; Beier, 2016b; Simons et al., 2014; Berg et al., 2012; Zimmerman, 2010). In this vein of research, Situational Action Theory (SAT; Wikström, 2014; Wikström et al., 2012; Wikström, 2006) provides a particularly comprehensive and detailed framework that explicitly integrates person and environmental approaches, and puts their interplay at the center of the explanation of crime. SAT states that people, first, have to perceive rule-breaking as an action alternative, and then either act habitually or choose deliberately between action alternatives. The perception of rule-breaking action alternatives is constituted by a persons morality and the moral norms of the setting, the so-called moral filter, which 'sets the boundaries for the choice process' (Wikström et al., 2012: 17). If personal morality and the moral norms are in accordance, people follow their morality unconditionally (*principle of moral correspondence*). This is independent of their internal controls (self-control) and the external controls (deterrence). But if personal morality and the moral norms of the setting conflict, people deliberate. Only in this condition does self-control (as an internal control) and deterrence (as an external control) matter (*principle of the conditional relevance of controls*).

It follows that for an appropriate investigation of the principle of the conditional relevance of controls, it is necessary to address the configuration of the moral filter. However, quite surprisingly, research on the principle of moral correspondence is rare, and only a few studies have considered the interplay of personal morality and the moral norms of the setting when studying the principle of conditional relevance of controls (for exceptions, see Pauwels, 2018; Schepers and Reinecke, 2018; Brauer and Tittle, 2017). We add to this research on the principle of moral correspondence and the conditional relevance of self-control by explaining student cheating using data from a large-scale panel study in five German cities ('Friendship and Violence in Adolescence', Kroneberg et al., 2016). We focus on self-control because it matters whenever people deliberate about rule breaking; this is when their own morality and the moral norms conflict. First, self-control matters when persons with rule-abiding morality are exposed to the moral norms of a setting that encourage rule breaking. In this case, their ability to exercise self-control determines whether they will stick to their own morality (Wikström et al., 2012: 26). Second, when people with rule-breaking morality are in settings that discourage cheating, SAT proposes that deterrence (as an external control) becomes relevant. Nonetheless, also in this condition self-controls matters by conditioning the effect of deterrence (Hirtenlehner

and Meško, 2019).

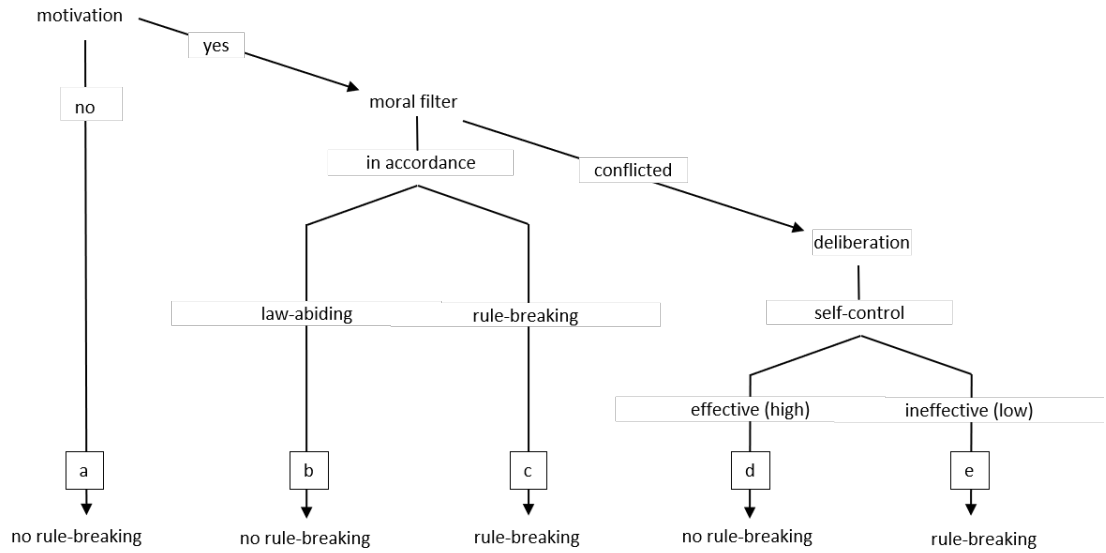
Our aim is to provide a methodologically more rigorous test by using schools as a strategic research site. Contrary to most of the existing SAT tests, we do not have to rely on measures of the moral norms of the setting that are not linked to the setting in which rules are broken, such as participants' self-reports about friends' deviant behavior. Instead, we use the cheating of classmates to explain cheating in school. This brings us closer to a situational convergence, which is crucial in SAT (see Hardie, 2020). As cheating – by definition takes – place within the school setting, we can ensure that the observed behavior is taking place at the moment that students are exposed to the influence of the moral norms of the setting. Additionally, by employing person as well as school fixed-effects models, we can control for selection into settings with different levels of criminogeneity, as well as unobserved heterogeneity across adolescents and schools. This allows us to attribute with greater certainty our findings to the proposed action-generating mechanism.

3.2 Situational Action Theory

SAT explains the breaking of moral rules as the outcome of a situational person–environment interaction (Wikström et al., 2012: 11-12). Situational causes lie in the interplay between persons' propensity for rule-breaking and the criminogeneity of the setting in which they take part. A person's propensity for rule-breaking (P) is determined by their morality (i.e. their personal moral rules and their moral emotions, guilt and shame) as well as by their ability to stick to those moral rules when externally pressured to break them (i.e. their ability to exercise self-control). A setting is defined as the environment (E) an actor perceives at a particular moment in time (Oberwittler and Wikström, 2009: 36), and is characterized by its criminogeneity. The setting's criminogeneity depends on the moral context, i.e. the moral norms it conveys, and the ability to enforce these norms in a specific situation, deterrence. The strength of a moral norm that applies to a setting 'is the degree to which it is shared by those taking part in the setting' (Wikström, 2010: 22). This criminogenic interaction (P x E) initiates a cognitive perception-choice process (Wikström et al., 2012:17-22), which is depicted in Figure 3.1.

The starting point of this perception-choice process is the presence of a motivation, such as temptation or provocation (otherwise path a). First and foremost, the perception is guided by the so-called moral filter, which is constituted by personal morality and the moral norms of the setting. The moral filter determines whether a

Figure 3.1 Perception-choice process



Source: Following Wikström (2017)

person perceives rule-breaking as an action alternative in response to a motivation. According to the *principle of moral correspondence*, under conditions of correspondence between personal morality and the moral norms of the setting, people are most likely to perceive only those action alternatives that are in line with their morality. If people perceive only this one action alternative, they will habitually follow their morality without active consideration (Wikström et al. 2012: 19). If people with rule-abiding morality are exposed to moral norms of a setting that discourage rule-breaking, it is unlikely that they will perceive rule-breaking as a viable action alternative and, thus, it is unlikely that rules will be broken (path b). Therefore, we hypothesize that *when students with a rule-abiding morality are in classrooms with moral norms that discourage cheating, they will be unlikely to cheat (Hypothesis 1.1).* In cases in which people's morality and the moral norms of the setting encourage rule-breaking, people will habitually break the rules when a motivation to do so is present (path c). It follows that *when students with a rule-breaking morality are in classrooms with moral norms that encourage cheating, they will be likely to cheat (Hypothesis 1.2).* Only if people's own morality conflicts with the moral norms of the setting does a deliberative choice process determine whether people will break a rule (Wikström et al., 2012: 26). According to the *principle of conditional relevance of controls*, it is only in situations where persons with rule-abiding morality are exposed to moral norms that encourage rule-breaking that self-control matters independently of setting's deterrence (Wikström et al., 2012: 26). People with high self-control

will be able to withstand the external pressure and not break the rules (path d), while people with low self-control, who cannot withstand the external pressure, will break the rules (path e). Hence, *when students with a rule-abiding morality are in classrooms with moral norms that encourage cheating, their likelihood of cheating depends on their ability to exercise self-control (Hypothesis 2).*

3.3 Literature review

Empirical evidence relating to our hypotheses is limited. While a wide range of factors has been identified as being associated with student cheating, such as attitudes and beliefs regarding cheating (e.g. Teixeira and Rocha, 2008; Eisenberg, 2004), self-control (e.g. Williams and Williams, 2012; Muraven et al., 2006; Cochran et al., 1998), moral norms (e.g. Teixeira and Rocha, 2008; Eisenberg, 2004) and peer influence (e.g. McCabe and Trevino, 1997; McCabe, 1992), only a few studies speak to SAT's principle of moral correspondence and the conditional relevance of self-control.

We review the limited empirical evidence on cheating in the next section. Given the small amount of research on cheating relating to our research interest, we also review the SAT literature that addresses the principle of moral correspondence and the conditional relevance of self-control on rule-breaking acts other than cheating.

3.3.1 Studies on cheating

Studies that take both morality and moral norms into consideration usually assume independent effects of both (e.g. Schuhmann et al., 2013; Teixeira and Rocha, 2008; Eisenberg, 2004; Jordan, 2001; Salter et al., 2001). The few studies that test an interactive influence of morality and the norms of the setting, which speaks to the *principle of moral correspondence*, find mixed results. Studying the influence of students' morality on their cheating, Malinowski and Smith (1985) found that students with a rule-breaking morality cheated more. At the same time, they found that those with a rule-abiding morality cheated when they felt more tempted to cheat. By contrast, when studying the interplay of morality and moral norms among college students O'Rourke et al. (2010) found that those who considered cheating unacceptable (i.e. those with a rule-abiding morality) were little affected by direct knowledge about someone else's cheating. For those with a rule-breaking morality who considered cheating more acceptable, knowing that someone else cheated increased their likelihood of cheating. Regarding the *conditional relevance of self-control*, we

did not find a single study testing SAT's proposed three-way interaction between morality, moral norms, and self-control in relation to cheating. Even studies taking into consideration the influence of all three factors independently are rare, and only provide mixed results. For example, Bolin (2004) found no direct relationship either of the moral norms of the setting or of self-control with cheating in a sample of university students in the U.S. However, he found that both moral norms and self-control had an indirect effect on cheating via morality. On the other hand, Tibbetts and Myers (1999) found that friends' cheating, and morality, each influenced the cheating intention of university students independently, but that the strong association of self-control with cheating propensity was accounted for by the effects of other variables, most notably shame (which taps into the morality conceptualization of SAT). Freiburger et al. (2017) found that self-control and cheating morality had a direct effect on cheating in a sample of US university students, but the influence of friends' cheating was entirely mediated by the perceived likelihood of getting caught.

3.3.2 SAT tests on other outcomes than cheating

Turning to studies testing SAT's principle of moral correspondence and the conditional relevance of self-control for outcomes other than cheating, the evidence is also scarce and inconclusive. Regarding the *principle of moral correspondence*, a vignette study with Bangladeshi adults found independent effects of rule-abiding morality and exposure to the moral norms of the setting on the intention to engage in violent offending (Brauer and Tittle, 2017). However, there was no evidence for the interaction between personal morality and the moral norms as predicted by SAT's moral filter. In this study, the moral norms of the setting were captured by participants' perceptions of friends' and families' moral assessment of the use of violence, as well as participants' perceived use of violence in their neighborhood. By contrast, a vignette study among Belgian secondary education and university students found support for the principle of moral correspondence (Pauwels, 2018). In line with SAT's predictions, the most substantial share of the respondents contemplated violence in the condition of moral correspondence when both their personal morality and the moral norms of the setting encouraged rule-breaking; the smallest share to do so was found when personal morality and the moral norms of the setting discouraged rule-breaking. Both studies tested the *conditional relevance of self-control* as well. Again, evidence on this is inconclusive. Pauwels (2018) finds that self-control influences the reporting of the use of violence irrespective of the configuration of the moral filter. Thus, contrary to SAT's predictions, self-control influences the

contemplation of violence not only in the condition of conflict between personal morality and the moral norms but also in the scenario of moral correspondence. Whereas SAT predicts that only people with a rule-abiding morality who are exposed to rule-breaking moral norms of the setting should be influenced by self-control. Brauer and Tittle (2017) find that self-control (operationalized as impulsivity) only increases the likelihood of perceiving and contemplating violence as a realistic possibility for participants with a rule-breaking morality. Schepers and Reinecke (2018) compare the influence of self-control (operationalized as risk-seeking) across subgroups based on the level of morality and the level of the moral norms of the setting (operationalized as participants' reports about their friends' delinquent behavior) in two cohorts of German middle school students. While they find that the effect of self-control is conditional on the specific combination of personal morality and the setting's moral norms, they also find that self-control has an influence in subgroups of moral correspondence.

3.3.3 Limitations of existing studies

The fact that these studies provide mixed evidence about the principle of moral correspondence and the conditional relevance of self-control could be due to methodological shortcomings that result in two challenges.

The first challenge is the mismatch between the theoretical presupposed convergence- and the actual measurement of actors exposure to a behavioral setting and rule-breaking. For testing SAT's situational model, it is crucial that we spatially link the exposure to the observed act of rule-breaking (Wikström et al., 2012; for a detailed discussion see Hardie, 2020). Studies using observational data often rely on indirect measures of criminogenic exposure and could only assume that an actor is exposed to a behavioral setting in the moment of crime occurrence (besides studies using space-time budget data, see Gerth, 2020; Wikström et al., 2018). These indirect measures of exposure, such as the rule-breaking of friends (Schepers and Reinecke, 2018; Freiburger et al., 2017; Tibbetts and Myers, 1999), do not provide information about whether a specific act of rule-breaking happened when those friends were present.

Additionally, the selection mechanism challenges the investigation of the action-generating mechanism (on this point, see also Ernst and Lenkewitz, 2020). Explaining and testing the action-generating mechanism presupposes the convergence between actors and their exposure to behavioral settings. The selection mechanism precedes

SAT's situational model by explaining how the convergence comes about. Although SAT recognizes both mechanisms theoretically, studies on observational data, that do not inform about the circumstances under which rule-breaking emerged, cannot disentangle whether the observed outcome is due to selecting different kinds of people into different kinds of places or SAT's situational model . This aspect is significant as people systematically select themselves, and are selected into, settings with different levels of criminogeneity (Wikström and Treiber, 2016; Wikström, 2010).

3.4 Present study

We aim to provide a stricter test of the principle of moral correspondence and the conditional relevance of self-control than previous studies have done by focusing on the initial condition of the perception-choice process, the interplay between personal morality and the moral norms of the setting, and by addressing the outlined methodological challenges. Hereto, we investigate school cheating and make strategic use of the school setting. Addressing the challenge of spatio-linkage, we make use of the fact that school cheating is committed within the school, and we operationalize the moral norms of the setting by a measure capturing the cheating of the other students in the class (the descriptive norm). Thus, the link between the moral norms of the setting and rule-breaking is ensured. Moreover, the descriptive norm corresponds to SAT's twofold argument about the moral norms of the setting, which addresses the definition of the moral norms and their perception. On the one hand, the perception links an actor to the behavioral setting (Wikström, 2006). Thus, it is not an objective rule that guides the actor, but rather their subjective perception of that rule at that moment. Even though cheating, by its very nature, is committed secretly, and may not be seen, we assume that students of the same class will discuss it, and, thus, it becomes perceivable for the actor. On the other hand, moral norms are an attribute of the behavioral setting actors are exposed to (Oberwittler and Wikström, 2009; Wikström, 2006). The descriptive norm corresponds to SAT's consideration that the strength of the moral rule reflects 'the degree to which it is shared by those taking part in the setting' (Wikström, 2010: 222). Evidence shows that people act by reference to the behavior of others in the behavioral setting they are exposed to, and thus are oriented towards the descriptive norm (Paternoster et al., 2013; Cialdini et al., 1991).

Additionally, we aim to ensure that our analytical strategy addresses the proposed action-generating mechanism and thus control the selection mechanism. In

combination with within-estimators, the school setting is particularly suitable for testing action-theories, such as SAT, as schooling is compulsory and exposure to the school setting varies on fewer dimensions than other comparisons of exposure. As the within-estimators only compare students with themselves, by using person fixed-effect estimators, and students of the same school with each other, by using school fixed-effects estimators, far-reaching aspects of the selection mechanism, namely the school track choice and school choice, are controlled for (for the use of fixed-effects estimation, see Andreß et al., 2013; Allison, 2009). Additionally, the use of person fixed-effects eliminates time-invariant person characteristics, and the use of school fixed-effects eliminates constant school attributes.

3.5 Data and measures

This study is based on data from the German large-scale school panel study 'Friendship and Violence in Adolescents' (Kroneberg et al., 2016), conducted in five cities in the metropolitan Ruhr area. Because data on cheating were collected only in wave 3 and wave 4, we limit our analysis to these waves. Data collection took place between September and December of 2015 (wave 3; 9^{th} grade) and 2016 (wave 4; 10^{th} grade). Apart from special needs schools, all schools with the respective grades were asked to participate with their entire grades. In wave 3, a total of 46 of 55 of all requested schools (wave 4: 45 of 52), and 3,793 of 4,400 (wave 4: 3,809 of 4,320) students participated, which yields a student participation rate of 86 percent (wave 4: 88 percent). Most participants attend a comprehensive school (34 percent) or an intermediate secondary school (32 percent; upper secondary school: 22 percent; lower secondary school: 12 percent). Our analysis sample comprises of 3,038 observations (52 percent boys; median age in wave 3: 15 years).

The study used an Audio-Computer Assisted Self-Interview (Audio-CASI); all questions were presented in text and audible via headphones, to increase confidence and improve comprehension of survey questions (Beier and Schulz, 2015). Participants used netbooks provided by the research team.

Cheating: The dependent variable, cheating, captures students' cheating incidence in the last 12 months. *How often have you cheated in the last 12 months (i.e. since October 2015)? If you don't know exactly, then please guess as best you can.'.* (For a descriptive overview of all measures, see Table 3.1)

Moral norms of the setting: We use the same question for creating a measure reflecting the moral norms of the setting, i.e. the descriptive norm. For each participant, we estimate the share of their classmates who reported at least one cheating incident in the 12 months preceding data collection. We estimate scores for each participant individually and exclude participants' own cheating score, in order to create a context measure that is not confounded with participants' own cheating. As we argued above, our operationalization rests on the assumption that students perceive their classmates' cheating.

Morality: For the sake of comparability with previous SAT tests, we use measures comparable to the personal morality scale used in PADS+ (Wikström et al., 2012: 132). For 18 different acts of rule-breaking – such as *'hitting a classmate so that he or she bleeds*, or *'smashing a streetlight for fun'* – participants were asked how bad they think these acts are. Response options ranged from 1 *'not bad at all'* to 4 *'very bad'* (see Appendix B for a list of all items). We averaged the answers to all 18 items to build our measure of personal morality. The scale was transformed so that low values represent a rule-abiding morality and high values a rule-breaking morality. Although these measures do not refer to specific situations, we follow the interpretation that these generalized measures are related to adolescents' personal morality in specific situations (Wikström et al., 2012: 132).

Self-control: Self-control was only measured in wave 3. In line with previous studies on SAT, we use an adaptation of PADS+ measure of self-control (Wikström et al., 2012: 136) which is based on the Grasmick scale (Grasmick et al., 1993), with items such as *'I lose my temper pretty easily'* and *'I sometimes find it exciting to do things that may be dangerous'* (see Appendix B for a list of all items). Response options ranged from 1 *'strongly agree'* to 5 *'strongly disagree'*. Responses were averaged. High values represent low self-control.

Table 3.1 Descriptive statistics (N=3,038)

	Mean	SD	Min	Max
Cheating (DV)	1.70	2.86	0	30
Descriptive Norm	0.53	0.17	0.07	0.95
Morality	0.31	0.16	0	1
Self-control	0.39	0.17	0	1

Source: FuGJ

3.6 Analytical strategy

To test our hypotheses derived from SAT's principal of moral correspondence and conditional relevance of controls, we employ within-estimators in the form of person and school fixed-effects.

$$(y_{ist}-\bar{y}_{is}) = \beta_1(m_{ist}-\bar{m}_{is})+\beta_2(dN_{ist}-\bar{dN}_{is})+(\alpha_i-\alpha_i)+(\lambda_s-\lambda_s)+(\epsilon_{ist}-\bar{\epsilon}_{ist}) \quad (3.1)$$

As can be seen from equation (3.1), differences in cheating behavior, y_{ist}, for student i in school s at time t are regressed on differences from the specific means in the independent variables, student i's morality at time t, m_{it}, and the descriptive norm student i is exposed to at time t, dN_{it}.

The effects of person time-invariant heterogeneity, α_i, and heterogeneity between schools, λ_s are canceled out. However, this advantage comes with less efficient estimates as the standard errors of within-estimates are relatively large as all betweenness variation is canceled out (Allison, 2009: 17).

To test our hypotheses, we specify interaction effects. For the principle of moral correspondence (hypotheses 1.1 and 1.2), we test the interaction effect of personal morality and the moral norms of the setting. For the test of the conditional relevance of self-control (hypothesis 2), we divide the sample into three different groups based on their morality. For each group, we estimate the interaction of self-control with the moral norms of the setting separately. As morality is highly skewed (Kroneberg and Schulz, 2018), with only a few participants judging the various rule-breaking acts as *'not bad at all'* or *'not bad'*, we classify students who have an average of .5 on the morality scale as having a rule-breaking morality. Students with an average between .2 and .5 are classified as having a medium morality, and students with an average below .2 are classified as having a rule-abiding morality.

In our models, we include all constitutive terms alongside the interaction and, therefore, we interpret the coefficients of the constitutive terms as conditional effects as advised by Brambor et al., 2006. To ease the interpretation of the interaction effects, we standardize both independent variables to the interval between 0 and 1 (Braumoeller, 2004).

The interaction effects are also presented in marginal effect plots, alongside histograms (see Hainmueller et al., 2019; Xu et al., 2017). The histogram shows areas of common support between the moderator and predictor and allows us to see whether the prediction of the marginal effects is covered by the data. If the data

would not support the prediction, the effect would be extrapolated to combinations of the moderator and predictor that do not exist.

3.7 Results

We now present our results, starting with our findings on the principle of moral correspondence (hypotheses 1.1 and 1.2) and then turning to the conditional relevance of self-control (hypothesis 2).

3.7.1 Principle of moral correspondence

Table 3.2 shows the results for our investigation of the principle of moral correspondence. Models 1 and 2 give the person fixed-effect estimators. Models 3 and 4 also control – in addition to the time-constant person heterogeneity – for school heterogeneity in the form of school fixed-effect estimators. Models 1 and 3 show the independent effects of morality and the descriptive norm on cheating. In general, a rule-breaking morality increases on average students' cheating (Model 1: 3.15; Model 3: 3.13), as does an increase in the rule-breaking descriptive norms (Model 1: 2.22; Model 3: 2.22). As we turn to models 2 and 4, which include the interaction effects, the significant interaction terms M*dN indicate that the association between personal morality and cheating depends on the moral norm of the setting. To test hypotheses 1.1 and 1.2, we compare a given level of personal morality under changes in the descriptive norm, and then we compare a given level of the descriptive norm under changes in personal morality, for each hypothesis.

From hypothesis 1.1, it follows that students with a rule-abiding morality cheat less when they are exposed to moral norms that discourage cheating than when they are exposed to moral norms that encourage cheating. However, the results show that students with a rule-abiding morality on average do not change their cheating behavior following the descriptive norm (Model 2: -.09; Model 4: .02) but have a low likelihood of cheating in general. Moreover, it follows from hypothesis 1.1 that students with a rule-abiding morality cheat less than students with a rule-breaking morality if both are exposed to moral norms that discourage cheating. Our results show that, on average, personal morality makes no substantial difference in cheating if students are exposed to moral norms of the setting which discourage cheating (Model 2: -.57; Model 4: -.45). Thus, our results on hypothesis 1.1 are inconclusive. On the one hand, the comparison between different levels of morality being exposed

Table 3.2 Principle of moral correspondence (on cheating incidence)

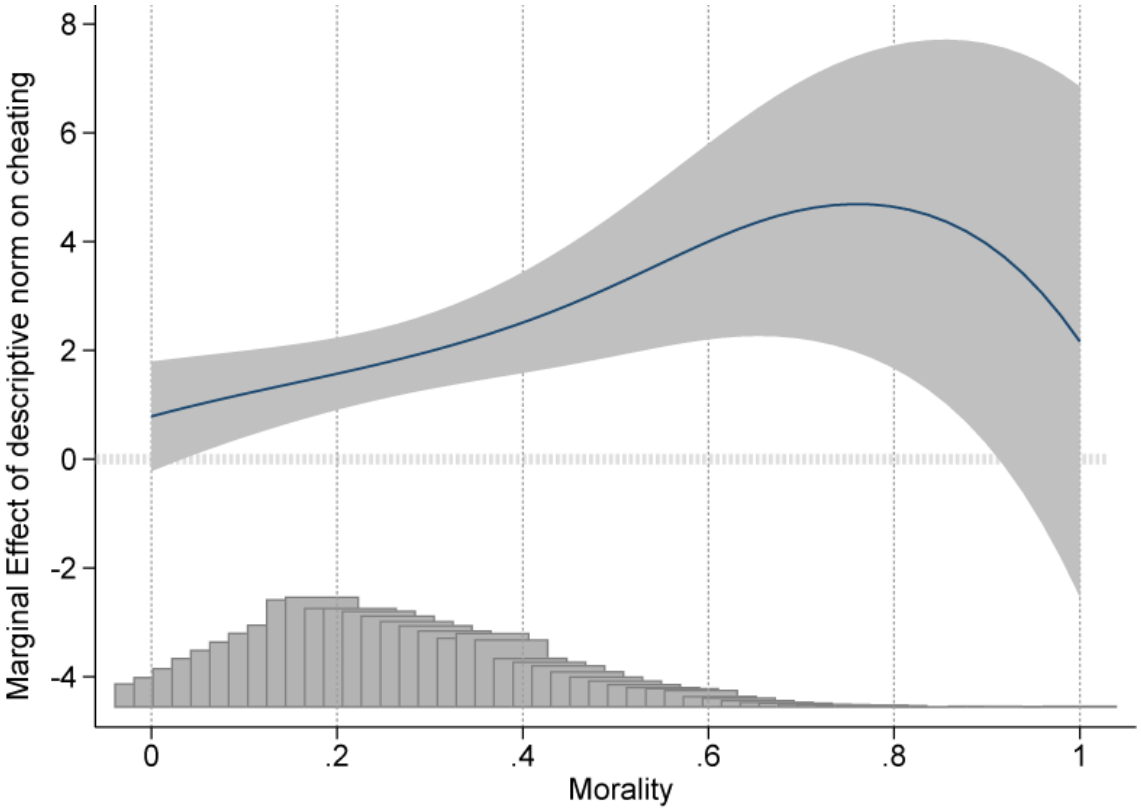
	Model 1	Model 2	Model 3	Model 4
Morality (M)	3.15***	−0.57	3.13***	−0.45
	(0.68)	(1.39)	(0.69)	(1.36)
Descriptive norm (dN)	2.22***	−0.09	2.22***	0.02
	(0.34)	(0.66)	(0.34)	(0.71)
M*dN		6.85**		6.40**
		(2.19)		(2.23)
Constant	−0.33	0.92*	−0.32	0.90*
	(0.27)	(0.41)	(0.27)	(0.43)
Observations	3,038	3,038	3,038	3,038
Person fixed-effects	x	x	x	x
School fixed-effects	-	-	x	x

Notes: reghdfe, vce(cluster); Standard errors in parentheses; all variables are standardized on the unit interval [0,1]; $^{+}$ p <0.1, * p < .05, ** p < .01, *** p < .001
Source: FuGJ

to moral norms that discourage cheating, and the comparison of students with a law-abiding morality being exposed to different levels of the descriptive norm, do not show significant differences. On the other hand, students with a rule-abiding morality that are exposed to moral norms that discourage cheating are unlikely to cheat, as predicted by SAT. Analogous implications result from hypothesis 1.2. In line with our expectations, we find that students with a rule-breaking morality cheat, on average, more if they are exposed to moral norms that encourage cheating than if they are exposed to moral norms that discourage cheating (Model 2: -.09+6.85; Model 4: .02+6.40). Moreover, we find that, as we would expect from hypothesis 1.2, students with a rule-breaking morality cheat, on average, more than students with a rule-abiding morality when they are exposed to moral norms that encourage cheating (Model 2: -.57+6.85; Model 4: -.45+6.40).

Figure 3.2 illustrates the findings of Model 2. The figure shows the marginal effects of the descriptive norm on cheating behavior, on the y-axis, given different levels of personal morality, x-axis. The gray area represents confidence intervals. We see that students with the very highest level of rule-abiding morality are not influenced in their cheating by exposure to different levels of the descriptive norm. For this group, the confidence interval includes zero. As consent to rule-breaking morality increases, exposure to different levels of the descriptive norms affects cheating substantially.

Figure 3.2 Marginal effects of descriptive norm on cheating by levels of personal morality



Notes: The dark line and gray 95% confidence interval band depicts the conditional marginal effects of the school fixed-effect estimation, model 2. The graph reports the marginal effects of the descriptive norm on the incidence of cheating for different levels of personal morality.
Source: FuGJ

3.7.2 Principle of conditional relevance of controls

Now we turn to the results on the principle of the conditional relevance of self-control, and thus our sub-group analysis. Models 5 to 10 in table 3.3 give school fixed-effect estimators on data of wave 3. We find that in all morality subgroups, with a decrease in self-control, cheating becomes more likely (Model 5: 1.94; Model 7: 2.82; Model 9: 3.06). Likewise, all groups are affected by an increase in the descriptive norm. As the share of classmates who cheat increases, students are more likely to cheat themselves (Model 5: 1.09; Model 7: 1.86; Model 9: 2.28).

The findings on the interaction between self-control and the descriptive norm supports SAT's principle of the conditional relevance of self-control. Following this principle, we hypothesized that self-control only influences the choice process when students with a rule-abiding morality are exposed to moral norms of the setting

Table 3.3 Principle of self-control (on cheating incidence)

	Rule-abiding morality		Medium morality		Rule-breaking morality	
	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Descriptive norm (dN)	1.09*	−1.79**	1.89***	1.30	2.28	6.61
	(0.48)	(0.64)	(0.44)	(1.27)	(1.63)	(4.38)
Self-control (Sc)	1.94***	−3.00*	2.82***	2.05	3.06*	7.68
	(0.45)	(1.29)	(0.46)	(1.48)	(1.29)	(5.22)
dN*Sc		9.75***		1.44		−8.69
		(2.57)		(2.78)		(9.06)
Constant	−0.32	1.12**	−0.29	0.00	0.23	−2.06
	(0.32)	(0.35)	(0.23)	(0.65)	(0.81)	(2.42)
N	693	693	1,997	1,997	383	383

Notes: reghdfe, vce(cluster); Standard errors in parentheses; all variables are standardized on the unit interval [0,1] ; $^{+}$ p <0.1, * p < .05, ** p < .01, *** p < .001
Source: FuGJ

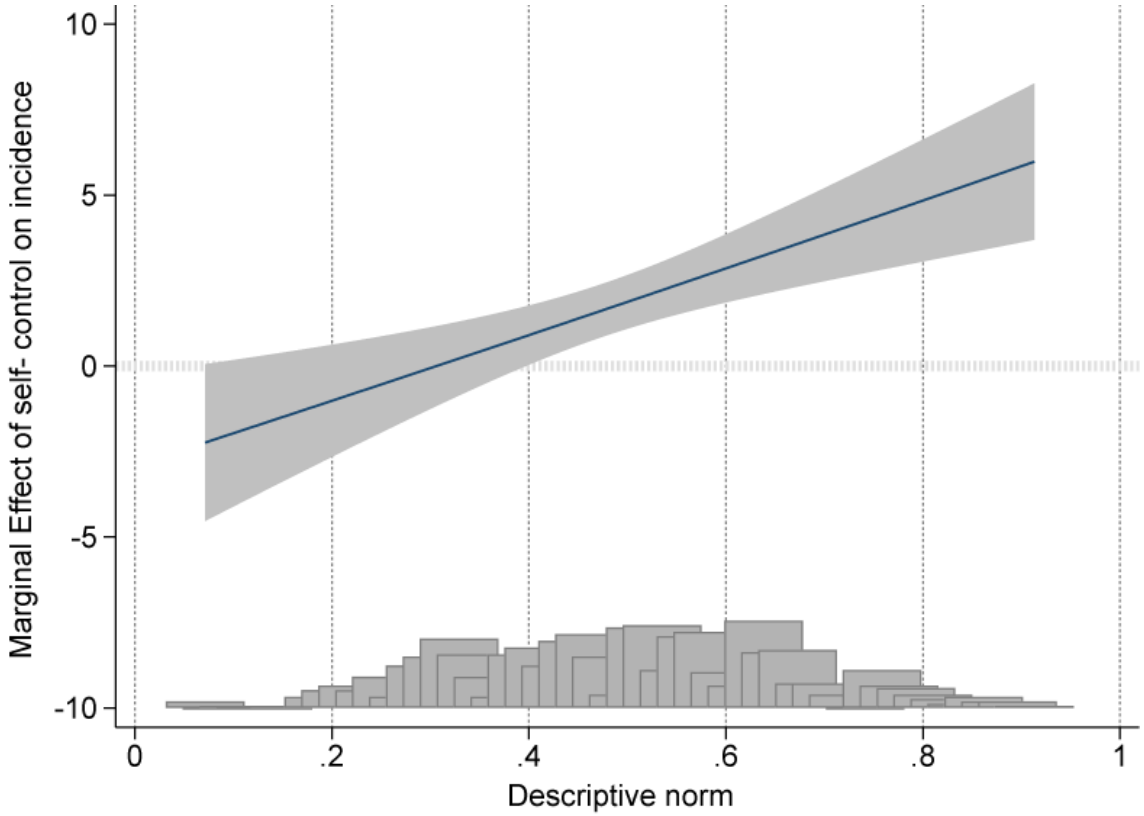
that encourage cheating. In line with that hypothesis, we find that neither in the medium-morality group (see Model 8: n.s.), nor in the rule-breaking morality group (see Model 10: n.s.), does the association of self-control with cheating depend on levels of the descriptive norm. On the contrary, and following our expectations, we see that the association between self-control and cheating depends on the level of the descriptive norm in the rule-abiding morality group (see Model 6: 9.75).

Figure 3.3 illustrates this relation and shows the marginal effects of self-control for different levels of the descriptive norm for students with a rule-abiding morality. In line with our expectations, self-control only has a significant effect on cheating when the number of students who cheat is high, and thus the moral norms of the setting encourage cheating. In this case, a decrease in self-control increases cheating.

3.8 Discussion

This study provides a rigorous test of SAT's principles of moral correspondence and the conditional relevance of self-control. By combining within-estimators with data from the German school study 'Friendship and Violence in Adolescence', we study student cheating in the setting of its occurrence – the classroom – bringing us closer to the spatio-linkage that is crucial in testing SAT (Hardie, 2020). This comes with the advantage of a stricter control for selection into settings with a certain level

Figure 3.3 Marginal effects of self-control on cheating by levels of descriptive norm



Notes: The dark line and gray 95% confidence interval band depicts the conditional marginal effects of the school fixed-effect estimation, model 6. The graph reports the marginal effects of self-control on the incidence of cheating for different levels of the descriptive norm for the group of students with a rule-abiding morality.
Source: FuGJ

of criminogeneity and the accompanying unobserved heterogeneity. Moreover, we explicitly address the interplay between personal morality and the moral norms of the setting when testing the conditional relevance of self-control. By investigating cheating, this study also joins the growing body of literature (Gerth, 2020; Beier, 2018; Cochran, 2015) that applies SAT in the context of rule-breaking, which is not restricted to types of behavior covered by laws.

In line with SAT's principle of moral correspondence, we find that in classes where students' morality is in correspondence with the class moral norms, they are likely to follow their own morality. Students with a rule-abiding morality in classes where cheating is uncommon do not cheat often. On the other hand, students with a rule-breaking morality in classes with a high share of cheating classmates cheat more often than when they are in classrooms that discourage cheating.

In line with the principle of the conditional relevance of self-control, the ability to exercise self-control has an impact on cheating only when students' morality and the moral norms are in conflict. When exposed to norms that encourage cheating, students with a rule-abiding morality and high self-control can stick to their morality and cheat less, whereas students with a rule-abiding morality and low self-control cheat more often.

However, we also find that under moral norms that discourage cheating, personal morality does not influence cheating. Following SAT, this may imply a lack of motivation to cheat, so that the perception-choice process is not stimulated, or that students perceive an extreme level of deterrence, so that even students that might be likely to cheat distance themselves from cheating as an action alternative. Therefore, we cannot ignore the possibility that the descriptive norm reflects, in addition to the moral norms of the setting, a setting's deterrence ability.

Our work has some limitations. Data restrictions force us to rely on a very general measurement of morality that does not include cheating-specific morality. Therefore, we can only assume that the general level of morality corresponds to the specific cheating morality. Given that research explicitly addressing this issue in the context of SAT is rare, this would be an interesting area for future investigation. Moreover, in a close reading of SAT, personal morality is not only comprised of a person's law-relevant moral rules but also of their moral emotions, guilt and shame (Wikström et al., 2012). This issue did not receive much attention in SAT tests in general (for an exception, see e.g. Trivedi-Bateman, 2019) and should be examined in the future. Another issue that needs further investigation is the empirical existence of the habitual pathway which is usually only assumed (for an exception see Beier, 2016b).

Even if we could approach the spatio-linkage between exposure and rule-breaking behavior, we still could not address the temporal dimension (for this point, see Hardie, 2020). Although students are familiar with the behavior of their classmates, cheating might result from a motivation to cheat in a specific subject or even a specific exam. Additionally, cheating may vary by students' perceptions of the deterrence abilities of teachers, or moral norms might differ when students are taught in different classes for different subjects. While our study shares this limitation with all studies that use regular observational data, we would encourage research looking more closely at the situational level, such as vignette studies or space-time budgets.
Notwithstanding these limitations, our study contributes to discussing the relation between morality and self-control (Kroneberg and Schulz, 2018). Previous findings

(Kroneberg and Schulz, 2018; Svensson et al., 2010; Wikström and Svensson, 2010) show that the relation between self-control and morality could be either read - in line with SAT - as the conditionality of self-control on morality, or - contrary to SAT - as the conditionality of morality on self-control. However, these findings are based on studies equating morality with the moral filter, not recognizing the moral norms of the setting. Thus, they do not test the moral filter, which is crucial for investigating and discussing the relation between morality and self-control within SAT.

While recognizing the moral filter, we find that self-control only matters when students with a law-abiding morality are exposed to rule-breaking encouraging moral norms of the setting. With this, we show that recognizing exposure to the moral norms of the setting matter for investigating the moral filter and thus the principle of moral correspondence and the principle of the conditional relevance of controls. However, our findings do not address the question of symmetry between morality and self-control. Investigating the relation between personal morality, moral norms of the setting, and self-control is an essential issue for future research. Comparing students within different classes in the same school allows to draw a very practical conclusion from our findings. Students with rule-breaking morality may cheat when exposed to many others who cheat, but not when exposed to fewer others who cheat. This suggests that moving students with rule-breaking morality into classes with cheating discouraging moral norms would be an effective way of reducing individual cheating behavior. Moreover, this supports the creation of moral norms in schools in which deviance is deemed unacceptable.

Chapter 4

Does truancy make the delinquent? A situational and longitudinal analysis of the truancy–delinquency relationship

Abstract

Although truancy has frequently been linked to delinquency, we still lack a proper understanding of how this relationship comes about. This study uses Situational Action Theory (SAT) to develop a more comprehensive, mechanism-based explanation of the truancy–delinquency nexus. The core argument is that the relationship is conditional on adolescents' propensity for delinquency and their exposure to criminogenic settings. To test this argument, I use two kinds of data collected as part of the Peterborough Adolescent Development Study (PADS+). Drawing on unique situational data provided by space–time budgets, I find only weak evidence that the relationship between truancy and delinquency exists at the situational level. Analyses of multiple yearly waves of this panel study provide support for SAT's potential as a theoretical framework for the truancy–delinquency relationship by showing that the effect of truancy on changes in delinquency is conditional on changes in adolescents' delinquency propensity and their exposure to criminogenic settings.

4.1 Introduction

Truancy, or staying away from school without the consent of the school, seems to have consequences for children's lives far beyond its immediate effects on academic achievement (Wilson et al., 2008). A vast number of studies have found an association between truancy and offending, both during adolescence as well as later in life (for a recent review of studies linking truancy and delinquency, see Ellis et al., 2019: 169. Truancy is also consistently found to be related to substance use (Flaherty et al., 2012). Some even go as far as to label truancy the 'first step to a lifetime of problems' (Garry, 1996: 1) or the 'kindergarten of crime' (Healy, 1915: 370) and claim that 'the step from the child who is a behavior problem in school to the truant is a natural one; so, too, is the step from truancy to delinquency, and that from delinquency to crime' (Tannenbaum, 1938: 9).

However, we still lack a proper understanding of how this relationship comes about. Previous research often focuses on risk factors, without being based on a clear theoretical framework. The problem with risk factors is that they do not allow us to determine whether the relationship is causal or whether truancy is merely correlated with the true causes of delinquency (Farrington, 2000: 7). Without a clear understanding of the truancy–delinquency relationship, the extensive prevention and intervention efforts that have been taken (see, for example Bennett et al., 2018; Gottfredson, 2000; Garry, 1996) to prevent adolescents from going astray by reducing their truancy might be misguided and inefficient. Therefore, researchers regularly call for more research to understand the relationship between truancy and associated problem behaviors (Dembo et al., 2012b).

This study contributes to filling this gap by providing a more comprehensive, mechanism-based explanation of the truancy–delinquency nexus (where delinquency subsumes both offending and substance use) and by using a unique combination of situational and longitudinal data to test this explanation empirically. Theoretically, I will rely on Situational Action Theory (SAT; for example, Wikström, 2010; Wikström, 2006; Wikström, 2005, Wikström, 2010: 3-43). I argue that, in order to understand why truants are more likely to be delinquents, we first need to understand what makes adolescents break rules. Because SAT was designed to explain acts of breaking moral rules defined in law, it lends itself to the study of both delinquency and truancy. Moreover, by incorporating both personal and environmental characteristics and their interplay, SAT allows me to integrate a variety of arguments that have been put forward to make sense of the relationship between truancy and delinquency

(Wikström et al., 2012: 1-10).

This study uses unique data from the Peterborough Adolescent Development Study (PADS+;Wikström et al., 2012) to gain a deeper understanding of the truancy–delinquency nexus. Space–time budgets of students' places, their personal characteristics and activities from age 13 to age 17 allow me to examine the relationship between truancy and delinquency at the situational level. Based on this type of data, I will explore *whether the relationship between truancy and delinquency is situational in the first place*. To the extent that adolescents are delinquent during the hours in which they are truanting, space–time budgets also allow us to examine whether this is due to adolescents with high crime propensity being exposed to criminogenic settings. Aside from this possible situational nature of the truancy–delinquency nexus, truancy could also lead to delinquency by changing truants' crime propensity or criminogenic exposure over the long run – or because both truancy and delinquency originate in these common causes.[1] It is therefore necessary to turn to longitudinal data in order to fully evaluate the main research question of *whether the relation between truancy and substance use, as well as offending, is due to the relationship between truancy and adolescents' crime propensity and their exposure to criminogenic settings*. Analyzing multiple yearly waves of PADS+, I test this proposed relationship based on fixed-effects models that rely on within-person changes only, thereby reducing the problem of unobserved heterogeneity. The results raise doubts that the relationship between truancy and delinquency is situational but rather show that it is due to adolescents' crime propensity and their exposure to criminogenic settings.

4.2 Previous research on and explanations of the relationship between truancy and delinquency

Numerous studies link truancy to both offending and substance use. Police reports state that, when truants are not in school, they are more involved in delinquent behavior (Ingersoll and LeBoeuf, 1997), and they connect higher day-time crime rates to higher truancy rates (Baker et al., 2001; Garry, 1996). Adolescents who were put in front of a truancy court (adolescents with at least 18 unexcused absences) tested

[1] Of course, delinquency could in fact cause truancy. Because the stepping-stone hypothesis, which serves as my starting point, assumes that truancy leads to delinquency, I focus on this causal direction in my study. However, my own theoretical argument does not assume a particular causal direction, which I consider in greater detail in the discussion section.

higher on substance use by urine assay compared with the regular US population (Flaherty et al., 2012). Findings based on self-reports in cross-sectional data reveal similar results: truanting adolescents are more involved in substance use (Vaughn et al., 2013; Mounteney et al., 2010; Henry, 2007; Roebuck et al., 2004) and delinquency (Theobald et al., 2016; Vaughn et al., 2013; Hirschfield and Gasper, 2011; Resnick et al., 2004), and truancy seems to be associated with being more prone to rule-breaking in general (Hunt and Hopko, 2009). Moreover, juvenile delinquents have higher truancy rates than their non-delinquent peers (Wang et al., 2005) and adolescents who use substances report repeated truancy as well (Best et al., 2006). Truancy is a predictor of delinquency later in adolescence (Hirschfield and Gasper, 2011; Bryant et al., 2000), as well as of delinquency in early adulthood (Henry et al., 2012) and mid-adulthood (Rocque et al., 2017). Notwithstanding this large body of evidence supporting the truancy–delinquency relationship, there are still several questions that need to be resolved. First, we do not have a clear understanding of adolescents' involvement in delinquent behavior during the time they are truanting. Lacking situational data, most existing studies cannot answer this question because they rely on surveys in which students were asked to report truancy and delinquency for several months or years. One qualitative study based on interviews with 34 adults who had been truants (Dahl, 2016) found that substance use was the most common prohibited activity that emerged as a by-product of truancy. However, those young adults described their truancy as mainly focused around socializing with peers. Although this study offers valuable insights, it is based on distant retrospective information. Moreover, the sample was selective in that it consisted of chronic truants who were attending centers that offered educational or employment assistance.

A survey that asked adolescents directly whether they used substances while they were truanting revealed that they did indeed use substances during their truancy, and that substance use rates increased with increasing truancy (Henry, 2010). However, lacking additional information on these truancy hours, we still do not know what caused adolescents to use substances during their truancy, and the mere fact that adolescents are not in school does not explain their involvement in delinquent behavior. After all, truancy is very common among adolescents (Ekstrand, 2015), but not all truanting adolescents are involved in other forms of rule-breaking behaviors (Iverson et al., 2018; Pflug and Schneider, 2016; Dembo et al., 2012a; Maynard et al., 2012) and not all delinquents are truanting (Huizinga et al., 2000). Therefore, we need a theory that can explain when or how truancy and delinquency are related.

Various explanations have been offered in the literature that draw on more general

theories of delinquency. For example, it has been argued that truants are more likely to be from low social class backgrounds, and they therefore lack the resources needed to keep up with the middle-class standards that are valued in school (Rocque et al., 2017). This is assumed to lead to them experiencing frustration, and it is suggested that they respond by creating a culture of deviance in which they can be successful (Elliott, 1966; Cohen, 1955). However, this account was called into question early on by studies that showed that the relationship between social class origin and delinquency is rather weak (Kelly and Balch, 1971, Martin et al., 1981: 214).

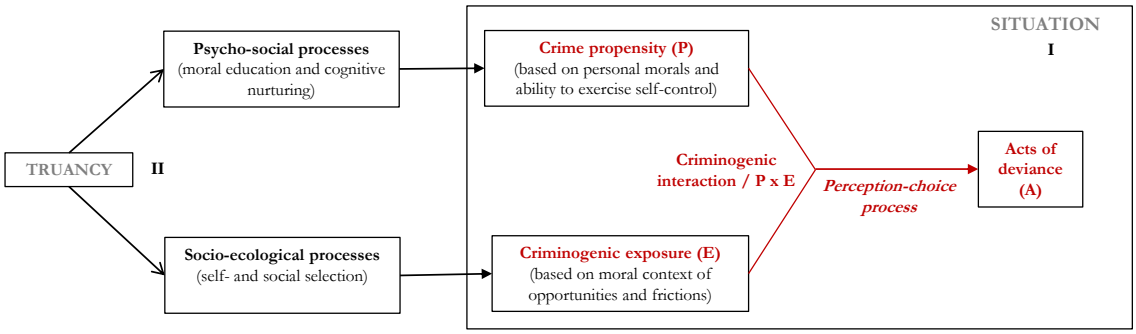
Other explanations are limited in that they primarily speak to adolescents' propensity for rule-breaking – for example, social control theory (Hirschi, 1969) or developmental theories (for example, Catalano and Hawkins, 1996) – or adolescents' exposure to criminogenic settings – for example, routine activity approach (Osgood et al., 1996). Although individuals carry their propensity for delinquency with them at all times, it is exposure to certain kinds of settings that initiates delinquent acts (Wikström, 2019b). Therefore, it is crucial to take into consideration both the person and the setting. Even if truanting adolescents have a high propensity for rule-breaking, they will be involved in delinquent behavior only when their environments induce delinquency. But truancy does not necessarily take place in those kinds of settings. Reasons for truancy are manifold (Dahl, 2016; Strand, 2014; Davies and Lee, 2006) and likely to go along with systematic differences in criminogenic exposure. Students who skip school to support their families by earning money or taking care of family members (Ekstrand, 2015; Ingersoll and LeBoeuf, 1997) are not likely to be more exposed to criminogenic settings than their peers in school. Focusing on the characteristics of settings is not sufficient either. Having strong moral rules and high levels of self-control should prevent adolescents from becoming delinquent even when they are externally pressured to do so (Wikström et al., 2012: 27). The importance of this interplay between a person's propensity for rule-breaking and the features of the settings they are exposed to is one of the core arguments of SAT.

4.3 Situational Action Theory

SAT explains the breaking of moral rules (including those defined in law) as the outcome of a situational person–environment interaction. Although the theory has been applied to a large number of deviant behaviors (for a review, see Pauwels

et al., 2018),[2] this study is the first to use SAT to explain the truancy–delinquency relationship. In contrast to previous work on the truancy–delinquency relationship, SAT focuses on situational causes to explain why people commit acts of delinquency (part I 'Situation' in Figure 4.1). Situational causes lie in the interplay between a person with a certain propensity for delinquency and the criminogeneity of the setting to which they are exposed (P x E). Because this is how every act of rule-breaking can be explained, it should be equally applicable to acts of delinquency during truancy. A person's propensity for delinquency

Figure 4.1 Key processes in crime causation according to SAT.



Source: Wikström and Treiber, 2019

(P) is determined by their moral rules as well as by their ability to stick to those moral rules when externally pressured to break them, that is, their ability to exercise self-control. The setting's criminogeneity (E) depends on the moral context, that is, the moral norms it conveys and the ability to enforce these norms in a specific situation. This criminogenic interaction (P x E) initiates a mental perception–choice process.[3] First, it determines whether a person perceives delinquency as an action alternative in response to a motivation (the perception part). If adolescents with strong personal moral rules are in non-deviant settings when they truant, it is unlikely that they will even start to view delinquency as a viable action alternative. If adolescents' own moral rules conflict with the moral rules of their truancy settings, delinquency is perceived as an action alternative and the choice process determines

[2]Overall, previous research has mostly confirmed key hypotheses of SAT, but there are also aspects on which evidence has been mixed, such as the interaction between perceived deterrence and crime propensity (Pauwels et al., 2018). The review by Pauwels et al. (2018) also discusses critical points related to the challenge of distinguishing between habitual and deliberative offending or the conceptualization and operationalization of self-control.

[3]This perception–choice process will be initiated only in response to a motivating factor. In SAT, motivation is a situational concept and arises when people see the opportunity to satisfy a desire or experience a friction that taps into their sensitivities (Wikström, 2019b)

whether truanting adolescents will act delinquently. The outcome of the choice process depends on the persons' ability to stick to their moral rules (self-control[4] or the setting's effectiveness in terms of monitoring and sanctioning rule-breaking (social control).[5] In cases where both personal and shared moral rules encourage deviance, adolescents will habitually engage in the delinquent action alternative. Truanting adolescents with a high propensity for rule-breaking who are in settings with a high criminogeneity should therefore be the most likely to engage in delinquency during their truancy, whereas truants with a low propensity for rule-breaking in settings with low criminogenic exposure should be the least likely to use substances or offend during their truancy (Wikström et al., 2012: 26).

It follows that adolescents should be involved in delinquent behavior during their truancy only under those person–setting configurations that give rise to a perception–choice process that results in delinquent action. Because the outcome of the perception– choice process is determined by adolescents' propensity for delinquency and the criminogeneity of the settings they are exposed to, *delinquency during truancy is conditional on adolescents' crime propensity and the exposure to a criminogenic setting (H1 / situational hypothesis).*

Now, the question is whether truancy makes person–setting configurations more likely that are conducive to rule-breaking. Following the situational explanation of rule- breaking, this can be the case only if truancy increases adolescents' propensity for delinquency or if it is associated with greater exposure to criminogenic settings.[6]

[4]Note that this definition of self-control differs from other prominent conceptualizations in criminology. For example, Gottfredson and Hirschi (1990: 177) initially defined self-control as 'the tendency of individuals to pursue short-term gratification without consideration of the long-term consequences of their acts' and later as 'the tendency to consider the full range of potential costs of a particular act' (Hirschi, 2004: 543). Wikström and Treiber (2007) and Kroneberg and Schulz (2018) discuss the conceptualization of self-control in SAT in greater detail.

[5]This is a very simple breakdown of the choice process. For a more thorough discussion of this process and the conditional relevance of controls, refer to Wikström et al. (2012: 17-22).

[6]Another explanation for the relationship between truancy and delinquency is that social selection processes could be responsible for making particular adolescents more likely to be involved in all sorts of rule-breaking behavior (that is, both truancy and other forms of delinquency). Depending on the distribution of social and economic resources, adolescents are put into settings with a certain criminogeneity and are exposed to psycho-social processes that influence their propensity for delinquency. For some adolescents, those settings could generally encourage delinquency and those psycho-social processes generally promote a high propensity for rule-breaking behavior. Because truancy itself is a type of rule-breaking behavior, this group will be more likely to become both truant and delinquent. In this view, the commonly found association between truancy and delinquency would be spurious and truancy would be a marker of, rather than a cause of, delinquency. This points to the possibility that propensity and exposure are a common cause of both truanting and delinquent behavior (without truancy actually causing delinquency). Testing this line of reasoning goes beyond the scope of this article.

As depicted in Figure 4.1, SAT suggests different processes by which truancy can influence the situational causes of delinquency, therefore explaining why truanting adolescents are more involved in delinquent behavior than their peers who attend school regularly.

By making the decision to truant, adolescents frequently select themselves into settings with high criminogeneity. When truanting, adolescents are often unsupervised, engaged in unstructured activities and with their peers (Flaherty et al., 2012; Henry and Thornberry, 2010; Henry et al., 2009; Henry and Huizinga, 2007). This lack of supervision implies lower levels of social control; unstructured activities leave time to engage in delinquency; and being around peers can mean there is a high number of motivators for delinquency (Osgood et al., 1996). For the perception–choice process, this means that truanting adolescents experience more motivators for delinquency, that they will be more likely to perceive delinquent actions as action alternatives, and that they will eventually choose delinquent action alternatives more often.

Moreover, truancy could in the long run lead to high criminogenic exposure above and beyond the actual truancy time. Truants might be more likely to be friends with delinquent peers (Henry et al., 2009). They might be rejected by their other, non-deviant classmates (Baier, 2016), or homophily could make them more likely to become friends with those who are prone to rule-breaking (Kandel, 1978). Having delinquent friends means higher exposure to criminogenic settings in general because those friends will be more likely to create a moral context that is encouraging of delinquency (Wikström et al., 2012: 152). Moreover, having delinquent peers can also be associated with more delinquent action because they might teach adolescents the tools to commit crimes (Sutherland, 1956: 9). This could increase the likelihood of perceiving crime as an action alternative. Moreover, spending a lot of unstructured and unsupervised time with peers during truancy, or becoming friends with other deviant adolescents, can also influence adolescents' propensity for delinquency because they adopt norms that are encouraging of deviance (Wikström, 2019a).

Lastly, SAT permits the possibility that, through an act of rule-breaking, further acts of rule-breaking become more likely. By repeatedly breaking the rule regarding going to school, adolescents might also adapt their moral judgments regarding other acts of rule-breaking (Wikström, 2019a). Similarly, increased involvement in delinquent actions during truancy might lead to a higher propensity for delinquency.

All these different explanations share the premise that it is not truancy itself that is driving delinquency, but rather it is the influence of truancy on propensity and exposure that can explain why changes in truancy behavior can result in changes

in delinquency. Consequently, truancy is not necessarily the 'first step to a lifetime of problems'. Rather, I hypothesize that *the influence of truancy on changes in delinquency is conditional on changes in adolescents' propensity and their exposure to criminogenic settings (H2 / change hypothesis).*

4.4 The current study

By testing these hypotheses, I will answer the main research question, which is concerned with whether the relationship between truancy and delinquency is conditional on adolescents' propensity and their exposure to criminogenic settings. Space–time budgets allow obtaining unique insights into the nature of the time adolescents spend truanting. By studying how their personal characteristics interact with those of their environment in given situations,[7] I will be able to test the first hypothesis, which states that the relationship between truancy and delinquency can exist only when certain person–setting configurations are present. My second hypothesis states that the truancy–delinquency relationship might exist because truancy leads to changes in delinquency by influencing adolescents' propensity and their exposure to criminogenic settings. In testing this hypothesis, I begin with the notion of truancy as a stepping-stone to delinquency, and I describe the onset of truancy and delinquency. If truancy is the proclaimed stepping-stone, it should be followed by the onset of delinquency. I then employ linear fixed-effects models. In addition to testing another implication of SAT by investigating changes, these models have the crucial advantage of removing time-invariant unobserved heterogeneity by relying on within-person changes only. This provides a more rigorous test of the truancy–delinquency relationship than the models that previous research has employed.

In addition to providing an action-theoretical test of the truancy–delinquency relationship, space–time budgets allow insights into another important issue that is more or less implicit in a lot of the existing research: the premise that the relationship between truancy and delinquency is situational after all. Because evidence speaking to this question is limited, I first explore adolescents' activities during truancy using the space–time budgets.

[7] For more information on the use of space–time budget data, see Wikström et al. (2012: 67-78).

4.5 Data and methods

The 'Peterborough Adolescent and Young Adult Development Study' (PADS+) is a longitudinal study that follows into adulthood a random sample of adolescents in Peterborough, UK, who entered grade 7 in 2002. Available waves that include information about truancy from school are waves 1 to 5, in which adolescents were aged 13 to 17.[8] The last time information on their truancy was collected when the adolescents were 17, because afterwards most of them had finished school. Data collection took place annually in spring 2004 to 2008. Because the main goal of PADS+ is to test the interaction of adolescents' personal characteristics and their experiences with the social environment in the explanation of crime proposed by SAT, it provides a rich database to test SAT's suitability as a theoretical framework for explaining the truancy–delinquency relationship. Moreover, PADS+ achieved an extraordinarily high participation rate, together with a very high retention rate (less than 4 percent of the 716 adolescents who were interviewed in wave 1 dropped out of the study; Wikström et al., 2012: 60), reducing the problem of selectivity. Although data collection took place in schools, students not attending school on the day of the data collection were interviewed as well. This prevents the possible underrepresentation of frequent truants, who are inherently less likely to participate in school studies.

In each wave, adolescents were asked about personal, family and neighborhood characteristics, as well as about school characteristics, using conventional led-survey questionnaires. In addition, PADS+ collected space–time budgets that make possible detailed accounts of how, where and with whom adolescents spent their time. For four days in the week preceding the interviews (Friday and Saturday, as well as the two other most recent weekdays), participants reported their main activity, who they were with and where they had been for each hour (Wikström et al., 2012: 67-78). This amounts to 96 hours per person per wave, and a total of 335,136 hours in waves 1 to 5. Accordingly, in the analyses based on the space–time budgets, the unit of analyses is hours.

Given the different nature of the led-survey questionnaires and the space–time budgets, the operationalization of the key constructs is given separately for each. How these measures are used in the different models is described afterwards. In all analyses, I will distinguish between offending and substance use as two different types of delinquency. Both types of behavior can be viewed as the breaking of moral rules

[8] Later waves include truancy questions as well, but these refer to truancy from work.

defined in law and both have been linked to truancy in previous research. Still, they have distinct features, which warrants studying them separately in order to arrive at a more differentiated and comprehensive understanding of the truancy–delinquency nexus.

4.5.1 Space–time budget measures

Truancy hours. Truancy hours are defined as all hours in which the adolescents indicated that they were truanting from school (regardless of time and place). The reference category is school hours, which are defined as all hours in which no truancy was indicated and that were either spent in classes and lectures or vocational training, regardless of place, or that were spent on the school grounds in educational activities, between 9:00 am and 16:00 pm on a weekday.

Delinquency. To evaluate whether adolescents were involved in delinquent behavior, I distinguish between substance use hours, in which participants indicated having used any alcohol or drugs, and offending hours, in which at least one incident of theft, shop-lifting, vandalism, violence or driving offenses was reported.[9]

Exposure. Hours spent under high criminogenic exposure are those spent unstructured, unsupervised and with peers only in areas characterized by low levels of collective efficacy[10] and/or in a city or local center area.[11] All other hours are treated as being spent under low criminogenic exposure.

4.5.2 Survey item measures

Truancy. Truancy was measured based on adolescents' responses to the question 'In the year [year preceding the interview], did you ever skip a class in school without an excuse?' The respondent could indicate no, never; yes, once; yes, several times (2–4 times); yes, many times (5–10 times); or yes, very many times (11 times or more). I distinguish between adolescents who never truanted in the preceding year and those who ever truanted in the preceding year.

Delinquency. Delinquency is based on adolescents' self-reported frequency of the times they used various kinds of drugs or committed offenses during the year

[9] Refer to Wikström et al. (2012: 433–436) for a detailed list of the incidences included.

[10] Collective efficacy refers to residents' potential to exercise informal social control (Wikström et al., 2012; Sampson, 1997)

[11] For more details and a thorough discussion of using non-situational data when testing SAT, refer to Wikström et al. (2018) and Wikström et al. (2012).

preceding the interview. The composite measure of substance use is the sum of all cannabis, amphetamines, ecstasy, heroin, cocaine, crack and LSD incidences. Because incidences were reported using response categories, I took the mean within each category to create the frequency score.[12] For offending, the score consists of all incidences of shoplifting, residential burglary, non-residential burglary, car-related crimes,[13] theft from a person, vandalism, arson, robbery and assault.

Onset. In addition to those annual delinquency and truancy measures, adolescents were asked in wave 1 whether they ever truanted and, if so, how old they were the first time they truanted. This information is combined with the annual measures to construct variables for the age of onset of each behavior.

Propensity. Generalized measures of adolescents' personal morality, as well as their ability to exercise self-control, are used as measures of adolescents' delinquency propensity. Personal morality is measured using a generalized morality scale measuring an individual's perception of the wrongfulness of various immoral acts. Because SAT suggests that it is important to study specific propensities and features of the setting in order to study specific crimes, two scales are used that rely only on items corresponding to the respective dependent variable.[14] For better comparability between the two dependent variables, I drop all people with any missing values on the morality items (within each wave), even when the missing values are for items that are not used to build the offense-specific index. All items were reverse coded and summated so that high values of the morality score refer to a high crime propensity, that is, a low morality (Wikström et al., 2012: 132-135). To measure the ability to exercise self-control, the mean responses to eight items of the modified self-control scale by Grasmick et al. (1993) are used. Although these measures do not refer to specific situations, I assume that these generalized measures are related to adolescents' moral judgments and their ability to exercise self-control in specific situations (Wikström et al., 2012: 132).

Exposure. Because deviant peers make settings especially criminogenic (Wikström et al., 2012: 153), the exposure measure from the interviews consists of two separate

[12]'No' corresponds to value 0, once or twice to 1.5, a few times (3–4 times) to 4, many times (6–10 times) to 8; and in waves 1 to 4 the highest category 'very many times (11 or more times)' was assigned 16.5. In wave 5, the category 'very many times (11–50 times)' corresponds to 30.5 and the highest category 'very, very many times (50+ times)' to 76.5.

[13]This includes theft from a car as well as theft of a car.

[14]For offending, this includes hitting another child who makes a rude comment, stealing a pencil from a classmate, painting graffiti on a house wall, smashing a streetlight for fun, stealing a CD from a shop, breaking into or trying to break into a building, and using a weapon or force to get money or things from another young person. For substance use, this includes smoking cigarettes, getting drunk with friends on a Friday evening, and smoking cannabis.

sum scales of peers' offending and of peers' substance use frequency.[15] As with delinquency propensity, exposure is coded in such a way that higher values refer to a higher criminogeneity of the setting. Again, for comparability I drop all people with any missing values for any of the peer delinquency items (by wave), even when missing values are for items that are not used to build the offense-specific index.

4.5.3 Model specification

Owing to the distinct nature of the space–time budgets and the interview data, I use different model specifications for each type of data.

Space–time budget analyses are based on pooled data from all five waves.[16] Excluding all hours lacking information about the place, gives a sample size of 45,975 hours.

For the fixed-effects models, I make use of the panel design, considering only adolescents that have participated in each wave to generate a balanced sample. This leaves 517 (offending) and 519 (substance use) adolescents. For a more holistic measure of exposure, information from the space–time budgets is considered here as well. For each wave, I add the number of hours adolescents spent in areas characterized by low levels of collective efficacy and/or in a city or local center area engaged in unstructured, unsupervised activities with peers. This is preferable to the general collective efficacy measures of the questionnaire data because, even if adolescents perceive their neighborhood as criminogenic, this is not relevant if they do not spend time there. Although space–time budget information refers to only four days, I argue that those adolescents reporting high numbers in the four days covered by the space–time budgets will generally spend a lot of time in these conditions, given that the four days covered by the space–time budgets were chosen to represent a typical week for adolescents. This information is matched with the peers' delinquency, assuming that the peers reported about in the questionnaire are the ones adolescents hang out with in the hours reported in the space–time budgets.

I estimate separate models for each dependent variable. To establish whether changes in truancy are associated with changes in delinquency frequency, models that include truancy as the single explanatory variable are estimated in the first step.

[15] For offending, this includes stealing things from others or stealing things from shops, destroying things that do not belong to them, and beating up others or getting into fights with others. For substance use, this includes getting drunk, sniffing glue or gas, or using drugs.

[16] This is also the case for propensity, which can be assumed to be rather stable across situations (Hardie, 2017: 254).

In the second step, I condition on propensity and exposure, to evaluate whether the relationship disappears once these proximate causes identified by SAT are taken into account.

4.5.4 Different reference periods and establishing time-ordering

I make use of data that refer to two different points in time. The indicators of propensity and exposure refer to the time of the interview. By contrast, the questions regarding truancy and delinquency behavior refer to the 12 months preceding the interview. In order to ensure the correct time order between cause and response, one could lag the independent variables by one year. Given that I use information referring to a period of 12 months for the independent truancy measures, as well as for the dependent measures, this strategy entails that I potentially face time lags of close to two years. This time lag is very unlikely to represent the causal lags in the real world (Vaisey and Miles, 2017). Besides, it has been argued that adolescents' reporting of the past 12 months is more a representation of adolescents' delinquency at the point of the interview due to a higher mental representation of that information. This is supported by comparisons of correlations between crime involvement reported in the questionnaire and crime involvement reported in the space–time budgets from the same wave (which refer to the week prior to the interview), and space–time budget data from the prior wave (Wikström et al., 2012: 131). Lastly, for fixed-effects models, it has been shown that lagging variables can lead to severe biases and can give estimates that are lower than, or, even more harmful, in the opposite direction to, the true values (Vaisey and Miles, 2017). Additional analyses indicate that I indeed face this problem.[17] Therefore, I use the propensity and exposure variables, as well as the truancy and delinquency variables, from the same wave.

[17] In these models, changes in truancy are always associated with a decrease in crime involvement – regardless of whether adolescents start or stop truanting. This is contrary to the scientific consensus that truancy is related to an increased involvement in crime. Moreover, I tried to replicate the finding regarding the role of propensity (another finding that is well established), but, again, the coefficients are all negative and far from significant. I interpret this as evidence of an incorrect specification of the real-world time lags.

Table 4.1 Comparison of substance use and offending hours between school and truancy

	Substance use				Offending			
	School hours		Truancy hours		School hours		Truancy hours	
	N	%	N	%	N	%	N	%
No	45,310	99.96	630	97.22	45,318	99.98	648	100.00
Yes	17	0.04	18	2.78	9	0.02	0	0.00
Total	45,327		648		45,327		648	

Source: PADS+

4.6 Results

4.6.1 Delinquency during truancy

Table 4.1 provides information on the situational relationship of truancy and delinquency. Comparing the frequency of substance use and offending incidences between truancy hours and school hours reveals a striking result: substance use and offending are extremely rare during the school day – whether spent in school or truanting. In only 18 out of the 648 truancy hours did respondents use substances.[18] And there is not a single hour of truancy across all adolescents in all waves in which acts of offending were reported in the same hours as truancy. This rarity of cases renders an informative test of Hypothesis 1 difficult but also obsolete: it seems that the relationship between truancy and delinquency is not situational in the first place and that adolescents are not necessarily more likely to be delinquent when they are truanting.

4.6.2 Truancy as a stepping-stone?

Having found no evidence in support of a situational link between truancy and delinquency, I now turn to the longitudinal analyses to test the change hypothesis. Following the notion of truancy as a stepping-stone to delinquency, truancy should be followed by the onset of delinquency. Table 4.2 shows the order of the onset of truancy and substance use offending, respectively, for those adolescents who did not start delinquency prior to the first interview (up to adulthood, that is, wave 5).

Neither substance use nor truancy has been reported by about quarter of the adolescents in the sample reported never having truanted or used substances. Within

[18] These hours were reported by 10 different adolescents.

Table 4.2 Ordering of truancy and delinquency onset

	Substance use			Offending		
	N	%		N	%	
1) Neither truancy nor delinquency	127	24.5		66	12.8	
2) Only truancy	166	32.0	42.4	67	13.0	14.9
3) Only delinquency	20	3.9	5.1	78	15.0	17.3
4) Truancy and delinquency simultaneously	58	11.2	14.8	32	6.2	7.1
5) First truancy, then delinquency	114	22.0	29.1	37	7.2	8.2
6) First delinquency, then truancy	34	6.6	8.7	237	45.8	52.6

Source: PADS+

the group of adolescents who reported at least one of these behaviors (right-hand column), a minority engaged in substance use only (5.1 percent). For half of the adolescents, the onset of substance use either preceded their truancy onset (8.7 percent) or they reported only truancy (42.4 percent). The picture is similar for offending. For a substantial proportion of adolescents, the idea that truancy comes first and provides a stepping-stone to offending does not hold: almost two-thirds either truanted but never engaged in other forms of offending (14.9 percent), or their truancy onset was after their first-time offending (52.6 percent). Not even one-tenth reported their truancy onset as preceding their offending onset (8.2 percent). This indicates that truancy might be a stepping-stone to delinquency for only a minority of adolescents, whereas the majority of adolescents pick up delinquency without being truants first. Nevertheless, it is possible that changes in truancy result in changes in delinquency behavior, as I will examine in the final step of the analysis.

4.6.3 Fixed-effects linear regressions

Turning to the fixed-effects linear regression models of delinquency (Table 4.3 and Table 4.4), I first present models that include only truancy as a predictor (M1 and M4), followed by models including only propensity and exposure (M2 and M4). These models provide a point of comparison for the final models, which include truancy as well as propensity and exposure as predictors of delinquency (M3 and M6). The results in Table 4.3 and Table 4.4 show that changes in truancy are positively related to changes in substance use and offending. Most importantly, these fixed-effects models support the hypothesis that this association is due to changes in propensity and exposure. Controlling for changes in propensity and exposure, the estimated effects for changes in truancy disappear in terms of both substantive and

Table 4.3 Fixed-effect linear regression on substance use

	Model (1)	Model (2)	Model (3)
Truancy prevalence	4.156***		0.818
	(0.633)		(0.575)
Personal morality regarding substance use		0.549***	0.517**
		(0.163)	(0.159)
Ability to exercise self-control		0.019	0.012
		(0.106)	(0.106)
Criminogenic hours		0.397	0.314
		(0.314)	(0.314)
Peers' substance use involvement		1.658***	1.610***
		(0.328)	(0.338)
Constant	1.711***	−2259	−2285
	(0.231)	(1.378)	(1.373)
N / n	2,595 / 519	2,595 / 519	2,595 / 519
Within R^2	0.012	0.056	0.057

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ / robust standard errors in parentheses
Source: PADS+

Table 4.4 Fixed-effect linear regression on offending

	Model (1)	Model (2)	Model (3)
Truancy prevalence	2.313***		0.554
	(0.698)		(0.598)
Personal morality regarding offending		0.237	0.223
		(0.141)	(0.146)
Ability to exercise self-control		0.257**	0.251**
		(0.087)	(0.088)
Criminogenic hours		0.364	0.356
		(0.194)	(0.195)
Peers' offending involvement		2.147***	2.137***
		(0.489)	(0.486)
Constant	2.879***	−3330*	−3383*
	(0.258)	(1.116)	(1.113)
N / n	2,585 / 517	2,585 / 517	2,585 / 517
Within R^2	0.008	0.112	0.112

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ / robust standard errors in parentheses
Source: PADS+

statistical significance (see M3 vs. M1 in Table 4.3, and M6 vs. M4 in Table 4.4). Looking at the changes in within R^2, we also see that, compared with the models including propensity and exposure, truancy does not contribute to explaining the within variance.

4.7 Conclusion

Given the extensive evidence linking truancy to substance use and offending, our under- standing of this relationship is surprisingly limited. By applying SAT as an integrative, action-theoretical framework and by employing different methodologies to analyze unique data from PADS+, this study offers new insights into the mechanisms driving the truancy–delinquency relationship. Specifically, I contribute to a better understanding of the truancy–delinquency relationship in two important ways. First, results based on space–time budgets raise doubts about the common view that adolescents tend to be involved in delinquent behavior while they are truanting. Adolescents are rarely involved in delinquent behavior during their actual truancy time: not a single hour of offending occurred, and the number of substance use hours during truancy was also found to be very small. Second, I shed light on the mechanisms that link both types of behavior by demonstrating that truancy and delinquency are linked because changes in truancy are connected to changes in propensity and exposure. This is in line with SAT, which suggests that truants are more involved in further types of deviant behavior because these adolescents are generally more likely to be exposed to criminogenic settings, to have low self-control and to hold weaker moral beliefs.

These findings have important implications for the development of interventions that aim to target adolescent delinquency by reducing their truancy. Given that delinquency is so rare during truancy, simply focusing on keeping students in school might not be the most effective strategy for preventing delinquency. Rather, my results suggest focusing on the factors that are the direct causes of delinquency, that is, adolescents' propensity for delinquency and their exposure to criminogenic settings. This is indirectly supported by the successful Ability School Engagement Program (ASEP) project in Australia (see, for example, Mazerolle et al., 2018). To stimulate a greater willingness to comply with the law, this project implemented conferences for a procedurally just dialogue of police and schools with both parents and their truant children. Moreover, this dialogue focused on enhancing selective peer socialization at school and other extra-curricular programs (Sobolewska, 2017).

It is very conceivable that, by reaching these goals, these interventions strengthened adolescents' morality and reduced their exposure to criminogenic settings.

Although fixed-effects models help eliminate the possibility of reverse causality, my results provide no definite answer on the causal direction between truancy and delinquency. In line with the stepping-stone hypothesis, the current study focuses on the possibility that truancy causes changes in adolescents' moral beliefs and leisure activities, for example due to affiliation with delinquent peers, or lowers their self-control, for example due to reduced school engagement. But SAT also allows for the reverse causal direction. Substance use could cause cognitive impairment that weakens adolescents' self-control, or delinquent adolescents could be more likely to truant because they choose delinquent friends who do not value education, therefore increasing exposure to truancy-encouraging moral contexts (Flaherty et al., 2012). Either way, the relationship between truancy and delinquency would be conditional on adolescents' propensity and their exposure to criminogenic settings (irrespective of the causal direction or bidirectionality). Indeed, my analyses hint at the existence of such a reverse causal relationship. Around half of the respondents start offending before they start truanting (see Table 2) and additional fixed-effects-regressions (not shown),[19] in which I switch truancy and delinquency to make truancy the outcome and delinquency the explanatory variable, show a remarkably similar picture to the results presented in Tables 3 and 4. Although both views are consistent with the theoretical argument, disentangling those processes would further enhance our understanding of the causal direction of the truancy–delinquency relationship. A note of caution is warranted regarding the absence of offending during truancy hours. In part, this might be due to those behaviors being too rare to be captured in a four-day time frame. Offenses have been reported in only 138 hours (0.04 percent) among the entire 45,975 hours in the sample. However, most offenses occurred in the evenings or at the weekends (Wikström et al., 2012: 340) – hours that cannot be spent truanting because they are not school hours, which supports my interpretation of a weak situational link between offending and truancy. Future applications of space–time budgets could use broader measures of antisocial behaviors to examine whether those are more prevalent during truancy hours. Future studies should also try to use situational measures of self-control. Given data restrictions, but in line with previous tests of SAT, I relied on eight items of the modified self-control scale by Grasmick et al. (1993). However, there have been calls to more directly measure SAT's concept of self-control (that is, the extent to which individuals are able to

[19]Results are available from the author upon request.

act in accordance with their morality when faced with conflicting temptations or provocations, Kroneberg and Schulz, 2018). Such efforts could take inspiration from recent successful attempts to develop situational, theory-guided measures of different conceptualizations of self-control (Piquero and Bouffard, 2007; Hirschi, 2004).[20]

Another interesting avenue for future research would be to explore truancy in more detail. Although I demonstrated SAT's suitability in the explanation of the truancy– delinquency nexus, whether SAT is equally well suited to explain truancy as a form of deviant behavior is still an open question. Additional analyses suggest that, for the small group of frequent truants, the available measures of propensity and exposure do not completely account for the truancy effect in fixed-effects models. It would be worthwhile to further investigate why this is the case. Moreover, I have shown that the step from truancy to delinquency is not deterministic. This might be related to different motivations for truancy. It is easy to imagine that a student who is absent due to employment is less likely to develop a higher crime propensity or to be engaged in criminogenic settings during their truancy, and therefore is less likely to get involved in other forms of delinquent behavior. Looking at the diverse reasons for truancy and the possible accompanying heterogeneity in propensity and exposure is another direction that promises fruitful insights.

[20]Piquero and Bouffard (2007) developed a more situational measure of self-control. Because it is based on Hirschi's refined conceptualization of self-control (Hirschi, 2004), their measure refers to the number and importance of negative consequences when making a decision to offend. This differs markedly from SAT's definition of self-control (see above).

Literature

Allison, P. (2009). *Fixed effects regression models*. SAGE Publications. https://doi.org/10.4135/9781412993869

Andreß, H.-J., Golsch, K., & Schmidt, A. (2013). *Applied panel data analysis for economic and social surveys*. Springer. https://doi.org/https://doi.org/10.1007/978-3-642-32914-2

Baier, D. (2016). The school as an influencing factor of truancy. *International Journal of Criminology and Sociology*, *5*, 191–202. https://doi.org/10.6000/1929-4409.2016.05.18

Baker, M. L., Sigmon, J. N., & Nugent, M. E. (2001). Truancy reduction: Keeping students in school. *Juvenile Justice Bulletin*, 1–18. https://doi.org/10.1037/e400462005-001

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Barnum, T. C., & Solomon, S. J. (2019). Fight or flight: Integral emotions and violent intentions. *Criminology*, *57*(4), 659–686. https://doi.org/10.1111/1745-9125.12222

Bauman, K. E., & Fisher, L. A. (1986). On the measurement of friend behavior in research on friend influence and selection: Findings from longitudinal studies of adolescent smoking and drinking. *Journal of Youth and Adolescence*, *15*(4), 345–353. https://doi.org/10.1007/BF02145731

Beier, H. (2016a). *Einflüsse der Peergruppe auf delinquentes und kriminelles Handeln Jugendlicher* (Doctoral dissertation). Universität Mannheim.

Beier, H. (2016b). Wie wirken „Subkulturen der Gewalt“? Das Zusammenspiel von Internalisierung und Verbreitung gewaltlegitimierender Normen in der Erklärung von Jugendgewalt. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, *68*(3), 457–485. https://doi.org/10.1007/s11577-016-0369-2

Beier, H. (2018). Situational peer effects on adolescents' alcohol consumption: The moderating role of supervision, activity structure, and personal moral rules. *Deviant Behavior*, *39*(3), 363–379. https://doi.org/10.1080/01639625.2017.1286173

Beier, H., & Schulz, S. (2015). A free audio-casi module for LimeSurvey. *Survey Methods: Insights from the Field*. https://doi.org/10.13094/SMIF-2015-00011

Bennett, S., Mazerolle, L., Antrobus, E., Eggins, E., & Piquero, A. R. (2018). Truancy intervention reduces crime: Results from a randomized field trial. *Justice Quarterly*, *35*(2), 309–329. https://doi.org/10.1080/07418825.2017.1313440

Berg, M. T., Stewart, E. A., Brunson, R. K., & Simons, R. L. (2012). Neighborhood cultural heterogeneity and adolescent violence. *Journal of Quantitative Criminology*, *28*(3), 411–435. https://doi.org/10.1007/s10940-011-9146-6

Berg, M. T., Stewart, E. A., Stewart, E., & Simons, R. L. (2013). A multilevel examination of neighborhood social processes and college enrollment. *Social Problems*, *60*(4), 513–534. https://doi.org/10.1525/sp.2013.60.4.513

Best, D., Manning, V., Gossop, M., Gross, S., & Strang, J. (2006). Excessive drinking and other problem behaviours among 14-16 year old schoolchildren. *Addictive Behaviors*, *31*(8), 1424–1435. https://doi.org/10.1016/j.addbeh.2005.12.002

Biewen, M., & Tapalaga, M. (2017). Life-cycle educational choices in a system with early tracking and 'second chance' options. *Economics of Education Review*, *56*, 80–94. https://doi.org/10.1016/j.econedurev.2016.11.008

Bittmann, F., & Schindler, S. (2021). Analysing diversion processes in German secondary education: School-track effects on educational aspirations. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, *73*(2), 231–257. https://doi.org/10.1007/s11577-021-00789-1

Blair, J., & Lacy, M. G. (2000). Statistics of ordinal variation. *Sociological Methods & Research*, *28*(3), 251–280. https://doi.org/10.1177/0049124100028003001

Bolin, A. U. (2004). Self-control, perceived opportunity, and attitudes as predictors of academic dishonesty. *The Journal of Psychology*, *138*(2), 101–114. https://doi.org/10.3200/JRLP.138.2.101-114

Brambor, T., Clark, W. R., & Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political Analysis*, *14*(1), 63–82. https://doi.org/10.1093/pan/mpi014

Brauer, J. R., & Tittle, C. R. (2017). When crime is not an option: Inspecting the moral filtering of criminal action alternatives. *Justice Quarterly*, *34*(5), 818–846. https://doi.org/10.1080/07418825.2016.1226937

Braumoeller, B. F. (2004). Hypothesis testing and multiplicative interaction terms. *International Organization*, *58*(4). https://doi.org/10.1017/S0020818304040251

Brechwald, W. A., & Prinstein, M. J. (2011). Beyond homophily: A decade of advances in understanding peer influence processes. *Journal of Research on Adolescence*, *21*(1), 166–179. https://doi.org/10.1111/j.1532-7795.2010.00721.x

Breen, R., & Goldthorpe, J. H. (1997). Explaining educational differentials. *Rationality and Society*, *9*(3), 275–305. https://doi.org/10.1177/104346397009003002

Brüderl, J. (2010). Kausalanalyse mit Paneldaten. In C. Wolf & H. Best (Eds.), *Handbuch der sozialwissenschaftlichen Datenanalyse* (pp. 963–994). Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-92038-2_36

Bryant, A. L., Schulenberg, J., Bachman, J. G., O'Malley, P. M., & Johnston, L. D. (2000). Understanding the links among school misbehavior, academic achievement, and cigarette use: A national panel study of adolescents. *Prevention Science*, *1*(2), 71–87.

Buchholz, S., & Schier, A. (2015). New game, new chance? Social inequalities and upgrading secondary school qualifications in West Germany. *European Sociological Review*, *31*(5), 603–615. https://doi.org/10.1093/esr/jcv062

Buchmann, C., & Dalton, B. (2002). Interpersonal influences and educational aspirations in 12 countries: The importance of institutional context. *Sociology of Education*, *75*(2), 99–122. https://doi.org/10.2307/3090287

Buchmann, C., & Park, H. (2009). Stratification and the formation of expectations in highly differentiated educational systems. *Research in Social Stratification and Mobility*, *27*(4), 245–267. https://doi.org/10.1016/j.rssm.2009.10.003

Buchmann, M. (1989). *The script of life in modern society: Entry into adulthood in a changing world.* University of Chicago Press.

Buchmann, M. C., & Kriesi, I. (2011). Transition to adulthood in europe. *Annual Review of Sociology*, *37*(1), 481–503. https://doi.org/10.1146/annurev-soc-081309-150212

Burke, M. A., & Sass, T. R. (2013). Classroom peer effects and student achievement. *Journal of Labor Economics*, *31*(1), 51–82. https://doi.org/10.1086/666653

Catalano, R. F., & Hawkins, J. D. (1996). Social development model: A theory of antisocial behavior. In D. Hawkins (Ed.), *Delinquency and Crime: Current Theories* (pp. 149–197). Cambridge University Press.

Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behavior. *Advances in experimental social psychology* (pp. 201–234). Elsevier. https://doi.org/10.1016/S0065-2601(08)60330-5

CILS4EU-DE. (2021). *Children of Immigrants Longitudinal Survey in Four European Countries – Germany. Codebook. Wave 6 – 2016/17, v.0.0.* (Codebook). Mannheim University. Mannheim.

Cochran, J. K. (2015). Morality, rationality and academic dishonesty: A partial test of Situational Action Theory. *International Journal of Criminology and Sociology*, *4*, 192–199. https://doi.org/10.6000/1929-4409.2015.04.19

Cochran, J. K., Wood, P. B., Sellers, C. S., Wilkerson, W., & Chamlin, M. B. (1998). Academic dishonesty and low self-control: An empirical test of a general theory of crime. *Deviant Behavior*, *19*(3), 227–255. https://doi.org/10.1080/01639625.1998.9968087

Cohen, A. K. (1955). *Delinquent boys. The culture of the gang.* Free Press.

Crosnoe, R., & Johnson, M. K. (2011). Research on adolescence in the twenty-first century. *Annual Review of Sociology*, *37*(1), 439–460. https://doi.org/10.1146/annurev-soc-081309-150008

Cundiff, P. R. (2016). Great expectations unmet: The impact of adolescent educational expectations on deviant coping during the transition to adulthood. *Sociological Inquiry*, 1–23. https://doi.org/10.1111/soin.12156

Dahl, P. (2016). Factors associated with truancy: Emerging adults' recollection of skipping school. *Journal of Adolescent Research*, *31*(1), 119–138. https://doi.org/10.1177/0743558415587324

Davies, J. D., & Lee, J. (2006). To attend or not to attend? Why some students chose school and others reject it. *Support for Learning*, *21*(4), 204–209. https://doi.org/10.1111/j.1467-9604.2006.00433.x

Dembo, R., Briones-Robinson, R., Barrett, K., Winters, K. C., Ungaro, R., Karas, L., Wareham, J., & Belenko, S. (2012a). Psychosocial problems among truant youth: A multi-group, exploratory structural equation modeling analysis. *Journal of Child & Adolescent Substance Abuse*, *21*(5), 440–465. https://doi.org/10.1080/1067828X.2012.724290

Dembo, R., Briones-Robinson, R., Ungaro, R., Gulledge, L., Karas, L., Winters, K. C., Belenko, S., & Greenbaum, P. E. (2012b). Emotional/psychological and related problems among truant youths: an exploratory latent class analysis. *Journal of Emotional and Behavioral Disorders*, *20*(3), 157–168. https://doi.org/10.1177/1063426610396221

Dollmann, J., & Rudolphi, F. (2020). Classroom composition and language skills: The role of school class and friend characteristics. *British Journal of Sociology of Education*, *41*(8), 1200–1217. https://doi.org/10.1080/01425692.2020.1799754

Domina, T., Conley, A., & Farkas, G. (2011). The link between educational expectations and effort in the college-for-all era. *Sociology of Education*, *84*(2), 93–112. https://doi.org/10.1177/1941406411401808

Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*(1), 225–241. https://doi.org/10.1111/j.1532-7795.2010.00725.x

Eisenberg, J. (2004). To cheat or not to cheat: Effects of moral perspective and situational variables on students' attitudes. *Journal of Moral Education*, *33*(2), 163–178. https://doi.org/10.1080/0305724042000215276

Ekstrand, B. (2015). What it takes to keep children in school: A research review. *Educational Review*, *67*(4), 459–482. https://doi.org/10.1080/00131911.2015.1008406

Elliott, D. S. (1966). Delinquency, school attendance and dropout. *Social Problems*, *13*(3), 307–314. https://doi.org/10.2307/799257

Ellis, L., Farrington, D. P., & Hoskin, A. W. (2019). *Handbook of crime correlates*. Academic Press. https://doi.org/https://doi.org/10.1016/C2015-0-01432-0

Epple, D., & Romano, R. E. (2011). Peer effects in education. *Handbook of social economics* (pp. 1053–1163). Elsevier. https://doi.org/10.1016/b978-0-444-53707-2.00003-7

Ernst, A. (2022). *Investigating the action-generating mechanisms of rule-breaking* (Doctoral dissertation). University of Cologne.

Ernst, A., & Lenkewitz, S. (2020). Violence, street code internalisation and the moderating effect of the status-violence norm in German schools. *Kriminologie - Das Online-Journal*, 39–62. https://doi.org/10.18716/OJS/KRIMOJ/2020.1.4

Farrington, D. P. (2000). Explaining and preventing crime: The globalization of knowledge - The American Society of Criminology 1999 presidential address. *Criminology*, *38*(1), 1–24. https://doi.org/10.1111/j.1745-9125.2000.tb00881.x

Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*(2), 117–140. https://doi.org/10.1177/001872675400700202

Flaherty, C. W., Sutphen, R. D., & Ely, G. E. (2012). Examining substance abuse in truant youths and their caregivers: Implications for truancy intervention. *Children & Schools*, *34*(4), 201–211. https://doi.org/10.1093/cs/cds008

Fletcher, J. M. (2012). Similarity in peer college preferences: New evidence from Texas. *Social Science Research*, *41*(2), 321–330. https://doi.org/10.1016/j.ssresearch.2011.11.001

Freiburger, T. L., Romain, D. M., Randol, B. M., & Marcum, C. D. (2017). Cheating behaviors among undergraduate college students: Results from a factorial survey. *Journal of Criminal Justice Education*, *28*(2), 222–247. https://doi.org/10.1080/10511253.2016.1203010

Garry, E. M. (1996). Truancy: First step to a lifetime of problems. *Juvenile Justice Bulletin*, 1–9.

Gerth, M. (2020). Does truancy make the delinquent? A situational and longitudinal analysis of the truancy–delinquency relationship [SAGE Publica-

tions]. *European Journal of Criminology*, 1–20. https://doi.org/10.1177/1477370820952681

Gottfredson, D. C. (2000). *Schools and delinquency*. Cambridge University Press. https://doi.org/10.1017/CBO9780511720246

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford University Press.

Grasmick, H. G., Tittle, C. R., Bursik, R. J., JR, & Arneklev, B. J. (1993). Testing the core empirical implications of Gottfredson and Hirschi's general theory of crime. *Journal of Research in Crime and Delinquency*, *30*(1), 5–29. https://doi.org/10.1177/0022427893030001002

Hainmueller, J., Mummolo, J., & Xu, Y. (2019). How much should we trust estimates from multiplicative interaction models? Simple tools to improve empirical practice. *Political Analysis*, *27*(2), 163–192. https://doi.org/10.1017/pan.2018.46

Hallinan, M. T., & Williams, R. A. (1990). Students' characteristics and the peer-influence process. *Sociology of Education*, *63*(2), 122–132. https://doi.org/10.2307/2112858

Hanson, S. L. (1994). Lost Talent. Unrealized educational aspirations and expectations among U.S. youths. *Sociology of Education*, *67*(3), 159–183. https://doi.org/10.2307/2112789

Hanushek, E. A., Kain, J. F., Markman, J. M., & Rivkin, S. G. (2003). Does peer ability affect student achievement? *Journal of Applied Econometrics*, *18*(5), 527–544. https://doi.org/10.1002/jae.741

Hardie, B. (2017). *Why monitoring doesn't always matter: The situational role of parental monitoring in adolescent crime* (Doctoral thesis). University of Cambridge. Cambridge, UK. https://doi.org/http://dx.doi.org/10.17863/CAM.15484

Hardie, B. (2020). *Studying situational interaction: Explaining behaviour by analysing person-environment convergence*. Springer International Publishing. https://doi.org/10.1007/978-3-030-46194-2

Hardie, J. H. (2014). The consequences of unrealized occupational goals in the transition to adulthood. *Social Science Research*, *48*, 196–211. https://doi.org/10.1016/j.ssresearch.2014.06.006

Harding, D. J. (2007). Cultural context, sexual behavior, and romantic relationships in disadvantaged neighborhoods. *American Sociological Review*, *72*(3), 341–364. https://doi.org/10.1177/000312240707200302

Harding, D. J. (2010). *Living the drama: Community, conflict, and culture among inner-city boys*. University of Chicago Press.

Harding, D. J. (2011). Rethinking the cultural context of schooling decisions in disadvantaged neighborhoods: From deviant subculture to cultural heterogeneity. *Sociology of Education*, *84*(4), 322–339. https://doi.org/10.1177/0038040711417008

Healy, W. (1915). *The individual delinquent. A textbook of diagnosis and prognosis for all concerned in understanding offenders*. Little, Brown & Co.

Henry, K. L. (2007). Who's skipping school: Characteristics of truants in 8th and 10th grade. *The Journal of School Health*, *77*(1), 29–35. https://doi.org/10.1111/j.1746-1561.2007.00159.x

Henry, K. L. (2010). Skipping school and using drugs: A brief report. *Drugs: Education, Prevention and Policy*, *17*(5), 650–657. https://doi.org/10.3109/09687630902862452

Henry, K. L., & Huizinga, D. H. (2007). Truancy's effect on the onset of drug use among urban adolescents placed at risk. *The Journal of Adolescent Health*, *40*(4), 358.e9–358.e17. https://doi.org/10.1016/j.jadohealth.2006.11.138

Henry, K. L., Knight, K. E., & Thornberry, T. P. (2012). School disengagement as a predictor of dropout, delinquency, and problem substance use during adolescence and early adulthood. *Journal of Youth and Adolescence*, *41*(2), 156–166. https://doi.org/10.1007/s10964-011-9665-3

Henry, K. L., & Thornberry, T. P. (2010). Truancy and escalation of substance use during adolescence. *Journal of Studies on Alcohol and Drugs*, *71*(1), 115–124. https://doi.org/10.15288/jsad.2010.71.115

Henry, K. L., Thornberry, T. P., & Huizinga, D. H. (2009). A discrete-time survival analysis of the relationship between truancy and the onset of marijuana use. *Journal of Studies on Alcohol and Drugs*, *70*(1), 5–15. https://doi.org/10.15288/jsad.2009.70.5

Hillmert, S. (2009). Bildung und Lebensverlauf – Bildung im Lebensverlauf. In R. Becker (Ed.), *Lehrbuch der Bildungssoziologie* (pp. 215–235). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91711-5_8

Hillmert, S., & Jacob, M. (2010). Selections and social selectivity on the academic track: A life-course analysis of educational attainment in germany. *Research in Social Stratification and Mobility*, *28*(1), 59–76. https://doi.org/doi:10.1016/j.rssm.2009.12.006

Hirschfield, P. J., & Gasper, J. (2011). The relationship between school engagement and delinquency in late childhood and early adolescence. *Journal of Youth and Adolescence*, *40*(1), 3–22. https://doi.org/10.1007/s10964-010-9579-5

Hirschi, T. (1969). *Causes of delinquency*. University of California Press.

Hirschi, T. (2004). Self-control and crime. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation. Research, theory and applications* (pp. 537–552). The Guilford Press.

Hirtenlehner, H., & Meško, G. (2019). The compensatory effects of inner and outer controls. *European Journal of Criminology*, *16*(6), 689–707. https://doi.org/10.1177/1477370818788010

Hoeben, E. M., & Thomas, K. J. (2019). Peers and offender decision-making. *Criminology & Public Policy*, *18*(4), 759–784. https://doi.org/10.1111/1745-9133.12462

Hogan, D. P., & Astone, N. M. (1986). The transition to adulthood. *Annual Review of Sociology*, *12*, 109–130.

Hoxby, C. (2000). *Peer effects in the classroom: Learning from gender and race variation* (research rep.). NBER. https://doi.org/10.3386/w7867

Huizinga, D., Loeber, R., Thornberry, T. P., & Cothern, L. (2000). Co-occurrence of delinquency and other problem behaviors. *Juvenile Justice Bulletin*, 1–8. https://doi.org/10.1037/e314292005-001

Hunt, M. K., & Hopko, D. R. (2009). Predicting high school truancy among students in the Appalachian south. *The Journal of Primary Prevention*, *30*(5), 549–567. https://doi.org/10.1007/s10935-009-0187-7

Ingersoll, S., & LeBoeuf, D. (1997). Reaching out to youth out of the education mainstream. *Juvenile Justice Bulletin*, 1–14.

Iverson, A., French, B. F., Strand, P. S., Gotch, C. M., & McCurley, C. (2018). Understanding school truancy: Risk-need latent profiles of adolescents. *Assessment*, *25*(8), 978–987. https://doi.org/10.1177/1073191116672329

Jacob, B., & Wilder, T. (2010). *Educational expectations and attainment* (research rep. Working Paper 15683). National Bureau of Economic Research (NBER). https://doi.org/10.3386/w15683

Jordan, A. E. (2001). College student cheating: The role of motivation, perceived norms, attitudes, and knowledge of institutional policy. *Ethics & Behavior*, *11*(3), 233–247. https://doi.org/10.1207/S15327019EB1103_3

Juvonen, J. (2019). The potential of schools to facilitate and constrain peer relationships. In B. L. William M. Bukowski & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 491–509). The Guilford Press.

Kalter, F., Heath, A. F., Hewstone, M., Jonsson, J. O., Kalmijn, M., Kogan, I., & Tubergen, F. V. (2015). *Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU) - Reduzierte Version. Reduzierter Datenbestand zum Download und zur off-site Nutzung*. GESIS Data Archive. https://doi.org/10.4232/CILS4EU.5656.2.1.0

Kalter, F., Heath, A. F., Hewstone, M., Jonsson, J. O., Kalmijn, M., Kogan, I., & Tubergen, F. V. (2017). *Children of immigrants longitudinal survey in four european countries (cils4eu) - reduzierte version. reduzierter datenbestand zum download und zur off-site nutzung*. GESIS Data Archive. https://doi.org/10.4232/CILS4EU.5656.3.3.0

Kalter, F., Heath, A. F., Hewstone, M., Jonsson, J. O., Kalmijn, M., Kogan, I., Tubergen, F. V., Kroneberg, C., Rydell, L. A., Låftman, S. B., Dollmann, J., Engzell, P., Geven, S., Horr, A., Huuva, L., Jacob, K., Jaspers, E., Kruse, H., Meenakshi, P., … Zantvliet, P. V. (2014). *Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU) - Reduzierte Version. Reduzierter Datenbestand zum Download und zur off-site Nutzung*. GESIS Data Archive. https://doi.org/10.4232/CILS4EU.5656.1.1.0

Kalter, F., Kogan, I., & Dollmann, J. (2021). *Children of Immigrants Longitudinal Survey in Four European Countries - Germany (CILS4EU-DE) - Reduzierte Version. Reduzierter Datenbestand zum Download und zur off-site Nutzung*. GESIS Data Archive. https://doi.org/10.4232/CILS4EU-DE.6656.6.0.0

Kandel, D. B. (1978). Homophily, selection, and socialization in adolescent friendships. *American Journal of Sociology*, *84*(2), 427–436.

Kao, G., & Tienda, M. (1998). Educational aspirations of minority youth. *American Journal of Education*, *106*(3), 349–384. https://doi.org/10.1086/444188

Karlson, K. B. (2015). Expectations on track? High school tracking and adolescent educational expectations. *Social Forces*, *94*(1), 115–141. https://doi.org/10.1093/sf/sov006

Kelly, D. H., & Balch, R. W. (1971). Social origins and school failure: A reexamination of Cohen's theory of working-class delinquency. *The Pacific Sociological Review*, *14*(4), 413–430.

Kirk, D. S. (2009). Unraveling the contextual effects on student suspension and juvenile arrest: The independent and interdependent influences of school,

neighborhood and family social controls. *Criminology*, *47*(2), 479–520. https://doi.org/10.1111/j.1745-9125.2009.00147.x

Kiss, D. (2013). The impact of peer achievement and peer heterogeneity on own achievement growth: Evidence from school transitions. *Economics of Education Review*, *37*, 58–65. https://doi.org/10.1016/j.econedurev.2013.08.002

Kiuru, N., Aunola, K., Vuori, J., & Nurmi, J.-E. (2007). The role of peer groups in adolescents' educational expectations and adjustment. *Journal of Youth and Adolescence*, *36*(8), 995–1009. https://doi.org/10.1007/s10964-006-9118-6

Klein, M., Sosu, E. M., & Dare, S. (2022). School absenteeism and academic achievement: Does the reason for absence matter? *AERA Open*, *8*(1), 1–14. https://doi.org/10.1177/23328584211071115

Kroneberg, C., Gerth, M., & Ernst, A. (2016). Das Projekt „Freundschaft und Gewalt im Jugendalter". In F. Neubacher & N. Bögelein (Eds.), *Krise – Kriminalität – Kriminologie* (pp. 353–364). Forum Verlag Godesberg.

Kroneberg, C., & Schulz, S. (2018). Revisiting the role of self-control in Situational Action Theory. *European Journal of Criminology*, *15*(1), 56–76. https://doi.org/10.1177/1477370817732189

Lehmann, R. H. (2006). Zur Bedeutung der kognitiven Heterogenität von Schulklassenfür den Lernstand am Ende der Klassenstufe 4. In A. Schründer-Lenzen (Ed.), *Risikofaktoren kindlicher Entwicklung. Migration, Leistungsangst und Schulübergang* (pp. 109–121). VS Verlag für Sozialwissenschaften.

Lorenz, G., Boda, Z., Salikutluk, Z., & Jansen, M. (2020). Social influence or selection? Peer effects on the development of adolescents' educational expectations in germany. *British Journal of Sociology of Education*, *41*(5), 643–669. https://doi.org/10.1080/01425692.2020.1763163

Luciana, M. (2013). Adolescent brain development in normality and psychopathology. *Development and Psychopathology*, *25*(4 Pt 2), 1325–1345. https://doi.org/10.1017/s0954579413000643

Malinowski, C. I., & Smith, C. P. (1985). Moral reasoning and moral conduct: An investigation prompted by Kohlberg's theory. *Journal of Personality and Social Psychology*, *49*(4), 1016–1027.

Marotta, L. (2017). Peer effects in early schooling: Evidence from Brazilian primary schools. *International Journal of Educational Research*, *82*, 110–123. https://doi.org/10.1016/j.ijer.2017.01.008

Martin, S. E., Sechrest, L. B., & Redner, R. (1981). *New directions in the rehabilitation of criminal offenders*. National Academy Press.

Massey, E. K., Gebhardt, W. A., & Garnefski, N. (2008). Adolescent goal content and pursuit: A review of the literature from the past 16 years. *Developmental Review*, *28*(421–460). https://doi.org/10.1016/j.dr.2008.03.002

Mayer, K. U. (2009). New directions in life course research. *Annual Review of Sociology*, *35*(1), 413–433. https://doi.org/10.1146/annurev.soc.34.040507.134619

Maynard, B. R., Salas-Wright, C. P., Vaughn, M. G., & Peters, K. E. (2012). Who are truant youth? Examining distinctive profiles of truant youth using latent profile analysis. *Journal of Youth and Adolescence*, *41*(12), 1671–1684. https://doi.org/10.1007/s10964-012-9788-1

Mazerolle, L., Bennett, S., Antrobus, E., Cardwell, S. M., Eggins, E., & Piquero, A. R. (2018). Disrupting the pathway from truancy to delinquency: A randomized field trial test of the longitudinal impact of a school engagement program. *Journal of Quantitative Criminology*, *26*(1), 575. https://doi.org/10.1007/s10940-018-9395-8

McCabe, D. L. (1992). The influence of situational ethics on cheating among college students. *Sociological Inquiry*, *62*(3), 365–374.

McCabe, D. L., & Trevino, L. K. (1997). Individual and contextual influences on academic dishonesty: A multicampus investigation. *Research in Higher Education*, *38*(3), 379–396. https://doi.org/10.1023/A:1024954224675

Merolla, D. M. (2016). Self-efficacy and academic achievement. *Sociological Perspectives*, *60*(2), 378–393. https://doi.org/10.1177/0731121416629993

Modecki, K. L., & Uink, B. (2018). *Understanding delinquency during the teenage years: Developmental pathways of antisocial decision making among disadvantaged youth kathryn l. modecki bep uink report to the criminology research advisory council grant: Crg 13/14-15 july* (Report to the Criminology Research Advisory Council). Criminology Research Grants.

Morgan, S. L. (2004). Methodologist as arbitrator: Five models for Black-White differences in the causal effect of expectations on attainment. *Sociological Methods & Research*, *33*(1), 3–53. https://doi.org/10.1177/0049124104263657

Mounteney, J., Haugland, S., & Skutle, A. (2010). Truancy, alcohol use and alcohol-related problems in secondary school pupils in Norway. *Health Education Research*, *25*(6), 945–954. https://doi.org/10.1093/her/cyq044

Muraven, M., Pogarsky, G., & Shmueli, D. (2006). Self-control depletion and the general theory of crime. *Journal of Quantitative Criminology*, *22*(3), 263–277. https://doi.org/10.1007/s10940-006-9011-1

Neubacher, F. (2020). *Kriminologie*. Nomos. https://doi.org/10.5771/9783845286662

Oberwittler, D., & Wikström, P.-O. H. (2009). Why small is better: Advancing the study of the role of behavioral contexts in crime causation. In D. Weisburd, W. Bernasco, & G. J. Bruinsma (Eds.), *Putting crime in its place* (pp. 35–59). Springer New York. https://doi.org/10.1007/978-0-387-09688-9_2

O'Rourke, J., Barnes, J., Deaton, A., Fulks, K., Ryan, K., & Rettinger, D. A. (2010). Imitation is the sincerest form of cheating: The influence of direct knowledge and attitudes on academic dishonesty. *Ethics & Behavior*, *20*(1), 47–64. https://doi.org/10.1080/10508420903482616

Osgood, D. W., Wilson, J. K., OMalley, P. M., Bachman, J. G., & Johnston, L. D. (1996). Routine activities and individual deviant behavior. *American Sociological Review*, *61*(4), 635–655. https://doi.org/https://doi.org/10.2307/2096397

Paternoster, R., McGloin, J. M., Nguyen, H., & Thomas, K. J. (2013). The causal impact of exposure to deviant peers: An experimental investigation. *Journal of Research in Crime and Delinquency*, *50*(4), 476–503. https://doi.org/10.1177/0022427812444274

Pauwels, L. J. (2018). The conditional effects of self-control in Situational Action Theory. A preliminary test in a randomized scenario study. *Deviant Behavior*, *39*(11), 1450–1466. https://doi.org/10.1080/01639625.2018.1479920

Pauwels, L. J., Svensson, R., & Hirtenlehner, H. (2018). Testing Situational Action Theory: A narrative review of studies published between 2006 and 2015.

European Journal of Criminology, *15*(1), 32–55. https://doi.org/10.1177/1477370817732185

Pflug, V., & Schneider, S. (2016). School absenteeism: An online survey via social networks. *Child Psychiatry and Human Development*, *47*(3), 417–429. https://doi.org/10.1007/s10578-015-0576-5

Piquero, A. R., & Bouffard, J. A. (2007). Something old, something new: A preliminary investigation of Hirschi's redefined self-control. *Justice Quarterly*, *24*(1), 1–27. https://doi.org/10.1080/07418820701200935

Resnick, M. D., Ireland, M., & Borowsky, I. (2004). Youth violence perpetration: What protects? What predicts? Findings from the National Longitudinal Study of Adolescent Health. *The Journal of Adolescent Health*, *35*(5), 424.e1–424.e10. https://doi.org/10.1016/j.jadohealth.2004.01.011

Reynolds, J. R., & Johnson, M. K. (2011). Change in the stratification of educational expectations and their realization. *Social Forces*, *90*(1), 85–110. https://doi.org/https://doi.org/10.1093/sf/90.1.85

Riegle-Crumb, C., Farkas, G., & Muller, C. (2006). The role of gender and friendship in advanced course taking. *Sociology of Education*, *79*(3), 206–228. https://doi.org/10.1177/003804070607900302

Rocque, M., Jennings, W. G., Piquero, A. R., Ozkan, T., & Farrington, D. P. (2017). The importance of school attendance: findings from the Cambridge Study in Delinquent Development on the life-course effects of truancy. *Crime & Delinquency*, *63*(5), 592–612. https://doi.org/10.1177/0011128716660520

Rodkin, P. C., & Ryan, A. M. (2012). Child and adolescent peer relations in educational context. In K. R. Harris, S. Graham, & T. C. Urdan (Eds.), *APA Educational psychology handbook* (pp. 363–389). American Psychological Association. https://doi.org/10.1037/13274-015

Roebuck, C. M., French, M. T., & Dennis, M. L. (2004). Adolescent marijuana use and school attendance. *Economics of Education Review*, *23*, 133–141. https://doi.org/10.1016/s0272-7757(03)00079-7

Rosenbaum, J. E. (2011). The complexities of college for all: Beyond fairy-tale dreams. *Sociology of Education*, *84*(2), 113–117. https://doi.org/10.1177/0038040711401809

Sacerdote, B. (2011). Peer effects in education: How might they work, how big are they and how much do we know thus far? In E. A. Hanushek, S. Machin, & L. Woessmann (Eds.), *Handbook of the economics of education* (pp. 249–277). Elsevier. https://doi.org/10.1016/B978-0-444-53429-3.00004-1

Salikutluk, Z. (2016). Why do immigrant students aim high? Explaining the aspiration-achievement paradox of immigrants in Germany. *European Sociological Review*, *32*(5), 581–592. https://doi.org/10.1093/esr/jcw004

Salter, S. B., Guffey, D. M., & McMillan, J. J. (2001). Truth, consequences and culture: A comparative examination of cheating and attitudes about cheating among U.S. and U.K. students. *Journal of Business Ethics*, *31*, 37–50.

Sampson, R. J. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*, *277*(5328), 918–924. https://doi.org/10.1126/science.277.5328.918

Sattler, S., Wiegel, C., & van Veen, F. (2015). The use frequency of 10 different methods for preventing and detecting academic dishonesty and the factors

influencing their use. *Studies in Higher Education*, *42*(6), 1126–1144. https://doi.org/10.1080/03075079.2015.1085007

Scharenberg, K. (2012). Do secondary students learn more in homogeneous or heterogeneous classes? The importance of classroom composition for the development of Reading achievement in secondary school. *Online Educational Research Journal*, *3*(12), 1–11.

Schepers, D., & Reinecke, J. (2018). Conditional relevance of controls: A simultaneous test of the influences of self-control and deterrence on criminal behaviour in the context of Situational Action Theory. *European Journal of Criminology*, *15*(1), 77–92. https://doi.org/10.1177/1477370817732191

Schindler, S. (2017). School tracking, educational mobility and inequality in german secondary education: Developments across cohorts. *European Societies*, *19*, 28–48. https://doi.org/10.1080/14616696.2016.1226373

Schneider, B., & Stevenson, D. (1999). *The ambitious generation: America's teenagers, motivated but directionless.* Yale University Press.

Schoon, I. (2010). Planning for the future: Changing education expectations in three British cohorts. *Historical Social Research*, *35*(2), 99–119.

Schuhmann, P. W., Burrus, R. T., Barber, P. D., Graham, J. E., & Elikai, M. F. (2013). Using the scenario method to analyze cheating behaviors. *Journal of Academic Ethics*, *11*(1), 17–33. https://doi.org/10.1007/s10805-012-9173-4

Simons, R. L., Burt, C. H., Barr, A. B., Lei, M.-K., & Stewart, E. (2014). Incorporating routine activities, activity spaces, and situational defnitions into the social schematic theory of crime: Contexts and knowledge structures. *Criminology*, *52*(4), 655–687. https://doi.org/10.1111/1745-9125.12053

Small, M. L., Harding, D. J., & Lamont, M. (2010). Reconsidering culture and poverty. *The ANNALS of the American Academy of Political and Social Science*, *629*(1), 6–27. https://doi.org/10.1177/0002716210362077

Sobolewska, A. (2017). *Activating school bonds: A study of truanting young people in the context of the Ability School Engagement Program (ASEP)* (PhD Thesis). University of Queensland. Institute for Social Science Research.

Sosu, E. M., Dare, S., Goodfellow, C., & Klein, M. (2021). Socioeconomic status and school absenteeism: A systematic review and narrative synthesis. *Review of Education*, *9*(3). https://doi.org/10.1002/rev3.3291

Strand, A.-S. M. (2014). 'School – no thanks – it ain't my thing': Accounts for truancy. Students' perspectives on their truancy and school lives. *International Journal of Adolescence and Youth*, *19*(2), 262–277. https://doi.org/10.1080/02673843.2012.743920

Sutherland, E. (1956). Differential association. In A. Cohen, A. Lindesmith, & K. Schuessler (Eds.), *The Sutherland papers* (pp. 5–43). Indiana University Press.

Svensson, R., Pauwels, L., & Weerman, F. M. (2010). Does the effect of self-control on adolescent offending vary by level of morality? A test in three countries. *Criminal Justice and Behavior*, *37*(6), 732–743. https://doi.org/10.1177/0093854810366542

Tannenbaum, F. (1938). *Crime and the community.* Columbia University Press.

Teixeira, A. A., & Rocha, M. d. F. (2008). Academic cheating in Spain and Portugal: An empirical explanation. *International Journal of Iberian Studies*, *21*(1), 3–22. https://doi.org/10.1386/ijis.21.1.3_1

Theobald, D., Farrington, D. P., Ttofi, M. M., & Crago, R. V. (2016). Risk factors for dating violence versus cohabiting violence: Results from the third generation of the Cambridge Study in Delinquent Development. *Criminal Behaviour and Mental Health*, *26*(4), 229–239. https://doi.org/10.1002/cbm.2017

Tibbetts, S. G., & Myers, D. L. (1999). Low self-control, rational choice, and student test cheating. *American Journal of Criminal Justice*, *23*(2), 179–200. https://doi.org/10.1007/BF02887271

Trivedi-Bateman, N. (2019). The combined roles of moral emotion and moral rules in explaining acts of violence using a Situational Action Theory perspective. *Journal of Interpersonal Violence*, *36*(17-18), 8715–8740. https://doi.org/10.1177/0886260519852634

Vaisey, S., & Miles, A. (2017). What you can - and can't - do with three-wave panel data. *Sociological Methods & Research*, *46*(1), 44–67. https://doi.org/10.1177/0049124114547769

Vaughn, M. G., Maynard, B. R., Salas-Wright, C. P., Perron, B. E., & Abdon, A. (2013). Prevalence and correlates of truancy in the US. Results from a national sample. *Journal of Adolescence*, *36*(4), 767–776. https://doi.org/10.1016/j.adolescence.2013.03.015

Wagner, M., Dunkake, I., & Weiß, B. (2004). Schulverweigerung. Empirische Analysen zum abweichenden Verhalten von Schülern. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, *56*(3), 457–489.

Wang, X., Blomberg, T. G., & Li, S. D. (2005). Comparison of the educational deficiencies of delinquent and nondelinquent students. *Evaluation Review*, *29*(4), 291–312. https://doi.org/10.1177/0193841X05275389

Wikström, P.-O. (2011). Does everything matter? Addressing the problem of causation and explanation in the study of crime. In J. McGloin, C. Sullivan, & L. Kennedy (Eds.), *When crime appears*. Routledge.

Wikström, P.-O. H. (2005). The social origins of pathways in crime. Towards a Developmental Ecological Action Theory of crime involvement and its changes. In D. P. Farrington (Ed.), *Integrated developmental and life-course theories of offending* (pp. 211–246). Routledge.

Wikström, P.-O. H. (2006). Individuals, setting, and acts of crime: Situational mechanisms and the explanation of crime. In P.-O. H. Wikström & R. J. Sampson (Eds.), *The explanation of crime. Context, mechanisms and development*. Cambridge University Press.

Wikström, P.-O. H. (2010). Explaining crime as moral actions. In S. Hitlin & S. Vaisey (Eds.), *Handbook of the Sociology of Morality* (pp. 211–239). Springer.

Wikström, P.-O. H. (2014). Why crime happens: A Situational Action Theory. *Analytical sociology* (pp. 71–94). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781118762707.ch03

Wikström, P.-O. H. (2017). Character, circumstances, and the causes of crime: Towards an analytical criminology. *The oxford handbook of criminology*. Oxford University Press. https://doi.org/https://doi.org/10.1093/he/9780198719441.003.0023

Wikström, P.-O. H. (2019a). Explaining crime and criminal careers: the DEA model of Situational Action Theory. *Journal of Developmental and Life-Course Criminology*, *34*, 182. https://doi.org/10.1007/s40865-019-00116-5

Wikström, P.-O. H. (2019b). Situational Action Theory. A general, dynamic and mechanism-based theory of crime and its causes. In M. Krohn, G. P. Hall, A. J. Lizotte, & N. Hendrix (Eds.), *Handbook on crime and deviance* (pp. 259–281). Springer.

Wikström, P.-O. H., & Kroneberg, C. (2022). Analytic criminology: Mechanisms and methods in the explanation of crime and its causes. *Annual Review of Criminology*, *5*, 14.1–14.25. https://doi.org/10.1146/annurev-criminol-030920-091320

Wikström, P.-O. H., Mann, R. P., & Hardie, B. (2018). Young people's differential vulnerability to criminogenic exposure: bridging the gap between people- and place-oriented approaches in the study of crime causation. *European Journal of Criminology*, *15*(1), 10–31. https://doi.org/10.1177/1477370817732477

Wikström, P.-O. H., Oberwittler, D., Treiber, K., & Hardie, B. (2012). *Breaking rules: The social and situational dynamics of young people's urban crime*. Oxford University Press.

Wikström, P.-O. H., & Svensson, R. (2010). When does self-control matter? The interaction between morality and self-control in crime causation. *European Journal of Criminology*, *7*(5), 395–410. https://doi.org/10.1177/1477370810372132

Wikström, P.-O. H., & Treiber, K. (2007). The role of self-control in crime causation. *European Journal of Criminology*, *4*(2), 237–264. https://doi.org/10.1177/1477370807074858

Wikström, P.-O. H., & Treiber, K. (2016). Social disadvantage and crime. *American Behavioral Scientist*, *60*(10), 1232–1259. https://doi.org/10.1177/0002764216643134

Wikström, P.-O. H., & Treiber, K. (2019). The dynamics of change: Criminogenic interactions and life-course patterns in crime. In D. P. Farrington, L. Kazemian, & A. R. Piquero (Eds.), *The Oxford Handbook of developmental and life-course criminology*. Oxford University Press.

Williams, M. W. M., & Williams, M. N. (2012). Academic dishonesty, self-control, and general criminality: A prospective and retrospective study of academic dishonesty in a New Zealand university. *Ethics & Behavior*, *22*(2), 89–112. https://doi.org/10.1080/10508422.2011.653291

Wilson, V., Malcolm, H., Edward, S., & Davidson, J. (2008). 'Bunking off': The impact of truancy on pupils and teachers. *British Educational Research Journal*, *34*(1), 1–17. https://doi.org/10.1080/01411920701492191

Xu, Y., Hainmueller, J., Mummolo, J., & Liu, L. (2017). INTERFLEX: Stata module to estimate multiplicative interaction models with diagnostics and visualization. https://ideas.repec.org/c/boc/bocode/s458314.html

Zarrett, N., & Eccles, J. (2006). The passage to adulthood: Challenges of late adolescence. *New Directions for Youth Development*, *2006*(111), 13–28. https://doi.org/10.1002/yd.179

Zimmerman, G. M. (2010). Impulsivity, offending, and the neighborhood: Investigating the person–context nexus. *Journal of Quantitative Criminology*, *26*(3), 301–332. https://doi.org/10.1007/s10940-010-9096-4

Appendix A

Is what they aspire what they get? (Chapter 2)

Table A.1 Results of linear probability models on *Abitur* attainment

	Model (1)	Model (2)
Cultural heterogeneity in class	−0.220	−0.049
	(−0.839)	(−0.225)
Average aspiration in class >=*Abitur*		−0.078
(Ref: < *Abitur*)		(−1.050)
Average cognitive ability in class		0.056**
		(3.093)
% *Abitur* aspirations in class		0.002
		(0.970)
Individual cognitive ability		0.013**
		(2.619)
German grade: satisfactory		−0.140**
(Ref: very good/good)		(−2.897)
German grade: sufficient/poor		−0.233***
(Ref: very good/good)		(−3.941)
Female		0.041
		(1.097)
Age		−0.087**
		(−3.036)
Academic parent(s)		0.013
		(0.226)
Migration background		0.007
		(0.182)
% Academic parent(s) in class		0.001
		(0.407)
% Migration background in class		0.002*
		(1.986)
School track: *Realschule*		0.230***
(Ref: *Hauptschule*)		(3.882)
School track: *Gesamtschule*		0.177**
(Ref: *Hauptschule*)		(2.655)
Constant	0.616***	0.186
	(4.706)	(0.330)
R^2	0.002	0.192
Observations	1,079	1,079

Notes: * p < .05, ** p < .01, *** p < .001; cluster robust standard errors in parentheses
Source: CILS4EU (weighted)

Table A.2 Results of linear probability models: Subgroup analyses

	l^2 x school track	l^2 x mig back	l^2 x acad par	l^2 thirds	excl. students in school	*Abitur* in wave 7
l^2 (continuous)	−0.074	−0.038	−0.096		−0.231	−0.246
	(−0.285)	(−0.148)	(−0.393)		(−0.953)	(−1.641)
l^2: middle third				−0.043		
				(−0.744)		
l^2: top third				0.003		
				(0.042)		
Realschule	0.030	0.230***	0.229***	0.236***	0.194*	0.173**
	(0.146)	(3.891)	(3.833)	(3.525)	(2.518)	(3.162)
Realschule x l^2	0.421					
	(1.126)					
Gesamtschule	0.221	0.177**	0.177**	0.182*	0.204*	0.075
	(1.115)	(2.656)	(2.641)	(2.529)	(2.376)	(1.272)
Gesamtschule x l^2	−0.093					
	(−0.281)					
Migration background	0.010	0.025	0.006	0.007	0.104*	0.076
	(0.270)	(0.156)	(0.167)	(0.184)	(2.542)	(1.862)
Migration background x l^2		−0.037				
		(−0.117)				
Academic parent(s)	0.013	0.013	−0.116	0.013	0.044	0.089
	(0.236)	(0.227)	(−0.733)	(0.234)	(0.729)	(1.907)
Academic parent(s) x l^2			0.260			
			(0.876)			
N	1,079	1,079	1,079	1,079	801	1,143

Notes: * p < .05, ** p < .01, *** p < .001; cluster robust standard errors in parentheses; additional variables in the models are average aspiration in class, average cognitive ability in class, % *Abitur* aspirations in class, individual cognitive ability, German grade, gender, age, academic parent(s), migration background, % academic parent(s) in class , % migration background in class, school track
Source: CILS4EU (weighted)

Table A.3 Descriptive statistics for respondents excluded from analyses (N=2,087)

		Mean	SD	Min	Max
Cultural heterogeneity		0.50	0.11	0.1	1.0
Average aspiration in class >= *Abitur* (Ref: <*Abitur*)		0.95		0	1
Average cognitive ability in class		18.84	1.69	13.1	22.6
% *Abitur* aspirations in class		60.82	17.50	7.1	96.2
Individual cognitive ability		19.17	3.68	1.0	27.0
German grade:	very good / good	0.30			
	satisfactory	0.47			
	sufficient / poor	0.23			
Female (Ref: male)		0.49		0	1
Age		14.75	0.73	13.0	17.0
Academic parent(s)		0.15		0	1
Migration background		0.50		0	1
% Academic parent(s) in class		10.55	9.65	0.0	75.0
% Migration background in class		40.26	22.10	0.0	95.7
School track:	*Hauptschule*	0.27			
	Realschule	0.42			
	Gesamtschule	0.32			

Source: CILS4EU (unweighted)

Appendix B

Explaining cheating in schools with SAT (Chapter 3)

B.1 Self-control scale

1. I never think about what will happen to me in the future. I never think about what will happen to me in the future.
2. I don't devote much thought and effort to preparing for the future.
3. I often act on the spur of the moment without stopping to think.
4. I easily get bored with things.
5. When I am really angry, other people better stay away from me.
6. I lose my temper pretty easily.
7. Sometimes I will take a risk just for the fun of it.
8. I sometimes find it exciting to do things for which I might get into trouble.

Answer categories: Strongly agree / Mostly agree / Neither agree nor disagree / Mostly disagree / Strongly disagree

B.2 Morality scale

1. Ride a bike through a red light.
2. Skip doing homework (for school).
3. Skip school without an excuse.
4. Lie, disobey or talk back to teachers.
5. Go skateboarding in a place where skateboarding is not allowed.
6. Smoke cigarette.
7. Tease a classmate because of the way he or she dresses.
8. Get drunk with friends on a Friday night.
9. Hit another child who makes a rude comment.
10. Steal a pencil from a classmate.
11. Paint graffiti on a house wall.
12. Smash a street light for fun.
13. Smoke cannabis.
14. Steal a CD from a shop.
15. Break into or try to break into a building to steal something.
16. Annoy another teenager so much that he or she starts crying.
17. Hit a classmate so that he or she bleeds.
18. Pushing a young person so that he or she falls down.

Answer categories: Not bad at all / Not bad / Bad / Very bad