TEENAGE KICKS

THE DIFFERENTIAL DEVELOPMENT OF DRUG USE, DRUNKENNESS, AND CRIMINAL BEHAVIOUR IN EARLY TO MID-ADOLESCENCE

Russell Turner

DEPARTMENT OF SOCIAL WORK

UNIVERSITY OF GOTHENBURG

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Göteborgs universitet/University of Gothenburg

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This thesis is dedicated to four people. My dad, of whom I'd like to think that, were he still with us, he'd have secretly been proud. My mum, who first encouraged me to go to university, whom I'm sure is proud. My daughters, Esther and Betty. May I be a good enough Dad in your teenage years that you have the love, space, and support to continue developing your own wonderful selves.

Abstract

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Author: Russell Turner
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This thesis studies the development of drug use, drunkenness, and criminal behaviour in early to mid-adolescence. Its main aims are to improve knowledge about how and why these three behaviours develop and to contribute towards the development of theory that can have applications in prevention policy and practice.

The thesis comprises four studies. Three of these are empirical studies using data from the Longitudinal Research on Development in Adolescence (LoRDIA) project. A general population, prospective sample of over 1500 adolescents was followed annually from age 13 to 15 (grades 7 to 9). Longitudinal within-person and person-oriented statistical analyses were applied. A fourth, theoretical study, applied principles from Critical Realism both to theories of the development of these behaviours, and also to existing empirical studies, including two from this thesis.

The results of this thesis found greater complexity and heterogeneity than previously known both in how drug use, drunkenness, and criminal behaviour develop, but also in how they relate to each other. For example, drug use and drunkenness showed less stable patterns over time, compared to criminal behaviour. Criminal behaviour also showed greater statistical risk of being followed by later drug use and drunkenness, but not vice versa. The behaviours were found to cluster together in specific ways with a larger group (80%) who abstained, two smaller groups who infrequently engaged either in crime (9%) or mainly in drunkenness and drug use (9%), and a 'severe' 2% who

regularly engaged in all three behaviours. This differential development was also shown to be related to different combinations of explanatory factors.

This thesis challenges and extends existing knowledge concerning the development of drug use, drunkenness, and criminal behaviour in early to mid-adolescence. Drawing on sociological, criminological and psychological theory, a new formulation of the differential development of these behaviours is outlined. The results and conclusions presented in this thesis have implications for the design of prevention policy and practice and for social work with young people.

List of Studies

This thesis is based on the following studies, which are referred to in the text by their Roman numerals.

Study I – Turner, R., Daneback, K. & Skårner, A. (2018). Assessing reciprocal association between drunkenness, drug-use, and delinquency during adolescence: separating within- and between-person effects. *Drug & Alcohol Dependence*, 191, 286-293.

Study II – Turner, R. (forthcoming). Personality, parents or peers? The differential development of teenage drunkenness, drug use, and criminal behaviour: a multi-level exploration using socio-ecological covariates. Manuscript submitted for publication.

Study III – Turner, R., Daneback, K. & Skårner, A. (2020). Explaining different trajectories of adolescent substance use and criminality: a latent transition analysis with socio-ecological explanatory models. *Addictive Behaviors*, 102, 106-145.

Study IV – Turner, R. (forthcoming). Getting real about youth substance use and crime: how 'realistic' theories can improve knowledge and understanding for practice. Manuscript submitted for publication.

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Putting the finishing touches to this thesis, sat on the sofa in my lounge joggers, while much of the world is in lockdown due to the covid-19 virus, there is much to be thankful for. I'm one of the lucky ones. Born in a time and place where schooling was free and free from the interference of bombs or disease, when English university fees were still off the table and grants for students were still available. Parents who supported me to go on and study, even though they had not. I was also lucky enough to be accepted to do a PhD at a Swedish University; a country where education for all is still thankfully free, thanks to a functional tax system and political will.

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Russell Turner
Biskopsgården, April 2020

Contents

1. Introduction

Let me tell you a story of over a thousand teenage lives. Each begins on the cusp of adolescence, just turning 13. Each has its own lead character, with its own unique personality, living in a family or some kind or another, and a school they attend. Most will have some friends with whom they hang out. Some will lead the way. Some will want to be like their friends. We will follow these lives over the course of three years. As they move into their teenage years, we will see that some of these young people try alcohol for the first time. Some will get drunk. Others may try drugs, but others will not. Many will commit some petty crime of some sort or another, like steal from a shop or damage something that isn't theirs. For some, doing these things, getting drunk or stealing something, may give a form of kick, a moment of fun or excitement, perhaps as part of a group. For others, these behaviours may be a form of kick back or recoil from other events that we cannot see close up. Some may continue to get drunk and use drugs, while others will not. Some may also continue committing crime, while many will stop. Which teens will go one way and which will go another? For whom in these teenage years will things go wrong for? And who should we, the adult world, worry about? Each life is unique, each the story of an individual. Yet zooming out from these thousand lives, each on their own way to emerging adulthood, patterns can be discerned. Common themes in development appear. Similar as well as divergent pathways can be seen. In zooming out to see such patterns and themes, we may appear to lose sight of the individuals and miss something of unique plot development and idiosyncratic character arcs. It is however this over-arching story that this thesis will tell, the story of those common themes and divergent pathways of over a thousand teenage lives.[1]

The academic focus of this thesis is on the development of drug use, alcohol intoxication (drunkenness), and criminal behaviour in early to mid-adolescence. In particular, the thesis is concerned with how the development of these behaviours can be better understood. A central task in improving understanding is taking stock of and looking to improve the academic theories that explain how and why these behaviours progress as they do. Thus, this thesis has an ambition to contribute towards theoretical

[1] The exact sample sizes used are described in Chapter 4.

development. Specifically, some of the most prominent theories that explain the development of adolescent substance use and crime will be in focus. Looking to develop theory is more than an academic exercise; it is academic theories that inform policy and practice regarding young people's alcohol and drug use, and criminal behaviour. It is the contention of this thesis that all forms of practice and policy concerning adolescent substance use and criminal behaviour build, either implicitly or explicitly, on an *understanding* of how these behaviours develop in adolescence, and why they develop as they do. Thus improving theories – and developing our understanding – should hopefully provide a possibility for an improved practice.

This thesis will present three pieces of original empirical research and a theoretical study, which together are intended to contribute to furthering understanding of the development of drunkenness, drug use, and criminal behaviour in early to mid-adolescence. Moreover, the thesis will address what the implications of these original studies are for some of the most prominent current theories of the development of these behaviours. Before the main questions for the thesis can be specified, some key concepts and the research background needs to be described.

Key concepts

This section will outline some initial concepts and definitions which will be used throughout this thesis. This is provide some rough guidance at the outset to what is being talked about. Some of these terms will be discussed from a theoretical viewpoint in Chapter 3, or described more technically in the Methodology (Chapter 4 – see section 4.4). This thesis has an ambition to contribute towards theory development, which means that some of these terms will be developed in the Discussion (Chapter 6).

This thesis looks at development in adolescence. Adolescence is typically defined in everyday language as the period between childhood and adulthood (according to the Oxford Advanced Learner's Dictionary (Hornby, 1995)). However, such definitions of childhood and adulthood have shifted historically and also differ from culture to culture (Aries, 1962). This thesis adopts the idea of adolescence as a psychosocial period spanning the years 13-18. At this point in the text, the term 'psychosocial' is used to

denote that the focus is predominantly on the psychological and social changes that occur during adolescence, rather than the physical changes. As such, the terms 'adolescent', 'teenager', and 'young person' are used synonymously. Whilst puberty can onset earlier than the teenage years, this is outside the timeframe, but also the subject area, of this thesis. Specifically, this thesis looks at the early to mid-period of adolescence, defined here as age 13 to 15. Thus, the concept of 'development' also relates to this time period. The concept of development concerns the growth or trajectory of behaviours, such as getting drunk or taking drugs, or committing crime. Thus, 'development' does not necessarily take a moral position on how these behaviours change or stay the same. The interest is in what patterns exist. Hence, terms such as 'development', 'growth', trajectory', and 'outcome pattern' are used in a largely synonymous way.

This thesis also has three behaviours in focus: getting drunk, drug use, and criminal behaviour. 'Getting drunk' and 'drunkenness' are used synonymously to refer to intoxication through alcohol. The experience of being drunk may well differ between people and between observers (see Winograd, Steinly, & Sher, 2016; Winograd et al., 2017) and the amount of alcohol consumed to reach subjective drunkenness is also likely to differ. This thesis uses a subjective definition of 'being drunk', thus relying on a normative, social understanding of the term, rather than a set amount of alcohol consumed.

Drug use is defined as the use of psychoactive substances that are prohibited by law. Thus, legally produced, i.e. prescription drugs, as well as illegally produced drugs, are included in this definition. No distinction is made between 'hard', 'soft', or 'recreational' types of drug or drug use or motive (see respectively Lee & Antin, 2012; Boys, Marsden & Strang, 2001). However, given the focus of this thesis on early to mid-adolescence, it should be noted that drug use, if any, in this period tends to concern use of drugs such as cannabis and to lesser extents amphetamine and ecstasy (EMCDDA, 2018)[2]. It is important to distinguish the term 'drug use' from 'drug abuse', 'dependence', or 'addiction'. In a Swedish legal context, any drug use is viewed as drug abuse, in that the use of the drug is prohibited. However, this thesis does not adopt this

[2] European Monitoring Centre for Drugs and Drug Abuse.

definition for several reasons. Firstly, much of adolescent drug use would not fulfil the criteria for 'drug dependence' or 'addiction', even though these criteria can differ between diagnostic classifications e.g. ICD-10 (World Health Organisation, 2004). Further, there is a risk that responses to adolescent drug use are disproportionate if any use is viewed as drug abuse or addiction, in that responses should be tailored to an assessment of problems (EMCDDA, 2018). At certain points in the text, the term 'substance use' is also used for the sake of simplicity to refer to both drunkenness and drug use.

Criminal behaviour is normally defined as any act that contravenes the laws of a society (Farrington, 2005). In the scope of this thesis, however, the focus is on a limited set of criminal acts in which teenagers are more likely to engage, such as vandalism, different kinds of theft, minor fraud, and minor aggression (see Ring, 2013). Drug use, although illegal in Sweden, is not included in the definition to avoid confounding comparison between these behaviours.[3]

1.1 Research background

This section will describe the research background to this thesis and the main research problem that this thesis will answer. In some ways, this section becomes a motivation for the selection of the thesis topic by treading a traditional route of identifying gaps in the literature, thus positioning the contribution that this research will make. And the first part of this section will indeed tread this familiar path. A research problem, however, as opposed to a practical problem, involves both identifying gaps in the existing research literature – what don't we know? – but also problems with existing research, i.e. what do we know that might need rethinking or reviewing?

There is already a vast literature on youth substance use and crime (see e.g. Hawkins, Catalano & Miller, 1992; Rhodes et al., 2003; Farrington, Gaffney & Ttofi, 2017; Biglan & Ryan, 2019) with nearly a 100 years of study (see e.g. Thrasher, 1927). It is beyond the scope of this section to review comprehensively such an immense knowledge base.

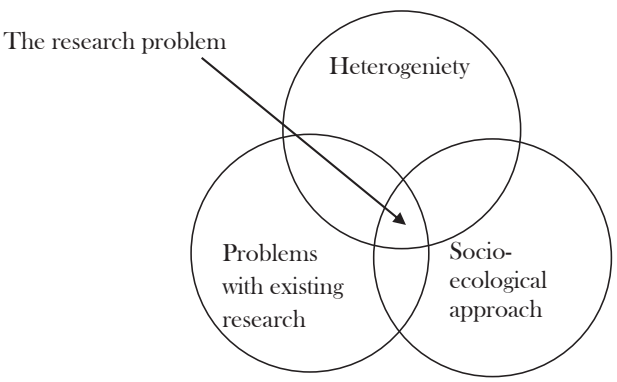
[3] In Sweden, all non-medical use, handling, or possession of illegal drugs, including own use and presence within the body, has been criminalised since 1988.

Rather, the intention in this section is to home in on some specific gaps in the literature where interesting questions remain, as well as highlight some issues with existing knowledge that may be problematic. Thus, in terms of what we don't know, the gaps in the literature are seen to lie in the overlap between two themes:

- Heterogeneity in early development of substance use and criminal behaviour;
- Explaining development using a socio-ecological model.

These themes represent two traditions in the literature that have seldom been brought together. Much is known under both of these themes but combining these perspectives reveals a gap in the literature. These two sections will be outlined below but they will also be supplemented by a third theme of 'Potential problems with the existing literature'. Whereas a gap in the research literature usually relates to something that is not known, a problem with existing research relates to something we do know, but which may require another look from a different methodological or meta-theoretical approach. Together, these three themes provide the research background for the over-arching aim of this thesis, as well as the specific questions for each of the four studies (see section 1.3). Figure 1 depicts how these three themes form the research topic.

Figure 1 – Overview of the research problem



Before describing these three themes in more detail, a descriptive outline of the three behaviours in question will be given. In other words, before turning to the background to the research problem, we will look at the size of 'the problem': how many teenagers

are getting drunk, taking drugs, and committing crime and how have these trends changed in recent years?

Recent trends in adolescent drunkenness, drug use, and criminal behaviour

The teenage years are the period in life where most people first use alcohol or drugs, or first commit some kind of criminal act. In Europe, almost half of all children have by age 13 tried alcohol, though this varies considerably by country from 72% in Georgia to 14% in Iceland (ESPAD[4], 2016). The proportion of 13-years who have ever been drunk is however 8% and there is more uniformity across Europe with proportions ranging between 2% and 22% (ESPAD, 2016). In Sweden, 26% of 13-year olds have tried alcohol and 6% have been drunk (ESPAD, 2016). By age 15, 39% of Swedish adolescents have drunk alcohol within the past year, and more girls than boys – 43% compared to 36% – have drunk alcohol (Zetterqvist, 2018). In terms of alcohol intoxication (drunkenness), there are no directly comparable figures for Swedish youth, but the proportion of adolescents engaging in intensive consumption[5], sometimes called binge-drinking, at least once a month is 16% for 15-year olds (Zetterqvist, 2018). Across Europe, including Sweden, however, trends in alcohol use and alcohol intoxication among teenagers have been steadily declining since the early 2000s (ESPAD, 2016).

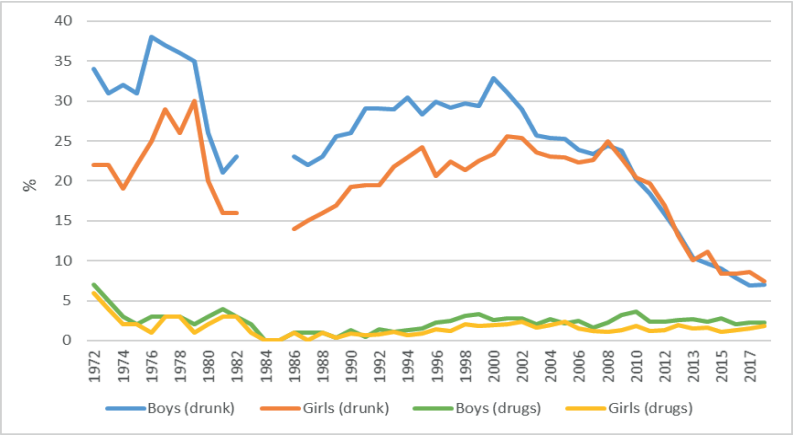
In terms of drug use, only 3% of 13-year olds report that they have tried drugs, with a range between 8% in Monaco and 1% in a number of countries, including Sweden (ESPAD, 2016). By age 15, 18% of European adolescents have tried drugs with 16% having tried cannabis and 2% having tried ecstasy (ESPAD, 2016). Average usage rates are lower in Sweden with 8% of 15-year olds having tried any drug, and similarly this is primarily cannabis use (ESPAD, 2016; Zetterqvist, 2018). Looking at past month usage, 2% of 15-year olds have used drugs. In contrast to alcohol, the proportions of adolescents using drugs has been fairly stable since the early 1990s (Zetterqvist, 2018). Figure 2 shows the trends since 1972 for proportions of 15-year olds who during the

[4] European School Survey Project on Alcohol and Other Drugs.

[5] Intensive consumption is defined in this case as drinking in one sitting at least four cans of strong beer or cider or one bottle of wine. As this measure relates to a minimum of monthly intensive consumption, the rates for drunkenness during the past 12 months are likely to be higher.

past month intensively consumed alcohol (as a measure of drunkenness) and who used illegal drugs (data source: table appendix, Zetterqvist, 2018).

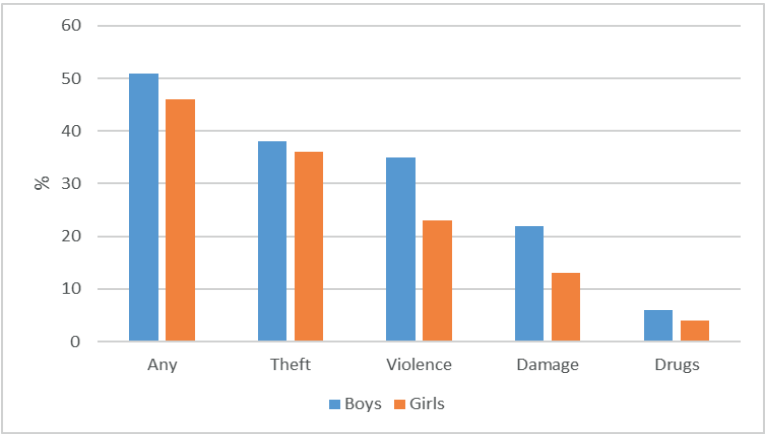
Figure 2 – Trends of past month drunkenness and drug use among Swedish 15-year olds 1972-2018



Regarding adolescent criminal behaviour, sometimes referred to as juvenile delinquency, the International Self-Report Delinquency Study (ISDR) has shown that self-reported rates for 12-15 year olds differ markedly between European countries with prevalence rates for any self-reported criminal activity between 40% in Ireland and 15% in Portugal (Enzmann et al., 2010). According to the ISRD measure, around 20% of Swedish adolescents have engaged in criminal activity at some point. However, the Swedish National Council for Crime Prevention (Brå), in their own school-based survey of 15-year olds, report that 49% of adolescents have committed at least one crime in the past year (Gavell Frenzell & Westerberg, 2018). The higher proportion may be explained by the older age-group in the Brå study. The proportion of boys reporting any crime in the past year is 51%, compared to 46% for girls. The type of crimes committed are highest for theft (37%), violence (29%), damage (18%), then drug use (5%) (Gavell Frenzell & Westerberg, 2018). As these rates are self-reported past year prevalence, the amount of criminal behaviour during the year may be obscured. Looking at the figures for theft, around 20% of 15-year olds have stolen something 1-2 times in the past year, whereas around 10% have done this 3-5 times, with a small remainder committing theft six or more times within the year. This suggests that

although low-level crime may be common in adolescence, this is for most teenagers not a frequent occurrence. In terms of trends over time, generally speaking there has been a steady decrease in juvenile crime across western countries, including Sweden (see Farrell, Tilley, & Tseloni, 2014). Figure 3 shows the proportion of Swedish 15-year olds who reported that they have committed crime in the past year, by crime type.

Figure 3 – Past-year prevalence of crime (self-report) by Swedish 15 year-olds



To some degree, engaging in criminal acts and trying alcohol can be seen as normative behaviour for adolescents, whereas getting drunk and trying drugs although less normative, is not uncommon. What these figures cannot tell us is which adolescents will continue or escalate these behaviours. Whilst adults who have developed problems with alcohol, drugs, or criminal behaviour often report that these behaviours started in adolescence (Schuckit et al., 1998; Strashny, 2013; World Drug Report, 2018; Bacon, Paternoster & Brame, 2009), this does not necessarily mean that all cases of adolescent alcohol and drug use or criminal behaviour result in addiction or a life of crime. Reviews of the epidemiological research focusing on the harms or addictiveness of alcohol and drugs reveal considerable gaps in knowledge, with the natural history of drug dependence being poorly studied (Degenhardt & Hall, 2012). For example, Degenhardt & Hall's (2012) review put the risk of addiction at 9% for cannabis, 11% for amphetamines, and 16% for cocaine. Yet there is little precision about why some people and not others develop problems. Systematic reviews that have tried to map out the psychological and social harms arising from young people's use of alcohol and drugs, such as Macleod et al. (2004), found that the available evidence does not support

a strong causal connection between drug use and psychosocial harm. Rather, it is likely that psychosocial problems and drug use have common antecedents, with *problematic* drug use being a marker, rather than a cause, of a life trajectory involving adverse outcomes (Macleod et al., 2004). In terms of criminal behaviour, a number of studies suggest that most misdemeanours are a one-off or limited to adolescence (see Moffitt, 2018). Rather, low-level criminal acts are so common in adolescence that this behaviour may be viewed as normative, rather than representing a deviant or worrisome pattern. However, it may be a kind of fallacy in thinking – of converse reasoning[6] – that sits behind a concern about teenagers' substance use and crime: out of those young people engaging in these behaviours, who will develop problems? Which ones should we worry about?

The behaviours in focus in this thesis – drunkenness, drug use, and criminal behaviour – could also be seen as just one aspect of teenage lives. There is a myriad of things that teenagers do – from skateboarding, to arguing with parents, to studying hard, to doing sports, to getting arrested by the police, to learning musical instruments, to drinking beers on a sunny afternoon in the park with friends, to falling in love, to name a few at random. Zooming out from the intricacies of individual lives – and just focusing on these three behaviours – may also run the risk of presenting a negative picture of teenage lives. While teens, again as a *homogenous* group, may appear to drink alcohol or take illegal drugs at higher rates compared to other groups in society (Casey et al., 2008), such group-level statistics miss many divergent individual trajectories (Males, 2009, 2010). In turn, this may obscure the point that there may be much variation in these behaviours with many young people doing none of these things or engaging in these behaviours in a variety of ways (Sercombe, 2014). When it comes to the question of which teenagers to worry about, a hypothetical concerned parent, teacher or social worker may not want to 'wait and see', yet may neither wish to 'jump the gun' and respond overly harshly to what may be normative development. Thus understanding what different early developmental patterns in these behaviours exist and what factors might be associated with them becomes a central part of the question of which

[6] Also known as the fallacy of affirming the consequent, in which the error in reasoning is, e.g.: if people with addiction problems started using in their teens, therefore teen use of alcohol/drugs results in addiction.

teenagers we should we worry about. These two aspects – heterogeneity in and explanations of development – will be discussed in turn.

Heterogeneity in early development of substance use and criminal behaviour

A number of research studies have demonstrated that there may be different patterns in the development of adolescent substance use and/or criminal behaviour. Moffitt's (1993) Dual Taxonomy of 'antisocial behaviour' originally claimed that there are least three patterns – those who largely abstain, those who behaviour is limited to adolescence, and those whose behaviours will continue throughout life, the life-course persistent offender. More recently, in a review of research on the Dual Taxonomy, Moffitt (2018) argued for the continued validity of these three main categories, even though other empirical work has however found up to six distinct developmental trajectories of 'antisocial' behaviour (see Piquero, 2007). Thornberry (2005) similarly posited eight different pathways of 'offending behaviour', including low-level patterns, intermittent and transitional patterns, along with persistent high-level offenders. The theoretical explanations for these different patterns will be discussed more closely in Chapter 3. It suffices to say here that although these findings support the idea of different trajectories in development, these studies tend to use a composite or compound term for the outcome behaviour, such as 'antisocial' behaviour. This potentially conflates alcohol and drug use with criminal acts, such as theft and damage. This means that we do not know how drunkenness, drug use, and criminal behaviour actually relate to each other during adolescent development. Moreover, the study of any differences within but also between the development of these behaviours is lacking or is at best vague as to which actual behaviours are in focus.

Another reason for looking at these behaviours separately, rather than as a compound outcome term, is that there is some evidence that it may be useful to analyse drunkenness, rather than alcohol use *per se*, separately from use of illegal drugs. For example, Hunter et al. (2014) found a relationship between adolescent criminal behaviours and *heavy* drinking, but not with marijuana use or alcohol use. There is also a growing body of literature that suggests that early drunkenness, rather than just early alcohol use, is a better predictor of later psychosocial developmental problems (see

Enstad et al., 2017). Yet few empirical studies have systematically examined the relationships within and over time between drunkenness, use of illegal drugs, and criminal behaviour. Of particular relevance both for theory and practice, is to examine potential patterns of heterogeneity in these behaviours, for example, do some teenagers just get drunk now and again, and do some develop a pattern that escalates? Additionally, little is known about how drunkenness may be differentially linked with drug use and criminal behaviour during early development, e.g. does one behaviour appear to lead to another, and if so, in what order, and at what points of development?

Studies on the development of substance use have shown a number of different usage patterns with non-, light, and heavy drinking for alcohol (Jackson & Schulenberg, 2013) and varying combinations of alcohol and illicit drugs (Baggio et al., 2014; Choi et al., 2018). Looking at developmental patterns, trajectories such as 'experimenters' versus 'multiusers' (Tomczyk, Hanewinkel, & Isensee, 2015), as well as 'former', 'current' and 'opportunistic' users (Aldridge, Measham, & Williams, 2011) have been found. Studies exploring how behaviours, such as substance use and criminality, group or cluster within individuals have found diverse combinations such as criminal-only, criminal-&-truancy, criminal-&-substance use, and multi-problems (Sundell et al., 2017). It is unclear, however, how these component behaviours relate to or may trigger each other during development (Mason et al., 2007; D'Amico et al., 2008, Merrin et al., 2016). In other words, we do not how drunkenness, drug use, and criminal behaviour cluster developmentally. Understanding the initial development of these behaviours thus requires paying attention to the different ways the behaviours may group together and to the potentially different patterns of usage/engagement that may unfold over time. Such questions lend themselves well to empirical investigation; it is a matter of which growth patterns can be discerned for these behaviours and whether they are similar and/or overlap, which is primarily a matter of description rather than explanation. The question of which teenagers to worry about becomes one of which patterns or developmental trajectories are of most concern and in particular how such patterns can be identified.

Explaining development using a socio-ecological model

Across the health and social sciences, the work of identifying developmental trajectories or even later outcomes often falls within a risk factor model (Susser, 1977; Coie et al., 1993). This approach is highly prominent not just in science, but also in the formation of policy, practice and the allocation of public resources (Rhodes et al., 2003). In short, the risk factor approach involves identifying the different factors that may lead to, or are associated with a heightened probability of, the outcome behaviour. At its heart, there is a presumption of causal and not simply correlated factors. If causal factors can be identified, then addressing these should prevent or minimise the outcome behaviour. If factors are correlated, but not necessarily causal, then these may only be used to identify a person or group 'at risk' of developing the outcome behaviour. A correlate of an outcome behaviour cannot specify *what* should be done, i.e. the target of intervention, only *who* may benefit. Establishing causality, however, is empirically difficult but also philosophically contentious, particularly in the social sciences (see Pearl, 2000; Hedström, 2005; Pawson, 2013).

In consequence, there is a considerable literature on correlates, rather than causes, of adolescent substance use and criminal behaviour (see Hawkins, Catalano & Miller, 1992; Rhodes et al., 2003; Farrington, Gaffney & Ttofi, 2017; Biglan & Ryan, 2019). Given the enormity of the literature, risk factor research is often categorised by a socio-ecological model of development (e.g. Bronfenbrenner, 1979; Sameroff, 2010). This model of or perspective on development will be discussed in more detail in Chapter 3, but in brief it views development as arising in part from interaction between different socio-ecological domains in a person's life, including micro-, meso- and macro-levels. The micro-level often includes individuals and their characteristics and circumstances, for example, the family and peers. The meso-level includes school, local organisations, and the local community and social conditions. The macro-level comprises socio-cultural factors, such as legal and geo-political systems, norms and moral codes, and socio-economic conditions such as employment.

Much of the risk factor literature has however focused on the micro-level (Rhodes et al., 2003). Micro-level explanatory factors for the development of substance use and/or criminal behaviour have been shown to include childhood disposition and attachment to parents (Vitaro, Brendgen, & Tremblay, 2000; Bahr, Hoffmann, & Yang, 2005),

personality and temperament (Moffitt & Caspi, 2001; Hartman et al., 2013; DeLisi & Vaughn, 2014; Becht et al., 2016), genetic differences (Connolly et al., 2015; Samek et al., 2017), parent-child relations (Stattin & Kerr, 2000; Hoeve et al., 2009; Ryan, Jorn, & Lubman, 2010; Keijsers et al., 2012; Visser et al., 2012), a peer effect (see Haynie & Osgood, 2005; Monahan et al., 2013; Hoeben et al., 2016) and in particular a peer election effect (Snijders & Baerveldt, 2003; Burk, Steglich, & Snijders, 2007; Knecht et al., 2010; Osgood, Feinberg, & Ragan, 2015), and both relative and absolute measures of poverty (Gauffin et al., 2013; Rekker et al., 2015; Nieuwenhuis et al., 2017). Some studies have also found interactions between these factors, e.g. parent-child relations and socio-economic status (Rekker et al., 2017), temperament and parent-child relations (Kapetanovic et al., 2019), and family climate and family income (Goldstein, Davis-Kean, & Eccles, 2005). This draws attention to the complex ways that explanatory factors at different aspects of the micro-system may interact. If risk factors can help home in on identifying *which* teens we should be worrying about, then the range of possible risk factors – of which there are many to choose from – need to weighed up against each. In other words, which are comparatively the best risk micro-level factors to use in practice?

Many studies of risk factor correlates, however, tend to focus on one aspect or domain of the micro-environment, such as personality, family, or friends. Such a 'uni-domainal' approach departs from a socio-ecological model of development, possible neglecting to test out which risk factors are *comparatively* the strongest or best to focus on in practice. Moreover, a uni-domainal approach may inflate the importance of that particular domain; without indicators from a range of relevant micro-factors, it becomes difficult to assess the relative importance of different factors. Additionally, uni-domainal designs potentially result in a simplified account of adolescent development. Hence, whilst much is known about the range of micro-environment risk factor correlates that may be important, we know less about their *relative* strength in explaining or identifying developmental trajectories. A further issue concerns meso- and macro-level factors. For example, the peer selection effect is likely to be influenced by the local neighbourhood conditions. Osgood & Anderson (2004) found that clustering within the local community of high numbers of youth engaged in 'unstructured socialising' created, in their terms, an emergent effect. That is, an effect of the meso-level, over and above individual- or micro-level effects, on rates of criminal behaviour. Additionally, levels of

substance use have been shown to differ by school type (Tomczyk, Hanewinkel, & Isensee, 2015), as well as by community types (Hays, Hays, & Mulhall, 2003). This may mean that nested social contexts, e.g. schools in communities, may have differential effects on levels of substance use and criminal behaviour over and above those of micro-level factors. Again, we do not know how meso-level factors such as school and local community affect drunkenness, drug use, and criminal behaviour separately.

In terms of the macro-level, Rhodes et al. (2003) noted that "there is a marked absence of emphasis on the macro-environment in North American risk factors research" (p. 317). The macro-environment's influence on development can be important in a number of ways, providing both socio-cultural context but also socio-economic conditions. For example, the UK saw a significant rise in adolescent drug use during the 1990s, which some commentators theorised as a normalisation process (Parker et al., 1998).[7] Although Sweden experienced an increase in adolescent drug use during the same period, this did not reach the same levels as the UK and there is debate about whether this represents a normalisation (see Sznitman et al., 2013). Such socio-cultural contexts can be viewed to play a role in forming choices and opportunities for young people's substance use (Parker, Aldridge & Measham, 1998). Sweden on the other hand can be seen as a prosperous nation among western countries, in terms of low unemployment and a generous welfare state. Macro-economic conditions, such as an economic downturn, during infancy have also been shown to affect development of later adolescent 'problem behaviours' (Ramanathan, Balasubramanian & Krishnadas, 2013).

Thus, it might be important for research and theory to pay attention to nested meso-level contexts as well as macro-environmental conditions. In reviewing the research on both micro- and macro-level factors, Rhodes et al. (2003) argue that the emphasis on micro-factors has led to an unbalanced focus on the 'risk individual' or risk group, as opposed to wider 'risk environments'. The concept of 'risk environment' would re-frame to some degree the question of which risk factors should we be concerned with to one of which risk environments we should be worrying about. Hence, improving our understanding of why adolescent drunkenness, drug use, and criminal behaviour

[7] The normalisation thesis is discussed in more detail in Chapter 3.

develops the way that it does, may mean paying attention theoretically to a range of socio-ecological factors. Yet while some risk factor research has investigated in more than one socio-ecological domain simultaneously, this is often done at the expense of assessing heterogeneity in development. Likewise, studies of heterogeneity in development tend to lack a focus on socio-ecological explanations of development. Thus, knowledge is lacking on the different socio-ecological factors that contribute to different kinds of developmental trajectories.

Potential problems with existing research: methodology and meta-theory

While the combination of the two themes above – heterogeneity and explaining development – identifies a gap in the literature, there are potentially some problems with extant empirical studies. These problems are of a methodological and conceptual, or even meta-theoretical, nature.

As noted in the previous section, there is vast literature on risk factor correlates. Many of these studies used between-person analysis methods, rather than within-person methods. In short, between-person methods can tell us that one group correlates on some measure with another group, e.g. those who commit crime may correlate with those also use drugs. Such group-level statistics may mask developmental processes going on at the individual, i.e. within-person, level, e.g. committing crime may not *lead* to the use of drugs, or vice versa at the individual level. Farrington (2005) argued that a key weakness with the risk factor approach is its lack of focus on within-person change over time, which is necessary for theorising causality. Not only do within-person methods require longitudinal data, but also require the application of statistical techniques, such as multi-level or random-intercept modelling (see also Curran and Bauer, 2011; Hamaker et al., 2015). A further methodological problem with some existing studies is a variable-orientation, rather than a person-orientation. Whilst it is important to know how variables may be correlated, variable-orientated approaches may neglect to establish how variables correlate or cluster *within* individuals. Again, this may obscure the developmental processes occurring in individuals. In recent years, a number of person-oriented approaches have been advanced such as latent class analysis (see Collins & Lanza, 2010). Thus, while much is known about risk factor correlates,

there is a need to apply either within-person or person-oriented analysis to develop knowledge further.

A further problem with establishing causality is one of a meta-theoretical or philosophical nature. In a review of systematic reviews of the risk factors literature, Farrington, Gaffney & Ttofi (2017) concluded that more longitudinal work is needed and, in particular, that knowledge of causal risk factors should be advanced. This raises the question of how knowledge of causality is best gained and what makes one theory better than another? Wikström (2005) pointed out that while within-person change helps us establish *empirically* the grounds for causal processes, we also need to *theoretically* identify the causal mechanism. A good (or better) theory thus must specify and explain *why* the within-person change has occurred. Wikström (2005), along with many other theorists (e.g. Bhaskar, 1979; Pawson & Tilley, 1997; Hedström, 2005), called for more attention to specifying causal mechanisms and establishing how these operate in, or respond to, different social settings. A lack of knowledge about causal mechanisms begs a philosophical question about causality in the social world is to be theorised and studied. In the traditional positivist model of science, causality tends to interpreted as something that must be observable, meaning that theorising causal mechanisms also tends to stay at a 'surface' level of observation (Bhaskar, 1975). An alternative philosophical ground may thus be needed that can use empirical results that build on correlations but go 'beneath' them, to be able to begin theoretical work about causal processes. Moreover, preliminary study may be required to establish how empirical, quantitative, within-person findings can be used within such a philosophical framework to help support causal theorising.

A further meta-theoretical or philosophical issue is the model of the person – or in the case of this thesis, of the adolescent – that is used, perhaps implicitly, in a number of research studies. For example, it was noted above that uni-domainal studies may neglect the complexity of adolescent lives and that risk factor research is often individualistic or focused on the individual adolescent's micro-system. This can be seen as stemming in part from a positivist model of the person as a context-free unit, e.g. our behaviour is the product of an enclosed, atomised self (see e.g. Harré & Secord, 1972; Tolman, 1992). This might mean that the role of broader, social, cultural, and structural forces may be being neglected in risk factor and developmental research. Additionally, the risk

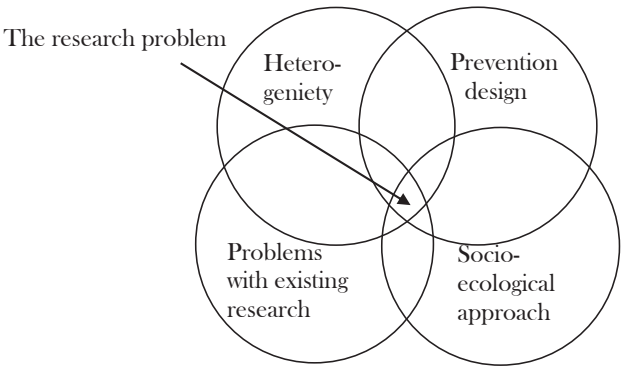
factors approach can also be viewed as a 'push factors' approach; what we do and how we behave is the more or less deterministic result of risk factors pushing us into action, as opposed to emotional or cognitive *reasons for* acting. A deterministic or push factors model of human behaviour may seem at odds for many people who experience that there is some element of choice or free will, even if this is constrained by time, money, and so on. Such determinist models of the person also have been argued to stem from a positivist philosophical position (see Henriques et al., 1984; Archer, 2000). If the conceptual model of the person does not allow for notions of agency, even if limited by structural possibilities, then theorising about why adolescents make the choices they do potentially may become truncated. In consequence, knowledge may be required of adolescent development that attempts to use a model of the person that has theoretical room for adolescent agency, without negating the role of broader social structures and settings, alongside individual and micro-level factors.

A final meta-theoretical or philosophical issue concerns how concepts in risk factor theories are constructed and motivated. The above discussion on heterogeneity highlighted that a number of influential studies used a composite or compound term for 'antisocial' or 'problem' behaviour. On the one hand, there is an empirical need to investigate how such behaviours group together and develop using, for example, within-person methods. On the other hand, however, there is a theoretical need to examine the adequacy of such compound terms, in particular in relation to how differing cultural values and morals shape scientific concepts. Again, this begs the philosophical question of how concepts in theories should be developed and evaluated. Thus, study is required of how philosophical principles can be applied to existing risk factor theories to examine their conceptual adequacy, particularly in terms of moral and value frameworks, in order to take stock of where further work is needed.

1.2 Prevention design and practice

This thesis intends on making a contribution towards theory that has some bearing on practice. Moreover, the question of which teenagers, developmental trajectories, or risk environments we should worry about underpins the way prevention is, or could be, designed and delivered. Whilst the findings of this thesis cannot directly address methods and procedures in practice, it is nevertheless important to establish links between the gaps in and problems with the literature identified thus far to the prevention practice literature. Thus figure 1 can be extended with a further theme concerning prevention research – see figure 4.

Figure 4 – Overview of the research problem, version 2



The risk factors approach has been described as the cornerstone of prevention science for programmes that address a range of developmental issues, including substance use and criminal behaviour (Coie et al., 1993). Prevention programmes both use risk factors as markers of who is at risk and thus who should be targeted or selected for preventative work, but also as a site or target of intervention. The latter should only be in the case of presumed *causal* risk factors, with the logic being that if a causal component in development of the behaviour is removed or ameliorated, then better outcomes will ensue (Coie et al., 1993). In the case of heterogeneity in development, prevention design would need to understand and theorise *differential* trajectories and the potentially different causal processes behind these. If an adverse trajectory is to be subject of a prevention effort, then knowledge is needed on the developmental timing,

i.e. at what age does the trajectory begin or escalate? In the case of identifying developmental trajectories, a key principle of prevention science is addressing risk factors before the problem begins, but also addressing the range of factors across different socio-ecological domains (Coie et al., 1993). Hence, the large bank of studies that use a uni-domainal approach potentially results in prevention designs that similarly focus on just one area in a young person's life, neglecting the complex reality of adolescent lives. As mentioned above, the risk factor approach in the North America literature often focuses on the micro-level at the expense of meso- and macro-factors (Rhodes et al., 2003). The upshot for prevention practice may be that the developmental theories that underpin practice place causation at the micro-level. This would neglect contextual factors and thus prevention design would focus efforts on changing individuals as though they are context-free beings.

Since the advent of prevention science in the early 1990s, a considerable number of prevention programmes for youth 'risk behaviours'[8] have been designed, trialled, and evaluated (see Catalano et al., 2004; Hale et al., 2014; MacArthur et al., 2018). Many such prevention programmes are pitched at the universal level, i.e. a programme aimed at all adolescents regardless of specific risk or need, and many were designed for and trialled in North America, yet have had further widespread to, for example Europe (MacArthur et al., 2018). Whilst this rich history of programme evaluation has contributed a great deal to knowledge about prevention design and delivery, debate remains about the effectiveness of universal preventions programmes (Gandhi et al., 2007). A Cochrane systematic review of prevention programmes for adolescent 'risk' behaviours found mixed results, with support only for school-based universal programmes concerning reduced alcohol use, but not necessarily drunkenness (MacArthur et al., 2018). While some programmes had more promising results for reducing drug use and criminal behaviour, results were also mixed with some programmes having an adverse effect (MacArthur et al., 2018). Individual- and family-level universal and selective programmes tended to have little to no effect, though the evidence in general was deemed weaker for such programmes (MacArthur et al., 2018). Other meta-analyses and systematic reviews of evaluations of prevention programmes

[8] 'Risk behaviour' is used somewhat differently by different authors and different programmes, but often refers to alcohol use, drug, criminal behaviour, and sometimes even sexual behaviour. This term will be discussed in Chapter 3.

have also shown mixed results (see Lemstra et al., 2010 and Faggiano et al., 2014). Evaluations of individual programmes, e.g. Project ALERT (see Ringwalt et al., 2010; Clark et al., 2011), Project CHOICE (see D'Amico et al., 2012), Unplugged (see Vigna-Taglianti et al., 2014), Scared Straight (see Petrosino et al., 2013) and Communities That Care (see Hawkins et al., 2009) also demonstrate poor results with even the better-performing programmes showing mixed findings in terms of their effect on lowering substance use or criminal behaviour.

Many of these programmes have a risk factors approach (e.g. Hawkins et al., 1992) as a common theoretical base, though it at times unclear what theory of behavioural development is used. Making the link between the underpinning theory and the resulting effect becomes difficult. In a systematic review of universal school-based programmes, Porath-Waller et al. (2010), for example, found better results for programmes that were based on a mix of theoretical approaches, rather than those that exclusively adopted a social learning model. They suggested that research needs to look more closely at theoretical models underpinning prevention programmes and how such theories relate to the causal mechanisms driving changes in adolescent behaviours. Similarly, the Swedish agency for health technology assessment and assessment of social services, SBU, concluded in a systematic review of the evidence on prevention programmes that new approaches need to be designed using *other theories* than those that underpin existing programmes (SBU, 2015). This perhaps highlights the need to take stock of the existing theories on which prevention policy and practice with youth substance use and criminal behaviour is based. Building on some of the arguments in section 1.1, it could also be claimed that such theorising needs to be grounded in well-designed longitudinal studies, using appropriate methods and a clear philosophical framework.

In Sweden, prevention practice concerning substance use is governed at a national level by the *Alkohol, Narkotika, Doping & Tobak* (ANDT) strategy (Regeringens skrivelse 2015/16:86) and in terms of criminal behaviour, which includes all and any use of illicit drugs as well as drunkenness, by the Swedish Criminal and Penal Code (*Brottsbalken*). The ANDT strategy encompasses both Sweden's zero tolerance approach towards drug use as well as a focus on reducing the debut age for alcohol as a preventative measure. The strategy does not indicate any specific prevention programmes to do this, but

rather focuses on the 'health-promoting school', dissemination and application of preventative work on cannabis, and regulation and oversight of advertising of and exposure to alcohol. It is difficult to pin down just what the 'health-promoting school' and the preventative work on cannabis means in practice. Rather, the work of prevention design and implementation appears to be devolved to the local level; in Sweden local councils are responsible for schools, social services, and youth leisure services. Co-ordination between these agencies at the local-level often means home-grown methods, built from a mix of generic skills and consensus-building approaches, rather than explicitly forming content based on the scientific literature (Turner, Jidetoft & Nilsson, 2015; Forkby & Turner, 2016). Moreover, local-level models, such as SSPF[9], work mainly with selective and indicated intervention, i.e. identifying risk groups or individuals who have already developed the behaviours in question, which potentially leaves the prevention aspect of practice under-developed. Sahlin (1999), however, made the point that the development, success, and use of prevention models cannot be explained by their evidence, rationality, or whether they 'do good'. Rather, she argues drawing on cases from Sweden, the models that become favoured are those that best align with the state's current social and economic ideology.

At the individual level, there is little research on how cases of adolescent drunkenness, drug use, or criminal behaviour are handled in practice, for example by schools or social services. The age of criminal responsibility in Sweden is 15, so strictly speaking all criminal behaviour, including drug use, by adolescents under 15 is not punishable under criminal law. Instead, a police report is sent to social services, where an initial assessment is made of whether the adolescent and/or the family need support from social services. Schools can also make reports directly to social services for an initial assessment. Interviews with social workers revealed that the initial assessment is often based on a risk and protective factors model (Jarl, Holmberg, & Öberg, 2008). This assessment is then used to identify areas, mostly likely micro-level factors, on which support can be offered to the family. The acceptance of support is however voluntary and consent must be given by the parents or guardians. Often, the initial assessment, including a meeting with the adolescent and parents present, is seen by social workers as sufficient (Jarl, Holmberg, & Öberg, 2008). The meeting itself is viewed as

[9] A multi-agency approach to working with youth at risk of substance use and crime, involving schools, social services, the police, and youth work.

preventative of further problems, even though there is no sound empirical evidence to support this (Jarl, Holmberg, & Öberg, 2008). In more serious cases, social services can apply to the local Administrative Court to send the adolescent to a special residential home, according to the Care of Young Persons (Special Provisions) Act (LVU)[10]. In ordinary circumstances following an initial assessment, further support – if accepted by the parents – can take the form of individual or family therapy sessions, home-grown programmes for young offenders with an information or scare-tactics focus, multi-agent network meetings, including support from specialist youth drug misuse units (Jarl, Holmberg, & Öberg, 2008). A recent systematic review of psychosocial programmes and methods used by social services, and child and adolescent psychiatric services, suggested that a large number of different programmes are in use, many of which lack scientific evidence of their effectiveness (SBU, 2020). Whilst lack of evidence does not mean that these programmes are ineffective, it reminds us of the need for prevention programme design to be underpinned by adequate theories, e.g. of development trajectories and of causal mechanisms.

1.3 Key questions for the thesis

The preceding sections introduced the research background to the key questions for this thesis. Two main themes in the existing research were highlighted where gaps exist: heterogeneity in development of substance use and criminal behaviour; and the socio-ecological approach to explaining development. This raised the need for the study of how drunkenness, drug use, and criminal behaviour relate to each other during early adolescent development. Additionally, heterogeneity in the development of these behaviours needs to be examined, using a socio-ecological explanatory model in order to compare the *relative* strength of different risk factors. In particular, person-oriented methods are also required to understand how these behaviours might cluster differently and developmentally in young people. Again, a socio-ecological model would need to be applied to understand the relative strength of different explanatory factors for different developmental pathways. A further theme concerning potential methodological and meta-theoretical problems with the previous literature was

[10] *Lagen med särskilda bestämmelser om vård av unga.*

highlighted. Methodologically, within-person or person-oriented methods are required to contribute towards developing *causal* explanations. However, causal accounts building on such data need to be explored in new philosophical frameworks that pay attention to conceptual adequacy and the role of both structure and agency. A fourth theme of potential gaps in the prevention literature was also outlined, affirming the need for new theories of the development of adolescent drunkenness, drug use, and criminal behaviour. In particular, the need for more attention to theories of causal processes was noted.

The over-arching focus of this thesis is improving the understanding of the development of drunkenness, drug use, and criminal behaviour during adolescence. This thesis takes the position that improving understanding means developing the academic theories that explain development. In turn, improving these theories may then support the development of policy and practice concerning these behaviours. The thesis' main focus is explored more specifically via four sets of research questions, which are answered in four separate studies. These four key questions are given below (the specific, technical research questions are described in the relevant articles – see appendices 1-4).

Question 1: How do drunkenness, drug use, and criminal behaviour relate to each other developmentally during early to mid-adolescence when studied with within-person methods? This question is mainly answered in Study I.

Question 2: How do drunkenness, drug use, and criminal behaviour develop differently in early to mid-adolescence and which socio-ecological factors – of parents, personality, peers, school, and municipality – best account for development? This question is mainly answered in Study II.

Question 3: How do drunkenness, drug use, and criminal behaviour cluster developmentally (when using person-oriented methods) in early to mid-adolescence and which socio-ecological factors – of personality, family, peers, and perceived socio-economic status – best account for behavioural clusters? This question is mainly answered in Study III.

Question 4: How can theories of the development of adolescent drunkenness, drug use, and criminal behaviour be improved both conceptually and empirically, using a critical realist philosophical framework? This question is mainly answered in Study IV.

1.4 Introducing LoRDIA

This thesis stems from the research programme Longitudinal Research on Development in Adolescence (LoRDIA). The empirical data comes from LoRDIA, as does the funding of the doctoral position that has allowed the writing of the thesis as a whole. The LoRDIA project also provided a secondary academic context, alongside the institutional context of the university department. Thus, LoRDIA is an important background context and while methodological detail will be given in chapter 4, a brief overview is warranted by way of introduction.

LoRDIA is a Swedish general population, multi-site, multi-perspective, prospective, longitudinal cohort panel research project on development in adolescence, with a focus on mental health, substance use, and criminal behaviour. It started in 2013 and the first round of data-collection began in 2014, canvassing 11-12 year olds in four municipalities in southern Sweden. Data was initially gathered from adolescents, their parents, their teachers and from school registers, such as absence and exam results. Data-collection on adolescents, including school register data, continued annually until 2019. A range of psychosocial risk and protective factors were also part of the study including personality, parents and family, neglect and abuse, peers, school, leisure activities, bullying and harassment, sexuality, and religion. More detail on the data-collection design will follow in Chapter 4. The purpose of starting the project at this young age was to gain information on the participants before the outcome behaviours of interest had begun. The longitudinal design of LoRDIA, using a general population sample of youth, was intended as a way of studying the course of development and to be able to answer questions about growth patterns and of potential causal processes.

LoRDIA is also an inter-disciplinary project hosted by three departments at two universities: the Department of Social Work and the Department of Psychology at the University of Gothenburg, and the School of Welfare and Social Science at Jönköping

University. Other subject areas that are connected to LoRDIA include Disabilities research, Sociology, and Psychiatry. At the time of writing (January 2020), there are eight doctorate students in LoRDIA, five of whom have completed their theses[11], 17 academics as supervisors or conducting their own research using LoRDIA data, two administrators, and a project leader.

Structure of the thesis

The remainder of the thesis is structured as follows. Chapter 2 introduces a position for the thesis on the philosophy of social science. This is important as it describes what sort of social science is possible and what kind of knowledge can be achieved in the bounds of this thesis. Having then set the philosophical landscape, Chapter 3 introduces the theoretical scene in which three key theories of adolescent 'risk' behaviour will traverse. The theoretical scene (section 3.1) covers some middle-range theories, such as the sociology of youth substance use, as well as the socio-ecological model of development. These provide a scene for the three theoretical characters – three prominent theories of adolescent 'risk' behaviours that are described in section 3.2. It is these three theories to which the findings of this thesis will directly connect. Chapter 4 describes the over-arching methodology to the four studies, including ethics, as well as a discussion of methodological issues. Chapter 5 summarises the four studies, which are the central product of the thesis. Chapter 6 provides a discussion of the four studies. This is done in two main parts. The first section (6.1) presents six key implications of the findings for the theories of adolescent 'risk' behaviours (presented in section 3.1). The presentation of six implications is an attempt to draw out common themes between the four studies. The second main part of the discussion begins a contribution towards the development of a new theory of the development of drug use, drunkenness, and criminal behaviour in early to mid-adolescence. The discussion also includes implications for policy, practice and future research. Interspersed throughout the thesis are quotes from iconic pop songs about the teenage years or growing up (indeed, the thesis' title is borrowed from such a song). These quotes are intended as a form of socio-cultural reference point, a connection to other stories and viewpoints about adolescence.

[11] See lordia.se for more information.

"We are young, we run green
Keep our teeth nice and clean
See our friends, see the sights
We're alright"

Supergrass – Alright (1995)

2. A position on the philosophy of social science

This chapter describes a position on how this thesis 'does' science. Science can take many different forms and there are differing views on how to do science. A social science researcher is faced with a number of choices of a philosophical nature about, for example, what counts as knowledge, how it is to be gained reliably and validly, what conceptions of 'people' and 'society' are to be used and what powers and possibilities are ascribed respectively, and how do values and morals interfere with or support the scientific endeavour? The philosophy of science has grappled with these questions since at least as far back as Aristotle. Thus, the ambition in this chapter is however a modest one: to outline, only briefly at times, the position this thesis will take on just a few key philosophical issues concerning social science. This is important as it describes what sort of social science is possible and what kind of knowledge can be achieved within the bounds of this thesis.

Consequently, this chapter presents a philosophical position on social science drawing on ideas from Critical Realism (CR). The aim is that a clear and transparent position is presented on how the objects of research are viewed and how knowledge is to be gained of them. In turn, this sets out a framework for what kind of theory is possible to develop and how this should be done. The intention is that clarity on these issues at the outset can assist the later discussion. More importantly, lack of clarity and consistency of the basic stuff the research is looking at (ontology) and how knowledge of it will be gained (epistemology) may result in scientific misdemeanour. For example, an inconsistent philosophical position on science may lead to what Woolgar and Pawluch (1988) described as ontological gerrymandering, where people's subjectivities vanish and re-appear in the same academic text. In part, the position outlined in this chapter is also an attempt to test out a solution to some of the potential meta-theoretical problems identified in Chapter 1, e.g. studying and theorising causality, how structure and agency are handled, and how conceptual adequacy, and in particular, how morals and values are to be dealt with.

Searching for an alternative position on such questions implies that existing or traditional philosophies of science are wanting in some regard. Hence, the chapter begins with a short motivation for why a different or alternative philosophical position

on social science is required. CR was initially developed over 40 years ago and thus is not a new position. Its use in research and theory on adolescent development is however rare. Thus, its use in this thesis represents both novel philosophical ground and something of a break with tradition in terms of the study of adolescent development. The motivation for this break is followed by two main sections to the chapter where the ontological and epistemological cornerstones of the position are outlined. Section 2.1 describes three parts to the critical realist ontology: causality in a complex world; people-in-context; morals and values. Section 2.2 describes how critical realist knowledge is to be gained and specifically how quantitative methods might contribute towards such knowledge (though this is explored in more depth in Study IV).

The need for an alternative philosophical position on social science

The introduction (section 1.1) highlighted that some potential problems with the extant literature on the development of substance use and criminal behaviour in adolescence may stem in part from an implicit positivist philosophical position. The need to improve prevention theories was also raised, yet the task of developing theory relies heavily on the underlying philosophy of science. Thus, there is much to be gained from trying out an alternative approach to theory development using an alternative philosophy of social science that can deal with causal theorising, structure and agency, and the role of moral and cultural value frameworks. These are not just abstract philosophical problems. The developmental theories on which policy and practice is (or should be) based must fundamentally deal with at least three things: change or transformation (i.e. causality in social science), adolescents, and the desired nature or value of the change. Hence a position on the philosophy of social science for developmental theories, if not more widely, would also need to address these three basic issues in terms of ontology and epistemology: transformation (i.e. causality in a complex social world), adolescents in their contexts, and the moral and value frameworks guiding the desired change, such as how the 'problem' requiring support or intervention is morally framed and valued in scientific study.

Historically in the philosophy of social science, the work of conceptualising this basic stuff of social science – causality, people, and morals/values – has tended to fall in line with the two dominant positions of positivism and hermeneutics (Bhaskar, 1979; Archer 2000). While social constructionism has led to essential critiques of implicit morals operating in practice (see, e.g., Petersson, 2013; Bruland-Selseng, 2015) and phenomenological methods have provided important insights into the lived experiences of people in social work (see e.g. Skårner, Månsson & Svensson, 2017; Järvinen & Ravn, 2014), creating knowledge for theorising about causal processes has largely been left to positivistic approaches.[12] Both hermeneutics and positivism were however accused by Bhaskar (1975) of making the same fundamental error: that of collapsing an understanding of causality to a human domain of the empirical, which in his view conflates ontology and epistemology. The problem for Bhaskar is that causal powers, in objects, people, or structures, must continue operating whether we observe them or not, which raises the question of how science goes about discovering such powers beyond the empirical domain.

Archer (2000) extended Bhaskar's (1979) critique of positivism and hermeneutics to the model or theory of the person, arguing that both positivist and hermeneutic models of the person are reductionist in that they presume a flat and uncomplicated reality concerning human social life. Archer (2000) argued that modern rational choice models of the human agent, in a positivist tradition, result in what she terms *homo economicus*, an atomistic rational, instrumental individual, acting and reacting devoid of context and culture. In Archer's view, this model of the person 'downward conflates' and impoverishes a theoretical description of social life and the role of structural conditions. Archer (2000) also levied a similar and sustained critique of social constructionist approaches, such as Harré (1993), in which, Archer argues, human social life is simplistically reduced to language and culture. Agency and individual or collective action is 'upwards conflated' to be a pure gift of society (Archer, 2000). Her main point in this critique is that it is nonsensical to maintain that humans have no agency; people can and must have causal powers (Archer, 2000). Taking Bhaskar's account of how causality is either simplistically conceptualized in positivism or not at all

[12] In Bhaskar's (1975, 1979) account of competing philosophies of science, both social constructionism and phenomenology come under the broad-brush bracket of 'hermeneutics'. See Papineau (1982) for a critique of Bhaskar's broad-brush argumentative logic.

in hermeneutics, alongside Archer's critique of the model of the person in these two dominant philosophies, they would seem to offer a limited philosophical position on the basic stuff of interest to developmental theories: causal processes, people (teenagers), and the moral positions guiding or interfering with research.

Critical realism (CR) – or at least a version of it – represents an alternative approach with which to conceptualise how theories of causality are to be developed, a model of the person-in-context, as well as how the role of morals and values fit into a scientific project. The argument that critical realism has something useful to offer social science and social work in particular has been made before (Houston, 2001; Gorski, 2013) and specifically in terms of grounded theory (Oliver, 2012). Houston's (2001) focus is as much on the case against social constructionism, as for putting forward a theoretical argument for the relevance of CR for social work *practice*. In terms of Swedish doctoral theses in social work, the use of CR seems quite rare, with Linell's (2017) thesis on adolescent victimization and Swedish social services responses being one of the few examples. In the current thesis, CR will be used as a philosophical position from which to explore aspects of theory, method, and results. If the studies of this thesis are to have implications for theoretical development, then such implications need to be made within a philosophical position that has a possibility of achieving new and hopefully improved knowledge, of seeing something we couldn't see before.

Critical realist ideas will build upon Bhaskar's realist account of science (1975) and social science (1979), and Archer's (2000) realist account of the person. This will be complemented with Pawson's (2006, 2013) theory of realist knowledge for practice. This is not to say that these authors' viewpoints and arguments cohere in a straightforward manner; on issues such as agency, the stratification of social life, and methodology, there is room for contrast and comparison. Such discussions are however beyond the scope of this thesis.[13] Both Archer and Pawson however build upon Bhaskar's original philosophy of science, and in particular his two first major works. This provides sufficient coherence between the authors to outline a (critical) realist

[13] It should be noted that while Pawson's (2006, 2013) realism builds on Bhaskar's (1975, 1979) work, he distances himself from Bhaskar's later emancipatory turn. Neither does Pawson explicitly build on Archer's (2000) account of the person as stratified social agent. See also Porter (2015) and Pawson (2015) for further debate.

position on social science for this thesis. The aim is that such a position will encourage a principled discussion of the findings and provide a philosophical fundament on which the explanatory ambitions of this thesis can sit.

2.1 Causality, people, and moral frameworks

This section outlines three key aspects of a critical realist ontology, i.e. what is presumed to exist and what powers do these objects have. Before describing these three aspects, however, Bhaskar's (1975) general distinction between the transitive (epistemology) and the intransitive (ontology) dimensions needs to be briefly outlined. Central to CR is a view of science as a social practice, conducted by humans in which their existing knowledge and cultural practices form a key aspect of any scientific endeavour or knowledge-making (Bhaskar, 1975). This is what Bhaskar referred to as the transitive dimension; all human knowledge-making is subject to the rules and power-play of existing human knowledge, practice and discourse. We are consciously aware of much of what we know and in turn can influence, affect and shape these objects of knowledge, e.g. according to deliberate wishes, societal morals, political ends. Here it is not entirely inconsistent to connect CR with theorists of this transitive, i.e. discursive, dimension, such as Foucault. Indeed, authors such as Fairclough (2005) and Al-Amoudi (2007) see a fruitful marriage between the realist position and a critical social ontology implied in some of Foucault's work. Set in contrast to the transitive dimension of knowledge, there is however, argued Bhaskar, an intransitive dimension, which grounds the stability of knowledge and of much of language itself. The intransitive dimension is what we try to access in for example science. It goes on having effects in and on, for example, social life, irrespective of whether we experience it directly, or whether we have knowledge of it (Bhaskar, 1975). These are philosophical arguments that Bhaskar (1975) put forwards, based on a question of what must the world be like, if science is to work at all in the way that we believe it does. Building on this distinction between the ontological (intransitive) and epistemological (transitive), the three key aspects of a critical realist ontology will be presented, before turning to epistemological issues in section 2.2

Causality in a complex social world

Central to risk factors research and prevention design is gaining knowledge of causal mechanisms or processes (Coie et al., 1993). CR's description causal mechanisms is intricately bound up with Bhaskar's (1975) view of the ontology of the world, including the social world, as stratified into three domains of the empirical, the actual and the real. The empirical domain is that which we as humans can experience. This includes what can be experienced or observed in scientific experiments, i.e. when gathering empirical data. The domain of the actual is the patterns of events that occur in the world occur, whether or not we experience or observe them. The domain of the actual is underpinned by a third domain of the real, which comprises the mechanisms that generate the patterns of events in the actual; the real is the dimension of causal powers (Bhaskar, 1975). Figures 5a. and 5b. depict this ontology.

Figures 5a – Critical realist ontology[14]

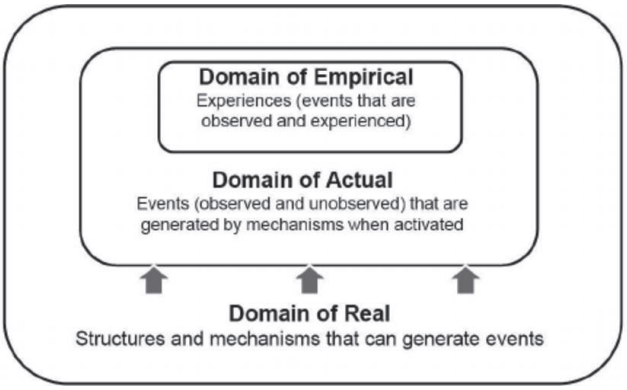


Figure 5b – Critical realist ontology[15]

	Real	Actual	Empirical
Causal mechanisms	X		
Events in the world	X	X	
Human experience	X	X	X

[14] Source: Mingers (2004).
[15] Source: Bhaskar (1975).

Figure 5a shows how the different domains relate to each other. Figure 5b shows the distinction between human experience, including empirical observation, events in the world, and the causal mechanisms that generate the events. There is a debate about just how to define 'causal mechanism' in the social sciences (see, for example, Hedström, 2005; Pawson, 2013; Dalkin et al., 2015) with different authors operationalising it in slightly different ways). The position developed in this thesis in some ways is part of this ongoing work to operationalise the philosophical ideas put forward by Bhaskar (1975, 1979) and Archer (2000). Specifically, the definition put forward by Pawson & Tilley (1997) and Pawson (2013) is adopted: a mechanism is the reasoning that human agents employ about their actions in relations to the resources to hand in their social context. Originally developed for the evaluation of social programmes, the concept 'resources' was intended by Pawson & Tilley (1997) to relate to some new aspect that an intervention introduced into a context. The definition used in this thesis builds on Pawson & Tilley's (1997) but extends it to Archer's (1995) notion of pre-existing social resources, both in the immediate context, but also more widely in terms of social structures. For example, a single parent with access to good quality childcare may reason differently to one with no or poor-quality childcare options.

Causal processes or mechanisms do not, however, operate reliably in a complex, social world. Bhaskar (1975) contended that the actual and the real domains are oftentimes not in phase with each other due to the world, including social life, being an open system. This means that the world as an open system comprises constantly competing processes and as such the events that do occur in the actual domain are not deterministic or can be predicted; only tendencies can be explained, and for the most part only in specific contexts after the event. In terms of social life, what we can experience as humans is a complex array of events; hence the employment of structured scientific study in the empirical domain to attempt to obtain knowledge of the patterns and tendencies of the real. Bhaskar argued that both hermeneutic approaches, which build on idealism, and positivist approaches building on traditional empiricism conflate these three domains and reduce knowledge of the world solely to the domain of the empirical.

This has important implications for how causality is understood. The dominant (positivist) view of causality is as a constant conjunction of events in the empirical

domain, which Bhaskar maintained is neither necessary nor sufficient to establish claims of cause and effect. A constant conjunction, when demonstrated in scientific trials, is a special case of real mechanisms operating in an artificially closed systems. Most social science occurs in highly complex systems where causal mechanisms may not be activated or are thwarted and thus do not produce events in the actual domain. This means that theorising about causality needs to hypothesise beyond the immediate data and beyond what has been observed. Potential causal mechanisms generating the observed patterns are thus conceptualised as existing in the domain of the real and as having causal powers that transcend the actual situation in which we can encounter them empirically.

In terms of social science, Bhaskar (1979) contended that both social structure and individuals as agents possess causal powers in the real domain. He proposed a model of structure and agency in a mutually transformative relationship comprising *positions* in the structure and *practices* that agents act and enact from these positions. In other words, the existing set of socio-cultural forms is necessary for a social agent to act with some degree of intention or meaning, even if this intention is not always comprehended in the moment of acting. In choosing or otherwise engaging in a course of action, the structure of socio-cultural forms is either maintained or transformed, to greater and lesser extents, and sometimes irrespective of the agent's original intention. Both individual *practices* as well as the structural *positions* are argued to have causal powers and thus belong to the real, intransitive dimension. The key difference with social science is that causal powers belonging to agents or structures are more prone to change than mechanisms in the natural world in that the real dimension in much of social science is fully open to the transformative influence of our knowledge of it.

Because the world, including social life, is conceptualised as a complex, stratified, and open system, this means that retroductive analysis needs to theorise tendencies operating in specific contexts. Pawson (2006) put forth a model of context comprising four layers: 1) individuals (with different capacities, characteristics, and motivations), 2) interpersonal relationships, 3) institutional settings (and although Pawson's focus is on the settings for social programmes, the basic idea of institution is easily extended to social institutions such as the family, schools, and workplaces), and 4) infrastructural systems.

These different layers of 'context' provide a framework for the different social settings in which a hypothesised mechanism will actualise and which outcome patterns will be seen (this will be discussed more in section 2.2). Thus, at the outset there is a presumption of heterogeneity in social science, of different people in different contexts responding differently to the complexities of social life. Another key feature of complex, stratified, open world is the notion of emergence. Individuals having causal effects on structure can bring new structures at different levels of context into being, and in turn these new structures can have causal powers back on individuals. For example, it was noted in section 1.1 how local clustering of youth engaged in 'unstructured socialising' in a community created an emergent effect influencing youth criminal behaviour (Osgood & Anderson, 2004).

In terms of cause-and-effect between people, the important implication for developmental theories is that people's powers to act and liabilities to fail to act in any desired direction are not simply the product of the individual. Within the realist view of causality, social structures both enable and coerce human action (Bhaskar, 1979). The implication of this view of causation for risk factors research is that 'risks' can be viewed to lie in local, i.e. meso, but also macro-level structures. Moreover, it implies a model of causality between people and social structures that is less deterministic and has room for individual agency. This in turn builds on the model of the person, which is outlined in the following section.

People-in-context

Teenagers and their interactions with a variety of socio-ecological domains are likely to be a fundamental part of any theory of the development of substance use and criminal behaviour, as noted in Chapter 1. This may seem obvious but raises a few philosophical implications. If teenagers and their interactions with other people in different socio-ecological domains is a fundamental unit of analysis or building block in a theory, then this theoretical work should probably be situated in a clear ontology of people and their relations. Such an ontology should outline of the dimensions of possibility and impossibility for what matters to people, and of what powers and liabilities they possess.

For example, an adolescent may be seen to have capacities, needs, desires, abilities and so on but this can be bound by time, materiality as well as access to resources with which to act. Whilst this may seem abstract, without clarity there is the possibility of using theories that can suggest courses of action that go beyond the dimensions of what is important to adolescents or even possible in the context of their lives.

At an abstract level, the critical realist position on people and their properties, powers and potential is that both social structure and individuals as agents possess causal powers in the real domain (Bhaskar, 1979). Causal and transformative powers, as noted above, sit within the critical realist ontology of causality in an open, stratified world. Both individual intentions and reasons for acting, as well as the structural properties which may provide a causal context for our choices of action, belong to the real, intransitive dimension. Bhaskar's (1975, 1979) contention was that causality is highly difficult to observe in the empirical domain, but causal powers must nevertheless exist – how we establish knowledge of them is discussed in section 2.2.

Archer (2000) built on Bhaskar's (1979) account of social science to extend his notion of stratified reality to the individual in society as having causal powers which emerge through our relations with the three orders of the natural, the practical, and the social. A person first learns a sense of self through practical embodied relations with the natural world (Archer, 2000). Importantly in Archer's account is the point that the world we initially encounter is not one of constructions or discourses, but one of practical, embodied orientation. It is from this embodied practice that we gain a continuous sense of self, which is an emergent feature of our biological bodies in experiential practice with the world. Throughout the lifecourse, our relation with the natural and the practical is constantly interwoven with competing understandings or conceptions of it; thus "the discursive order, far from being independent and hegemonic, remains closely interdependent with nature and with [human] practice" (Archer, 2000; p.9; my addition). This has far-reaching implications for how developmental theories are to conceptualise adolescents and their powers and liabilities. Part of our personal being is our emotions, which Archer views as emergent products of both our natural being in relation to performative practice but also self-worth in the context of social value settings. This relates to Archer's (2000) third order of the social. This is the structure in which we, as part of different collectivities, have access to

particular social positions and practices. In turn, this differential access provides different resources, opportunities, and expectations, and thus different moral and value frameworks. In this way, the person, as an analytical unit, cannot be reduced to either language/culture, on the one hand, or behaviours or genes, on the other. Rather, the individual person is an emergent unit, stratified from natural, personal, and social domains, but bound up in a duality of positions and practices.

Thus, the person-in-context is theorised as "emergent from our relations with our environment" (Archer, 2000; p.87). This is a stratified view of people as possessing different kinds of powers to affect and be affected by different strata of reality, from their physiology to their psychology to societal norms and values. Each emergent layer is an intimate product of different aspects of reality, but cannot be reduced to them: "mind is emergent from neurological matter, consciousness from mind, selfhood from consciousness, personal identity from selfhood, and social agency from personal identity" (Archer, 2000; p.87). Central to this account of people-in-context is the idea that there is some continuous or durable sense of self, and that this self can practically (i.e. physically) orientate to the world it perceives and is formed by. A consequence for building theory about adolescent development is that a fuller, more complex model is provided as a starting point. Moreover, that physiology is not eschewed for social explanations, and experiential and psychosocial forces are not reduced to external push factors. Thus, the explanatory model of the developing adolescent has philosophical room to attend to the full range of socio-ecological domains, e.g. micro-, meso-, and macro-level factors, but without resulting in an empty deterministic view of the adolescent. Individual agency is retained, maintaining theoretical room in theory for adolescent's reasoning and desires.

Moral and value frameworks

The third area of ontology for this thesis concerns moral and value positions or frameworks. Section 1.1 raised the idea that differing cultural morals and values may be shaping scientific concepts in theories of the development of adolescent substance use and criminal behaviour. Yet the traditional (i.e. positivist) view of science is that science is and should be value-free or value-neutral. Bhaskar's (1979) account of social science

however rejected the idea that values have no place in science. He drew a distinction between epistemic relativism – that all beliefs in the transitive domain are socially produced and as such there is no truth outside of human historical time – and judgemental relativism – that all beliefs are equally valid. CR accepts the former, but wholly rejects the latter. This position has been described as both moral realism (Price & Martin, 2018) or scientific realism about values (Elder-Vass, 2010).[16] In critical realist terms, moral and value frameworks in a society are part of the structure which governs our choices and thus moral and value framework possess causal powers.

Two key aspects to moral realism that this thesis will draw upon are moral and values in science, and the science of moral and value frameworks. Regarding morals and values in science, Bhaskar (1979) argued that the description of some social facts will only reach what he termed as 'descriptive adequacy' if the description is of a critical or value-laden way (Cruickshank, 2010). This is because in some cases a value-neutral description will result in an incorrect description of the facts. In other words, value neutrality should not be mistaken for objectivity, as a scientifically accurate account in some cases should be evaluative (Cruickshank, 2010). Thus, social science in particular will necessarily imply a critique via its descriptions and explanations of the social world. This is because, as all science occurs in the transitive, human dimension, we are often if not always interested in things and topics that are of some value to us. Thus, in the act of describing or explaining the object of interest, our moral and value frameworks are inescapable and critique inevitable. Based on this notion, it is a central task in critical realist enquiry to illuminate, or even critique, the concepts we use and understand them as products of a social and moral order.

Regarding the science of moral and value frameworks, Bhaskar (1979) also put forward a case for science being able to go beyond critique to adjudicate in moral matters. In particular, he argued, that if scientific enquiry is to make statements that have some bearing on the factuality of the world, then this implies that other statements of an ideological or less reasoned nature can be claimed to be false. For Bhaskar (1979) this warranted a moral or value claim for the philosophical move from what 'is' to what 'ought' to be. In other words, in moral realism there are grounds for science to claim

[16] See also Elder-Vass (2010) for further debate.

that one course of action or one kind of description is *preferred* over another, i.e. that science can act in the role of an arbitrator on issues of 'technical imperatives', that is of what one 'ought' to do in some moral situations. An important part of the ontology of moral and value frameworks – and how a scientific project can handle them – is via the notion of descriptive adequacy. Part of Bhaskar's (1979) solution to the inescapable influence of morals and values in science was that descriptive adequacy must also take into account people's own conceptions of the object under study, which Bhaskar (1979) termed as 'hermeneutic adequacy'. If causal mechanisms in social science are people's reasoning, then people's own understandings of their behaviour, its intentions and perceived goals in relation to the context at hand, need to form part of the scientific description. Hence, descriptive adequacy is also an ethical commitment to taking into account the values of social agents.

In consequence, social science can (and should) critique its own concepts but also social structures, i.e. in terms of existing moral frameworks. Critique, however, needs to pay attention to people's own conceptions. Although social science cannot settle matters of practical morality, in CR it retains the ability to suggest what ought to be done, based on the current state of knowledge. For risk factors research and developmental theory, moral realism would suggest that the central concepts in, for example the key theories that explain adolescent substance use and crime, will need to be critically examined, both as a theoretical exercise but also, where possible, empirically.

2.2 Gaining critical realist knowledge

The critical realist ontology – of a transitive and intransitive dimension, and of the empirical, actual, and real domains – has a number of epistemological implications, such as what kind of knowledge can be produced, but also how we can go about producing it, and what the relation between theory and empirical data is. The objects of which science tries to create knowledge belong in CR to the intransitive dimension; the world of the real that goes on existing irrespective of our knowledge of it (Bhaskar, 1975). This is an important distinction – and one which Bhaskar (1975) claimed both positivism and hermeneutics confuse – and which if missed results in the epistemic fallacy of reducing questions about the world to ones of how we come to know the

world. Science can only access this real, intransitive dimension, argued Bhaskar (1975) through a 'retroductive' analysis – in short, a pattern or tendency is observed empirically, based on which one *theorises* potential generative causal mechanisms operating in the real that could have resulted in the observed pattern. Through further comparison of the theorised mechanism with empirical data, the theory of the mechanism is refined. In terms of a wider programme of research, the researcher then needs to collect new data and/or re-analyse existing data to test the theoretical idea further. The point could be made that this is no different to what 'ordinary' scientific practice does – indeed, Bhaskar & Hartwig (2016) described critical realism as 'enlightened common sense', and his original philosophy of science (Bhaskar, 1975) was an attempt to describe in a more accurate and philosophically grounded way what science was *already* doing.

In terms of building social scientific knowledge, it is acknowledged in CR that we, as human participants in our own knowledge-making, do not have privileged access to 'reality'. Rather, our understanding always builds upon and is thus always influenced by previous knowledge – scientific and otherwise – in the transitive domain. That a mechanism either fails to operate and/or fails to be observed, does not mean in CR that it is not there, or that the particular object does not possess those powers (e.g. a macro-level discourse does not need to be identified by academics to have power; negative family environments do need to be observed by social workers to cause trauma). Thus the retroductive process needs to investigate when and in what contexts the effect or pattern *can* be observed, and then theorise the conditions for its operation.

Patterns, as knowledge of the intransitive dimension, do not however necessarily follow a human subjective-experiential logic, e.g. of emotions, cognition, or discourse-in-interaction. Some of the patterns that would be useful for understanding adolescent development are of course at the experiential level, e.g. what teenagers say, feel, and experience. But in CR there is also the possibility of patterns that lie outside the empirical domain of human experiences (see figure 5b). In other words, patterns cannot be discerned solely via an experiential viewpoint, such as what people say in interview or other forms of subjective expression. Indeed, a key critique within CR is that many experiential methodologies, including positivism and constructionism,

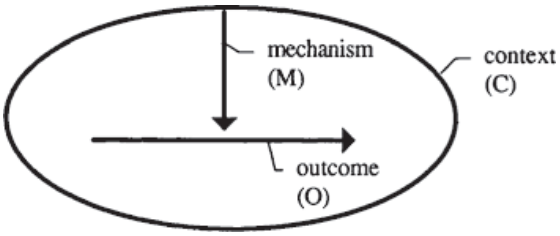
commit the epistemic fallacy and conflate the experiential/empirical domain with the real.

Cruickshank (2004) argued however that Bhaskar's definition of the epistemic fallacy is so broad that even a critical realist ontology ends up being warranted by our knowledge of it (and not vice versa). Furthermore, Cruickshank (2007) claimed that both Bhaskar's and Archer's (1995) accounts become dogmatic and thus infallible. A response to this is that Bhaskar presents a philosophical argument for the *form* of a stratified reality of the empirical, actual, and the real. While this argument is of a categorical nature – and thus only open to philosophical critique – he does not argue for the *content* of that reality, which is a question for empirical investigation. A further critique of Bhaskar is that he is less concerned with matters of methodology and the question remains just how a retroductive analysis is to be done. Cruickshank (2007) proposed a Popperian approach[17] to falsification to address the potential shortcomings of a reading of Bhaskar and Archer as being dogmatic about content rather than form. Similarly, Pawson (2006, 2013) drew on Popper's (1934/1992) 'critical rationalism', alongside Bhaskar, Archer and others, to develop a meta-theory of how to gain knowledge of causal mechanisms given a stratified and complex reality.

Initially developing a realist methodology for the evaluation of social programmes, Pawson & Tilley (1997) put forward the idea of the Context-Mechanism-Outcome-Configuration (CMOC) as a theoretical tool for the generation of falsifiable mini-theories. Figure 6 shows the CMOC diagrammatically. The CMOC takes the Bhaskarian notion of the causal mechanism which only operates, or becomes actualised, in specific social contexts, which are part of open systems. Employing retroductive theorising, Pawson & Tilley (1997) argued that it is through specifying and then studying outcome patterns within a CMOC model that we can make the case for the configuration of different mechanisms working, or failing to actualise, in different contexts, and thus apply Popperian falsificationism in the analysis.

[17] Briefly, a Popperian approach to falsification is used here to mean that some aspect of the theory, in particular the outcome patterns, can examined with empirical data to gauge its accuracy in explanation. See also Lakatos (1976) and Motterlini (1999) for further discussion beyond the scope of this thesis.

Figure 6 – The Context-Mechanism-Outcome Configuration (CMOC) model of theory building



Pawson (2006, 2013) further developed a realist approach to theory-building, specifying how studies can be combined to accumulate knowledge. Arguing that traditional meta-analysis and systematic review methods conceal knowledge about what mechanisms are working, in specific circumstances, for specific groups of people, realist synthesis starts with an outline of a working theory of the CMOC (Pawson, 2016). The theory is then compared to a number of empirical studies, but rather than summing the information in an additive manner, it is expected that different contexts will reveal different results; these differences become the stuff with which to develop the initial CMOC into a more nuanced, realistic theory of causal mechanisms operating in contexts of different people in different social settings. In terms of improving developmental theories of adolescent substance use and criminal behaviour, using the CMOC model might encourage a focus on developing *explanations* of the different ways that young people as stratified social agents in different contextual settings develop. This is important as it allows for explanations of heterogeneity in development and differential effects of typical risk factors. Use of the CMOC model is also an attempt to connect to the results of this thesis to a wider programme of (realist) theory-building.

In terms of actual methods, CR has tended to be interpreted as lending itself to qualitative studies (e.g. Oliver, 2012). This may be more happenstance than theoretical intention. Neither Bhaskar nor Archer discussed specific issues of practical methods, data-collection and the like. Moreover, the identification of outcome patterns is equally a quantitative task. In terms of primary studies, Pawson & Tilley (1997) maintained that a range of methods are required to gather data relevant for theorising and testing a CMOC, i.e. to determine peoples' reasoning, to understand context, and to identify outcome patterns. For example, in their classic example of the evaluation of CCTV,

Pawson & Tilley (1997) proposed nine potential mechanisms operating in different contexts; two such mechanisms – the 'nosey parker' and the 'effective deployment' mechanism suggest how CCTV may differentially reduce crime rates in different contexts. The 'nosey parker' mechanism is that people in, for example, city centres see CCTV cameras and feel more safe in those areas and are thus more likely to use those areas, which provides natural surveillance, thus deterring crime. The 'effective deployment' mechanism is that in areas without natural surveillance, CCTV may work to deploy security or police staff more effectively thus catching offenders in the act. Thus qualitative work – in these two cases with members of the public and security staff – would demonstrate how reasoning is employed and effected, while outcome patterns of arrest and crime rates in specific contexts would need to be described largely in quantitative terms. Moreover, if heterogeneity in outcome patterns is presumed at the outset, then quantitative techniques that can search for heterogeneity, such as latent variable and random-intercept modelling, are well placed to identify such complex patterns and potentially have something to offer to a critical realist study of adolescent development.

The CMOC model thus provides a meta-theory of sorts for how models or theories should be constructed. This goes some way to answering the questions: What does a good model look like? What are the key ingredients of a good theory, at an over-arching level? The CMOC provides a structure for the form of a theory. However, as the statistician Box (1976) was credited with saying: all models are wrong, but some are useful. A useful model, in Box's (1976) terms, is one which strikes a balance between parsimony (keeping things simple) but while homing in on what may be important for practice, of one sort or another. The CMOC model is perhaps a good way of making clear which assumptions are being made – even though some assumptions may be untestable or generalised – in order to strike just this balance between simplification but while taping into enough of heterogeneity in adolescent development so as to be able to develop useful, context-sensitive knowledge.

The LoRDIA study is primarily a quantitative research programme, for example, involving the collection of data via validated scales and measure (these are described in section 4.3). If mechanisms are viewed to sit primarily in people's reasoning – which is most probably best accessed via hermeneutic methods – then the LoRDIA data, in CR

terms, takes on the important task of investigating links between context and outcome, and in particular the heterogeneous patterns that may exist. In critical realist terms, the measures and scales used in LoRDIA can be viewed as capturing something about either the context of an adolescent's life or something about the outcome pattern, i.e. change over time. The measures thus specify, in the transitive domain, what may be occurring and the data provides a picture of patterns in the empirical domain. The real, causal mechanisms driving the observed patterns are a question for retroductive realist analysis. Moreover, the causal mechanisms would remain to be theorised. The contribution of the quantitative work in the empirical studies of this thesis is thus the statistical search for patterns between variables, either within-people, i.e. patterns/change over time, or associations with contexts such as family and peer situations. For example, does drug use increase or decrease over time (within-person outcome pattern) for people with negative family environments compared to people with ordinary or 'good' home environments (differential contexts)? The statistical patterns provide empirical data on which retroductive theorising can begin. But in order to theorise, one needs a little theory.

"We don't need no education
We don't need no thought control
No dark sarcasm in the classroom
Teachers leave them kids alone"

Pink Floyd – Another brick in the wall (part 2) (1979)

3. Theoretical perspectives

This chapter presents the theoretical perspectives that will be used in this thesis. Building on the philosophical position on social science presented in Chapter 2, theoretical perspectives are crucial for *explaining* the results; it is with theory that we can look beyond the immediate empirical data to hypothesise about the real, causal processes at work. The theories that this thesis will use fall into two camps, something akin to setting and character. There are those theories that provide the *setting* for the analyses and discussions that come later. This means that they provide a perspective or vantage point from which the implications of the findings will be discussed and the interpretations that follow. In short, they are a framework for how to *think*. This first group of scene-setting theories is presented in section 3.1. The second group of theories (section 3.2) concerns the key theories of the development of adolescent substance use and crime. These theories are more like the characters in the story; they will be introduced, get into a tryst with the empirical data, perhaps fall out over dinner with the underlying philosophy, but hopefully be changed by the encounter. In other words, it is the second group of theories that this thesis aims to develop. They will be described in section 3.2, but are discussed and developed in Chapter 6.

3.1 Setting the theoretical scene

This section presents three broad theoretical approaches in sociology, psychology, and criminology relevant for understanding the results of this thesis: i) Youth cultures, substance use and criminal behaviour; ii) The socio-ecological model of development; iii) the deficit model of adolescence and an alternative. The presentation of theoretical work from different disciplines, grouped together as three broad approaches, is an attempt to draw out commonalities between different disciplines and theorists. The presentation in this section thus adopts something of a surface or scene-setting manner.

Youth cultures, substance use and criminal behaviour

The sociology of youth has shown how youth cultures in the western world, if not the modern category of the adolescent itself, have been formed by and shifted in tandem with major sociological changes (Sercombe, 1996). In particular, the establishment of the school, first for the middle-classes and then later for the working classes, formed a major societal change where young people were for the first time grouped together in semi-enclosed conditions, and to some extent disenfranchised from ordinary, social life. Sercombe (1996) termed this change as the key "dividing practice, this confinement of bodies [...] in an institution dedicated to their control and training" (p.4). Sercombe (1996) also linked the emergence of the discourse of the 'teenager' to changes in the post-WWI period when secondary schools became compulsory for all, with age-segregated classrooms and even age-segregated buildings. This meant that the period of disenfranchisement or separation from ordinary social life was extended with an "ever-increasing delay and ambiguity in achieving adult status" (Sercombe, 1996; p.6). The lack of a clear and, for many, achievable role in or route into the adult world, is viewed as a contributory factor in the increase in 'deviant' youth groups, if not of the beginnings of teenage sub-culture(s) in the 1950s (see Hebdige, 1979; Mintz, 2006). For example, grouping adolescents together in schools, disconnected from an adult-world of work and social life more generally, potentially weakens relationships across generations, while strengthening same-age peer effects. This in turn provides a cultural and social space for youth cultures to develop, with their own logic and rules, perhaps as a way of dealing with the delay and existential ambiguity of adult status.

The specific behaviours in focus in this thesis – drunkenness, drug use, and criminal behaviour – are also likely to have an aspect of their genesis in socio-cultural contexts, in relation to both adult responses to youth behaviours but also in local youth cultures concerning the codes and rules concerning drunkenness, drug use, and criminal behaviour. Some commentators have noted that the criminalisation of substance use coincides in a general way with the advent, and thereof social control, of the teenager (e.g. Measham et al., 1998). In particular, stricter criminal legislation both concerning substance use but also the freedom of movement for young people has at times been in direct response to moral panics about teenage substance-using cultures (see Measham et al., 1998). While, on the one hand, increased criminalisation can be viewed as a response to 'youth out of control', it may also be the case that youth cultures are a

response to the dilemma of 'the modern adolescent' and over-control by an anxious adult order. Adult control of youth and youth cultural responses can thus be seen in a form of a dialectical relationship.

In a time of increased criminalisation of substance use, there has not however been an equivalent decrease in substance use among youth. Measham et al. (1998) argued rather that there was an unprecedented *rise* in adolescent substance use during the 1990s. Similar sociological trends were seen across Europe (EMCDDA, 2018), although, as shown in section 1.1, Sweden has one of the lowest rates of youth substance use in Europe and it has been low since the 1970s. Interestingly, following the 1992 increase in maximum tariff to imprisonment for any infringement of the drug laws, including minor possession or even presence in the body, adolescent substance use in Sweden also increased (Brottsförebygganderådet, 2000). The increase in Sweden and across Europe points to a general change in the culture of youth drug use that provides an important aspect of understanding adolescent substance-using behaviours.

The theoretical position on this change in youth culture, if not in western culture more broadly, is the normalisation thesis (see Parker et al., 1998). The thesis argued that the rise in adolescent drug use cut across many previous boundaries; whereas previously drug use was associated with the confines of specific sub-cultures, working classes, inner cities, and predominantly male arenas, the increase of use in the early 1990s saw a spread to a wider cross-section of young people. Moreover, argued Parker et al. (1998), contact with drugs and a 'drug-wise' mindset became more common, even among non-users. A central argument in the normalisation thesis was that a normalisation of drug use has not led to an increase in problematic drug use and that many young users of alcohol and drugs are 'well-adjusted' to the coming demands of adult life, rather than being deviant or maladjusted. More recent discussions (see Williams, 2016) have suggested that another shift in usage rates may be underway, which is more akin to 'differentiated normalisation' suggesting more heterogeneity in youth substance use cultures than the normalisation thesis initially proposed.

Despite this, some of the key points of normalisation at the level of young people's reasoning are interesting to note. Measham et al. (1998) maintained that young people in general display rationality, planning and control of their drug use, akin to other

leisure activities. In a normalised cultural context, substance use ceases to be solely a problematic or essentially 'risky' behaviour. Studies of young people's reasoning about the risks of drug-taking, e.g. Larkin & Griffiths (2004), have shown complex understandings and planning of 'risky but rewarding' behaviours. In particular, young people draw on a number of cultural resources, e.g. the cultural drugwise mindset, as well as social relations, in order to experience pleasure as well as minimise risk. In other words, drug use can be theorised as a primarily social phenomenon and the social group is both the conduit of the positive but a safeguard against the negatives. An important implication of the normalisation thesis relates to societal and legal responses to adolescent drug use. Measham et al. (1998) argued that the criminalisation of drug use means that large numbers of young people are being involved in the criminal justice system, with a knock-on effect of it affecting their schooling, job prospects, and perhaps integration in later adult society.

In terms of youth culture and criminal behaviour, the theory of 'negotiated order' (McAra & McVie, 2012) provides similar insights into understanding the social arenas of adolescents involved in, or on the fringes of, criminal activity. In particular, the theory draws attention to how responses, within both formal and informal social orders, to criminal or undesirable behaviours shape adolescent development. The theory argued that three social orders – the school, the police, and the street – play a key role in determining the pathways in and out of criminal behaviour. Young people need to become adept at negotiating their way through these orders, but those who are vulnerable or otherwise lacking in the necessary skills, resources, and opportunities will find themselves labelled, excluded, and then marginalised by all three orders. The theory builds on empirical analyses that showed that adolescents experiencing deprivation or poverty, along with having other vulnerabilities, such as being bullied and/or living in negative family environments, were more likely to be excluded from school or receive warnings from the police, compared to their peers even when controlling for actual levels in 'bad' behaviour. An important aspect of the theory is that some children, displaying 'bad' behaviour, are more easily labelled than others. Labels stick and require substantial work by the young person to remove them or prove otherwise to the adult world. Children lacking these resources, for example in terms of a supporting or higher socio-economic status family, are less able to negotiate the punitive orders of school and police. Thus, these children become unfairly targeted and

McAra & McVie (2012) also demonstrated with qualitative analysis of interviews with young people "the difficulty which young people have in resisting or shrugging off troublemaker identities once applied (regardless of current classroom behaviour)" (p.356). Particularly in schools as semi-closed institutions, young people once labelled cannot escape this punitive gaze, other than through exclusion or formally leaving.

McAra & McVie (2012) also asserted that 'the street', as a socio-cultural point of youth leisure rather than a geographical location, is a third key, albeit informal, order which young people must negotiate. Even here, inclusionary and exclusionary processes are at work, and again it is the most vulnerable who fail to successfully navigate this order. For example, those young people who experienced higher levels of conflict at home were more likely to be excluded from their social group. Interestingly, adolescents who displayed more impulsivity and aggression were also more likely to be excluded, whereas peer pressure was not a significant factor. This suggests that more extreme behaviour, such as aggression, rather than helping some adolescents fit in to 'deviant' groups, is first and foremost the reason they are excluded from ordinary peer networks. McAra & McVie (2012) further developed the theory in terms of the rules of engagement for conduct on the street and how these relate both to territory in terms of geographical space, but also in terms of gendered action (i.e. what is more acceptable for boys versus girls).

The normalisation thesis and the theory of negotiated order together draw attention to how substance use is interwoven in the ordinary socio-cultural context for many teenagers, yet responses to this and to other criminalised behaviours often focus on and doubly penalise the poor, vulnerable and disenfranchised. These exclusionary practices probably exacerbate a young person's negative development. McAra & McVie (2012) argued that labelling and then secondary labelling by formal and informal orders creates a path dependency for young people, narrowing their choices, or in critical realist terms, narrowing the positions within society which they can occupy.

The socio-ecological model of development

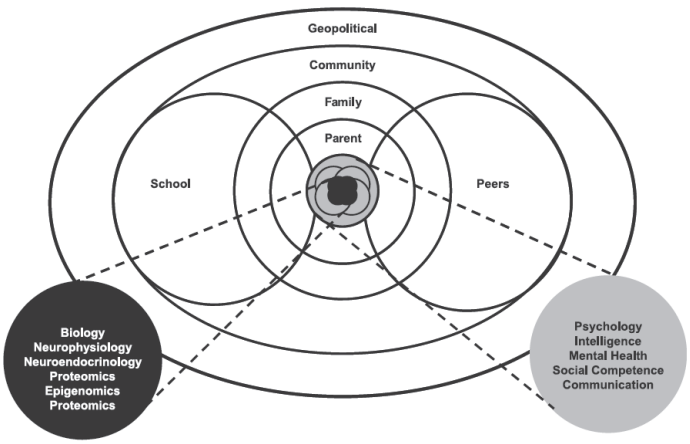
The socio-ecological model of development, first introduced by Bronfenbrenner (1979), but also developed by Sameroff (2010), provides a second theoretical perspective for this thesis. Both Bronfenbrenner's (1979) original description of 'human ecology' and Sameroff's (2010) 'unified theory' can be seen as models or frameworks for how to understand human development. The focus is on *what* aspects and features of human life should be incorporated into research and theory on development, and less on explanatory theory of *why* humans develop one way and not another. To this extent, the socio-ecological model is more akin to a grand theoretical framework for how to understand, conduct and compile research on development. Although this gives the socio-ecological model meta-theoretical leanings, both Bronfenbrenner and Sameroff do not engage explicitly with topics from the philosophy of science, such as causation, ontology or epistemology. Rather, their work could be interpreted within a softer version of positivism or scientific empiricism.

In Bronfenbrenner's (1979) model, development is viewed as a product of the interaction between the individual's perceptions of the immediate environment and the environment itself. 'Development' is defined as a set of enduring changes in the individual's perceptions, feelings, and behaviours. The individual person is the basic unit in the model, but the environment or setting is divided into four concentric systems or domains: the micro-, meso-, exo-, and macro-system. The micro-system is the immediate setting in which the individual lives or finds itself. For example, for a 13-year old, the primary setting in the micro-system is the family, but school and any leisure activities are also micro-level domains. Thus, development always occurs in interaction with and within these immediate systems. However, these micro-systems also exist or operate as part of systems of their own – in meso-systems. For example, while the school is part of the developing adolescent's micro-system, how the school is run and resourced, the kind of ethos or climate, or the kind of teachers therein, all affect the adolescent's micro-system. Thus, the meso-system's functioning plays an important role in the functioning of the micro-system. For example, how the school as a system links up and interacts with the family as a system can have important effects for the developing adolescent. At the next level up, Bronfenbrenner described the exo-system, which is the system of meso-systems. For example, schools are not isolated systems but exist within communities and are part of a larger system, e.g. in Sweden schools are

administrated by the local council. The resources, politics, and competence of the local council, along with other features of the local community constitute an exo-system for the school. At a wider level is the macro-system, which includes a nation's legal, political, and economic systems.

Within this framework, Bronfenbrenner (1979) described a set of nearly 20 definitions, some 10 propositions, and 50 hypotheses or heuristic statements for a research programme. While this research programme may not have been fully realised, Sameroff (2010) maintained that the basic idea of development being a product of the interaction with and within the systems of family, schools, and community have been a universally accepted definition of developmental context. Figure 7 depicts the socio-ecological model, according to Sameroff's (2010) description.

Figure 7 – The socio-ecological model of developmental context

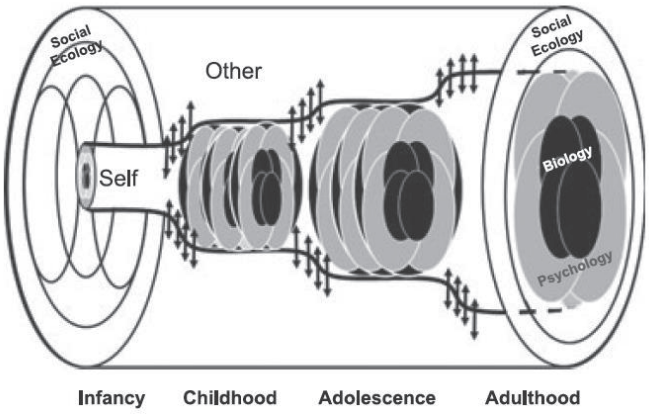


Drawing on recent developments in neuroscience and epigenetics, Sameroff (2010) extended the model of the individual also to be an interactional system responding to, but also reciprocally changing, the micro-system. The black circle in figure 7 denotes biology and the grey circle denote psychology, and these are viewed as interactive systems, which in turn interact with the wider social ecology. On the age-old 'nature-nuture' debate, Sameroff (2010) argued that they mutually constitute each other in a dialectical and interpenetrative relationship. In an alliterative flourish, Sameroff wrote that development is "neurons and neighbours, synapses and schools, proteins and

peers, and genes and governments" p.7. This departs somewhat from Bronfenbrenner's idea of the individual as the basic unit in the model. For Sameroff (2010), the basic unit or level of analysis is the interdependent, mutually-constitutive *relationship*, and this concerns even gene-environment interactions. Like Bronfenbrenner thus, 'development' is product of the continuous interactions between the adolescent and his or her social setting.

In Sameroff's model, however, the social setting of meanings, morals, and representations is afforded a prominent 'regulatory' role on development. For example, the micro-system is populated by a range of people with their own ideas, cultures, and moral codes which place expectancies, demands, or even restrictions upon the developing adolescent. Thus the kind of development that ensues is not just shaped or regulated by people and systems but by the moral codes they bear. In turn, such representational systems are also in an interactional relationship with the wider socio-cultural setting. In this way, the model allows for physical aspects of development, such as puberty, to be viewed as biological events that are shaped by cultural understandings. Thus, in Sameroff's (2010) unified model, development is a dynamic process, with mutually-constitutive changes occurring at all levels of the system. The unified model, including the element of time, is depicted in figure 8. Over the course of time, from childhood to adolescence, the person emerges in a regulatory, but symbiotic relationship with the social ecology of families, peers, schools, community, and geo-politics.

Figure 8 – The unified model of development



A theoretical model of development that can sustain analysis of both the physical, the personal, and the social is especially important for studying the development of teenage alcohol and drug use. While alcohol and drugs have an immediate chemical effect on the young person, an analysis would need to look beyond the substance's physical effects to individual expectations, peer and family responses, as regulatory micro-systems, which in turn need to be understood as representative of wider societal morals. For example, the link between early (e.g. 13 years old or younger) onset of alcohol use and later problematic drinking tends not to hold in the southern European countries (Maimaris & McCambridge, 2014). A socio-ecological perspective, might suggest that it is not that the families of southern European adolescents are somehow 'failing' to regulate early alcohol debut. Rather, a question could be posed of how such families are maintaining the regulation of an existing culture of non- (or less-) problematic teenage drinking.

Although the socio-ecological model might appear to sit within a softer version of positivism, there is a clear compatibility between this multi-layered way of thinking about development and the critical realist model of the human agent and social context. Archer's (2000) view of the person as stratified between physical, personal, and social domains can easily encompass the socio-ecological model. The key difference being that Archer retains a central role of agency for the developing person, in the network of positions and practices. Interestingly, Sameroff suggests that "individuals are embedded

in networks of relationships that *constrain* or *encourage* different aspects of individual behaviour. Social institutions like families, schools, and the workplace are composed of *roles* that children come to understand and *fill*" (p.20; my emphases). While the emerging adolescent's agency is not foregrounded, the idea of existing positions or roles, that adolescents then act within or practice, is remarkably similar to the critical realist position; in particular that the structure or network can enable or constrain agency. The socio-ecological model of context also bears considerable similarity to Pawson's (2006) multi-layered view of context (described in Chapter 2). However, although the socio-ecological perspective provides a model of the domains in a young person's life that are likely to be involved in the development of, for example, criminal behaviour, it does not readily deliver an *explanation* of the causal mechanisms driving the differential developmental processes. To understand potential causal mechanisms, we need to be have insights into 'the adolescent mind', namely: why do adolescents make the choices they do?

The deficit model of adolescence and an alternative – the 'pulls' of drink, drugs, and crime

Several commentators have highlighted that research on adolescence – and in particular on adolescent 'risk' behaviours – stems from or reproduces negative stereotypes of adolescents and adolescence as period of risk (Rhodes et al., 2003; Karlsson, 2010; Sercombe, 2014). This negative perspective has also been referred to as the deficit model of adolescence, which in short concerns a view of the developing young person as lacking in cognitive, emotional, and social capacities. In developmental research, as well as more broadly in the media, adolescents are characterised as 'undeveloped', 'sub-optimal' beings, or as an inherent risk to themselves and others, a subject to be controlled (Sercombe, 2014). Males (2010) claimed that much research on adolescent 'risk' behaviour uses "relentlessly negative descriptives" of young people (p.59), while Sercombe (2010) argued that the way adolescents are conceptualised in youth research and policy amounts at times to hate-speech. These may seem like extreme formulations but they illustrate a perspective on adolescent behaviours that may have an unbalanced focus on the negative, particularly when comparing adolescents to other age-groups in society. Males (2009, 2010) argued that adolescents are no more risk prone than other

age groups, once important variables like poverty are controlled for. Moreover, he suggested that many of the arguments for 'adolescence as risk period' systematically ignore the research on adult behaviours. Equally, Sercombe (2010) maintained that the dominant cultural idea of adolescence as a risk-prone or an especially sensitive period of development is so powerful or commonplace that even scientists unwittingly confirm to it. Instead of adolescence *per se* being a risk period, both Males (2009) and Sercombe (2010) suggested that there are sociological explanations for why this appears so, and importantly, there are social determinants for why some behaviours such as drunkenness and drug use become more risky for adolescents, which the deficit model potentially misses.

Specifically in terms of explanations of adolescent 'risk' behaviours, such as drinking alcohol and taking drugs, the deficit model presumes that a lack or failure in some domain or another 'pushes' an adolescent into substance use or criminal behaviour (Rhodes et al., 2003; Karlsson, 2010). As noted in section 1.1, much of the North American risk factors research is, according to Rhodes et al. (2003), predominantly focused on micro-level 'push factors'. Coupled with this is an implicit view of the adolescent as lacking, or being in need of, control (Rhodes et al., 2003). Socio-ecological explanations also can be viewed as adopting a notion of risk factors mainly as 'push' factors. The upshot of a deficit model for research and theory is two-fold. Firstly, studies of adolescent 'risk' behaviours may unwittingly reproduce a model of the adolescent that is deterministic, simplistic, and over-generalised. Secondly, it might imply that theory and research has an unbalanced focus on the pathological. In other words, a deficit model can only view behaviours such as drinking alcohol or taking drugs as arising from negative or traumatic circumstances. In only searching for – or only having theoretical room for – risk factors as 'push factors', the deficit model and the risk factors model potentially negate the role of agency. Engagement in 'risk' behaviours for normative or even positive reasons may thus be missed in explanatory accounts.

The deficit model also has consequences for policy and practice, due to what Karlsson (2010) referred to as a 'top down' way of both understanding adolescent drug use, as well as of designing prevention initiatives. The influential North American prevention design is primarily built on the deficit model with the general idea that adolescents need

to be taught how to resist or deal with push-factors, e.g. the social influence model. As noted in section 1.2, such models have however had limited effect in, for example, reducing cannabis use among teenagers. Attempts to redress a deficit model, such as the Positive Youth Development (PYD) model (see Catalano et al., 2004; Lerner, 2009), have shifted the focus from the perceived problems and negatives of adolescence to foreground teenagers' capacities, capabilities, and resources. While an improvement on the deficit model, models such as PYD are however not without critique in that they still implicitly view behaviours such as drug use and criminal behaviour as arising from a *lack* of core (positive) values or competencies, such as social and moral competence, spirituality, and prosocial norms. Further, programmes like PYD have been accused of reproducing a conceptualisation of the adolescent as an emerging neo-liberal subject (Sukarieh & Tannock, 2011). The developing adolescent is viewed as a rational, context-free receptacle waiting to develop positive assets or characteristics that align with particular political and moral goals of a (particular) adult world. Roumeliotis (2015) argued that this kind of prevention science in Sweden tacitly draws on an idea of rational choice agency at the core of teenagers' actions in order to align with political goals of zero tolerance: adolescents who get drunk, use drugs, or commit crimes are constructed as being 'irrational' agents, as they engage in behaviours that are not aligned with the hegemonic political ideals. In this way, political goals run the risk of being made natural or given within prevention programming (Roumeliotis, 2015). Moreover, the rational choice model of human agency is taken as implicit fact, rather than a philosophical position. This in turn may obfuscate the theorising or design of new prevention methods, including a realistic reformulation of the goals of prevention programmes.

In terms of alternatives to the deficit model, Karlsson (2010) argued that theories that underpin prevention design also need to acknowledge 'pull factors', that is, the elements of pleasure or enjoyment in adolescents' choices for their behaviours. This does not mean that all instances of adolescent drug use are driven by pleasure goals or motives, but adolescent behaviours become unintelligible (to the adult world) if positive motives are censored in theory and practice. In a critical realist explanation, adolescents' reasoning, motives, and desires would be viewed as an essential part of understanding the causal mechanisms of behaviour. Karlsson's (2010) argument is towards the improvement of prevention design, yet has a similar goal: if theory or

prevention design does not take into account that many of the choices adolescents make about substance use and crime may arise from perceived pleasurable rewards, then there is a failure to understand adolescents. In practice this may mean that prevention programmes are ineffectual or lack credibility with young people. Even concerning more problematic forms of drug use, the element of pleasure is important to take into account when developing theoretical understanding (Valentine & Fraser, 2008).

A number of qualitative studies have highlighted the complex relationship adolescents have concerning the rewards of substance use and criminal behaviour. Young people are not unaware of the risks for example in taking drugs, but rather show careful reasoning and planning to minimise the risks in order to seek the pleasurable aspects of intoxication (Larkin & Griffiths, 2004; see also Karlsson, 2010). Ander (2018) showed how adolescents plan and organise their alcohol consumption so as to be able to get drunk in safe(r) environments, such as home parties with friends (when parents are out), but also to have control over which peers they come into contact when drunk, as well as being undisturbed or undetected by adults. The social group can function as a resource both in the planning of intoxication, e.g. learning about the effects of drugs and dosing, but also as a form of safety net should something go wrong (Larkin & Griffiths, 2004). Moreover, studies have suggested that many of the pleasurable aspects of intoxication arise from the social situation, of being with friends and experiencing the intoxication together (Aldridge, Measham, & Williams, 2011; Farrugia, 2015). The 'risky but rewarding' conceptualisation (Larkin & Griffiths, 2004), outlined earlier, draws attention to a socially-complex 'pull' of intoxication through alcohol and drugs.

In terms of criminal behaviour, Katz (1988) has argued that there is often some phenomenological or experiential drive in the act of committing a crime. This can be both emotional, such as rage or a 'thrill', as well as a cognitive drives, such as a sense of gain, which in turn can be a social gain as much as a material one. Thus, there can be a sensual attraction or motivation 'pulling' the person towards a criminal act. Part of Katz's aim in highlighting the experiential or attraction aspect of crime is to critique what he saw as the over-use of rational-choice and push factor models in much of criminology. In the case of adolescent crime, Katz (1988) maintained that more is going on than teenagers simply calculating material gain from crime and/or being 'pushed'

into crime because of underlying stressors. While these explanations may be part of the picture, Katz's point would be that we also need to focus on what attracts adolescents to commit crime, whether at an emotional, cognitive, or social level.

3.2 Theories of adolescent 'risk' behaviours

This section will present three specific theories of adolescent 'risk' behaviours to which this thesis aims to contribute. These three theories are: the Dual Taxonomy of antisocial behaviour (Moffitt, 1993), the Social Development Model (Catalano & Hawkins, 1996) and Problem Behaviour Theory (Jessor, 1991, 2014). There are a number of other competing theories of the development of adolescent 'risk' behaviours, e.g. Thornberry's Interactional Theory of Offending (Thornberry & Krohn, 2001), the theory of triadic influence (see Flay, Snyder, & Petraitis, 2009), and the dual systems model (Steinberg, 2010). The Interactional Theory bears close similarity to the Social Development Model, but has arguably been less influential in informing prevention design. The theory of triadic influence has a much broader scope than the 'risk' behaviours in focus in this thesis, being more concerned with explaining health-related 'risk' behaviours and health promotion. The dual systems model can be viewed as neuropsychological model, which may result in a form of 'latter-day reductionism' (Jessor, 2018) and negating a broader, socio-psychological understanding.

The three theories chosen for this thesis represent some of the most influential theories in the prevention literature, informing the design of many prevention programmes and initiatives in both North America and Europe. Additionally, these three theories use something of a socio-ecological model in their approach to theory-building, even if this may not be explicitly stated. Further, these three bodies of theory all ally with and make use of the risk factors literature, to which this thesis also connects. The focus is on describing and clarifying the *explanation* that these theories provide. To this end, the principle theorists' own work has been chosen including both original theoretical papers, but also more recent reviews undertaken by the principle theorists. Some empirical studies are used in this section and these have been chosen as some of the best empirical work available on the theories. Indeed, most of the empirical studies selected are those used in the theorists' own reviews.

A note about 'risk'

Before the three theories are introduced, a note is necessary concerning the term 'risk'. Throughout this thesis, the term is put in inverted commas to denote that it is an established concept, but one that is used differently by different authors, and at times, used inconsistently between or vaguely within research articles. Jessor (1991) argued that the term 'risk-taking' behaviour should not be used as it already comprises an explanation – that teens engage in such behaviour because it is a risk, i.e. for a thrill. Jessor (1991) argues that not only does such a usage introduce technical confusion, it also fails to capture the range of behaviours that are undertaken because in his view the risks of that behaviour are not understood by adolescents. Instead the term 'risk behaviour' is proposed by Jessor (1991) to refer to a range of outcome 'problem' behaviours such as smoking, sex, drunkenness, drug use, driving without using a seatbelt, lack of exercise, criminal activity, skipping school, to name just a few, that may put at risk a 'positive' psychosocial development into adulthood.[18] However, in the risk factors approach, e.g. Hawkins, Catalano & Miller (1992), the correlates of outcome behaviours such as substance use and criminal activity are also termed 'risk factors'. Thus there are differences in how different theorists use the term 'risk', 'risk factor' and 'risk behaviour' with 'risk' at times meaning a statistically-correlated factor and at times referring to an outcome behaviour that is, for one reason or another, seen as undesirable.

The Dual Taxonomy of antisocial behaviour

Moffitt's (1993) developmental Dual Taxonomy of antisocial behaviour is perhaps the most well-known theory of adolescent 'risk' behaviour (see also Moffitt, 2018, for a more recent review of the empirical literature). Moffitt's (1993) original taxonomy proposed three types or categories of developmental trajectory of antisocial behaviour in adolescence: those who largely abstain from antisocial behaviour, the Adolescent-Limited (AL) type, and the Life-Course-Persistent (LCP) type. The idea of a 'type' is meant as a mutually-exclusive category; Moffitt (2018) argued against the idea of a

[18] Similarly, value terms such as 'problem' and 'positive' that are used by a theorist or researcher are put in inverted commas to denote that these value terms are those of the theorist.

sliding-scale of qualitative dimensions between the AL and LCP types, but rather that they are two distinct and durable types of offender.

In brief, the core of the theory for LCP adolescents is that they have early adverse beginnings, such as neurophysiological and temperamental difficulties and dispositions. These individual properties evoke a negative reaction in the interpersonal, often home, environment. Moffitt (1993) mentioned the role of adverse home environments as having an effect on the developing child, but the focus is on the interaction between the "vulnerable and difficult infant" (p.682) and how the social environment responds to or even exacerbates these negative tendencies, resulting in antisocial behaviour. While the explanation of LCP adolescents foregrounded the role of early or inborn neuropsychological problems, the micro-environment is afforded a role: "Parents and other people respond to children's difficult temperaments and developmental deficits. In nurturing environments, toddlers' problems are often corrected. However, in disadvantaged homes, schools, and neighbourhoods, the responses are more likely to exacerbate than amend" (p.684). The interactions within the child's socio-ecology, in terms of parents, schools and so on thus play a role, but the developing child is already conceptualised as containing or bearing 'problems' to be 'corrected'. Moreover, these are problems that 'social disadvantage' would find it more difficult to handle, somehow. In the theory, LCP types display externalising and aggressive behaviours as children, which turns into antisocial behaviour as adolescents and a criminal lifestyle as an adult. Longitudinal research has provided empirical support for that LCP types have more negative outcomes in adulthood (See Moffitt & Caspi, 2001; Moffitt, 2018).

AL antisocial behaviour, on the other hand, is theorised as more situational, sporadic, and limited to a shorter period during adolescence. It is viewed as being more contingent on perceived gains and rewards and is explained via a theory of the 'maturity gap' and the mechanism of social mimicry. The maturity gap is the difference between an adolescent's biological and social maturity. Citing decreases in the age of biological maturity at three-tenths per decade, Moffitt (1993) argued that an earlier biological maturity combined with a delay to economic and social independence creates what Erikson & Erikson (1997) described as a 5-to-10 year 'role vacuum'. In this vacuum, young people wish to establish adult-like intimate bonds, to have the material and social

resources of the adult world, and be and be seen as competent and consequential, yet are systematically excluded from doing so (Moffitt, 1993).

Building on the notion of an occupational if not moral vacuum for teenagers, Moffitt (1993) argued that adolescents are "trapped in a *maturity gap*, chronological hostages of a time warp between biological and social age" (p.687; italics in original). If they are not already an LCP type, then adolescents will notice the LCP teens among them, perceive their antisocial behaviour as a marker of adulthood and autonomy, and then mimic this 'bad' behaviour as a way of dealing with the maturity gap and gaining more status. A number of studies confirm the importance of the maturity gap (e.g. Piquero & Brezina, 2001; Galambos, Barker & Tilton-Weaver, 2003) but few clarify or empirically support the proposed mechanism of influence – i.e. mimicry of LCP youth. Some teens may copy the 'bad behaviour' or peers, but within critical realist terms, we would expect heterogeneity, but also an account of the mechanism is required. Moreover, as a generic concept of 'antisocial behaviour' is used as an outcome measure, it is not clear just which kinds of behaviour adolescents are more interested in copying, especially if the theory holds that this is for instrumental gain. For example, the theory could be taken to suggest that AL adolescents begin to use drugs purely to copy LCP types in order to gain a sense of autonomy and adulthood.

Central to the account of the AL type is the conception of a rational agent *choosing* to use antisocial behaviour "where it may serve an instrumental function" (p.686). LCP teens, according to the theory, do not get caught in the maturity gap and "[a]lready adept at deviance, life-course-persistent youths are able to obtain possessions by theft or vice that are otherwise inaccessible to teens who have no independent incomes (e.g., cars, clothes, drugs, or entry into adults-only leisure settings). Life-course-persistent boys are more sexually experienced and have already initiated relationships with the opposite sex" (p.687) and "assume social influence over youths who admire and emulate their style" (p.687). Moffitt (1993) elaborated in more depth about onset, duration, and desistance for both the AL and LCP types; the sketch above is necessarily brief and intended only to provide a simple overview. In reviewing the 25-year history of the taxonomy, Moffitt (2018) argued that it has stood the test of time and been highly influential in policy and practice, though the review only focused on males as findings concerning females have not, Moffitt noted, reached consensus.

The Social Development Model

The Social Development Model (SDM) was initially developed by Hawkins & Weis (1985), then Catalano & Hawkins (1996), and further described by Cambron, Catalano, & Hawkins (2018). The goal of the SDM is to explain the development of adolescent antisocial behaviour, although the earlier papers referred to the prevention of juvenile delinquency, incorporating the risk factors literature. The SDM as such is a general theory of prosocial and antisocial behaviour, as explained by similar developmental processes. No specific theoretical definitions of 'antisocial' or 'prosocial' are given in key theoretical papers, such as Catalano & Hawkins (1996) and Cambron, Catalano & Hawkins (2018), other than as a general term including substance use and criminal behaviour and other behaviours "outside the normative consensus regarding acceptable social behaviour" (Catalano & Hawkins, 1996; p.150). In empirical research, these terms are operationalised in different ways. 'Antisocial' often includes smoking, drinking alcohol, drug use, and sexual activity (see, e.g., Jones et al., 2016). The reverse term 'prosocial' is operationalised at the family-level as, for example, 'being taken to the library' and 'encouraged to do homework' (e.g. Sullivan & Hirschfied, 2011), and at the community level as being involved in school activities, sports, or attending church (e.g. Catalano et al., 1996).

Rather than identifying two distinct types of antisocial youth (as in the Dual Taxonomy), the SDM thus provides more flexibility in its explanatory scope. Drawing on control theory (Hirschi, 1969), social learning theory (Bandura, 1977), and differential association theory (e.g. Matsueda, 1988), the SDM has a wide-ranging socio-ecological focus, highlighting the importance of the family, peers, schools, and communities for both prosocial and antisocial development. The theory hypothesises that there is a chain of development that occurs in primarily social situations that leads to the development of either pro- or antisocial behaviour. In brief, this chain starts with opportunities for behaviour leading to involvement in that behaviour. At this stage, the developing adolescent learns interpersonal skills associated with the context and the behaviour, and in turn these skills lead to social and interpersonal rewards and a sense of belonging and bonding to others. This social development is compounded in a final stage of internalising the learnt skills and rewards as core values. For example, in a test of the SDM om the development of 'alcohol misuse', Lonczak et al. (2001) found that 'antisocial bonding' at age 15 had a significant path to (i.e. correlation with) alcohol

misuse at age 16 (although this was a fairly weak .17 standardised loading). The statistical paths are viewed to 'explain' *why* development has occurred, yet no further account of any causal process is given concerning how 'antisocial' bonding leads to problems with alcohol. This is despite a claim being made that "it is possible to identify intervention points to interrupt the *causal* process" (Lonczak et al., 200q; p. 188; my emphasis).

The theory also describes that beliefs and values come before, or generate, behaviour: "Strong beliefs in the moral order or prosocial values *lead* to prosocial behaviours, while lack of belief in the moral order or beliefs in antisocial values *lead* to antisocial behaviors" (Cambron, Catalano, & Hawkins, 2018, p.5; my emphases). The theory states, however, that it is the role of pro- and antisocial "socialization units", which can be taken to mean families, peer groups, and so on, that generate beliefs and values. One of the theorised mechanisms in the SDM is that "the perception of rewards arising from interactions with either pro- or antisocial groups" (p.5) will lead to pro- or antisocial behaviour. In this way, the perception of social rewards may be seen as driving behaviour.

The SDM has been subjected to a number of empirical tests (see Cambron, Catalano, & Hawkins, 2018) and shows good cross-cultural application (Choi et al., 2005; Roosa et al., 2011). Full model tests of the SDM have, however, found mixed results with explained variances in measures of 'antisocial' behaviour ranging from 11% to 49% (see Cambron, Catalano, & Hawkins, 2018). In one of the most comprehensive tests of the SDM, Sullivan & Hirschfield (2011) found only a modest level of explanatory power. However, as Sullivan & Hirschfield (2011) used an outcome measure of 'antisocial behaviour', questions remain about what behaviours – and in what combinations – are being explained. The SDM also hypotheses that the social development process is affected by three exogenous factors: 'position in the social structure' (e.g. SES), 'individual factors', and 'external constraints', such as lack of neighbourhood safety and 'antisocial' peers (Choi et al., 2005). Fewer studies have however tested how these factors affect the model.

Problem Behaviour Theory

Jessor's (1991, 2014) Problem Behaviour Theory (PBT) also, like the SDM, builds on the risk factors literature. PBT aims to explain 'problem' or 'risk' behaviour. The definition of 'risk behaviour' is "any behaviour that can compromise [...] psychological aspects of successful adolescent development" (Jessor, 1991; p.599). Jessor (1991) makes the point that behaviours such as drinking alcohol, drug use, and criminal behaviour should be referred to as 'risk behaviours' as they imply a risk to psychosocial development. The concept of psychosocial or developmental 'risk' was at its time quite ground-breaking as a response to the ideas that life courses are pre-determined; Jessor's contribution was that the developmental pathways of adolescents can be shaped by the socio-ecology around them. Indeed, Jessor originally drew upon Bronfenbrenner's socio-ecological model.

PBT hypothesised that a range of factors in biology, personality, the perceived environment, the social environment, and in behaviour increase the likelihood of engaging in 'risk' or 'problem' behaviours (Jessor, 2014). Thus, risk factors for 'risk' behaviour are theorised by PBT to exist in five key socio-ecological domains, including the behavioural outcome, i.e. risk factor (behaviour) begets 'risk' behaviour as an outcome. Thus, PBT can also be seen as form of 'push factors' or deficit model of the development of adolescent substance use and crime. On the other hand, Jessor (1991) noted that adolescent risk behaviours are "purposive, instrumental, and goal directed" (p.598). However, it is hard to find research conducted from a PBT perspective that has explored this important aspect of reasoned purpose. Instead, adolescent agency is theorised as 'personality risk' (Jessor, 1991) or operationalised as 'individual-level risk', such as low self-esteem (Costa et al., 2005). In the Costa et al. (2005) study, such individual level factors were highly relevant, even alongside 'controls' for contextual factors. Something is clearly going on at the individual level, but theorising this as a deficit 'push' - in terms of 'personality risk' – may miss an important part of the causal explanation. Moreover, as the outcome measure is 'risk' or 'problem' behaviour, it is difficult to ascertain which individual factors are potentially predictive of which outcome behaviours, e.g. does 'personality risk' equally explain drunkenness and criminal behaviour?

Using PBT, Costa et al. (2005) also explored the role of different social contexts on the development of 'problem behaviour'. Their definition of context can be seen as socio-ecological in that family, peers, school, and neighbourhood risk and protective factors were measured. They also used samples from the US and from China to explore the influence of socio-cultural contextual differences. An important finding was that protective factors in the family domain moderate risk factors in the peer domain, on a measure of multiple problem behaviour. These findings concerned both the US and Chinese samples. However, Costa et al. (2005) stated that "each of the various social contexts make a significant contribution [...] to *explaining* adolescents' involvement in problem behaviour" (p.74; my emphasis). In terms of a critical realist ontology, a question arises though about what the causal mechanism is between context and behaviour: if contexts 'explain' involvement in problem behaviour, then what is the explanation, e.g. of the causal process?

Take 'em to the bridge: Returning to the key questions of this thesis

The phrase "Take 'em to the bridge" is often used by musicians to alert the audience to a coming shift in rhythm and style, sometimes called the bridge or the middle eight of a song. The bridge's function musically is to lead back into the main themes of the piece but with a new emphasis. Chapters 4 and 5 are something of the bridge in this thesis. Whereas chapters 1-3 have been carefully building the case for the key questions of this thesis and laying the philosophical and theoretical groundwork for how these questions might be approached, chapters 4 and 5 change tone and tack. They describe the main work of the thesis: how the studies were done (Chapter 4) and what was found (Chapter 5). This is to lead us back into the main theme of this thesis not just with new emphasis but also with new empirical material. The aim of developing theory can then begin. Figure 9 provides a quick re-cap of what has been covered so far. We will return to the main theme of this thesis – of developing theories and of improving understanding of the development of substance use and criminal behaviour in adolescence – in Chapter 6. But for now, let's head for the bridge!

Figure 9 – What have we learnt so far: Quick summary

Thus far, we have learnt that the existing research literature on adolescent substance use and criminal behaviour, despite being vast, has specific gaps concerning heterogeneity both in how these behaviours group together and how they develop over time. Moreover, there is a gap when it comes to explaining potential differences in development using a broader socio-ecological model to determine the *relative* importance of different factors. We have also learnt that there may be a benefit in using within-person and/or person-oriented methods, as well as in using an alternative philosophical framework to improve developmental theories. A potential philosophical solution was described in Chapter 2, including an overarching methodology for how theoretical models can be developed. Chapter 3 introduced some broad, scene-setting theories from which to view the specific subject matter of this thesis. We have also acquainted ourselves with three of the most prominent theories of the development of adolescent substance use and crime; moreover, these theories underpin much of current prevention policy and practice.

"They call us problem child
We spend our lives on trial
We walk an endless mile
We are the youth gone wild"

Skid Row – Youth Gone Wild (1989)

4. Methods

This chapter will detail the specific methods used in the three empirical articles (Studies I-III) in this thesis, as well the approach taking to writing the fourth, theoretically-oriented article (Study IV). The empirical data for Studies I-III comes from the LoRDIA project (introduced in section 1.4). An overview of the common methodological points, concerning design, sampling, procedure and ethics, and materials and measures will be given for these studies. An outline of the methodology for the theoretical article is also given, followed by a discussion of methodological implications. Specific methodological details relating to the individual studies are elaborated on in the articles themselves (see Appendices 1-4).

4.1 Design

A longitudinal, prospective, cohort design was used. A cohort of adolescents in grade 7 (age 13-14) were surveyed annually for three consecutive school years, i.e. in grades 7, 8, and 9[19] using self-report measures (described in section 4.4). The data was collected over four calendar years from 2013-2016 with each data-collection wave surveying two different school grades at the same time. Thus, each data-collection wave was a combination of two school-grade cohorts. For example, in 2014, grade 7 and grade 8 students were surveyed. In 2016 only the younger cohort, i.e. then in grade 9, were surveyed. Study I used data from both cohorts but the data was combined and organized by grade, so as not to conflate maturational differences across grades and to guard against, to some extent, a cohort effect. Figure 10 shows the design used in Study I, in the ovals, and how this relates to the cohorts and data-collection waves.

[19] Swedish school grades differ from, for example, the English and US systems.

Figure 10 – Study I design by cohort and data-collection wave

	Wave 1 (2013)	Wave 2 (2014)	Wave 3 (2015)	Wave 3b (2016)
Cohort 1	Grade 6	Grade 7	Grade 8	Grade 9
Cohort 2	Grade 7	Grade 8	Grade 9	-

Studies II and III only followed cohort 1 from wave 2 onwards. This is because the 'baseline' data (on the socio-ecological covariates, described later in section 4.3) needed for these studies were only available from wave 2 onwards. Figure 11 shows the design used in Studies II and III in relation to the cohorts and data-collection waves.

Figure 11 – Studies II and III design by cohort and data-collection wave

	Wave 1 (2013)	Wave 2 (2014)	Wave 3 (2015)	Wave 3b (2016)
Cohort 1	Grade 6	Grade 7	Grade 8	Grade 9
Cohort 2	Grade 7	Grade 8	Grade 9	-

4.2 Study context and sampling

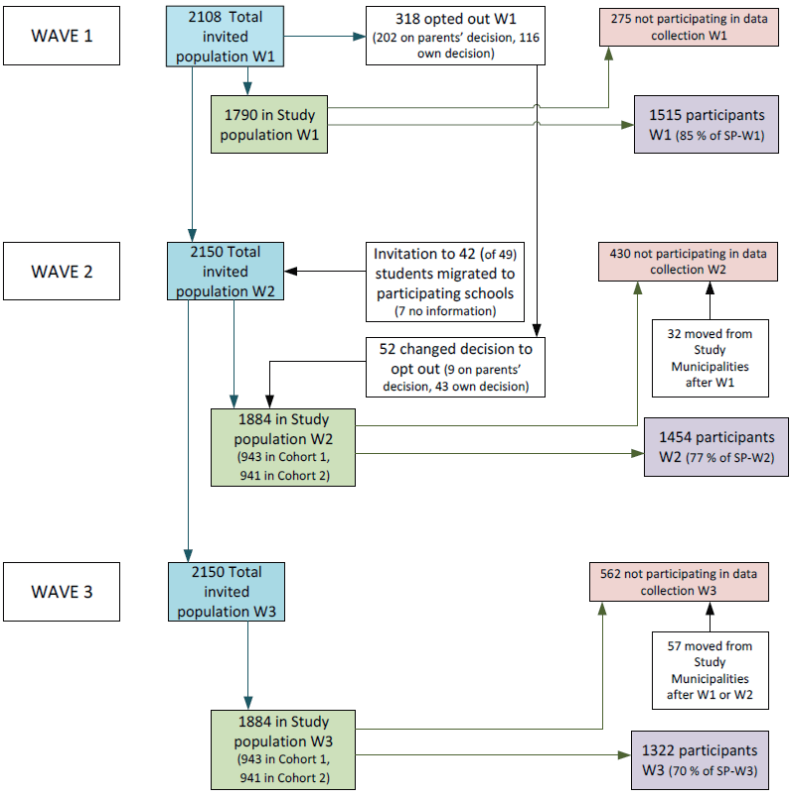
This section describes the study context and the overall sampling approach, including population drop-out, i.e. which adolescents did not take part in the study at all. Thus, this section concerns which adolescents were included in the *study population* – as an initial data material for the three empirical articles – and whether these differed from those who were not included, referred to as the 'population drop-out'. This is slightly different from the samples used in each individual study and the 'internal participant drop-out', which is reported in more detail in each of the articles (see Appendices 1-3).

The study population was drawn from four medium-sized municipalities in southern Sweden, comprising suburban, commuter and country towns with populations ranging from 9-36,000 (Gnosjö, Härryda, Vårgårda and Värnamo). These municipalities were chosen partly for pragmatic reasons, that each was large enough to contain sufficient sample sizes e.g. n>1000, but small enough so as to be manageable in terms of organising municipal-wide buy-in to the project. A further pragmatic reason was proximity to the two universities running LoRDIA.

Over the first two waves of data-collection, all adolescents (n=2150) registered at all schools (n=33) in the four municipalities were invited to participate. At wave 1 of data-collection, 15% (n=318) of adolescents opted-out of the study and a further 13% (n=275) did not participate on the day, e.g. due to absence. At wave 2, new participants were allowed to join the study, including 42 new participants, e.g. new arrivals at the school, and 52 existing students who now opted into the study, giving a study population of n=1884. At wave 2, there were 32 participants who had moved out of the study area, as well as 398 participants who were not present at the time of data-collection. The attrition rate at wave 2 was thus 23% of the study population. After wave 2, no new participants were allowed to join the study. At wave 3, there were 57 participants who had moved out of the area and 505 participants who were not present at the time of data-collection. The attrition rate at wave 3 was thus 30% of the study population. Figure 12 shows a flow chart for the sample selection and population drop-out.[20]

[20] Credit to Timo Mäntylä Liffner and Helena Engkvist of the LoRDIA team for producing the flow chart.

Figure 12 – Sample flow chart



Analysis of population drop-out, that is, of those adolescents who were invited to participate but opted out of the study (n=266), was undertaken by the LoRDIA project team[21]. No statistically significant differences were found between those who opted-out and the study population in terms of sex ($\chi 2 = 1.53$, df = 1, p = 0.22), school exam grades (t = 1.42, df = 313.9, p = 0.16) or school absence (t = 0.52, df = 1806, p = 0.6).

[21] Unpublished technical report.

4.3 Procedure and ethical approach

Invitations to participate (in Swedish and 31 other languages) were sent out to legal guardians of all school children registered in the four municipalities during 2013. An opt-out passive consent model was adopted. This meant that legal guardians had to contact the LoRDIA project co-ordinator if they did not wish for their child or charge to participate (this is discussed in section 4.6).

Data-collection started in autumn 2013 with subsequent full data-collection waves carried out annually until autumn 2016. At each data-collection wave, data was gathered by self-report pen and paper questionnaires in a classroom situation. Data-collection was conducted by LoRDIA PhD students along with trained research assistants. Each data-collection session began with an introduction from one of the LoRDIA PhD students explaining the purpose and importance of the study. School staff were generally not present during data-collection. Participants were also orally informed of key ethical principles such as confidentiality and the right to withdraw, i.e. despite passive parental consent, participants could themselves choose to opt-out (but not vice versa). Encouragement was also given to answer honestly, or to leave the question blank if participants felt unsure or uneasy about answering, rather than providing false or dishonest answers. Participants were reminded that all data was stored in an anonymised file containing numeric codes instead of names, that only the project co-ordinator had access to the master list of codes, that information would not be shared with anyone outside the research team, and that all analyses would be at a group level, i.e. no analysis or report would look at or present individual data. These points were intended to assure participants about confidentiality and disclosure, as well as encourage them to answer as truthfully as possible.

Completion of questionnaires normally took between 20 and 60 minutes, with longer completion times being more frequent during the first waves of data-collection when participants were younger. On finishing the questionnaire, a code (obtained from a copy of a master list) denoting the participant was entered by one of the research team on the top of the questionnaire. This way the questionnaires remained anonymous to all but the LoRDIA project co-ordinator, to whom the copy of the master list was returned. The participant code allowed subsequent data to be linked to that person. Following completion of their questionnaire, participants were provided with a

debriefing letter with contact details both for LoRDIA and the school counsellor. The aim of the de-briefing letter was to provide simple information about the study, but moreover to provide two points of contact, namely the school counsellor and the LoRDIA project co-ordinator, should the participant have any questions about or concerns raised by the study.

The study was approved by the Regional Research Ethics Review Board in Gothenburg (No.362-13: 2013-09-25, 2014-05-20, 2015-09-02).

4.4 Materials and measures

Studies I-III all used the same measures and scales, relating to the key indicator data on drunkenness, drug use, and criminal behaviour. Additionally, studies II and III used data on explanatory socio-ecological measures and scales. The measures of key indicator data will be described first, followed by the socio-ecological measures.

Key indicator measures: Drunkenness, drug use, and criminal behaviour

The measures of drunkenness and drug use were adapted from those used in annual school surveys conducted by The Swedish Council for Information on Alcohol and Other Drugs (CAN) (see Englund, 2016). Both questions – "In the last 12 months ... Have you gotten drunk? Have you used drugs?" – are an ordinal frequency measure with six response categories ranging from 'Never' to 'Once a week or more'. At wave 1 of data-collection, a short list of drugs using their common names was provided. At subsequent waves, two questions about drug use were asked: one on cannabis and one on "Other drugs, e.g. ecstasy, GHB, amphetamine and cocaine". Data from these two questions from waves 2 and 3 were combined into a single measure of any drug use. This was done by taking the highest of the values to the two questions, e.g. if cannabis use was monthly but other drug use was weekly, the combined measure for any drug use for that participant was weekly.

The measure for criminal behaviour was taken from the annual school survey conducted by The Swedish National Council for Crime Prevention (see Ring, 2013). It

comprises nine items about criminal acts undertaken in the last 12 months (e.g. damaging public property, stealing from a shop or person, minor fraud, minor robbery, carried an illegal weapons, such as knives, and threat of violence). Four ordinal response categories ranged from 'Never' to '6 times or more'. Analysis of single items at grade 8 showed that acts committed by more than 2% of the sample were: damage (10%), theft of object (9%), carried a weapon (6%), deception/minor fraud (5%), and theft of a bicycle (4%). Internal consistency at all three waves was good (Cronbach's alpha = .83, .86, and .85).[22] Thus, a mean of the summed scores for the nine questions, allowing up to two missing answers, was calculated and treated as a continuous scale.

Key indicator measures: Data-completeness

This section describes data-completeness. Firstly, the amount of missing data for each of the key indicators and at each grade is described for each of the studies. Secondly, the loss of data over time, i.e. longitudinal internal (within-sample) data loss, is analysed for potential bias.

Study I followed a baseline sample (n=1409) of grade 7 adolescents who had complete baseline data and at least one valid follow-up data point. The proportion of missing data per item on the measures of drunkenness, drug use and criminal behaviour for this sample was between 5.4% and 6.6%. At grades 8 and 9, missing data per item was under 5%. Studies II and III followed a baseline sample (n=755) also of grade 7 adolescents, but based on having complete baseline data and at least one other complete data-point. Missing data per item at grade 8 and 9 was also under 5% for each of the key indicator measures.

Next, for Study I differences between participants with missing and complete data at grade 8 and grade 9, were assessed by comparing responses at baseline (grade 7) on the key indicator data. Participants with missing responses at grade 8 were compared to

[22] There is a debate about using Cronbach's alpha on ordinal, Likert-type items (see Zumbo, Gadermann, & Zeisser, 2007; Trizano-Hermosilla & Alvarado, 2016; McNeish, 2018). Cronbach's alpha is likely to under-estimate the internal consistency of the current data, based on the findings of Zumbo, Gadermann, & Zeisser (2007). Hence, had internal consistency been calculated using more suitable measures for ordinal data, a higher (improved) rating of consistency would be expected.

those with complete responses using grade 7 levels of drunkenness, drug use and criminal behaviour. No statistically significant differences were found (drunkenness: Mann-Whitney U = 134855, p = .8; drug use: Mann-Whitney U = 134567, p = .9; criminal behaviour: t = .9, df = 1389, p = .38). Comparing participants with missing and complete responses at grade 9 – again, using grade 7 levels of drunkenness, drug use and criminal behaviour – there were however very small, but statistically significant, differences (drunkenness: mean difference = .1, Mann-Whitney U = 154134, p = <.01; drug use: mean difference = .03, Mann-Whitney U = 158642, p = .02; criminal behaviour: mean difference = .03, t = -1.9, df = 346, p = .05). These very small differences in baseline levels were equivalent to a 0.5-1% increase on the measure for non-respondents at grade 9. The differences were thus viewed as negligible. Similar results were found for Studies II and III, where baseline levels of the indicators did differ when comparing grade 9 participants with complete or missing data, but these differences were also less than an equivalent 5% increase on the scale and also deemed to be unimportant. Because these very small differences were viewed as negligible, key indicator data on drunkenness, drug use and criminal behaviour was viewed as Missing-At-Random (MAR) (see Little & Rubin, 2002).

Socio-ecological measures: Temperament, family climate, perceived comparative family financial status, and peer behaviours

Four aspects of the micro-level of the socio-ecological model were chosen for study: temperament, family climate, perceived comparative family financial status, and peer behaviours. These will be described in more detail below. These four aspects were chosen to represent important parts of the micro-system based on the existing literature, with coverage at least at each of the micro-levels of individual psychology, family, and peers. In terms of meso-level factors, school and municipality were used.

Temperament

Cloninger's (see Sigvardsson, Bohman & Cloninger, 1987) measure of temperament was used from the Swedish version of the Junior Temperament and Character Inventory (JTCI). In Cloninger's model of personality, temperament is theorised a biogenetic predisposition, which sits alongside character to comprise one's personality.

Whereas character can develop with age and experience, temperament is viewed as less dynamic and more trait-like. The JTCI is thus comprised of different sub-scales relating to both temperament and character. Each sub-scale has a different number of items and answer response categories are dichotomous (true/false with true coded as 1 and false coded as 0). The Swedish JTCI, including its sub-scales, was validated, showing good reliability, by Boson, Brändström & Sigvardsson (2018) on the second wave of the LoRDIA data.

In Studies II and III, the temperament sub-scales of novelty-seeking (NS) and harm avoidance (HA) from the JTCI were used. Novelty-seeking relates to a preference for new, exploratory stimulation, but also impulsive decision-making, and a heightened sensitivity to external reward cues. The scale for NS contains 17 items and an example item is "When I'm curious, I disregard dangers and prohibitions". Harm avoidance relates to excessive worrying, fear of the unknown, and shyness. The HA scale contains 20 items with such items as "Often I'm scared to try things I wish I could do". Up to 5% missing items were allowed per scale and Cronbach's alpha for each scale for the wider sample was 0.7 and 0.8 respectively. The sub-scale scores were treated as a continuous scale. Previous research has shown that these two dimensions are associated with adolescent alcohol and drug use and criminal behaviour, i.e. that high NS and low HA are linked to higher levels of substance-using or criminal behaviour (Kim et al., 2006; Hartman et al., 2013; Tomczyk et al., 2015; Lee et al., 2018;). Thus, while a fuller range of personality is not included, the two scales provide a good measure of *relevant* individual variation in personality.

Family climate

Family climate was measured using the family cohesion sub-scale from Bloom's (1985) measure of family functioning. The measure was validated by Bloom (1985) and the cohesion sub-scale showed satisfactory factor loadings. The sub-scale comprises five questions with four ordinal likert-type answer categories. Example items are "In my family, we help and support each other", "My family never do anything together" (reverse coded). A mean of the summed scores for the five questions, allowing one missing answer, was calculated and treated as a continuous scale.

Perceived comparative family financial status

This measure was designed for the LoRDIA study and asked "Compared to other families where you live, does your family have more/the same/less money?". The three response categories – more, the same, less – were coded as 1, 2, and 3 respectively and treated as an ordinal scale. Important to note is that this is a measure of the participants' *perceptions* of their family's financial status, not an absolute measure of actual income. It is also a measure of *relative* family financial status. Relative poverty, in comparison to other families in the neighbourhood, has been shown to be linked to higher levels of 'externalising problem behaviour' (Nieuwenhuis et al., 2017).

Perceived peer behaviours

This measure is from adapted from CAN's annual school survey (see Englund, 2016). It comprised three questions about perceptions of the proportion of friends who engage in the following behaviours: getting drunk, taking drugs, and committing crimes. Four ordinal response categories ranged from 'None of my friends' (coded as 1) to 'All of my friends' (coded as 4). The three behaviours were retained as separate measures. Similarly, this is a measure of the perception of the amount of peers engaged in these behaviours. Prentice & Miller (1996) coined the term 'pluralistic ignorance' to describe the phenomenon where most individuals in a group privately reject a belief or behaviour, but nevertheless engage in it because they perceive that behaviour to be favourable in the group. Thus, perceptions of peer behaviours may be an important part of the micro-system, even though this measure cannot speak to actual amounts of peer behaviour.

Demographics

Descriptive demographic information used in Studies II and III included:

- Sex (as a binary male/female) with female dummy-coded as 0 and male as 1.
- Age (in years)
- School
- Municipality.

Socio-ecological measures: Data-completeness

Participants with complete socio-ecological data were compared to those missing such data, using key indicator data for drunkenness, drug use, and criminal behaviour – at both grades 8 and 9 – to make the comparison. The comparison was also conducted separately for each of the socio-ecological measures, i.e. the two temperament dimensions, family cohesion, perceived comparative family finances, and the three peer behaviours. Analysis of differences in grade 8 levels of the key indicator data found no differences. However, grade 9 levels of criminal behaviour were marginally higher for participants with missing data (at grade 7) on peer drug use and peer criminality. These differences were < 3.5% equivalent increase on the peer behaviours scale and deemed negligible. No other differences were found. Thus the socio-ecological data was also held to be Missing-at-random (MAR).

4.5 Methodological approach to Study IV

This section gives an overview of the methodological approach used in the theoretically-oriented article. Study IV aimed to apply a critical realist analytical framework to existing theory and research. Hence the methodology is more akin to a qualitative or philosophical analysis. Although many critical realists may agree that the work of Roy Bhaskar is central to CR, there are a number of authors who write in a critical realist tradition who, to greater and lesser extents, have departed from Bhaskar's work. Moreover, Bhaskar's work took a number of 'turns' and can thus inspire or ground different variants of CR. Study IV drew on the same version of CR outlined in Chapter 2, namely Bhaskar's original philosophy of science (1975) and social science (1979), Archer's (2000) account of the human as social agent, and Pawson's (2006, 2013) theory of realist knowledge for practice.

The framework for the analysis comprised four key principles, which Price & Martin (2018) referred to as: a commitment to ontology and the realist view of causality; the use of retroduction and judgemental rationality; attention to structure and agency; and the use of moral realism. These principles were applied in the form of a philosophical underlabouring (Price & Martin, 2018). Similar applications of these principles differ in actual methods used depending on the subject matter and study at hand, e.g. literature

review (Isaksen, 2018), qualitative case study (Hu, 2018), reflecting on training and practice (Patel & Pilgrim, 2018). Study IV can thus be seen as a similar application of these principles but to a new subject matter and with a novel methodological focus. The application of CR in social sciences often focuses on hermeneutically- or meaning-based methodologies as source material for theoretical work. This is however often to investigate the 'interior' of social life (Price & Martin, 2018). Study IV departed somewhat from this tradition to illustrate a complimentary role of quantitative studies in building realistic theories, particularly regarding the 'exterior' or patterns of social life. It should also be noted that these four principles are just one variant of CR. Other versions are possible by combining other ideas. Moreover, while Study IV stayed as close as possible to Bhaskar's original (1975, 1979) texts, some newer debates were also used.

The analysis had two main parts. The first was a conceptual discussion achieved by applying the four principles to critically examine theories of adolescent 'risk' behaviour. The second main part was application of the principles – and in particular, attention to structure and agency, and moral realism – to existing empirical, quantitative studies. The aim was to illustrate both how quantitative research can be re-viewed and contribute to realist(ic) theory-building.

4.6 Discussion of methodological implications

This section discusses the implications of the methods used, focusing on six areas: methods in relation to Critical Realism, sampling approach and drop-out, data quality, validity and reliability of the measures, the statistical modelling approaches, and ethical considerations.

Methods in relation to Critical Realism

Section 2.2 outlined at an abstract level how quantitative methods can be used to identify outcome patterns relevant for a critical realist study, in particular in relation to Pawson & Tilley's (1997) CMOC model. At a more practical level, there is the issue of how the measures used in the Studies I-III relate to a critical realist perspective. The

measures used in LoRDIA and thus in Studies I-III do not explicitly state their underlying philosophical position. One interpretation would be to place them within a light version of positivism or naïve realism (e.g. definitions inherent in the measures, and thus the knowledge resulting from them, equate with a perceived reality in a straightforward way, and normative, unreflected understandings of the concepts in the measures are sufficient). This would however be inconsistent with the philosophical position developed for this thesis in chapter 2. Rather, the questions and measures need to be interpreted from a critical realist perspective.

At a general level these means the description of the critical realist ontology, e.g. the person-in-context, given in section 2.1, takes precedence; concepts contained in the measures, such as temperament or family, need to be interpreted within this foundational description. For example, while temperament is viewed in Cloninger's model as a biogenetic predisposition – and most likely be understood within a positivist or naïve realist framework – it is not entirely inconsistent with a critical realist position in that temperament could equally be viewed as an emergent property residing in the convergence of physiological, psychological (in the form of previously internalised norms and capacities) and social processes (in the form of interactions between people and their ongoing discursive processes), in line with Archer's (2000) account of the person. Bloom's (1988) concept of family can be placed in a fairly straightforward way within Pawson's (2006) notion of context; the family as a form of institution comprising individuals nested in interpersonal relationships, nested in wider social settings. Additionally, peer behaviours would not be viewed as context-free, but be, in part, a product of social positions and practices governed by structure as much as individual agency.

Another consequence of using a critical realist position concerns sampling and the twin issues of representativeness and generalisability. In a positivist framework the question of generalisability is one of: do the participants in LoRDIA represent adolescents in general? If so, then the classic logic is that the results can be generalised to other adolescents, in Sweden or even in other similar countries. This line of questioning implies however a view of quantitative analyses that builds implicitly on a positivist view of empiricism. This thesis however, in taking a critical realist position, does not subscribe solely to this way of thinking about representativeness. Rather, the issue in

critical realist terms is to *theorise*, using empirical data within the CMOC model, which mechanisms will be working in *which contexts* for which kinds of people. Hence, universal claims that the results are necessarily representative of Swedish youth or youth in general is not part of the specific theory being developed. It is however important that the initial empirical sample is representative of youth in general, or rather that there is no systematic bias in the sampling.

Sampling approach and drop-out

The sampling approach in LoRDIA meant that only adolescents registered at schools were included. Hence children who were not registered at any school would have been missed. This is not likely to have been many children at all, but the possibility should be noted. Of those who opted out of the study or were not present on the day of data-collection, it was only possible to compare them to the study participants in terms of sex, school exam grades and school absence. None of these factors differed between participants and non-participants, suggesting no obvious systematic bias in terms of these three aspects. However, there is no real way to check this regarding the three key behaviours studied (drunkenness, drug use, and criminal behaviour). Further, there is no way to check whether internal attrition due to non-participation, e.g. adolescents not present on the day of data-collection, introduces systematic bias or not, regarding the key indicators. For example, it could be that those who were not in school on the day of data-collection – and thus whom were not included in the study – may be those with higher levels of substance use and/or criminal behaviour. While this may result in under-estimates of the proportions of adolescents involved in these behaviours, it would not necessarily affect the estimates of the *strength* of the relationship between different variables and factors. However, there is no way to check this supposition.

Comparing the proportions of adolescents in the LoRDIA data who engaged in drunkenness, drug use, or criminal behaviour to other national surveys is not straightforward due to differences in how the questions were posed and at what age the surveys were conducted. For example, drunkenness was at 20% for 15-year olds in the LoRDIA data, but in national surveys (described in section 1.1) 'binge drinking' is at 16% for the same age group; the two measures of intoxication are, however, not directly

comparable. Similarly, drug use was at 3.5% for 15-year olds in the LoRDIA data, but anonymous national surveys (described in section 1.1) give a slightly higher figure of 8%. It may be that the promise of anonymity encouraged more 'honest' answering than in the LoRDIA data-collection.

Although Studies I-III used a large sample from a general adolescent population, it may not be representative of other populations, for example from large cities and in particular urban areas or at-risk populations such as adolescents entering the juvenile justice system. The advantage of the LoRDIA sample overall is however that it used a general population sample. Many studies that use samples from large cities, inner-city urban areas, or 'at-risk' samples may provide a skewed picture of general adolescent development. Indeed, it could be argued that there is no such thing as 'the general, average adolescent'. In which case the LoRDIA sample provides an important contribution to investigating the development of substance use and criminal behaviour among different adolescent populations.

An international aspect of the study context that is important to note is that the rates of adolescent drug use are lower in Sweden than in many other western countries (EMCDDA, 2018). Thus, drug use may represent more of a norm-breaking behaviour than in other European countries. Given the zero tolerance legislation concerning drug use in Sweden, and given that the data is self-report, participants may have been more wary about reporting drug use and/or prone to underreporting. Similar to the point above concerning internal sample attrition, such underreporting should not, however, affect the parameter estimates of associations between variables, as long as participants were consistent in their underreporting.

A final issue concerning the sampling approach relates to the use of longitudinal cohort data. The advantage with cohort data is that the same individuals can be surveyed each year, allowing analysis of a person's own change or development. A disadvantage is however that the results may be limited to the specifics of that cohort (the cohort effect). As the LoRDIA design comprised two age-cohorts, this goes some way to ameliorating against the cohort effect, i.e. in that Study I, for example, analyses combined data from two cohorts. The risk remains however that the sampling approach captured something specific to a particular time and place. The main way to guard against the cohort effect

is through comparison to other literature. A further issue concerning longitudinal data is the time interval of one year between follow-up. This may not be insufficient to capture shorter-term associations (and other study designs with shorter intervals should be conducted to investigate differences).

Data quality

It is important that the sample used in studies I-III did not have particularly different rates of substance use or criminal behaviour to the extent that it would be wrong to use the sample in order to study, at a general level, the development of these behaviours in adolescents. Analyses of data completeness (see section 4.4) suggested that while there were some effects on the key indicators relating to participants not being present in grade 9, these effects are likely to be negligible. It may also be the case that those with missing data on the key measures differ in some other important way that may affect the analysis, i.e. according to important, but unmeasured variables. For example, adolescents with higher levels of childhood trauma may be more likely to drop out in subsequent waves. The analysis of data completeness suggested, however that there was no systematic bias at least according to the socio-ecological measures used in the studies. Thus the quality of the key indicator data on drunkenness, drug use and criminal behaviour, as well as the explanatory covariates, was viewed as good and the assumption of data being Missing-at-Random was deemed to be reasonable.

A final issue concerning data quality is whether young people would *really*, via an anonymised questionnaire, give reliable and honest answers on issues such as criminal behaviour and drug use. Prior research has demonstrated that adolescent self-reports, in school-based surveys, of substance use and criminal involvement can be highly valid, if the setting and procedure creates a sense of confidentiality (Winters et al., 1991; Thornberry & Krohn, 2000). The introductions given at each data-collection round (see section 4.3) went some way to providing such a setting.

Validity and reliability

This section discusses the validity and reliability of the measures used. A wider aspect to this discussion concerns the validity and reliability of a theory in explaining the data, within the CMOC model. If mechanisms are viewed to have tendencies to exercise or release their powers only in specific contexts, under given circumstances (Bhaskar, 1975), then the issue of reliability is then one of sensitivity to the contexts in which the mechanisms in the CMOC are said to operate. Thus, reliability within a CR framework could be seen to relate to the consistency of outcome patterns being deemed, via empirical data, to be operating in a well-specified context. However, this is a speculative discussion needing theoretical work beyond the scope of this thesis.

Considering validity and reliability in their traditional meaning, that is, pertaining to data-collection measures, there are a number of existing definitions to build upon. Validity is often divided into the internal aspects – of face-, and construct-validity – and the external aspects of generalisability. Generalisability was discussed above and so the remainder of this section focuses on internal validity.

Face validity concerns whether the measures and question items at face value seem to capture the phenomenon, factor or thing of interest in the research question. A simple way of checking face validity is by asking participants how they understand the question. Initial pilots of the questionnaire were conducted with adolescents, which to some extent is a check on face validity. A secondary face validity check is that during data collection participants were encouraged to ask questions if they did not understand the question. Where this occurred, the LoRDIA PhD students could provide assistance. I was present during approximately half of the visits to schools in waves 2 and 3 of the data-collection, and it was only during wave 2 that some participants would ask questions regarding the meaning of specific words in a questionnaire item. However, this happened extremely rarely. Whilst this experience is only anecdotal, it supports the idea that the questionnaires had adequate face validity. A third check on face validity is through the use of validated or well-used measures and questions. The key indicator measures all come from annual school surveys conducted by national agencies; surveys that in some cases have been conducted for over 30 years.

Construct or content validity relates to the theoretical concept that the measure is supposed to be assessing. The measures of temperament and family climate are validated scales. This means the items have been analysed for not just for potential misunderstanding (face validity) but also subject to statistical tests of construct validity, i.e. factor analyses of how well the question items group together. A critique of the content validity of the family cohesion scale is that it is potentially Eurocentric and geared towards a western ideal of family life. This may mean that application of the findings pertaining to this measure should be applied with caution to contexts with different notions of 'good' family climate to what is conceptualised by the measure. Another way of checking content validity is through measures of internal consistency. These were reported in section 4.4 and deemed to be satisfactory.

Two sets of measures were however not validated instruments. The first of these was the question on perceived peer behaviours while the second was on perceived relative socio-economic status. The questions on peer behaviours were fairly straight forward and it is hard to see how they could be misinterpreted or fail to capture the main construct, which is the participant's *perception* of the proportion of their peers who engage in these behaviours. The actual amount of peers who do engage in that behaviour is a different construct and would require different methods, such as social network analysis (see Snijders, Steglich, & Schweinberger, 2007). The participant's perception was deemed an important construct for study as adolescents' perceptions of their peer group have been shown to be related to substance use and criminal behaviour (e.g. see Prentice & Miller, 1996). Social network analysis studies (e.g. Knecht et al., 2010, 2011), which have examined the proportions of peers engaged in substance use and criminal behaviour, tend to find evidence for a selection effect. This means that, rather than adopting the behaviour of their peers (an influence effect), teenagers tend chose their friends, for example, because they have similar behaviours. Part of this selection process may be driven by perceptions of the behaviours of the peer group as a whole.

The question on perceived comparative family financial status was intended as a proxy question for the family's socio-economic status (SES). Conceptually, this might be problematic as these two concepts are not necessarily the same thing. An issue with using the question as a proxy for SES is that it relies firstly on the young person's

perception of their family's finances, but secondly on a perception of other families' finances. This presents two sets of perceptions which the participant is then asked to compare in one and the same question. This is reflected in the name of the measure, yet the measure should not really be used as a proxy for SES. Nevertheless, it was used in the analyses as previous literature has demonstrated the importance of *perceived* relative socio-economic status in the development of criminal behaviour (Nieuwenhuis et al., 2017). For example, irrespective of absolute or objective measures of a family finances, if a teenager perceives that their family has less money than other families in the neighbourhood, then this relative or comparative difference has been linked to increased levels of criminal behaviour.

A final issue concerning the validity of the measures is that of longitudinality. It may seem obvious that in order to measure something over time, one must ask the same question. A problem in developmental research was however that questions need to be age-appropriate. An example of this in LoRDIA is the question on substance use. In wave 1, when participants were age 11 and 12, it was deemed inappropriate to ask which different drugs participants had or had not used. Instead a simple composite question was asked. At wave 2, this question was expanded to ask about use of cannabis specifically, along with other types of drug use. Strictly speaking, this meant that the questions in waves 2 and 3 were not directly comparable to the wave 1 question. This issue was resolved by creating a composite score of the two separate questions used in waves 2 and 3. In doing so, however, some information about multi drug use was lost, though different types of drugs used was not in focus for the analysis. Additionally, other drug use was very low in the sample. The composite measure used at waves 2 and 3 was also unlikely to provide an underestimation of drug use, partly because the question on 'Other drug use' should capture any other drug use, but also as other drug use is generally rare in early to mid-adolescence (Zetterqvist, 2018). Another issue is whether the measurement change affected the overall results. Only Study I used data from wave 1 and this was only for half the sample. Additionally, at this age only 1% of the sample used drugs (of any kind).

Statistical modelling: pros and cons

The choice of statistical models in quantitative work is to some extent a qualitative matter. One must weigh up the advantages and disadvantages of the different approaches to modelling the data in a particular way, make qualitative judgements about how well the models fit the data, and interpretations of what different parameters mean. Whilst most models can reveal whether there is a pattern or not in the data, and the likelihood that this pattern differs from random 'noise', models will differ in *what* they can tell us about relationships between different phenomena of interest, about complex interactions, and about whether relationships or effects are between or within people. This latter point is of particular interest to research that intends to look at development, because ideally we are interested in how individual people change and develop over time. Moreover, to inform causal theorising, we need to rule out, as much as possible, third party variables (omitted variable bias) that may also explain the longitudinal patterns observed. Whilst there are few fool-proof ways of doing this in open systems, that is naturalistic environments, newer statistical techniques allow us to examine more closely developmental change at the individual level.

One such model for examining how variables or factors are related over time at the within-person level is the random-intercept cross-lagged panel (RI-CLP) model. This model was developed by Hamaker et al. (2015) so as not to confound within- and between-person variance. In traditional cross-lagged panel models, there is a risk that group level effects (between-person variance) become conflated with individual (within-person) level effects (see also Curran and Bauer, 2011; p. 586-588). In studies of adolescent development, there is a need to model within-person change processes separately from more developmentally stable between-person differences (Hamaker et al., 2015; Keijsers, 2015). In the traditional CLP model, the strength of cross-lagged associations is likely to be inflated, which may bias theorising about the reciprocal links between the behaviours under study. Hamaker et al. (2015) developed the RI-CLP model in order to partition between-person variance from within-person variance, thus estimating cross-lagged effects only at the within-person level. Hence the RI-CLP model provides an arguably more developmentally appropriate method of assessing longitudinal reciprocal associations at the individual level, compared to the traditional CLP model.

There are a number of alternative models to examining within-person change, such as Bollen & Curran's (2004) autoregressive latent trajectory (ALT) model. Hamaker et al. (2015) have examined the ALT model – and similar alternatives – and argued that these models all introduced a level of instability in their estimations, which the RI-CLP does not. When examining complexity in development, there is a risk that the models will not converge, due to issues such as triangular impossibility. This issue arose in the RI-CLP modelling for Study I and was solved by fixing a variance of the random-intercept to be equivalent to the other two variances. Whilst this is unlikely to have changed the overall results in any ways, it highlights an issue with using such complex models.

Although the RI-CLP estimates associations at the within-person level – and in this sense is a person-oriented approach to quantitative analysis – it nevertheless examines associations between variables. A person-centred approach that investigates how variables cluster in actual participants is latent class and transition analysis (see Collins & Lanza, 2010). The power of this approach lies in its ability to discern distinct sub-groups of people based on the specified indicators of interest; in the case of this thesis and Study III: levels of drunkenness, drug use, and criminal behaviour. Moreover, the sub-groups are based on probabilities, meaning that it is not determinate that the person will be in that sub-group, which fits with the underlying philosophical approach of this thesis, that in CR it is only possible to speak of tendencies in an open system. The creation of sub-groups also allows analysis of a development of a different kind, i.e. whether participants remain in the same group or not. Whilst these groups can be viewed as a heuristic for understanding the development of adolescent 'risk' behaviours – they are not an actual mapping of social groups – from a critical realist perspective they nevertheless represent a clear empirical pattern. The modelling of socio-ecological covariates in relation to the latent groups was an attempt to model some candidates for links between developmental patterns and different socio-ecological contexts. Or rather, to discern another layer to the observable patterns of development with which to theorise potential CMOCs. A disadvantage with latent class approaches is that in order to follow whether participants change latent status, the meanings of the identified groups must be fixed. To some extent, this introduces an artificiality in that potential fluidity of the groups is lost. Without setting the groups in this way however, one could not track how the young people in this study develop. This is why it is important to study the

same theoretical questions with different modelling approaches, such as multi-level modelling, as used in Study II. While this was also a variable-centred modelling approach, it allowed for exploration of heterogeneity among adolescents in their development. A further advantage of the multi-level approach is that it also partitions the between- and within-person variance, allowing for estimations of within-person growth, which cannot be seen in latent transition models.

A final issue concerning statistical modelling relates to the distribution of the data for the three key indicators: drunkenness, drug use, and criminal behaviour. As might be expected, the distribution for all three indicators was highly, negatively skewed, i.e. most young people report none of these behaviours and the majority of those who do report engaging in the behaviour do so at the lower end of the ordinal scale. Such a level of skew – or zero-inflation – potentially violates the statistical assumptions of multivariate normality, which is important for estimates of statistical significance to be reliable. Given that extreme skew is often encountered in social science data, there is debate about the best way to proceed, depending on the kind of analysis one intends to do (e.g. Firth, 1993; Finney & DiStefano, 2006; Rhemtulla et al., 2012). Studies I and II used a robust estimator – the Huber-White estimator – which deals with the skew in the data by adjusting the standard errors and can provide reliable estimates with four to five ordinal indicators for large samples (Rhemtulla et al., 2012). In Study III, which used a person-centred method, the problem of skew presents as one of overly sparse contingency tables. This was dealt with in two ways. Firstly, three response categories were created for all three indicators, reduced from the five ordinal responses. Secondly, relative measures of fit were relied on, following Collins & Lanza's (2010) suggestions. Additionally, the Firth method of Penalized Maximum Likelihood Estimation, designed for the analysis of small numbers of cases on the rarer of two outcomes in logistic regression, was used (see Firth, 1993). While these methods are not a failsafe guard against skew, there represent a best statistical attempt at dealing with the nature of the data.

Ethical discussion

Ethical procedures were described in section 4.3. While these issues are important, this thesis takes the position that they are necessary but not sufficient to make a claim of ethically-sound work. Rather, an ethically-defensible research project needs to go beyond such 'nuts and bolts' and look to what models of people are being implicitly or explicitly used, which moral frameworks are being used – again, implicitly or explicitly – and whether these are consistent and transparent. The philosophical position, set out in Chapter 2, goes some way to providing a framework against which consistency and transparency can be judged. The analysis in Study IV – in particular, the application of moral realism – is also an attempt to achieve a more reflexive ethical position.

Turning to the 'nuts and bolts' issues, some reflection is also warranted. The idea of informed consent is not entirely unproblematic. Is a one-off approval from the participant at the beginning of a four-year research project sufficient? Israel (2015) discussed the notion of informed consent and how this implicitly relies on conventional Western ideas of individual autonomy and the primacy of the individual. He raised the idea that in some cases an emphasis on or even demand for signed informed consent can actually result in more harm for the participant. He also asked the question whether consent and access to participants or a study site should be a one-off formality or an ongoing process of negotiation. For example, he cited Rooney (2013) who argued that, in the case of longitudinal research, formal consent should only be gathered at the end as participants will then have a clearer idea about their involvement, what they have disclosed and so on.

The passive consent model used in LoRDIA may have favoured parents with the intellectual and/or other necessary social resources to take that active step of contacting the research team to ask to have their child removed from the study. On the other hand, some parents who may have wished to remove their child from the study may have failed to do because of lack of time. The arguments for a passive opt-out model were that the study design, of sampling whole municipalities and of obtaining large sample sizes, would probably not have been possible with an opt-in model. Research benefit was seen to win over the potential infringement of rights of those who, for example, wanted to opt their child out, but for one reason or another did not get round to it. Such an infringement would be worse if there were no other controls during the

research process for consent and withdrawal. The procedure in LoRDIA (as described in section 4.4) did however, at each data-collection round, involve explaining to the group of young people that their participation was voluntary and that they had the right to withdraw. The aims of the research were also explained anew each time. While this is does not exactly match up to Israel's idea of negotiating consent in an open, ongoing way, it does provide a kind of check point each year during the study where participants could renew their consent. Admittedly, the classroom situation may not have lent itself well for deciding to opt-out, but again the pragmatics of large sample research win over; re-negotiating consent with each participant each year would take too much time. On the other hand, some participants did in later waves choose to opt-out even in the classroom situation, highlighting that individual choice to withdraw could be exercised by some.

A further argument can also be made for the passive consent model in that it is potentially more democratic; it takes more effort and energy to contact the school for a parent to opt their charge out of the study. In this way, all children are initially included. It may be the case that those families who opt out of the study could be those with higher rates of substance use or criminal behaviour – either their own or their child's – and this was what drove them to opt their child out. However, it could equally be the case that it is families without such behaviours who for other reasons did not want their child to participate.

Concerning withdrawal procedures, there is an issue concerning how these are termed and how easy withdrawal is portrayed to be. For example, how do participants later withdraw, even if this is one week before publication of the thesis? A dilemma with such questions concerns the practicalities of gaining the desired (or required) number of participants in time to complete the research, but in an ethical way. In LoRDIA, participants could opt-out of the present and future data-collection and were reminded of this at each data-collection round. Despite this, it is possible that the distinction between consent and withdrawal was not always entirely clear. It was probably only in cases where full withdrawal from the study was actively requested that all data pertaining to that person from previous data-collection rounds was deleted. In these cases, it was usually the parent or guardian who initiated such a request, e.g. where the young person had agreed to participate despite the parents having actively opted-out (and the research

team had missed this). This highlights one of the challenges of informing of a continued right to withdraw in longitudinal projects: a participant who may not wish to be further involved in the study may agree to the use of previously collected data, i.e. when they had agreed to participate.

Regarding confidentiality, there can be a worry that information may be passed on to other organisations or institutions, particularly when sensitive questions are being asked, for example about personal behaviours or illegal acts (Israel, 2015). This places an onus on the researcher to be careful not just about explaining the limits of confidentiality to participants but also about what data they collect and how it is stored and analysed. Barron (1999) however made the point that participants can often be flattered or seduced into participation by the interest that they experience the researcher has in their 'data' or story. Another way of looking at how confidentiality appeared to be guaranteed to participants – yet done so in fairly complicated language about anonymised datasets, authorised researchers and group-level analyses and so on – is that participants were *enticed* to give confidential information. Whenever I introduced data-collection sessions, I would make a point of acknowledging this, e.g. "the questionnaire asks some very personal questions", to draw participants' attention to the confidential nature of information we were asking. As well as stating that these answers were nevertheless important to the research, I would also remind participants that they could choose to skip questions if they felt they did not want to provide an answer. This way, each participant had some degree of control about the level of confidential information they gave.

Gathering sensitive information also raises ethical issues concerning disclosure. The information that participants provided, if compiled and reviewed at an individual level, could be used identify young people 'at risk' or 'in need of support'. However, the informed consent promise (or verbal contract) made with participants was that: i) no individual level analyses would be undertaken; ii) only the central project management has access to the master list of codes; iii) no information would be passed on to any other authorities. Hence compiling an individual risk profile or even identifying an individual's answer to specific sensitive questions would break this contract in two regards. Moreover, doing this was practically impossible as doctoral students did have access to the master list. Passing any information on to, for example, the school or

parents would also have broken the contract in a third way. While this is ethically defensible in terms of the contract made with the participant, the point could be made that the research team is sitting on good information about children at risk. The counter argument is that the participants may not have been willing to provide any sensitive information at all had the research team not entered in a contract of confidentiality. Some participants may have only disclosed sensitive information on the basis that they felt assured that it was only for research and not to identify and single out them as being a 'case for intervention'. This form of reasoning can be seen as sitting somewhere between situation-based or casuist ethics and the teleological view, that the ends justify the means. In other words, the collection of this data for a greater good, such as contributing towards better knowledge and perhaps better practice, justifies making and upholding the ethical contract entered into with the participant. Israel (2015) referred to Duncan et al. (2009) where trade-offs can be made between respecting or even empowering a young participants' autonomy and maintaining the promise of confidentiality. LoRDIA, to some extent, can be viewed as treading a similar trade off. The de-briefing letter, while placing the onus of action upon the young person, also provided a potential route for the participant to seek out further contact or support.

A critique of LoRDIA that is that no participatory or co-production methodologies were used. Pittaway, Bartolomei & Hugman (2010) argued that the ethical challenge of research is to add value to the lives of those being researched, over and above being sources of data. For example, they proposed using more participatory approaches where participants are directly benefitting from the research process. But they also highlighted how stories about or on vulnerable groups can often have unintended negative consequences for that group. For example, whilst it may be helpful to have a more nuanced understanding of teenage drunkenness and drug-taking, there is a danger that the findings of this thesis serve to reinforce stereotypes or particular social realities about young people. This is a point that Barron (1999) stressed: in believing that social research can have some kind of emancipatory function for disadvantaged or misunderstood groups, the researcher risks re-constructing or cementing these very categories. The use of Critical Realism, alongside the use of an interdisciplinary mix of theories, as well as the analytical outputs of Study IV, were intended as some protection against an unreflected or unreflexive re-construction of damaging stereotypes.

A final issue concerning disclosure is whether asking certain questions may in turn produce that behaviour; this is known as the question-behaviour effect (see Fitzsimmons & Moore, 2008). There is some controversy about whether asking questions about specific behaviours, such as drug use, may indeed trigger that behaviour (Fitzsimmons & Moore, 2008). Two ways of guarding against or ameliorating this effect are to provide support or interventions afterwards or frame the questions differently, using some of the techniques that Fitzsimmons & Moore (2008) identify, such as posing questions in the negative, e.g. "How likely are you to *avoid* getting drunk?". In LoRDIA, questions were posed positively. Although no support or intervention was offered to participants based on their answers – as this would have breached the informed consent contract – the de-briefing letter went some small way to advising about routes of support for the participant, though clearly the onus is put on the young person to take this action.

"Good morning miss
Can I help you son?
Sixteen today
And up for fun
I'm a big boy now
Or so they say
So if you'll serve
I'll be on my way
Welcome to the House of Fun
Now I've come of age
Welcome to the lion's den"

Madness – House of Fun (1982)

5. Results

This chapter presents the main findings of the thesis. These are the empirical results from Studies I-III and the conclusions of the theoretical article (Study IV).[23] A summary is given of each of the studies' background and results. The full articles can be found in the Appendix.

5.1 Study I

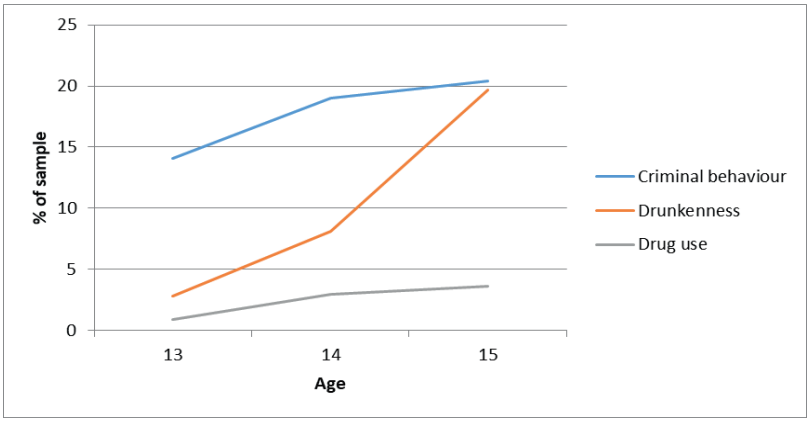
"Assessing reciprocal association between drunkenness, drug-use, and delinquency during adolescence: separating within- and between-person effects". Published in Drug & Alcohol Dependence, 191 (see Appendix 1).

Theories of the development of adolescent substance use and criminal behaviour, such as the Social Development Model (Catalano & Hawkins, 1996) and Jessor's (1991) Problem Behaviour Theory use a composite concept of 'antisocial' or 'risk' behaviour. Additionally these theories posit that component 'risk' behaviours, such as alcohol intoxication, drug use and criminality, present a risk of triggering each other, resulting in a cumulative trajectory of escalation of these behaviours. Longitudinal reciprocal associations between substance use and criminal behaviour are however understudied in general adolescent populations, with previous research showing differing findings. Moreover, previous studies of how these behaviours develop in adolescence have not sufficiently accounted for heterogeneity in development, i.e. that adolescents develop differently. Additionally, many previous studies have used 'at-risk' samples, making it difficult to generalise results to adolescents in general. Study I thus assessed reciprocal associations over time between drunkenness, drug use and criminality in a prospective, general population age-homogenous cohort study.

[23] Studies I and III were co-written with Anette Skårner (AS) and Kristian Daneback (KD). I designed the studies, conducted the analyses, wrote the first drafts and was responsible for producing subsequent drafts. KD and AS contributed to interpretation of the analyses and discussion of drafts, making suggestions critical to the final content.

When examining development of these behaviours at a group level, criminality at baseline (age 13) is the most prevalent of the three behaviours, with 14% of the sample engaging in any criminal behaviour, and this rises to 20% by age 15. Drunkenness starts low at age 13, but rises sharply at age 14 to reach 20% of the sample having been drunk at least once in the past year by age 15. Drug use is low, starting at 1% at baseline and rising to 3.5% of 15-year olds having tried drugs at least once in the past year. This was predominantly cannabis use. Figure 13 shows these longitudinal group-level patterns.

Figure 13 – Longitudinal group-level trajectories of drunkenness, drug use and criminality in early to mid-adolescence

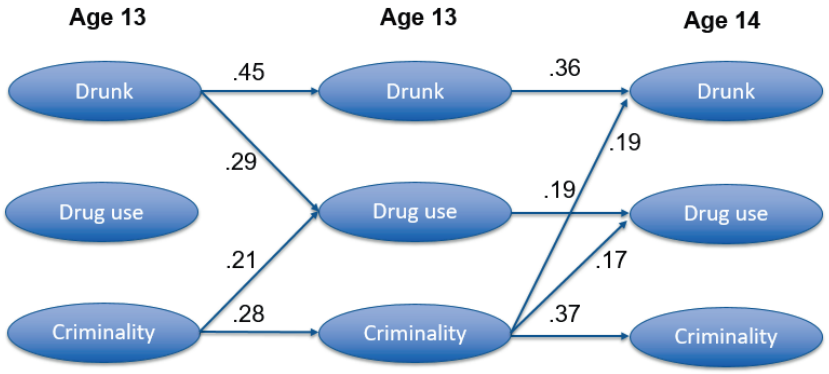


Analysis of within-person, i.e. individual, trajectories however tells a different story. The intraclass coefficients, which tells us how much of the trajectory may be related to developmentally-stable individual differences between adolescents, was 26% for drunkenness, 35% for drug use, and 47% for criminal behaviour, suggesting variation between the development of these behaviours. Moreover, stable individual factors appear to be less relevant for the development of drunkenness, and to some extent drug use, than criminality. At the within-person level, the links between these behaviours were only weak[24]: criminality was associated with later drug use across grades 7-9, and with drunkenness between grades 8-9 only; drunkenness was associated with later drug use between grades 7-8. Drug use was not associated with later criminality or

[24] This thesis follows Cohen (1988) and defines coefficients 0.2-05 as medium-strength and less than 0.2 as weak.

drunkenness at any time point. Figure 14 shows a simplified diagram of these results. The numbers shown next to the arrows indicate statistically significant standardised regression coefficients, i.e. ranging between 0 (no relation) and ±1.

Figure 14 – Simplified diagram of the results of Study I



Stable individual factors play a larger than hitherto known role in within- and over-time relationships between drunkenness, drug use and criminality, although this role differed between these three behaviours. At a within-person level, early drunkenness (i.e. at age 13) showed the strongest association to continued drunkenness a year later. Drunkenness at age 14 showed, however, a weaker longitudinal link. In contrast, longitudinal links year to year became stronger for criminal behaviour, suggesting a reverse pattern. Drug use showed no or weak longitudinal trajectories. Reciprocal associations over time between these behaviours were at best weak, suggesting that the behaviour itself is unlikely to be of causal importance in triggering other behaviours. Two exceptions to this are early drunkenness, which had a weak-medium strength link to later drug use, and early criminality which also had a later link to drug use.

5.2 Study II

"Personality, parents or peers? The differential development of teenage drunkenness, drug use, and criminal behaviour: a multi-level exploration using socio-ecological covariates". Manuscript submitted for publication (see Appendix 2).

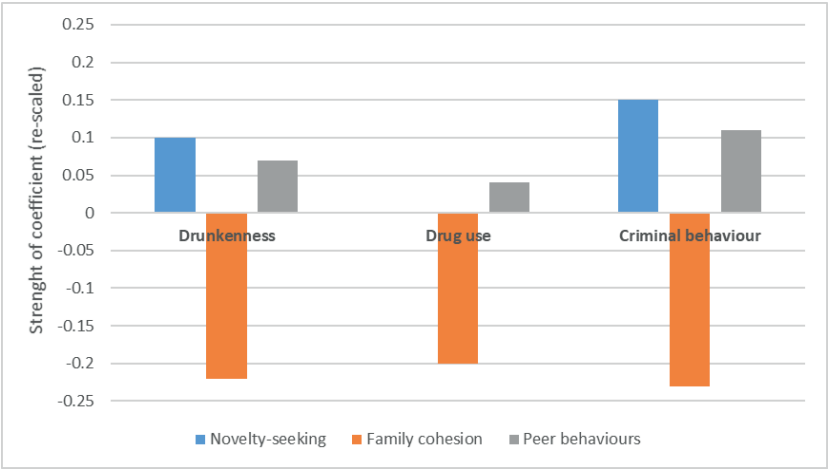
Typical adolescent 'risk' behaviours, such as substance use and criminal behaviour, may have different developmental trajectories. It is important for prevention and harm minimisation programmes to tailor not just for behaviour-specific trajectories, but also to understand the mechanisms of potential differential development using a broader socio-ecological model. Study II thus examined the development of drunkenness, drug use, and criminal behaviour using multi-level modelling and a range of socio-ecological explanatory covariates.

Random-effects models for each of the three behaviours showed the best fit, suggesting heterogeneity between adolescents in how these behaviours develop. Larger estimates for the between-person variance were found for criminal behaviour (0.43), than for drug use (0.35) or drunkenness (0.29) suggesting that the development of criminal behaviour may have stronger links to developmentally-stable individual factors. Some heterogeneity was also found between the three behaviours in terms of the observed growth patterns, with growth coefficients ranging from 0.05-0.14, suggesting that growth for these behaviours tended to be low and stable at a within-person level. Greater amounts of variance at the within-person level were found for drunkenness and drug use than for criminal behaviour.

Socio-ecological covariates representing individual, family, and peer level factors were differentially relevant for the explanation of growth patterns, albeit with family cohesion being most relevant for all three behaviours. The coefficient of the association between the growth trajectory and family cohesion was largest for criminal behaviour at -0.23 (the minus figure means that as family cohesion goes down, criminal behaviour goes up, statistically and not causally). This coefficient was similar for the development of drunkenness at -0.22 and for drug use at -0.20. These are however weak effects, using Cohen's (1988) standards. Comparatively, the coefficients for the temperament dimension novelty-seeking were between 0.02 and 0.03 (for drunkenness and criminal behaviour only), while peer behaviours was between 0.04 and 0.11 (for all three

behaviours). Figure 15 shows the strength of the re-scaled coefficients for the factors that were significantly related to the trajectories of drunkenness, drug use, and criminal behaviour.

Figure 15 – Relative strength of the socio-ecological factors on trajectories of drunkenness, drug use, and criminal behaviour



The meso-level factors, school and municipality, appeared to have little effect on the developmental trajectories. Variance at both school and municipality level was between 0.001 and 0.01 for all three behaviours.

5.3 Study III

"Explaining different trajectories of adolescent substance use and criminality: a latent transition analysis with socio-ecological explanatory models". Published in Addictive Behaviors, 102 (see Appendix 3).

Although there are diverse trajectories in adolescent substance use and criminality, it is less clear why some adolescents follow one pathway and not another. There is a substantive need to understand not just the different trajectories, but the mechanisms that may be driving these patterns. Such knowledge could inform policy and practice to be more sensitive to sub-group differences. In particular, being able to model which

factors in early adolescence are indicative of which developmental patterns could better tailor preventative efforts. Study III examined how different domains in a young person's life, such as temperament, peer, and family factors, were linked to different trajectories and whether some domains were more strongly associated with specific patterns of these behaviours.

Four distinct statuses were found, showing heterogeneity in adolescent substance use and criminal behaviours. The largest group at nearly 80% of the sample, dubbed "Abstainers", had a low probability of engaging in any of the three behaviours. The next largest group at 9.4% of the sample were labelled "Occasional law-breakers", as they had a high probability of committing crime on an infrequent basis, but did not engage in the other two behaviours. The third group, comprising 9%, were called "Dabblers" to indicate partaking in the three behaviours but in a casual and/or occasional manner, e.g. this group had a 46% probability of frequent drunkenness, a 28% probability of infrequent drunkenness, alongside much lower probabilities of drug use (of any kind), and a 45% probability of infrequent crime. The final and smallest group, the "Regular-All" group at 1.6% of the sample, had high probabilities of engaging in all three behaviours on a regular basis. Although this group is very small, it was deemed conceptually important.

These statuses were however highly stable, suggesting little evidence of escalatory patterns irrespective of engagement in these behaviours. An exception to this was the 'Occasional Law Breakers' group who, after grade 8, had an equal chance of transitioning to one of the other groups, and more likely to the 'Dabblers' group. Figure 16 shows the transition probabilities.

Figure 16 – Transition probabilities for the four latent status groups, by age

Transitions *to age ...*	from ...	Abstainers	Occasional Law-Breakers (OLB)	Dabblers	Regular-All
	Age 13				
14	Abstainer	**0.90**	0.05	0.04	0.01
14	OLB	0.05	**0.82**	0.09	0.04
14	Dabbler	0.02	0.005	**0.97**	0.005
14	Regular-all	0.01	0.005	0.005	**0.98**
	Age 14				
15	Abstainer	**0.83**	0.04	0.13	0.00
15	OLB	0.15	**0.48**	0.25	0.12
15	Dabbler	0.005	0.005	**0.98**	0.01
15	Regular-all	0.005	0.005	0.18	**0.81**

Individual, peer and family domains were all relevant in distinguishing between the statuses. A key finding was that the relative importance of these domains differed *between* statuses, suggesting differential effects of the domains on the different trajectories. The pre-teen family environment, as well as criminal peers, was most strongly associated with the Regular-All group. This was not the case for the 'Dabblers' group, where novelty-seeking was weakly linked. For the 'Occasional Law Breakers', criminal peers was more strongly associated.

5.4 Study IV

"Getting real about youth substance use and crime: how 'realistic' theories can help improve prevention policy and practice". Manuscript submitted for publication (Appendix 4)

Despite over forty years of research, design, and testing of prevention programmes, debate remains about the effectiveness of such programmes. In particular, there are fundamental questions about the developmental theories on which prevention programmes are based, and the need to take stock of existing theories has been raised. Set against this backdrop of a need to review and/or develop new theories of youth substance use and criminal behaviour, Study IV contributed towards this challenge by sketching out a possible groundwork for how such theoretical work might be

undertaken, conceptually and empirically. Philosophical ideas from Critical Realism (CR) were used to help clarify issues such as social ontology, causation in an open world, adolescents as stratified social agents, and science as a value-laden practice. A methodology for developing fallibilistic, context-sensitive knowledge was also outlined (see section 4.5).

In focus for the conceptual analysis were two highly influential and well-researched theories on adolescent 'risk' behaviours, which underpin many prevention programmes – Jessor's (1991, 2014) Problem Behaviour Theory (PBT), and the Social Development Model (SDM) (Catalano & Hawkins, 1996). Firstly, it was shown that PBT and the SDM may struggle to develop causal explanations that can go beyond the 'surface' level of observed correlations, unless a deeper ontological framework is used. Secondly, PBT and the SDM may be enhanced by paying attention to differences in contextual conditions. Thirdly, the need was highlighted for developmental theories to better account for adolescents' own reasoning and motives, in relation to contextual and structural, socio-ecological factors. Fourthly, it was demonstrated that value and moral positions are interwoven in the theories' key concepts, such as 'antisocial' or 'problem' behaviour. It was argued that CR's position on values in science encourages a reflexivity about and investigation of moral positions, from which developmental theories of adolescent 'risk' behaviour may benefit from addressing.

A secondary aim with Study IV was to illustrate how quantitative studies can support theory-building within a critical realist framework. It was shown that existing studies that employ a socio-ecological explanatory framework and methods that probe heterogeneity are well-suited to support critical realist explanation. In particular, such studies can contribute towards retroductive theorising of the links between context and outcome patterns in behaviour. Using principles of moral realism from CR, it was also demonstrated how quantitative studies can explore the descriptive adequacy of key concepts in development theories, such as 'risk behaviour'. This can help provide both an empirically-grounded critique alongside moral reflexivity concerning fundamental concepts in risk factor theories. Combined with empirical findings concerning heterogeneity, it was argued that quantitative work can be an important building block in the task of developing theories for an improved prevention design and practice.

"And these children that you spit on
As they try to change their worlds
Are immune to your consultations
They're quite aware of what they're goin' through
Ch-ch-ch-ch-changes
Turn and face the strange
Ch-ch-changes
Don't tell them to grow up and out of it"

David Bowie – Changes (1971)

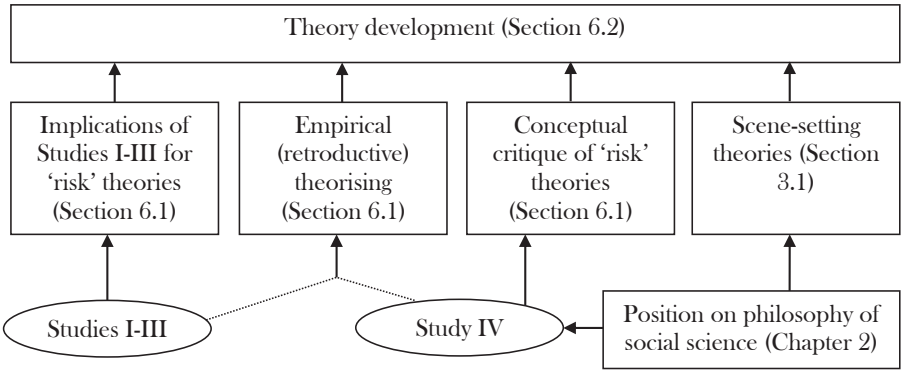
6. Discussion of the findings

This chapter sets out the central discussions of the thesis. It also marks a return to the key questions of improving understanding of how and why drug use, drunkenness, and criminal behaviour develop in early to mid-adolescence. In particular, the main ambition was to contribute towards the development of theory that can have applications in policy and practice. The over-arching question and ambition of this thesis were underpinned by four separate studies. The three empirical studies built on on an extensive, longitudinal, general population dataset. This in itself provides a unique contribution to the literature, in that the development of a large group of 'ordinary' adolescents was followed. Moreover, newer, more advanced statistical methods were applied to this dataset, and the results were analysed using novel theoretical frameworks. Greater complexity and heterogeneity than previously known was found regarding how the component 'risk' behaviours – drug use, drunkenness, and criminal behaviour – cluster and develop in early to mid-adolescence. Moreover, differences were found in the socio-ecological factors that may explain the different developmental paths. These findings challenge current understanding of the development of 'risk' behaviours in adolescence. Thus, these findings have a number of implications for the developmental theories that were presented in section 3.2, that is, the characters in the story.

The discussion thus begins with the implications of Studies I-IV for the theories of adolescent 'risk' behaviours. Studies I-III were empirical studies and thus have *empirical* implications for theory. Study IV, being a theoretical study, has *conceptual* implications for the theories, but also has ramifications for the role of quantitative empirical work in theory development. In some ways, Study IV paves the way for Studies I-III to contribute towards a particular kind of theoretical development programme, i.e. one underpinned by Critical Realism. This theoretical development is then tentatively begun in section 6.2, by drawing on the 'scene-setting' theories (presented in section 3.1), where a prelude to a new theory of adolescent 'risk' behaviours is outlined. Figure 17 illustrates how the different parts of the central discussions are linked to the four studies and to the main aim of theory development, i.e. understanding why these behaviours develop as they do in the early to mid-teenage years, as well as to the other theoretical and philosophical perspectives presented. The

chapter closes with a final section outlining some of the implications for future research and for policy and practice.

Figure 17 – Structure of the central discussions and links to Studies I-IV



6.1 Theoretical implications of Studies I-IV

This section presents the implications of the main findings from Studies I-IV for the theories of adolescent 'risk' behaviour, which were described in section 3.2. The implications are grouped under six thematic headings:

- Challenging the concept of general 'risk' behaviour
- Re-formulating the concept of continuation and escalation
- Differential developmental pathways
- The developmental clustering of behaviours
- Different socio-ecological factors for differential development
- Situating the findings in a CMOC model

These six implications will be presented in turn.

Implication 1: Challenging the concept of general 'risk' behaviour

The findings of this thesis suggest that there is a need to review and develop current theories of adolescent 'risk' behaviour in terms of the key outcome concept of generic 'risk' behaviour. The developmental theories in focus in this thesis underpin many

prevention programmes and thus reviewing these theories is an important part of contributing towards improving prevention design and practice. Whilst the three theories of 'risk' behaviours – the Dual Taxonomy, the Social Development Model (SDM), and Problem Behaviour Theory (PBT) – could be examined in terms of their supporting empirical studies, that would be a different presentation (and this has also been undertaken by others – see section 3.2). From a critical realist perspective, the concepts and explanations in a theory are the essential lens through which to understand the causal processes 'behind' the data. Yet concepts are not universal givens, free from values and morals. Concepts do things; they define and categorise, inform method and measurement, they include and exclude, give praise or admonition. They even sanction punishment. For Bhaskar (1979), science is inextricably part of the mutually transformative relationship between agency and structure, either maintaining the status quo or contributing towards changing society.

Study IV made a theoretical argument that there is a need to review the adequacy of key concepts of generic 'risk' or 'problem' behaviour in the SDM and PBT. In these theories, it is hard to find specific theoretical distinction between substance use and criminal behaviour and rarely is a distinction made between alcohol and other drug use. Thus, there is an implicit presumption that these behaviours can be grouped together and treated as the same thing. Study I investigated whether these behaviours are statistically linked to each other over time, that is, a *reciprocal* statistical association at a within-person level in early to mid-adolescence. If these behaviours are linked then it might make sense for them to be grouped together conceptually as is done in all three 'risk' theories.

Study I found that reciprocal associations between drunkenness, drug use and criminal behaviour at the individual, within-person, level were either not present or only very weak during early to mid-adolescence. The estimates only showed support for criminal behaviour being associated with later drug use across grades 7-9, for criminal behaviour being associated with later drunkenness at grades 8-9, and drunkenness being associated with later drug use at grades 7-8. This partly differs from previous research (e.g. D'Amico et al., 2008; Mason and Windle, 2002) that suggested that substance use is associated with later criminal behaviour at this age, but is line with the studies by Bui et al. (2000) and Hunter et al. (2014), i.e. that criminal behaviour is associated with later

problem drug use or heavy drinking during mid-adolescence. The estimates in Study I, like those found by Bui et al. (2000), were however fairly to very weak (<.3 in two cases and <.2 in two cases). Study II, using a different methodological approach, also found differences in growth trajectories between the three behaviours. As such, this suggests that these three behaviours do not cohere together in a simple way in this developmental period. Empirically, this stands somewhat in contrast to the assumptions in the three 'risk' theories under study in this thesis. Where these behaviours were linked, early criminal behaviour presented a small risk of association with later drug use and drunkenness. Interestingly, no associations were found between drug use and later criminal behaviour or drunkenness in this developmental period, i.e. early to mid-adolescence.

Studies I, II, and IV thus challenge the idea of a general concept of adolescent 'risk behaviour' as a generic outcome behaviour comprising drug use, drunkenness, and criminal behaviour, as theorised by the three key theories under study. Studies I and II make this challenge empirically and Study IV makes it from a conceptual and philosophical perspective. If a generic outcome concept, such as 'risk', 'antisocial', or 'problem' behaviour is untenable, then further theoretical work may be needed to specify just which behaviours – or rather, which *patterns* of behavioural development – are being explained by the theory. Study IV also set out a groundwork for how such theoretical development could be undertaken, including paying attention to reflexivity about moral positions and 'descriptive adequacy' within theories. For example, the Dual Taxonomy aims to explain 'antisocial' behaviour. In the original Moffitt (1993) article, it is hard to find where this central term is defined. Rather, statistics of US arrest rates in the 1980s are used as a proxy concept. There is thus some degree of conceptual slippage between criminal or offending behaviour and the intended concept of 'antisocial' behaviour. This is not to detract from Moffitt's (1993) point in displaying arrest statistics, i.e. the age-crime curve peaks in adolescence (and this phenomenon has been found in other cultures), but the theory retains this generic concept.[25] This introduces a blurring of the key concept; there is a risk of loading the concept with *additional* behaviours and values, leading to explanatory imprecision.

[25] In later empirical work (e.g. Moffitt et al., 1996; Moffitt & Caspi, 2001), 'antisocial behaviour' for adolescents is similarly operationalised using the Self-Reported Delinquency structured interview (see Elliott & Huizinga, 1989).

The most obvious example of this concerns the explanation of the development of drunkenness and drug use. Firstly, many arrest statistics do not include minor drug or alcohol offences, so the conceptual move from offending behaviour to 'antisocial' as a catch-all concept for drunkenness and drug use is uncertain. Moreover, as drug use has since been decriminalised in a number of US states, as well as several western countries, the link between criminal behaviour and drug use becomes more problematic conceptually, at least in current usage. In a recent review of the 25-year history of the Dual Taxonomy (Moffitt, 2018), the same concept of 'antisocial' behaviour is still used as a generic concept for a wide range of adolescent behaviours. Similarly, in one of the most recent theoretical accounts of the SDM (see Cambron, Catalano & Hawkins, 2018), the generic outcome concept 'antisocial' behaviour is used. Whilst such a generic concept may be useful in explanations of a 'small, but severe' minority of adolescents, its applicability to general adolescent populations and teenage substance use more generally seems perhaps limited.

Drawing on the theory and research presented in section 3.1, a number of studies have shown that adolescent alcohol and drug use occurs almost exclusively in social situations (see Measham et al., 1998), often as part of social bonding or belonging (Becker, 1953; Larkin & Griffiths, 2004; Farrugia, 2015). Thus, for many general adolescent groups, drug and alcohol use is *prosocial* from the point of view of the adolescent. This raises questions about the descriptive adequacy of the term 'antisocial'. Concerning alcohol use, the notion that this is *per se* antisocial is in need of theoretical explanation. Whilst many kinds of alcohol use can be deemed antisocial, such as alcohol-related car accidents and alcohol-induced violence, the question remains why *any* teenage use of alcohol is categorised as 'antisocial'. Studies I-III were not able to speak to any level of hermeneutic descriptive adequacy, but they validate the notion that heterogeneity *ought* to be included in theoretical and empirical work.

If the outcome behaviour concept – whether as 'antisocial' or 'problem behaviour' – comprises behaviours that do not at this age easily group together under a general concept, then the theoretical explanation of the *development* of the outcome behaviour, again in this period, also may need revising. In the SDM, for example, the generic outcome 'antisocial' behaviour in early to mid-adolescence is explained by preceding 'antisocial' values or attitudes (Cambron, Catalano & Hawkins, 2018). The

implication from the SDM's theory is that generic 'antisocial' values and attitudes can *equally* explain the development of adolescent drunkenness, drug use, and criminal behaviour. However, Studies I and II found that component outcome behaviours, such as drunkenness or drug use, seem to be largely unrelated in a developmental way, in that they do not, for most youth, appear to lead to each other, again during early to mid-adolescence. Additionally, Studies I-III suggested that these behaviours develop *differently* to each other. Hence, a one-size-fits-all explanation for such *differential* development seems unlikely.

Despite the extensive research that has been conducted on the Dual Taxonomy (see Moffitt, 2018), the SDM (see Cambron, Catalano, & Hawkins, 2018), and PBT (see Jessor, 2014), most of the supporting studies highlighted in the key theorists' own reviews used *at the outset* a generic concept of 'antisocial' or 'problem' behaviour. Thus, many of the key studies that supported these theories did not perhaps intend to empirically investigate the key concept. The initial work that gave rise to grouping these behaviours together as one generic concept may have been based on the best available knowledge at the time, such as between-person cross-sectional studies (see Jessor, 1991; Hawkins, Catalano & Miller, 1992). As presented in section 1.1, there has, however, in recent years been a number of studies that have used within-person methods and have highlighted heterogeneity in how these behaviours cluster (e.g. Parker, Aldridge, & Measham, 1998; Jackson & Schulenberg, 2013; Baggio et al., 2014; Tomczyk, Hanewinkel, & Isensee, 2015; Choi et al., 2018). The first key implication of this thesis connects with this literature, strengthening a call for new theoretical and empirical work that avoids a homogenisation of 'risk behaviour' and looks to understanding the *different* ways that these behaviours may develop and cluster.

Implication 2: Re-formulating the concept of continuation and escalation

A presumption of PBT, and to some extent the SDM and the Dual Taxonomy, is that 'risk' behaviours themselves present a risk of continuation or escalation. Study I however found that over-time (stability) associations between drunkenness, drug use, and criminal behaviour were fairly weak, once between-person variance was controlled for. This means that the three behaviours did not show a high or even moderately

strong statistical risk of continuation in early to mid-adolescence. Previous studies that have shown an increase in these behaviours in adolescence (e.g. Johnston et al., 2017) tend to use between-person methods. As Moffitt (1993) pointed out, the increase at a group-level, which gives an appearance of escalation, may also be due to an increase in the number of one-off or short-lived behaviours. Study I, by using within-person methods, thus challenges a general notion of escalation for all adolescents. The strength of the risk of continuation differed, however, between the three behaviours, and over time. For example, drunkenness had the strongest stability effect from grade 7 to 8, but this relationship weakened by grade 9. This suggests that the behaviour itself presents less of a risk of continuation as teenagers reach mid-adolescence and are possibly entering into other socialisation and maturational processes. Although some adolescents can enter into patterns of continued frequent drunkenness during mid-adolescence, Study I suggested that episodes of teenage drunkenness may not necessarily be indicative of the emergence of a longitudinal pattern in early to mid-adolescence. Conversely, drunkenness at age 12-13 (grade 7), presented a higher risk of continuation, which is in line with the research that suggests that early drunkenness, rather than early alcohol debut, is more indicative of later problems (Enstad et al., 2017).

Little support was found in Study I for drug use having a longitudinal, stable pattern in early to mid-adolescence. Rather, drug use in this developmental period in some general populations may be closer to sporadic or irregular patterns of use. For both drunkenness and drug use, it may be the case that if and when habitual patterns do start to occur, this is for most people during later adolescence or early adulthood. Another explanation is that, as drunkenness and drug use are fairly rare for this age group in a Swedish context (Zetterqvist, 2018), these adolescents may have attracted the attention of adults and been subject to effective interventions. This form of reasoning, however, runs counter to what is known about current prevention methods (as outlined in section 1.2). Study II found low and stable intra-individual growth rates for both drunkenness and drug use, which also suggests stable behavioural patterns. Given that considerable heterogeneity was also found, the low growth at a group-level may mask a minority of other patterns. The low intra-individual growth rate, however, is particularly important when group-level growth rates appear to show drunkenness and drug use doubling from one year to the next. Such group-level figures are probably best explained by an

increase in the proportion of 'first timers' or 'one-offs' who do not then escalate the behaviour, at least during the period under study.

In contrast, Studies I and II do lend further support for longitudinal patterns of criminal behaviour in early to mid-adolescence. In Study I, early criminal behaviour was associated with later criminal behaviour, though even here the strength of associations was small to moderate. This suggests that while some adolescents will continue with criminal behaviour, a large proportion will desist. This is roughly in line with Moffitt's (1993) idea of two types of offending behaviour. Similarly, Study II found a low intra-individual growth rate alongside a doubling of the group-level rate, which suggests an increase in 'one-off'-type criminal acts in line with Adolescent-Limited offending.[26] Study II also found that there was little tendency for adolescents with initially higher levels of criminal behaviour to reduce the frequency of their criminal activity, suggesting that those with early criminal activity may be more likely to continue. Study III also found that the latent statuses tended to be very stable during early to mid-adolescence, with the exception of remaining in the Occasional Law-Breakers (OLB) group by grade 9. This group had an approximately 50% chance of remaining in that status by grade 9 or transitioning to the other statuses, most likely the Dabblers group. This may be indicative of some adolescents 'naturally' maturing out of criminal behaviour, again in line with Moffitt's (1993) Adolescent-Limited offending theory, although this is speculative. It also highlights, however, how around half of this group do not at this developmental stage 'mature out'. It is also possible that the portion of the OLB group who transition into the Regular-All group are those adolescents who would be labelled as LCP, according to Moffitt's (1993) taxonomy, or those who are increasing their 'antisocial' peers, attitudes, and values, according to the SDM.

In summary, the differences between the three behaviours in terms of stability or progressions raise the need for a re-formulation of concepts of continuation and escalation of these behaviours. Although the SDM and PBT could be read as allowing for different pathways for different youth, such pathways are not presented meaning that the theories imply a homogenous model of the development of these behaviours, e.g. that once adolescents are on an 'antisocial' pathway, they will continue or escalate,

[26] It should be noted that no claims can be made from the empirical data about whether these were adolescent-limited or life-course-persistent offenders, as the sample was not followed beyond age 16.

and in more or less the same way. Closer attention needs to be paid to the issue of *when* and *for whom* these behaviours continue or escalate. Patterns of continuation or escalation are likely to be related to other, possibly psychosocial, factors (and not the behaviours themselves). Whereas the Dual Taxonomy may provide a framework for explanation of these different growth rates, the SDM and PBT may need to address how stability and escalation are understood theoretically. More importantly, trajectories of these behaviours were fairly static during early-mid adolescence and this pattern of non-escalation should also be explained. Furthermore, the group with more entrenched or worrisome behaviours, e.g. the Regular-All status, seemed to be already in place prior to the teenage years, indicating the importance of the pre-adolescence environment for the development of behaviours for this group.

Implication 3: Differential developmental pathways

The results of this thesis suggested that drunkenness, drug use, and criminal behaviour can have their own unique developmental pathways. Study I highlighted that the development of these different behaviours may in part be related to developmentally-stable factors, such as personality and/or family situation. More importantly, the *influence* of such developmentally-stable factors seemed to change during early to mid-adolescence. Both Studies I and II also suggested, however, that both the importance of these factors and their developmental rate of change *differed* between the three behaviours, with a decreasing influence of such factors towards mid-adolescence, more so for drunkenness and drug use. This suggested a differential development of these behaviours in terms of the role of 'stable individual' factors.[27] Study II used the socio-ecological concept of micro-environment to attempt to capture such 'individual' factors. For example, micro-level stable differences appeared to play a greater role for the development of criminal behaviour than for drunkenness or drug use. For the development of drunkenness or drug use, temporary or situational factors may be more important than stable factors.

[27] Two qualifications of 'stable individual' are required: the methods used in Studies I and II can only account for factors that are presumed to be developmentally *stable* during the period under study; other, dynamic or temporal factors may be at work. Secondly, 'individual' means any characteristics or *circumstances* relating to the individual.

This has important implications for the SDM and PBT, as well as for the risk factors approach in general. If stable micro-level factors only play a limited role for the development of adolescent drunkenness and drug use in early to mid-adolescence, then such factors should only have a limited role in the theoretical explanation of the progression of these behaviours in this developmental period. Heterogeneity in the development of these behaviours, alongside a generally low intra-individual growth rate, may explain why tests of, for example the SDM in adolescence, only achieve a modest level of explanatory power (Sullivan & Hirschfield, 2011). The upshot for the SDM and PBT is that dynamic micro-level factors may need to be built into the theory, particularly when explaining the development of drunkenness and drug use. Such factors may be temporal and/or situational.

An alternative argument is that there are other, unmeasured micro-level factors at work, for example, some other aspect of individual psychology, or some other aspect of the family situation. The socio-ecological measures used for Studies II and III were chosen to give wide coverage of the micro-system, albeit at the expense of specificity. Although the chosen measures in some ways can be seen to be quite blunt, it seems unlikely that all of them together would fail to capture a highly importantly, but unmeasured aspect of the micro-system. Although the possibility of other unmeasured factors cannot be ruled out, it seems more likely that the influence of the micro-system is just not as strong as theory currently suggests it is, once newer, within-person methods are used. This shifts the conceptual understanding of 'risk' for these behaviours in the micro-level from the individual as a unit to the temporary situations and transient contexts that adolescents find themselves in. This thesis does however lend support to a micro-level risk factors approach for theorising the development of criminal behaviour, though the implication is that temporal and situational factors play a larger role than previously acknowledged even for the development of criminal behaviour.

Implication 4: The developmental clustering of behaviours

The results of this thesis also suggested that drunkenness, drug use, and criminal behaviour can cluster together, but in different ways for different groups of adolescents.

Study III found four clusters[28] of adolescents' drunkenness, drug use, and criminal behaviour: "Abstainers" (80% of the sample), "Occasional law-breakers" (OLB) (9.4%), "Dabblers" (9%), and a "Regular-All" group (1.6%). The four identified clusters are in line with previous research from the U.S. (e.g. Monahan et al., 2013; Bright et al., 2017), despite the different socio-cultural context, although the prevalence of a law-breaking group was higher in the U.S. studies. While the Regular-All status was very small in terms of actual numbers, other latent class studies with much larger samples have also found a 'small, but severe' group (see Vaughn et al., 2014). The conceptual relevance for theory and practice, that a low prevalence but highly-entrenched group exists, meant that this group was important to retain. In some ways these findings support previous studies that found connections between these behaviours using between-person or cross-sectional correlations (see Farrell et al., 1992; Baggio et al., 2014; Choi et al., 2018). Study III however extends such studies by showing that these behaviours cluster *differently* among adolescents. Moreover, that the clusters can change developmentally.

Taken together, the findings from Studies I-III highlight that these three behaviours *can* cohere together, but do so for different adolescents and in quite different ways. Whereas both the OLB and the Regular-All group displayed higher levels of criminal behaviour, they differed in two main ways. The OLB group showed almost no drunkenness or drug use and was more prone to change, with some adolescents moving into the Regular-All group, some into the Dabblers and some in the Abstainers. This highlights a heterogeneity in development for this group. The Regular-All group however showed much more stability. The Dabblers too showed some stability, but with mainly infrequent behaviours characterising this group, in practice their behaviour would look more like sporadic and/or situational behaviours. It is important too to remember that many teens in early to mid-adolescence do not engage in these behaviours at all, although this differs quite markedly when one looks at drunkenness versus for example drug use, and in particular as teens reach mid-adolescence. The implication for the three theories of 'risk' behaviours is that the component outcome behaviours cluster in *different* ways. Moreover, that these clusters may have different developmental trajectories during early to mid-adolescence, e.g. the Dabblers being

[28] In this discussion, I use the more everyday day terms 'cluster' or 'clustering', rather than the correct statistical term 'latent status'.

more stable, and the OLB group being more prone to change. The theories would need to account for this 'cluster and change' process.

Implication 5: Different socio-ecological factors for differential development

The finding of this thesis suggested that differential development can in part be explained by differences in an adolescent's socio-ecological environment. Study I implied that developmentally stable characteristics or circumstances, alongside dynamic factors, are likely to be of importance when understanding *why* drunkenness, drug use, and criminal behaviour develop during early to mid-adolescence. Study II found that three different aspects of the adolescent's micro-environment – personality, peers, and parents – were found to be only weakly associated with the development of these behaviours. On the one hand, this is in line with previous research. For example, longitudinal studies of the link between criminal behaviour and parental knowledge found standardised estimates between -.09 and -.14 (Kerr, Stattin, & Burk, 2010).[29] Similarly, Hartman et al. (2013) found that novelty-seeking was linked to increased odds of trying alcohol and drugs, again albeit with a weak effect. On the other hand, these two studies – and many others like them – used both a uni-domainal approach, which may inflate the importance of that one factor under study, along with between-person methods, which potentially confound intra-individual development with group-level effects. The weaker effects found in Study II are potentially a result of examining more closely, using within-person methods, what is happening at the level of individual development. Moreover, in using a multi-domainal approach, in line with a socio-ecological model, potential inflation of studying single explanatory factors in isolation is reduced. Further study would, however, be needed to support this.

Study II also found that the strength of associations differed both between the three behaviours and also between the factors representing different domains in a socio-ecological model. Firstly, the peer effect had a stronger association for criminal behaviour than for drunkenness and drug use. Few studies have examined the

[29] While parental knowledge and the measure used in this thesis – family cohesion – are two different concepts, an argument can be made that they both can represent the relative influence of family domain in a socio-ecological model.

comparative strength of the peer effect separately on drug use, drunkenness, and criminal behaviour. For example, Monahan, Steinberg & Cauffman (2009) found evidence of a strong peer selection effect in mid-adolescence, alongside a socialisation effect, in relation to the development of criminal behaviour. One study that investigated the peer effect in relation to criminal behaviour *and* substance use side-by-side found that peer effects were largely similar for criminal behaviour and substance use (Monahan et al., 2013). While such studies provide an important contribution to the literature, by using a uni-domainal approach, less is known about the *relative* strength of the peer effect in relation to for example family factors. Study II found that family cohesion was similarly relevant for all three behaviours, yet its associations were almost twice the size of the other micro-level factors' associations, including the peer effect. This highlights the relative importance of the family domain in relation to other micro-level factors. However, whilst these factors are non-negligible for theorising development, the associations were fairly weak. This suggests that other, possibly dynamic, temporal, or situational factors may play a greater role. Also noteworthy from Study II is that the meso-level factor of school, and the exo-level factor of municipality appeared to make little difference to adolescents' development of these behaviours. One explanation of this finding is that these factors were sufficiently uniform across the sample so as to produce little variation.

Building on the notion of developmental clustering of the behaviours, Study III also investigated the relationship between aspects of adolescents' micro-environments, but this time in relation to the different clusters. Stable factors, such as sex, the temperament dimension of novelty-seeking, peer behaviours, and family cohesion, were all significant in distinguishing between the three larger clusters. In relation to the smallest cluster – the Regular-All status – only a limited set of factors (sex, novelty-seeking family cohesion, and peer behaviours) could be tested. These were also significant in distinguishing this group from the Abstainers. These findings pointed to the importance and validity of using a broader, socio-ecological model to understand the differential developmental clustering of these behaviours. The findings also highlighted just which developmentally stable factors are important for theorising about different trajectories of these behaviours. Whereas the Dual Taxonomy proposes two developmental pathways, the SDM and PBT can be viewed as presenting a flexible model that might allow for a variety of pathways. A disadvantage with this flexibility is its

lack of specificity; it does not say which factors are important in which degrees, when, and for whom. The upshot of this is any theorising about *causal*, developmental processes potentially becomes vague and general. As Farrington (2006) noted, without knowledge of specific causal processes, the risk factors paradigm essentially fails.

The key implication of this thesis is that different socio-ecological factors at the micro-level are related to differential developmental clustering of drunkenness, drug use, and criminal behaviour. Some combinations of micro-level factors will be important for some developmental clusterings, but not for others. Taken together, these findings provide an important contribution to the question of *why* some adolescents follow one trajectory and not another. Whereas previous research, as discussed in section 1.1, has identified a range of micro-level factors that are linked statistically to the development of substance use and criminal behaviour, such studies tended to miss heterogeneity in the development of these behaviours, but also neglect the use of a broader socio-ecological model.

Study III found support for a differential effects hypothesis, i.e. the strength of associations between micro-level factors and the behavioural composition differed by cluster. Not only did the strength of associations between the explanatory factors and the cluster differ *within* each cluster, but also *between* clusters. For example, within the OLB cluster, the criminal peers covariate was relatively stronger than all of the other covariates, in comparison to the reference group (the abstainers). These peer covariates were however relatively weaker in the Dabblers cluster. This supports the idea that peer influence may be behaviour-specific (see Monahan et al., 2013), but also suggests that this effect may be limited to specific sub-groups of adolescents (e.g. the OLB group), and less relevant for other teens. Interestingly, the covariates had the largest effect in identifying the Regular-All group, in comparison to the Abstainers. For the Regular-All group being male, experiencing low family cohesion, having peers who commit crime, were the most prominent explanatory factors. Given that the Regular-All group was low in terms of actual numbers in Study III, it is important to interpret the results concerning this group with some caution. It may also be the case the some of the untested covariates, such as low perceived family finance, may also be associated with this group. The descriptive statistics of the explanatory covariates for this group however pointed to an interesting trend in how the Regular-All group differed from the other

three clusters on all of the range of socio-ecological variables, suggesting that these adolescents are growing up in quite different, if not adverse, socio-ecological circumstances.

Hence a picture begins to emerge, not just that there are sub-groups of adolescents – in terms of their substance using and criminal behaviours – but moreover that these sub-groups have different socio-ecological contexts relevant for the development or maintenance of their behaviours. For example, for adolescents with more frequent and regular engagement in drunkenness, drug use, and criminal acts, causal mechanisms may be likely to occur in *contexts* of lower family cohesion, criminal peers, and novelty-seeking temperaments. This corresponds with large-scale cross-sectional studies, e.g. Baglivio et al. (2017), who found that parental problems were linked to temperamental issues in their children, which in turn were related to adolescent criminal behaviour. This also corresponds with McAra & McVie's (2012) finding that it is the *interaction* between 'hanging around in the street' most evenings and low family socio-economic status that is linked to increased chances of encounters with the police. On the contrary, for teens 'dabbling' in alcohol and drug use, factors such as novelty-seeking and peer behaviours may be relevant contexts in explanatory accounts.[30] Again, while previous research may have found heterogeneity or investigated risk factors within a socio-ecological model, Study III brought together these two traditions. The findings extend and provide more specificity to the SDM and PBT. Regarding the SDM, the findings of this thesis suggested a clearer role for family cohesion, and in particular how this might interact with peer influences. It is possible that family cohesion is also in part affected by external strains such as low income. However, these findings might imply that, for some adolescents, it could be the context of a negative family environment, rather than of peer influences, that results in, for example, criminal behaviour.

There are also some further theoretical implications concerning the Dual Taxonomy in that greater heterogeneity was found than the theory would allow. The Regular-All group in this study aligns well with the idea of the LCP group in terms of early debut

[30] At this point, it is important to note, that no causal claims are being made. Rather, differential patterns are being discerned and discussed. Differential patterns are an important part, but not the whole story of, a causal account.

with criminal behaviour and adverse family environments.[31] The findings of this thesis suggested, however, that adolescents that may match the LCP criteria are likely to have substance use issues involving alcohol intoxication as well as drug use. Given the proposed aetiology of LCP adolescents, these behaviours are likely to be *symptoms* of a developmental pathway, rather than causal factors. Indeed, Study III supported the idea that low family cohesion and criminal peers are together explanatory factors relevant for theorising the mechanisms of LCP pathways; these factors together are not foregrounded in, for example, Moffitt's explanation. The findings also implied that a potential adolescent-limited group may be better understood as two distinct groups: the OLB group and the Dabblers group. For the former, relevant factors for theorising their development may need to focus on criminal peers, family cohesion and being male. Whereas for the Dabblers, theoretical work may need to look at individual characteristics, such as novelty-seeking, as well as substance-using peers.

Implication 6: Situating the findings in a CMOC model

The final implication of this thesis concerns situating the findings in a Context-Mechanism-Outcome Configuration (CMOC) model. Quantitative research can be used to support theory-building in a number of ways. This thesis has opted to use principles and ideas from Critical Realism to support a particular kind of theoretical programme (see Chapter 2). Study IV demonstrated how existing empirical studies could be 're-viewed' using four principles from CR to contribute towards realist theory-building. Studies I and III were used, among other quantitative research, to illustrate that critical realist principles can be applied to existing empirical work that did not necessarily use ideas from CR. The remainder of this section will further develop the ideas begun in Study IV by situating the main findings of Studies I-III in a CMOC model to demonstrate their contribution to this kind of theory-building.

The CMOC model provides a methodology for situating quantitative findings in a broader theory-building framework. In critical realist terms, mechanisms are people's intentions and reasoning for the actions deemed or presumed available to them, in

[31] Again, it should be noted that the empirical data of this thesis cannot make claims about whether the participants do meet criteria for either the LCP or AL typology.

other words, the practices and socio-cultural resources presumed or actually available in the social setting, that is, the context. Context, in Pawson's (2006) terms (as outlined in Chapter 2) relates to the different aspects of social ecology. Outcomes are the different empirical patterns of social life (see also section 2.2 for closer description of the CMOC model). Study IV made the case for quantitative findings contributing to understanding the links between Context and Outcome. Such links form an integral part of retroductive theorising. The case was also made in Study IV for how qualitative work can contribute to understanding mechanisms, from different methodological perspectives, e.g. discourse and conversation analysis, phenomenological analysis, and ethnography. Thus a critical realist analysis invites a marriage of quantitative and qualitative methods to provide a fuller picture of a causal reality.

The contribution of the findings of this thesis is, however, to highlight some specific patterns only of Context and Outcome. A retroductive analysis could start with an analysis of mechanisms, which would then inform a search for Context-Outcome patterns, or vice versa. It is the latter model, of presenting Context-Outcome patterns, that is presented here, with the view that other work would contribute towards an understanding of mechanisms. In critical realist terms, this thesis found four contenders for Context-Outcome configurations:

- Abstainers
    - Context: probably living in cohesive family environments, few if any peers who get drunk, use drugs, or commit crime, possibly less prone to excitement, and/or a high probability of being a girl.
    - Outcome patterns: little to no engagement in getting drunk, using drugs, or criminal behaviour, though a small risk of becoming a 'Dabbler' *during this developmental period.*
- Dabblers
    - Context: family cohesion may be more variable for this group (and not as cohesive as the Abstainers), peers who use drugs are more likely, and a novelty-seeking temperament is probable, but no gender differences.
    - Outcome patterns: sporadic drunkenness; rare, possibly situational drug use; sporadic criminal behaviour, and this behaviour is stable *in this developmental period.*

- Occasional law-breakers
    - Context: family cohesion likely to be lower than average; peers who engage in criminal behaviours likely, and greater likelihood of being male.
    - Outcome patterns: High probability of occasional engagement in criminal behaviour, but not drunkenness or drug use, though there is a good chance that this behaviour will change in either direction *during this developmental period.*
- Regular-All
    - Context: family cohesion is probably quite low, high likelihood of peers who also engage in criminal behaviours are likely to be present, and of being male.
    - Outcome patterns: Regular engagement in drunkenness, drug use and criminal behaviour, which is stable *in this developmental period.*

What is missing from the above account is, of course, the mechanisms. The above account, by focusing only on Contexts and Outcomes, also could be read as another 'deficit model push-factor account (which was critiqued in section 3.1). It is of absolute importance that the above outline is read as a partial and incomplete account of a contribution to specifying CMOCs for further research. Another limitation to the above account is that it only uses the findings of this thesis; further work could draw on a number of other studies to attempt to pool findings, akin to a realist review (see Pawson, 2016). Nonetheless, specifying Context-Outcome links in this way prepares the way for an investigation of mechanisms.[32]

Critical realism's view of social structure and human agency (Bhaskar, 1979; Archer, 2000) also provides a theoretical tool to analyse the above CMOCs in a broader context than the empirical data of Studies I-III allows. For example, in CR people's social practices are viewed to occur in social structures with differential access to material and social resources. This theoretical framework can be used to analyse, for example the uneven distribution of wealth, structural disadvantage, as well as, for example, sexism. Both Studies II and III failed to find an effect of perceived comparative family finances.

[32] In section 6.2 some examples of mechanisms will be suggested.

The lack of an effect may be more a result of measurement problems. Other literature has highlighted the importance of family SES on the development of, for example, criminal behaviour (Nieuwenhuis et al., 2017).

Broader issues of structural disadvantage were, however, not part of the specific empirical focus of the thesis, nor of the LoRDIA research programme. A critical realist analysis however encourages that some speculative attention is given to these factors. For example, the finding that the Regular-All group were more likely to experience lower family cohesion and criminal peers than the Abstainers group can be analysed in the context of that these two factors – family and peer network – may be located in uneven social structures. Thus, the practices of the family and the practices of the peer group need to be analysed as possible products of the social setting in which these practices occur. Again, this data was not available in LoRDIA. Rather, what is put forward here is a theoretical argument for the likelihood of the role of structural powers along with people's individual capacities and choices.

A further finding from Study III was that males were more likely to be in the OLB and the Regular-All group. A critical realist interpretation of a possible gender effect is that gender is an emergent property arising from both an embodied physiology and a physical practice as well as a social practice.[33] Thus, there is not a social constructionist reduction of gender to purely discursive terms. Instead, the difference between boys and girls engagement, primarily in criminal behaviours, could be explained as socially-*situated* practices of, to some extent, physical differences. The way physiological sex differences are understood in specific settings and socially enacted might be important for both theory and practice. For example, Boson et al. (2018) found that parents tend to have gendered *expectations* for how their offspring or charges should behave, over-estimating girls' maturity and under-estimating boys' maturity. Moreover, a number of studies have demonstrated how substance using and criminal behaviours are also gender coded (Measham, 2002; Sanders, 2011; McKenna, 2011; McAra & McVie, 2012). What might be important for developmental theories to take forward is an explanation of socially-situated, gendered practices as an emergent product of physiology, personal experience, and culture, building on Archer's model of the person

[33] See, e.g., New (2005), though fuller discussion of a critical realist position on gender is outside the scope of this thesis – see Gunnarsson, Martinez, & van Ingen (2016) for more discussion.

as comprising three orders of the natural/physical, the personal/experiential, and the social.

Lastly, context, like other aspects of development, is unlikely to remain stable as adolescents finish high/senior school and possibly begin sixth form or employment. Thus, as aspects of the context change, mechanisms that were previously hindered become actualised and new mechanisms become actualised in new contexts. In other words, it is important to view the above CMOCs as being a small slice of adolescent development; a story with four over-arching themes providing a glimpse of a thousand teenage lives.

Summary of the implications

Six key implications of Studies I-IV for the theories of adolescent 'risk' behaviours in focus in this thesis were discussed. The findings challenged existing general concepts of 'risk', 'antisocial', or 'problem' behaviour. They also suggested a re-formulation is needed of notions of continuation and escalation of drunkenness, drug use, and criminal behaviour. The implications further highlighted that the development of these behaviours differs between each behaviour, but also that development itself is more heterogeneous than previously acknowledged. Moreover, that these behaviours cluster in unique ways. The clusters, to some extents, have their own developmental trajectories. Perhaps most importantly, this differential development had different compositions of explanatory factors and contexts. The most prominent theories of adolescent 'risk' behaviours, the Social Development Model, Problem Behaviour Theory, and the Dual Taxonomy, may all require theoretical work to accommodate these empirical findings. Lastly, the empirical findings of this thesis were situated in a meta-theoretical model – the Context-Mechanism-Outcome-Configuration – in order to demonstrate how new theoretical work, one that is hopefully more sensitive to heterogeneity and context, as well as adolescent agency, might proceed.

6.2 A sketch of a contribution towards a new theory of adolescent 'risk' behaviour

The main questions of this thesis are how and why behaviours such as drunkenness, drug use, and criminal behaviour, develop as they do in early to mid-adolescence.[34] The previous section suggested that the most prominent current theories, which provide an explanation of 'why', may need revising on several accounts. This section pulls together the preceding discussions and other sources from within the thesis to provide a tentative answer (see figure 17 for how Studies I-IV and other parts of the thesis relate). This thesis also had the ambition of contributing towards the development of theory for practice. It is here in this section that this work will cautiously begin. No one set of empirical data can provide the means to give a thorough explanation of complex social processes and events, even when looking at a specific period development. It is hoped that the empirical data and the theoretical analyses thereof presented in this thesis thus far provide a building block in developing an improved explanation of the development of teenage drunkenness, drug use, and criminal behaviour. In order to provide a fuller explanation, other sources must be used. This section thus also draws on the scene-setting theories, presented in section 3.1, to help fill out the story. The use of these theories is somewhat speculative in that the choice of theories may seem arbitrary or partial. Bias, however, as Smallberg (2012) argued, is the nose for the story.

The application of the scene-setting theories will build on the discussion presented in the preceding section. This means that the use of the theories will be underpinned by Critical Realism. In particular, the theories will be discussed in relation to the CMOC model of theory-building. In this way, the application of the theories will be an attempt at sketching out a theoretical, albeit partially speculative, account of causal processes. The use of the CMOC model is more than just a meta-theoretical sorting exercise. The CMOC is part of a wider approach to developing knowledge in the social sciences (Pawson, 2013). In particular, its use here connects to the realist ambition of piecemeal, ground-up development of knowledge through realist synthesis. In this way, it is hoped that the contribution of this thesis can connect with a broader programme of accumulating and building theories for a context-sensitive practice.

[34] The remainder of this discussion is limited to the period early to mid-adolescence, but for the sake of flow in the text this will not be continuously mentioned.

Rethinking risk

Thornberry (2005) posited that the central aspect of developmental 'risk' theories should explain onset, course, and desistance of behaviours. From a critical realist perspective, moral reflexivity and descriptive adequacy of the key terms should also be in focus. To this end, a first task of this sketch of theory of adolescent 'risk' behaviour is to re-situate 'risk', as well as related outcome behaviour terms, such as 'antisocial' and 'problem' behaviour, as contentious terms comprising moral positions as well as technical confusion. Sections 6.1 demonstrated, conceptually and empirically, the need to move away from a generic concept of 'risk behaviour'. Rather, in discussing adolescent behaviours, it makes more sense conceptually and is more defensible empirically to talk about different groupings or clusterings of these behaviours. The notion of proximal or distal risk for example to psychosocial development arising from these behaviours should also be conceptualised in relation to different patterns or clusterings of behaviour. Where there is a need to view these behaviours separately, they should be viewed as heterogeneous behaviours containing diverse patterns with different outcomes for different people in different contexts. Importantly, these behaviours, whether individually or in clusters, for the most part should be viewed as fairly low-level and stable patterns during early to mid-adolescence. Most teenagers do not appear to escalate their behaviour and the tiny minority who do have more frequent rates of these behaviours tend to do so from the beginning of the teenage years.

The notion of 'risk' itself needs to be located in the adolescent's micro-environment, but not necessarily as a stable feature of the individuals or their circumstances, when considering adolescents in general. It was argued in section 6.1 that different behaviours, or clusterings of behaviours, are related to different compositions of socio-ecological contexts. However, there seemed to be at least an equal role of temporal, transient, or situational factors for drunkenness and drug use in particular. This means that 'risk' does not necessarily reside in stable behaviour or follow the individual adolescent. Rather, there may be 'risk environments' (Rhodes, 2003) or temporal 'risk situations', which raises the notion of situational risk minimisation, rather than person-based risk assessment.

What is missing from the current account of 'risk' is some attention to adolescents' own meanings concerning drunkenness, drug use, or criminal behaviour. As noted, this was

also absent when the main findings of this thesis were situated in a CMOC. The literature on the 'pulls' of substance use and crime (presented in section 3.1) may help in this regard. Larkin & Griffiths (2004) proposed the term 'risky but rewarding' behaviour to capture adolescents' own phenomenological accounts of drug use. A number of other qualitative studies demonstrate complex conceptions of relaxation and enjoyment, even though such 'pulls' sat in relation to the risks and dangers of intoxication (Aldridge, Measham, & Williams, 2001; MacLean, 2008). McAra & McVie (2012) also revealed a depth and complexity in adolescents' accounts of different aspects of criminal activity. For example, particular crimes were viewed as gender-coded, such as low-level violence was acceptable or even desirable for boys to display in particular social settings. This is not to privilege teenagers' own descriptive accounts over scientific concepts. Rather, there is a danger of misconceiving or mystifying adolescent behaviours if the 'pulls' or pleasure motives are not part of theoretical understanding (Karlsson, 2010). Thus re-thinking risk is also about acknowledging something of the lived realities of young people.

Explaining onset and course: the role of socio-cultural context

In terms of Thornberry's (2005) aspects of onset, course, and desistance, the analyses of this thesis lend themselves best to contributing towards explaining onset and the early part of the course of behaviours in adolescence. To contribute towards explaining desistance would require an empirical material that at least follows participants into later adolescence, so that some aspect of adolescent-limited behaviour may be discerned. Similarly, only the course of behaviour in early to mid-adolescence can be in focus if this sketch is to build first and foremost on the empirical analyses and their theoretical implications.

Four different types of onset and initial course are proposed, corresponding to the four clusters of behaviours: Abstainers, Occasional Law-Breakers (OLB), Dabblers, and Regular-All. Within the CMOC model, onset and course needs to needs to be explained in relation to context. Drawing on Pawson's (2006) notion of context, an account of the broader socio-cultural context pertaining to all four groups is needed. In the discussion of the development of youth cultures (section 3.1), the idea was put

forward that the western modern-day adolescent is in part a product of sociological changes spanning 150 years or so. In particular, autonomy, responsibility and adult-like social roles for young people were viewed to be reduced and withheld, to be replaced by the formal, segregated orders of school. An informal reaction to this was the co-emergence of the informal orders of post-war youth culture(s). A dialectic can be viewed to have evolved, culturally and socially, between the logic of youth cultures and that of representatives of the hegemonic adult moral order, such as politicians, policy makers, if not the media. Some of the framing of 'youth at risk' can be seen as one part of this dialectic.

Thus, adolescents in all four groups are faced with negotiating what Moffitt (1993) termed 'the maturity gap'. In the current sketch, the idea of the maturity gap however is given a deeper sociological emphasis. While Moffitt (1993) does draw on changes in sociological context, her account focuses on changes in the onset of biological puberty and less on how the category and practice of 'youth' continues to be constructed and delimited by the adult order. Moreover, that the current cultural dialectic of youth/adult may well be *continuing* to promote the notion of young people as incapacitated or antagonistic objects, rather than as competent subjects. Additionally, within a critical realist perspective, events such as puberty are not simply biological events, but are emergent from physiological changes imbued within specific social and cultural meanings. The 'maturity gap' is thus also understood as an emergent phenomenon arising from adult practices in relation to young people's emerging 'adulthood' and how this is controlled, shaped, and layered with social meaning. This part of the theory may have important implications for thinking about mechanisms for all four groups, as well as for the design of practice, particularly in relation to how notions of capacity, responsibility, and autonomy are pre- or proscribed to young people. For example, the main findings of this thesis challenged the idea of escalation, particularly for low-level and/or infrequent use (i.e. the Dabblers group). It may be that, coming from more cohesive family environments, these youth have parents who provide room and support for testing out responsibility and autonomy, thus shaping more adult-like possibilities into which the young person can act.

A next, lower-order, level of context relates to current socio-cultural contexts in which adolescents in part explore and find their identities. This position draws in part on

Archer's (2000) account of how our social being develops, building on our personal and physical experiences (see section 2.1). In Archer's (2000) account, socio-cultural contexts form part of the social resources with which young people will establish viewpoints, intentions, and inform their actions. In relation to the onset and initial course of 'risk' behaviours, local youth cultures concerning drinking alcohol, using drugs, and doing something criminal, form such positions into which young people can act. Section 3.1 presented some different aspects of this context that also form part of the explanatory account. The normalisation thesis (Parker, Aldridge & Measham, 1998; Williams, 2016) put forward that the social landscape of adolescent substance use underwent a drastic change in the 1990s. While the current teenage landscape concerning substance use may be undergoing another sociological shift – perhaps in line with 'differentiated normalisation' (Williams, 2016) – many of the features of normalisation remain, in terms of attitudes to, knowledge about, if not actual use of illegal drugs among a range of social groups. The drinking culture has also changed, with the proportions of adolescents drinking alcohol and getting drunk being no longer the absolute majority and the social spaces to get drunk perhaps shifting to other, perhaps 'safer'[35] arenas that avoid detection by the adult world (Ander, 2018). Thus, alcohol and drug use remains a complex feature of the adolescent environment, yet always against the backdrop of the adult/youth dialectic of autonomy and control.

Continuing this dialectic without reflection may miss other opportunities to understand or even intervene in new ways in local youth cultures of alcohol and drug use. This may be particularly important in contexts, such as Sweden, where stricter and punitive 'zero tolerance' approaches to drug use are in force. Despite the politico-legal context, some Swedish adolescents are opting to use illegal drugs, yet the empirical results in this thesis suggest that these patterns do not escalate in early to mid-adolescence. One speculative argument could be that the patterns do not escalate because of the strict politico-legal context. However, Sweden, like, many other European countries, experienced a rise in youth drug use during the 1990s; in Sweden's case, this is particularly noteworthy as the maximum sanction for any drug use was raised in 1992 to imprisonment. If punitive sanctions formed an important part of the causal mechanism for young people's drug use, then this should be reflected to some degree in lower usage rates. Rather, an

[35] Both safe from unwanted peers, but also from adults.

alternative explanation might be that those young people who use drugs do not escalate their behaviour because of choices and rationalities concerning fitting drug use to a broader life project, e.g. doing well at school, rather than adjusting the life project to fit in with drug use (Skårner & Månsson, 2008).

In terms of criminal behaviour, the vast majority of young people commit some kind of crime during their teens, so much so that *not* engaging in criminal behaviour at some point would be seen as abnormal, as Moffitt (1993) originally noted. However, the theory of negotiated order (presented in section 3.1) drew attention to how different criminal acts also are layered with differential meaning; some acts in some peer groups will raise your status; some will exclude you. Moreover, control and regulation practices, such as school exclusion and police enforcement processes, serve to reproduce more informal forms of exclusion or social vulnerability. Again, the processes of control of and responses by the adult world to substance use and crime are an integral part of the complex assembly of the social contexts in which young people form their behaviour, in particular concerning the onset and initial course of drunkenness, drug use, and criminal behaviour. Moreover, responses by the justice system may well serve to *sustain* or even exacerbate the development of these behaviours (Measham et al., 1998; McAra & McVie, 2012).

Explaining differential onset and course

Moving away from the role of socio-cultural context, this sketch of a theory will now telescope down to describe some specific differential patterns of onset and course of development of drug use, drunkenness, and criminal behaviour. The four different types or clusters of these behaviours were shown empirically to have differential development in terms of the stability of the behaviours during early to mid-adolescence, but also in terms of the micro socio-ecological context. For example, a 'small, but severe' group – the Regular-All group – is likely to have its onset in micro-level contexts of adverse family cohesion and higher proportions of peers who have criminal behaviour. There was also a higher likelihood of males being in this group. From both a socio-ecological but also from a critical realist perspective, maleness/masculinity, the family, and the peer domain do not emerge in social vacuums. Rather, these micro-

contexts also sit within – and are causally affected by – other contexts, including macro-level structures and discourses. In particular, it was argued in section 6.1 that a critical realist model of structure invites consideration of the causal powers of structural positions, such as the uneven distribution of wealth.

A number of studies have shown that many families with vulnerable children, or with children at risk of being taken into care, live in the poorest of neighbourhoods (e.g. Bywaters et al., 2016). Poverty and social inequity has been linked to range of adverse health outcomes (see Marmot, 2010, 2017). It is likely that poor family cohesion is intimately linked to strains arising from poverty and/or unfavourable working conditions, e.g. long/unsociable hours. As suggested above, rather than such families 'failing' to reign in or being unable to 'prosocially' educate their child, the current sketch proposes that negative or highly-strained family environments, most likely underpinned by low income and/or lack of other social resources, act as 'pushes' to the developing adolescent to seek a sense of belonging and/or temporary pleasures in other environments. Push and pull factors can, for some adolescents, work in tandem. From the adolescent's point of view, this may in part be experienced as a 'selection effect' (see Knecht et al., 2010, 2011) of friends, though the young person is not selecting their friends *because* they do criminal things or *because* they get drunk. These friends are likely to be the ones who live nearby and by happenstance engage in these behaviours. Once the adolescent is 'on the street', the rules and codes of the street will become more important and dominant, e.g. according to the theory of negotiated order. Thus, the young person's sense of self becomes more contingent, if not more reliant, on meeting and negotiating informal street criteria for being accepted. Moreover, once on the street, there is a greater likelihood of being subject to greater attention from, for example, the police (McAra & McVie, 2012).

Studies I-III suggested differential development for the four clusters or groupings of behaviours, meaning four different kinds of onset and initial course. The behaviours of the Regular-All group appeared to be already in place by age 13, suggesting a role for the pre-teen context. Moffitt's (1993) theory of the life-course-persistent (LCP) offender suggested that early adverse beginnings, even pre- and neonatal contexts, are an important part of the explanation. Drawing on the underlying critical realist framework of agency and structure in a constant, mutually-transformative relationship (section 2.1),

as well as the socio-ecological model of development (section 3.1), such early adverse beginnings may be better characterised as a failure of a variety of socio-ecological contexts, rather than deterministic and individualistic properties. This way of thinking may also have important implications for early prevention design. In terms of the initial course of the Regular-All group, which appeared to be stable, both the Dual Taxonomy and the SDM provide a similar explanation; a narrow set of skills and social connections are formed and, in a cumulative (or ever-narrowing) manner, the young person is 'ensnared' by the consequences of early negative behaviour.

The SDM's notion of external constraints, such as low socio-economic status, and McAra & McVie's (2012) notion of regulatory orders unfairly focusing on the vulnerable, raises the idea that any pre-teen onset of these behaviours may in part be being maintained by such social systems and responses to this group. There are also, however, likely to be some 'pulls' experienced by such youth, and an important contribution of the CMOC explanation is to account for some level of agency of LCP-type youth.[36] Such 'pulls' of, for example, criminal behaviour must however be viewed in the specific socio-ecological context configuration described thus far. In this sketch of a possible theory, these youth are also subject to the maturity gap, in contrast to Moffitt's explanation where LCP-youth are viewed to be socially adept and skilled at managing the maturity gap. It seems more likely that the ever-narrowing set of social skills and opportunities means that youth in the Regular-All group find it much *more* difficult to find roles with adult-like autonomy, or a to gain a sense of trust and responsibility from the adult world – and thus take to more and more extreme measures the more excluded they become.

The OLB group, on the other hand, may be representative of some of the Adolescent-Limited (AL) typology. For these youth, the micro-level context that was most relevant was a perception of higher proportions of peers who engaged in criminal behaviour. The onset of these behaviours may thus be part of an ordinary or normative process; many adolescents commit some kind of crime and this context itself creates a possibility of similar action. The empirical analyses in this thesis suggest, however, that these are one-off or seldom events. This is in line with Moffitt's (1993) notion of adolescent-

[36] The term 'LCP-type' is used as it cannot be known from the data in this thesis whether these youth do match the criteria for life-course-persistence.

limited offending. The OLB group was also the group most prone to change, again suggesting temporal or transient behaviours. Hence, specific micro-contexts, beyond perhaps the higher presence of peers engaging in criminal behaviour, may have limited explanatory value for this group, given the one-off nature of much of this behaviour. In contrast to the Dual Taxonomy, however, the OLB are not viewed in the current sketch as simply mimicking the Regular-All youth.[37] Rather, some 'pull' or another is presumed to be at work to explain one side of the mechanism coin. The Dual Taxonomy explains change of course, or desistance, as a 'healthy' response to changing contingencies; as more autonomy and tangible aspects of the adult world become available, the 'antisocial' behaviour is dropped. Given that change was seen in the period age 13-16, access to adult roles seems a weak explanation of the observed course of the OLB group. From the point of view of the SDM, the explanation would be that greater opportunities for 'prosocial' activities have occurred. The current sketch proposes that the answer lies somewhere in the adolescent's emerging social environment, but also in the emerging sense of self: the initial 'pull' of the one-off criminal act, such as stealing or vandalism, loses its attraction for many youth once committed, and as new social opportunities appear with the changing teenage social landscape.

The Dabblers are, in contrast to the OLB group, those with some low-level, possibly sporadic drunkenness and drug use, alongside infrequent, probably one-off criminal acts. Explaining their alcohol and drug use draws on both the socio-cultural context of teenage substance use (as mentioned above), but also on the 'pulls' or pleasure motives (see section 3.1). The onset of the substance-using behaviours is likely to arise as a product of the socio-cultural context. The results of this thesis suggested that both higher proportions of peers who engage in drug use, along with higher levels of novelty-seeking, are important parts of the explanation. Adolescents with similar aspects of personality tend to become friends (Selfhout et al., 2010) and thus it may be that these youth end up engaging in these behaviours together. Research on the peer effect (Knecht, 2011) for alcohol use suggests a selection effect, that is, young people *choose* their friends who have similar levels of alcohol use. In terms of the 'pulls' of substance use, Larkin & Griffiths (2004) and Farrugia (2015), among others, have drawn attention to how young people *elect* to use substances *as part of* social bonding. Thus, the notion

[37] The mechanism of mimicry proposed by Moffitt (1993) can be seen as another version of rational choice models, which are heavily criticised in Archer's (2000) account.

of 'peer pressure' would need to be re-situated, as teenagers can also be *choosing* to use substances in group situations because of a variety of reasons, such as safety, belonging, and access to group norms, resources, and shared morals, if not shared personalities. The low-level and infrequent substance use of the Dabblers group, combined with the lack of growth or escalation, however, would suggest that drunkenness and drug use are not central activities to the social group. Rather, this kind of engagement in these behaviours may be viewed as within the bounds of normative adolescent development.

However, adolescents' choices to get drunk or use drugs also need to be situated within the wider context of adolescent substance use and in particular its control. Skårner & Månsson (2008) found that Swedish adolescents tend to rely on the peer network for information about drugs, and at the same time, distrust official, e.g. governmental sources. Motives for substance use can shift and change according to national policy (Ekendahl, Månsson & Karlsson, 2019) and thus teenagers' *rationalities* about substance use, but not necessarily usage rates, are in part formed by the politico-legal environment. The peer effect and the reliance on peers for information may in part be a response by young people to the stigma and/or feared legal consequences of use (see Hathaway, 2004).

Lastly, the Abstainers. This group showed some degree of change in early to mid-adolescence, with a small proportion shifting to the Dabblers group. Again, this course of development can be understood as part of normative development, drawing on the wider socio-ecological context concerning adolescent substance-use cultures. For those who remain in the Abstainers group, the Dual Taxonomy proposes three explanations: those who skip the maturity gap because of late puberty or early initiation into adult roles; those with characteristics, such as being over-controlled and/or overly-anxious, that exclude them from the peer network; those who find few opportunities to mimic LCP role models. The latter explanation seems unlikely given that the mechanism of mimicry seems to negate both adolescent agency and socio-ecological context. Some of the Abstainers in the empirical material for this thesis may still go on to commit some crime, but given the peak age for offending is around 15-16, any offending that occurs after the three waves of data in this thesis may be considered late offending. In terms of substance use, research has suggested that those adolescents who experiment with drugs tend to be better adjusted psychologically (Shedler & Block, 1990), and/or have more

positive emotionality (Oliva et al., 2012) than both abstainers and heavy users. In line with the explanation in the current sketch of why the Dabblers begin to get drunk or use drugs, it may be that some of the Abstainers are, due to characteristics such as over-control or anxiety, excluded from the peer socialisation process in which teens try out substances. The explanation of initiation into early adult roles may be relevant to those adult roles where alcohol and drug use is more explicitly forbidden. Otherwise, the use of substances, particularly alcohol, tends to continue into adulthood, though there is likely to be heterogeneity in this development. Even in this account of the Abstainers, attention should be paid to agency. For example, studies of the reasons why young people do not drink alcohol show both approach- and avoidance reasoning, e.g. to be more like a positive role model or to achieve a health goal, but also to avoid becoming like a negative role model (Herring, Bayley, & Hurcombe, 2012). Given the socio-ecological context and the teenage landscape, especially concerning alcohol, those who abstain from trying substances in Sweden may have to find stronger legitimising accounts than those who do not abstain.

A final note concerns the role of agency and mechanisms. In taking seriously young people's perspectives, reasoning, and motives in scientific explanation and descriptive adequacy of concepts, this also gives some weight and authority to young people's experiences. In turn, this might reduce a sense of alienation from a (presumed) adult world. For example, if some of the studies within the sociology of adolescence are correct, in that 'adolescence as storm and stress' (see Steinberg, 2010) is partly a product of the social conceptions of adolescents being this way (see Qu et al., 2016; 2018), then giving weight to young people's accounts might go some way to redress this balance. It may also elucidate that many of the differences between adolescent and adult behaviours have perhaps been exaggerated (see Males, 2010).

In summary, this section presented a contribution towards the beginnings of a new theory of adolescent 'risk' behaviours. The intention was to build on the key implications of the four studies of this thesis (see section 6.1), but also drawing on the scene-setting theories presented in section 3.1. Taken together, the ambition was to synthesise and extend existing theories of 'risk' behaviours (presented in section 3.2), but also to identify potential areas of further development, both theoretically and empirically. Although there is much more work to be done on developing these

theoretical ambitions, it is hoped that the sketch above set out a useful starting point for the development of a new theory of adolescent 'risk' behaviours.

6.3 Implications for future research and policy and practice

This section will outline some implications of the main findings of this thesis firstly for future research and then for policy and practice.

Future research

At an over-arching level, future work could continue the task of refining the theory of the development of adolescent behaviours, such as drunkenness, drug use, and criminal behaviour. This task would build on the idea of realist synthesis, drawing on different kinds of empirical study to adjust, refine, and re-test and re-specify the explanation. In particular, a better specification of potential mechanisms could be undertaken via a structured review of the literature. This would not be a traditional qualitative systematic review, but rather a structured literature search to identify qualitative research that could address the topic of mechanisms, e.g. any studies that have obtained or analysed young people's reasoning, repertoires, experiential accounts of drunkenness, drug use, and criminal behaviour. From a refinement of the theory, it would then be possible to design a study to investigate the refined CMOC. In particular, it would useful to specify and test particular context-outcome configurations empirically to inform theorising about causal processes. The development of theory could also be extended to cover the mid- to late-adolescence period.

Further study on a similar question to that of Study I but on a different sample would strengthen the evidence base, particularly in countries with markedly higher rates of adolescent drug use. This is because the random-intercept cross-lagged panel (RI-CLP) model used in Study I has not, to the best of my knowledge, been applied before in this way. Additionally, conducting a similar study on an older age-group, e.g. mid- to late-adolescence would also be highly useful. Study II could also be extended by re-designing the higher-level analyses covering potential meso- and exo-level contexts e.g. investigating ratings of neighbourhood, school climate, or municipal organisation or

resources. Future work could also explore using other measures of a family's financial situation, both relative to others in the neighbourhood, but also absolute measures, as part of a socio-ecological model.

Another important future direction for research would be to focus on the genesis and course of these behaviours in childhood in relation to the 'small, but severe' group. At around 2% of the sample, this means that testing a more comprehensive socio-ecological model on this group would require a large sample. The issue for future research is two-fold. First, a careful selection of a few, but highly relevant variables is needed. Secondly, the sample size needs to be sufficiently large in order to detect at least weak effects.

Heterogeneity in adolescent criminal behaviours, and how different patterns in criminal behaviours differentially link to alcohol and drug use, would be an interesting study. In the current thesis, the compound term 'criminal behaviour' was used as a way of exploring possible heterogeneity in – and thus descriptive adequacy of – the term 'risk behaviour'. The same principles can, however, be applied to the term 'criminal behaviour'. At a deeper level of analysis, its descriptive adequacy is likely to fail in many regards. There is also likely to be a fair amount of heterogeneity in how these behaviours cluster and develop.

Lastly, the empirical data used in this thesis relies on a notion of representativeness, i.e. the sample used is representative of young people in general. Little is known, however, about those adolescents who opted out at the beginning of the study. Long-term follow-up of such population drop-out, for example using official records would provide a valuable methodological contribution to longitudinal development studies.

Policy and practice

There is a current critique about the usefulness (or lack of meaning) in social science research (e.g. Alvesson, Paulson & Gabriel, 2017). This presents a real challenge for any aspirations that a producer of academic knowledge has about the use and applicability of research to policy or practice. One option is to leave it to the policy-

makers and practitioners. This section however intends on contributing towards the task of making research useful, accessible, or meaningful by beginning some of the work of drawing out implications for policy and practice. The critical realist position on the use(fullness) of research is that science can arbitrate in matters of what *ought* to be done in terms of social transformation. However, such an important task should not be undertaken based on single pieces of research. Consequently, while this section will cautiously highlight some implications for policy and practice, these are intended as suggestions for further consideration. Such consideration will need to incorporate consultation with other relevant literature, as well as with knowledge of local, cultural conditions of practice. The ambition of this thesis is to contribute towards context-sensitive knowledge, and thus any application will need to pay attention to local context.

At an over-arching level, policy and practice concerning prevention of youth substance use and criminal behaviour should take stock of the key implications (i.e. 1-6) presented in section 6.1. These implications could inform a review of the aims of, target group, and targets for, prevention initiatives for early to mid-adolescents. The implications of the findings of this thesis might suggest that there are particular groups of youth whom society should worry *more* about, such as those with early and regular/frequent patterns of substance-using and criminal behaviours together. Focusing on the 'severe 5%' implies somewhat different aims and target groups for prevention initiatives than current practice, at least in Sweden. For example, early adverse beginnings, such as negative pre-teen family situations and their supporting contexts, such as poverty, may become the target of prevention. Thus, substance-using behaviours would be viewed, for this group, as *symptoms* of an earlier developmental pathway, rather than causal factors. Such an approach, however, is implicitly a focus on preventing substance use *problems*, and not on preventing substance use per se. Thus, the focus on the 'severe 5%' is essentially a paediatric problem minimisation approach. On the other hand this focus could be seen as singling out a specific group the potential risks of stigmatisation and labelling would need to be carefully considered.

The implications of this thesis might also suggest that there is a group of adolescents who use substances, akin to the Dabblers group, whose behaviour represents something of normative development. In that the behaviour of this group does not appear to show any escalation in the period studied, the suggestion is that they may not need any

intervention during this developmental period. Indeed, drawing on the theory of negotiated order, intervention may well do more harm than good at this stage. Responses, for example by social workers, could, however, focus on the mapping of socio-ecological contexts with a particular emphasis on the family situation, as well as the extent and frequency of substance use alongside criminal behaviours. Where patterns of more frequent and more regular involvement in these behaviours co-exist with concern for the young person's developmental contexts, e.g. a negative home environment, then support could be aimed at the developmental context, and not necessarily the adolescent and his or her behaviour. Such an approach is not wholly at odds with the possibilities for responses in current Swedish social work practice, e.g. the initial assessment conducted by a social worker could incorporate this work. This would however require a more nuanced and considered approach to problem minimisation, rather than the current 'zero tolerance' messages about drug use.

A more general implication for prevention design and policy is that the role of stable, micro-level factors may have more limited use than previously believed *for some groups* of adolescents. This would mean that a universal use of person-based risk or targeting assessment for many young adolescents may need revising. Existing person-based risk factor approaches may be highly appropriate for a 'small, but severe' group for whom early identification based on, for example family factors, may be beneficial. For most other adolescents, person- or micro-level factors may play a more minimal causal role. Temporary situational and/or transient factors may thus need to be a key part of prevention design. This would mean that the conception of 'risk' moves conceptually – and physically – from a focus on the individual to one of contexts and environments. Examples of such situational risk prevention approaches include those that attempt to meet young people in the social situations where risk may occur and provide advice and/or support, either in person or via media (see Karlsson, 2010; Measham, 2019). The problem that may occur is that situational approaches tend to imply a harm or problem minimisation approach, along with giving some degree of autonomy and responsibility to young people to make their own choices. This results in a moral position that departs somewhat from the long social history of attempting to control with sanctions and punition the choices that adolescents make.

7. Teenage kicks – An outro and epilogue

An interpretation of the song *Teenage Kicks* by The Undertones is that it portrays a teenager who is staring out of the bedroom window, waiting for life to start, and dreaming of the kicks, i.e. the excitement, that will come with maturity and time. This may have been the case for many of the teenagers at the start of this story, not knowing what behaviours they would engage in as they discover what forms of teenage identity and sense of maturity best fit in their emerging social landscape. From a distance, we have followed some of these decisions, the journeys of over a thousand adolescent lives and identified common themes but also divergent pathways. We have seen that many teenagers do not engage in criminal behaviour, drunkenness, and less so drug use. Where teenagers did do these things, the behaviour tended not to escalate or even become a regular pattern. For many of these young people, getting drunk or committing a small crime was probably not the result of something being wrong, either with their personality, parents, or peers. Stereotypes about teenagers engaging in 'risk behaviours', because of 'bad influences', 'broken homes', or 'sub-optimal brains' makes for a compelling, if not a simple, story. Such a story leads to an equally compelling but also simplistic response from the adult world. This thesis has told a slightly different, if less dramatic, story. This does not mean that we should not worry about these teenagers, but perhaps the response needs to be similarly measured. We did see a very small group of teenagers for whom more worrisome patterns of these behaviours were *already* in place at the start of this story. This group also tended not to reduce their behaviour. Perhaps it this group for whom we need a more compelling story – What happened to them pre-adolescence? What were their family and social circumstances like during childhood? For this group, we also perhaps need a more dramatic, if not more complex, response.

Svensk sammanfattning

”Teenage Kicks” – Den mångfacetterade utvecklingen av drogbruk, berusningsdrickande, och kriminellt beteende under de tidiga tonåren

Bakgrund

Avhandlingen studerar utvecklingen av drogbruk, berusningsdrickande, och kriminellt beteende från början av tonårstiden upp till 15 år. Det är under dessa år som många ungdomar för första gången provar droger, berusar sig, eller begår brott, så som stölder och skadegörelse och som följaktligen också kan utgöra startpunkten för ett mönster som fortsätter genom tonåren. Tidigare studier har dock visat att dessa beteenden utvecklas olika för olika ungdomar, exempelvis att vissa fortsätter, medan att andra inte gör det. Det finns också stora skillnader i hur ungdomar engagerar sig i dessa beteenden, exempelvis när det gäller konsumtionsmönster i förhållande till alkohol och droger. Det saknas emellertid kunskap om hur dessa beteenden hänger ihop utvecklingsmässigt under tonåren. Dessutom finns få studier som förklarar varför utvecklingen följer olika banor. Befintliga studier riktar framförallt fokus på förklaringsfaktorer i endast en domän i en ungdoms liv, t. ex. personlighet, familjeliv, eller vänners påverkan. Vi vet därmed mindre om vilka av dessa faktorer som relativt är de mest betydelsefulla – och för vilka utvecklingsbanor. Avhandlingen avser att bidra med sådan kunskap, som också kan ha implikationer för det förebyggande arbetets möjligheter att rikta fokus på rätt faktorer för rätt ungdomar.

Syfte och frågeställningar

Det övergripande syftet med denna avhandling var att öka förståelsen av hur ungdomars drogbruk, berusningsdrickande, och kriminellt beteende utvecklas under de tidiga tonåren. I detta inkluderas en ambition att bidra till en utveckling av teori som i sin tur kan ha implikationer för policy och praktik inom preventionsområdet. Avhandlingen bestås av tre empiriska studier (Studie I-III) och en teoretisk orienterad studie (Studie IV) med avstamp i ett kritiskt realistiskt teoretiskt perspektiv. De fyra delstudierna ramas in och binds samman i en kappa där de samlande resultaten diskuteras med

fokus på utveckling av teori, vilket i sin tur är tänkt att underbygga en fortsatt utveckling av policy och praktik inom preventionsområdet.

Teoretiskt ramverk

Det vetenskapsteoretiska fundamentet utgår från ett kritisk realistiskt perspektiv med inspiration från Bhaskars (1975, 1979) vetenskaps- och samhällsvetenskaps teorier, Archers (2000) beskrivning av människans agens, och Pawsons (2013, 2018) realistiska kunskapsteori. Den socioekologiska modellen (Bronfenbrenner, 1979; Sameroff, 2010) utgör en övergripande förståelseram för analysen. Till stöd för analyserna har också begrepp och tankegångar från sociologiska och kriminologiska teorier om substansanvändning och kriminalitet använts för att kontextualisera och fördjupa förståelsen av avhandlingens resultat. Tre centrala teorier som behandlar utveckling av risk- eller antisociala beteenden hos ungdomar och som idag utgör en viktig grund för policy och praktik inom preventionsområdet, är i särskilt fokus för avhandlingen genom att avhandlingen avser att bidra till en utveckling av dessa: 1) Moffitts (1993) ”Dual Taxonomy”, 2) risk- och skyddsfaktorsteori (t.ex. Catalano & Hawkins, 1996), samt 3) Jessors (1991, 2014) ”Problem Behaviour Theory”.

Metod

Data för de tre empiriska studierna hämtades från det prospektiva, longitudinella forskningsprogrammet LoRDIA (Longitudinal Research on Adolescence) som studerar ungdomars utveckling genom tonåren. Ca 1500 ungdomar från fyra kommuner i södra Sverige deltog i undersökningen. Materialet bestod av en årlig enkät (åk 7,8 och 9) som ungdomarna besvarade i sina klassrum. Enkäten bestod av en blandning av validerade och icke-validerade mått på personlighet (temperament), familjekohesion, relativ familjeekonomi, kamraters beteenden, samt mått på drogbruk, berusningsdrickande, och kriminellt beteende. Nya, avancerade person-orienterade metoder, så som ”random-intercept” modeller och ”latent class analysis”, tillämpades. Studie IV, som är en teoretisk studie, analyserade både teorier om ungdomars ”riskbeteende” och befintlig empirisk forskning med stöd i principer från Kritisk Realism.

Resultat

Studie I undersökte hur drogbruk, berusningsdrickande, och kriminellt beteenden utvecklades longitudinellt hos ca 1500 ungdomar, men fokus var också på vilka reciproka kopplingar som fanns över tre år mellan dessa beteenden. Tidigt berusningsdrickande, dvs vid årskurs 7, hade en mellanstark (.45 standardiserade coefficient) koppling till att fortsätta ett år senare, men sambandet var mindre starkt (.35) mellan årskurs 8 och 9. Drogbruk visade endast en svag koppling (.19) mellan årskurs 8 och 9. För kriminellt beteende kunde dock ett longitudinellt mönster utskiljas som blev starkare över tid, dvs .28 mellan årskurs 7 och 8, och .37 mellan årskurs 8 och 9. Detta innebär att många ungdomar som berusade sig, använde droger eller begick något brott inte eskalerade i detta beteende. För kriminellt beteende betyder det dock att det fanns fler som fortsatte. Kriminellt beteende visade dessutom också reciproka kopplingar över tid till såväl drogbruk som berusningsdrickande. En slutsats är att tidigt kriminellt beteende utgör en statistisk risk för att de övriga beteendena följer därefter, men inte nödvändigtvis vice versa.

Studie II hade fokus på den longitudinella utvecklingen av drogbruk, berusningsdrickande, och kriminellt beteende (åk 7-9) hos ca 750 ungdomar, men i denna studie tillämpades en socioekologisk förklaringsmodell. Även om andelen ungdomar på gruppnivå som praktiserade dessa beteenden ökade över tid, kunde relativt stabila mönster urskiljas på individnivå. Resultaten visade på större heterogenitet i utvecklingen över tid för berusningsdrickande och drogbruk, än för kriminellt beteende. Utvecklingen av kriminellt beteende verkade således att ha mer att göra med stabila, individuella förhållanden. Utvecklingen av drogbruk och berusningsdrickande hade tvärtom mer att göra med andra tillfälliga och/eller situationella faktorer. Av de socioekologiska faktorerna var familjekohesion starkast kopplad till utvecklingen av samtliga tre beteenden, men ändå var kopplingen ganska svag (-.23 för kriminellt beteende). Kamratpåverkan var svagare (mellan .04 och .11) och dessutom svagare än temperamentsdimensionen ”nyhetssökande”, som låg mellan .1 och .15. Sammantaget innebär detta att faktorer så som familj och vänner kan ha betydelse för förklaringen av utveckling av kriminellt beteende, men synes ha mindre relevans för utveckling av drogbruk och berusningsdrickande.

Studie III hade fokus på hur drogbruk, berusningsdrickande, och kriminellt beteende kan samexistera och hur eventuella grupperingar av dessa beteenden hos individer kan utvecklas över tid. Genom en latent class analysis kunde fyra grupperingar identifieras i det empiriska materialet: Den största gruppen var: 1) ”Abstainers” (80%) dvs de som hade minst sannolikhet av att engagera sig i något av de undersökta beteendena; 2) ”Occasional Law-breakers” (9%) som hade hög sannolikhet av att engagera sig i kriminella aktiviteter, men på ett oregelbundet vis; 3) ”Dabblers” (9%) som hade hög sannolikhet av att engagera sig i alla tre beteenden, men oregelbundet eller sällan; och slutligen den minsta gruppen (2%) ”Regular-All”. Denna grupp, även om den var liten, är viktig att uppmärksamma, då den kännetecknades av ett engagemang i samtliga tre beteenden och på ett regelbundet sätt. Grupperna förändrades marginellt över tid, förutom en liten del av ”Abstainers” som övergick till att bli ”Dabblers” samt ”Occasional Law-breakers” där det fanns lika stora chanser att övergå till att bli ”Dabblers” eller ”Regular-All” i årkurs 9. De socio-ekologiska faktorerna visade sig vara kopplade på olika sätt till de fyra grupperna. Exempelvis familjekohesion och kamrater som gjorde kriminella handlingar kopplades starkare till ”Regular-All”-gruppen än till ”Abstainers”, medan det var främst temperamentsdimensionen ”nyhetssökande” som skiljde ”Dabblers” från ”Abstainers”. Studie III påvisade därmed att drogbruk, berusningsdrickande, och kriminellt beteende kan samexistera hos ungdomar, men gör det på olika sätt. Resultaten pekar också på att dessa olika sätt kan ha olika förklaringar, vilket är centralt för vår förståelse av utvecklingen av dessa beteenden.

Studie IV tillämpade en kritisk realistisk teoretisk ram på två av de centrala teorier som använts för att utveckla metoder för förebyggande arbete med ungdomar, dvs Social Development Model (SDM) (Cambron, Catalano & Hawkins, 2018) och Problem Behaviour Theory (PBT) (Jessor, 1991; 2014). Fyra principer från Kritisk Realism tillämpades vid en konceptuell analys av dessa två teorier. Analysen visade att SDM och PBT kan ha svårt att utveckla beskrivningar av kausala mekanismer bortom ytan av observerade korrelationer. Dessa två utvecklingsteorier skulle kunna också förfinas igenom att ha mer fokus på skillnader i kontextuella faktorer som en del av förklaringen. Analysen pekade vidare på betydelsen av att rikta fokus på ungdomars agens och vilja, i relation till olika kontextuella faktorer. Det lyftes att SDM och PBT har implicita moraliska positioner, vilket kan osynliggörs i hur forskning presenteras.

Studie IV visade också hur kvantitativa studier, inklusive Studie I och III, med stöd av ett kritiskt realistiskt perspektiv kan bidra till teoriutvecklingen inom området.

Övergripande analys och diskussion

Avhandlingens tre empiriska studier bygger på ett omfattande, longitudinellt datamaterial som har följt utvecklingen hos en generell population av ungdomar över tre år. Detta är i sig ett unikt bidrag till litteraturen. Dessutom har nya, avancerade statistiska metoder tillämpas på datamaterialet och resultaten analyserades med användning av ett teoretiskt ramverk som sällan appliceras inom ungdomsforskning. Sammantaget pekar de analyser som görs i avhandlingen på en större komplexitet och heterogenitet än vad tidigare forskning visat, och utmanar på så sätt också den existerande förståelsen för hur drogbruk, berusningsdrickande, och kriminellt beteende utvecklas under den tidiga tonårsperioden.

Avhandlingens resultat har därmed viktiga implikationer för de centrala utvecklingsteorier som gjorts föremål för analys i denna avhandling. För det första visar avhandlings resultat att generella konceptet som ”riskbeteende” och ”antisocialt beteende”, är mer komplexa än vad som framgår av den tidigare forskningen. I stället är en slutsats att drogbruk, berusningsdrickande, och kriminellt beteende rimligen bör betraktas som olika företeelser, men med komplexa – och inte helt enkla – relationer till varandra. Relativt stabila utvecklingsmönster hittades och vad gäller drogbruk och berusningsdrickande föreföll mönstren vara av mer sporadisk och oregelbunden karaktär. En central poäng i avhandlingen, som också har teoretiska implikationer, är att för många ungdomar utvecklas inte dessa beteenden till ett eskalerande mönster. Överhuvudtaget synliggörs en påfallande heterogenitet i hur dessa beteenden utvecklas, vilket pekar mot en differentierad eller mångfacetterad utveckling. Dessutom att i en differentierad utveckling kan dessa beteenden gruppera sig på olika sätt, så som de fyra grupper som hittades i Studie III. Med en differentierad utveckling följer möjligtvis differentierade förklaringsfaktorer. Med andra ord, att olika kombinationer av faktorer inom ramen av en ungdoms socioekologiska kontext kan spela olika roll för utvecklingen över tid. Avhandlingens teoretiska bidrag riktar fokus på de olika socioekologiska kontexter som utgör en lokal eller mikrostruktur i vilket ungdomar resonerar och agerar. Men stöd av sociologisk och kriminologisk teoribildning förs ett

resonemang om möjliga mekanismer för olika utvecklingsbanor, såväl utifrån en samhällelig kontext, som hur ungdomar från olika sociala förhållanden fattar olika beslut.

Avhandlingens resultat och slutsatser har också implikationer för det sociala arbetets praktik. Med kunskap om den mångfacetterade och differentierade utveckling av ungdomars förhållande till droger, kriminalitet och berusningsdrickande under de tidiga tonåren lämnar avhandlingen ett bidrag till utvecklingen av förebyggande arbete med ungdomar och behovet av differentierade insatser inom detta område, för att möta de olika behov som ungdomar har.

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Appendices

Appendix 1 – Full article for Study I

Appendix 2 – Full article for Study II

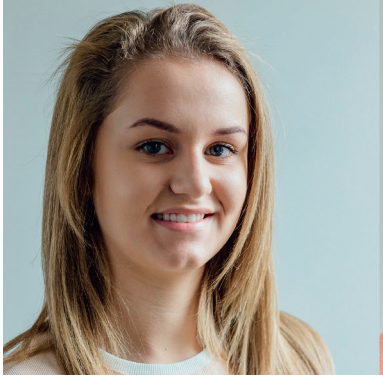
Appendix 3 – Full article for Study III

Appendix 4 – Full article for Study IV




This thesis is about the development of drug use, drunkenness, and criminal behaviour in early to mid-adolescence. How do these behaviours progress and how do they affect each other? In what ways do they group together as teenagers develop? And how can we understand and explain development? A main aim of this thesis is to improve knowledge about how and why these three behaviours develop but also to contribute towards the advancement of theory that can have applications in prevention policy and practice. In particular, there is a focus on explaining different developmental pathways using a socio-ecological model, for example, by looking at the comparative role of factors such as personality, family, and peers.

Taking a broad theoretical scope including sociology, psychology, criminology, and prevention science, this thesis aims to develop a fresh understanding of the development of these traditional 'risk' behaviours in adolescence. Using data from the LoRDIA project (Longitudinal Research on Development in Adolescence), the development of over 1500 adolescents over a three-year period (age 13-15) is analysed using modern statistical techniques such as random-intercept cross-lagged panel models, multi-level modelling, and latent transition analysis. A critical realist lens is applied to both the theoretical and empirical discussions with the aim of contributing towards a new theory of differential development of drug use, drunkenness, and criminal behaviour.



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