COPING WITH SCHOOL-BASED PEER-VICTIMISATION: THE ROLE OF PEERS

Sarah Evelyn Gardner

A thesis submitted in partial fulfilment of the requirements of Nottingham Trent University for the degree of Doctor of Philosophy

August 2019

ABSTRACT

The focus of the thesis was to investigate the concurrent and longitudinal effects of friendship for coping with school-based peer-victimisation in late childhood. This addressed a gap in the literature pertaining to the role of friendship in children's endorsement of coping behaviour and the buffering effect of friendship on the experience of school loneliness following reports of expected maladaptive coping behaviour. Specifically, the thesis addressed two research questions: (1) What is the role of friendship for coping with school-based peer-victimisation? and (2) Does friendship buffer against the negative effects of maladaptive peer-victimisation coping?

These research questions were addressed via a three-wave longitudinal study that examined the concurrent (Chapter 6) and longitudinal (Chapter 7) relationships between peer-victimisation, friendship (quantity and quality), expected peer-victimisation coping behaviour (internalising, retaliation, avoidance, peer support, adult support, and problem solving) and school loneliness (as an indicator of psychosocial adjustment). Longitudinal social network models (Chapter 8) were also applied to examine the co-evolution between friendship and children's expected peer-victimisation coping behaviour. The sample used throughout the thesis was drawn from a population of primary school children aged between 9 to 11 years old (England Year 5 and Year 6). A total of 529 children were invited to take part in the study from across eight schools, this resulted in a final sample of 443 children (55.7% female) at Time 1, 334 children (55.5% female) at Time 2, and 354 children (57.9% female) at Time 3.

Findings from across the thesis indicate that children's friendship experiences are concurrently and longitudinally related to expected peer-victimisation coping behaviour. However, these relationships were dependent upon the type of friendship experience (quantity and quality) and the type of expected coping behaviour. Furthermore, negative friendship experiences (conflict within friendships and low levels of reciprocated friendships) were found to exacerbate the negative effects of expected maladaptive (internalising) coping. This was associated with increased feelings of school loneliness in children and continued experiences of verbal peer-victimisation. Through longitudinal and network data, the empirical research presented in this thesis highlights the important contribution of friends and peers for peer-victimisation coping (or expected coping) in children.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my Director of Studies, Dr Lucy Betts, for her unwavering academic support and guidance over the years. Thank you for sharing your enthusiasm and dedication for research and for allowing me the opportunity to freely develop and explore my own research passions and ideas. I would also like to thank my second supervisors, Dr James Stiller and Dr Janine Coates, for their continuous encouragement, especially during times of self-doubt.

I would also like to thank my friends and colleagues at Nottingham Trent University who have provided invaluable support over the last four years. The words of wisdom provided over copious cups of coffee were often a lifesaver. Thank you also to Doug for your incredible patience, love, and belief in me, especially during the last 12 months. I will always be grateful for your constant positivity that often kept me going.

I would also like to thank my Mum, Catherine Gardner, for teaching me to have self-confidence in my own abilities and for always being my number one fan. I would never have considered embarking on my academic journey had it not been for your inspiration, guidance, and support over the years.

Furthermore, I wish to thank the Department of Psychology for funding this PhD and to PsyPAG for providing additional research funding that supported data-collection and international conference attendance.

Finally, I would like to express my sincerest gratitude to all the schools and children who supported and participated in the research presented within this thesis.

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PUBLICATIONS AND PRESENTATIONS FROM THE THESIS

Chapter 2: Some content in Chapter 2 is the same as content published as:

Gardner, S.E. (2016). Assessment of school-based bullying and victimisation: A brief overview of methods. *The Quarterly, 99,* 18-23.

Chapter 4: Some content in Chapter 4 is the same as a book chapter published as:

Gardner, S.E. & Betts, L.R. (2015). Protecting against school-based peer-victimisation: the role of children's friendships. In T.F Colby (Ed.), *Victims and victimization: risk factors, intervention strategies and socioemotional outcomes.* New York: Nova Science Publishers.

Chapter 5: Some content in Chapter 5 is same as a publication published as:

Gardner, S.E., Betts, L.R., Stiller, J. & Coates, J. (2017). The role of emotion regulation for coping with school-based peer-victimisation in late childhood. *Personality and Individual Differences, 107,* 108-113.

Chapter 6: The findings from Chapter 6 also formed part of a conference poster presentation:

Gardner, S.E., Betts, L.R., Stiller, J., & Coates, J. (2017). Coping with school-based peer-victimisation the conditional role of friendship. Paper presented at *World Anti-Bullying Forum 2017,* Stockholm: Sweden.

Chapter 8: Some content in Chapter 8 is similar to the following publications:

Gardner, S.E. (2017). Social networks in psychology research: considerations for data collection and analysis. *The Quarterly, 105,* 18-23.

Gardner, S.E., Betts, L.R., Stiller, J., & Coates, J. (2017). Class-based peer-harassment experiences in children's friendship networks. Paper presented at *Biennial Society for Research in Child Development Conference,* Austin, Texas, USA.

CHAPTER 1: THESIS OVERVIEW

1.1 INTRODUCTION TO THE CHAPTER

This chapter will introduce and provide an overview of the current thesis. Firstly, the chapter will outline the key theoretical background pertinent to the thesis. Next, based on the theoretical background discussed, the chapter will present the aims of the thesis. Following on from these aims the chapter will then provide an overview of the methodological approaches used in the current thesis. Subsequently, the original contribution the current thesis makes to existing knowledge relating to friendship and peer-victimisation coping will be outlined, drawing attention specifically to the theoretical contribution of the thesis and the methodological rigour used. Finally, the chapter will provide an outline of the eight remaining chapters in this thesis.

1.1 THEORETICAL BACKGROUND

Defined as "aggressive, goal-directed behaviour that harms another individual within the context of power imbalance" (Volk, Dane, & Marini, 2014, p.328), peer-victimisation is a pervasive problem within the United Kingdom (UK), with 1 in 4 children under the age of 11 years actively seeking support for problems pertaining to bullying and peer-victimisation (NSPCC, 2015). Furthermore, research indicates that peer-victimisation experiences peak around ages 10 to 11 years, highlighting that this age group is particularly at risk (Craig et al., 2009; Currie et al., 2012). The UK government stipulates that all schools must have an anti-bullying policy, with clear strategies for dealing with bullying that occurs both within and outside of school (Education and Inspections Act 2006). However, despite this policy requirement, literature recognises that peer-victimisation is still a persistent issue in society, and furthermore is regularly associated with detrimental long-term outcomes (Hansen, Steenberg, Palic, & Elklit, 2012). One maladaptive outcome that is consistently associated with peer-victimised children is the experience of loneliness (Hawker & Boulton, 2000; McDougall & Vaillancourt, 2015). Although loneliness is a normative state that is experienced by most children at some point in their life (Asher & Paquette, 2003; Ladd & Ettekal, 2013), chronic loneliness can be a precursor for mental health problems in both childhood and later in life, including depression and anxiety (Harris, Qualter, & Robinson, 2013; Qualter, Brown, Munn, & Rotenberg, 2010). These experiences of loneliness can also impinge on a child's academic competence (Guay, Boivin, & Hodges, 1999), resulting in long-term problems pertaining to academic progress. Given the prevalence of peer-victimisation in schools

and the associated detrimental outcomes, recent reviews have made a call for further research in the field, specifically research that identifies the risk and protective factors associated with peer-victimisation and psychosocial outcomes (Hansen et al., 2012; Hong & Espelage, 2012; Saarento, Garandeau, & Salmivalli, 2015). One such risk and protective factor consistently associated with peer-victimisation is the coping strategies children use following experiences of peer-victimisation (Hansen et al., 2012; Harper, 2012).

Defined as a process that individuals use to manage the demands of a stressor, coping is a critical component for dealing with peer-victimisation (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Skrzypiec, Slee, Murray-Harvey, & Pereira, 2011). However, research has found that not all peer-victimisation coping is associated with positive outcomes or a reduction in peer-victimisation (Harper, 2012; Houbre, Tarquinio, & Lanfranchi, 2010; Visconti & Troop-Gordon, 2010). Specifically, coping strategies such as retaliation, avoidance, and internalising are often shown to be predictive of psychosocial adjustment problems and continued exposure to peer-victimisation (Harper, 2012; Kochenderfer-Ladd & Skinner, 2002; Visconti & Troop-Gordon, 2010). On the other hand, coping strategies such as social support and problem-solving are more likely to be associated with adaptive outcomes including a reduction in peer-victimisation and psychosocial adjustment (Kochenderfer-Ladd, 2004; Rothon, Head, Klineberg, & Stansfeld, 2011). Although there is evidence to suggest that certain coping strategies are more adaptive than other forms of coping, there has been less focus in the literature regarding why some children adopt adaptive coping strategies, and others do not (Hansen et al., 2012). Empirical investigations into the factors promoting adaptive coping in children following peer-victimisation is imperative for the development of effective intervention programmes promoting adaptive coping mechanisms, and thus further research in this area is needed (Visconti & Troop-Gordon, 2010). The explanatory factors previously investigated to explain coping endorsement include gender (Holt & Espelage, 2007; Hunter, Boyle, & Warden, 2004), situational attributions (Hunter & Boyle, 2004), emotional response to the peer-victimisation (Flanagan, Hoek, Ranter, & Reich, 2012), and factors directly associated with peer-victimisation such as the type of peer-victimisation (Kanetsuna, Smith, & Morita, 2006), the frequency of the peer-victimisation (Terranova, Boxer, & Morris, 2010), and the duration of the peer-victimisation experience (Houbre et al., 2010). However, one factor understudied within the context of coping is the role of friendship. Existing psychological literature that has considered the role of peers and friendships for responding to peer-

victimisation is sparse and primarily adopts an experimental based approach (Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006; Jones, Bombieri, Livingstone, & Manstead, 2012; Jones, Manstead, & Livingstone, 2009), and although these studies provide valuable information regarding the role of peers, the nature of the methodology often fails to account for the true experience of friendship, coping and peer-victimisation. Given the fundamental importance of peers and friendship for children and adolescence (Bukowski, 2001), and the social context in which peer-victimisation and coping exist (Salmivalli, 2010), further research is needed in this area to examine the extent to which friendship may influence a child's response to peer-victimisation or provide protective buffer against the negative outcomes associated with maladaptive coping, namely loneliness and continued victimisation. This thesis will therefore address this gap in the literature and make an important and much needed original contribution to understanding individual variation in peer-victimisation coping. Within the context of this thesis, peer-victimisation coping refers to process in which a child deals or responds to the experience of peer-victimisation or, for non-victimised children, how they would expect to deal or respond to the experience of peer-victimisation.

Friendship is said to be a fundamental component of normative human development (Bukowski, 2001), and can be defined as a positive and emotional dyadic relationship between individuals (Ladd, 1999). Friendship becomes increasingly important throughout both childhood and adolescence (Wentzel & Battle, 2001). As children move into late childhood (9 to 12 years) and early adolescence (12 to 14 years), they spend more time with their peers and seek support within the confines of their friendship group (Meeus, Oosterwegel, & Vollebergh, 2002). Researchers have considered many different, but inter-related, facets of friendship including: the total number of mutual friends a child has, the quality of these friendships, and the wider social network (Bukowski, 2001; Hartup, 2017; Nangle, Erdley, Newman, Mason, & Carpenter, 2003). Although rarely does research consider all these facets together within one empirical investigation. A friendship is considered mutual or reciprocated, when both children in the dyad confirm that the friendship exists (Ladd, 1999) and thus reciprocated friendships are important in childhood, indicating social acceptance by others in the network (Parker & Asher, 1993). Subsequently, non-reciprocated friendships or asymmetrical friendships can be indicative of social rejection by others (Gifford-Smith & Brownell, 2003), putting the child at greater risk for negative developmental outcomes (Parker & Asher, 1987). The extent to which a child is connected to the rest of their social group (i.e., centrality), also provides information

about their friendships and social standing. Children with high group centrality have been shown to exhibit positive social behaviour, including prosociality and leadership skills (Farmer & Rodkin, 1996; Gest, Graham-Bermann, & Hartup, 2001). In contrast, children with low centrality are more likely to be shy and exhibit withdrawal behaviour (Farmer & Rodkin, 1996). However, one limitation of reciprocated friendships and centrality scores is that they provide researchers with little information about the nature and quality of these relationships.

Friendship quality has been defined as comprising of five dimensions: companionship, conflict, helpfulness, security, and closeness (Bukowski, Hoza, & Boivin, 1994). Friendships that are considered high on these domains (except for conflict) are considered high in friendship quality (Bukowski et al., 1994). Friendship quality can have a number of benefits for children, including emotion regulation (Lopes, Salovey, Coté, & Beers, 2005) and problem solving (Strough, Berg, & Meegan, 2001). Together these friendship characteristics, both the number of friends a child has, and their friendship quality, have been considered important for protecting against the negative impact of peer-victimisation (Hodges, Boivin, Vitaro, & Bukowski, 1999; Laursen, Bukowski, Aunola, & Nurmi, 2007). Specifically, the Friendship Protection Hypothesis asserts that friends can provide a buffer against the experience of peer-victimisation and associated negative outcomes (Boulton, Trueman, Chau, Whitehand, & Amatya, 1999). Friendship promotes positive well-being and increased social skills, which in turn disrupts the link between peer-related problems and psychosocial adjustment issues (Laursen et al., 2007). Although not yet emperically tested, this thesis argues that this theoretical propersition can be extended to include coping behaviour. Specifically, it is argued that the function of friendship within the Friendship Protection Hypothesis may be linked to adaptive coping mechanisms, whereby a positive friendship experience (i.e., reciprocated friendships and high friendship quality) promotes adaptive coping behaviour in response to peer-victimisation. In addition, the current thesis also argues that in instances whereby a child endorses maladaptive coping, friendship can provide a buffer against the negative associated effects. Subsequently, the current thesis will examine whether a positive friendship experience, measured as reciprocated friendship, centrality and friendship quality is associated with expected adaptive peer-victimisation coping behaviour and whether friendship can provide a buffer against the negative outcomes associated with maladaptive coping. In contrast, negative friendship experiences (i.e., non-reciprocated friendships and negative friendship quality) may be associated with endorsement of maladaptive coping behaviour. The proposed

theoretical extension of the Friendship Protection Hypothesis (Boulton et al., 1999) will provide an important contribution to both friendship and coping literature. Specifically, friendship and coping are two important components of a child's peer-victimisation experience, and therefore examining the interplay between these two variables is crucial not only from a theoretical perspective but also for the development of intervention and prevention programmes that aim to support peer-victimised children and those at risk of victimisation.

Reciprocated friendships and friendship quality provide important information about a child's dyadic relationships at a local level, however they do not account for the complexities of the entire social network. More specifically, a social network is a social structure consisting of a set of social actors (e.g., children within a classroom) and the dyadic ties between these actors (e.g., friendship between two classmates). By their very nature, social networks contain an array of different social patterns that can be observed at a local or global level (Robins, 2015). Specifically, through the use of social networks researchers can examine social selection and influence effects, including those pertaining to social activity and popularity (Burk, Steglich, & Snijders, 2007). For example, existing literature has found that children's behaviour can make them more (or less) popular within their social network (e.g., De la Haye, 2013; Van Zalk et al., 2010) and additionally, behavioural attributes also influence how socially active a child is (Sijtsema, Rambaran, & Ojanen, 2013). These are referred to as alter and ego effects, respectively (Snijders, van de Bunt, & Steglich, 2010a). Historically, disentangling these social effects presented a statistical dilemma for researchers. However, more recently, social network researchers have developed a longitudinal social network model that can examine alter and ego effects over time, whilst controlling for common social network patterns (Burk et al., 2007). This advanced statistical technique is known as stochastic actor orientated modelling and has been applied previously to examine bullying behaviour and peer-victimisation in child and adolescent social networks (e.g., Dijkstra, Berger, & Lindenberg, 2011; Sentse, Dijkstra, Salmivalli, & Cillessen, 2013). Evidence from these studies suggests that friendship and peer-victimisation is a co-evolution process, whereby the co-evolution between behaviour and the social network is frequently observed. However, these social network processes are yet to be examined in peer-victimisation coping behaviour, and thus the current thesis will also examine the relationship between a child's social network and their expected peer-victimisation

coping behaviour[1]. This will allow the thesis to examine whether children's expected coping behaviour co-evolves alongside their friendship experiences within a classroom social network. The examination of friendship alter and ego effects with regards to peer-victimisation coping represents an original contribution to knowledge.

In sum, the current thesis will, to the authors knowledge, examine for the first time multiple components of friendship, including reciprocated friendship, centrality, friendship quality, and the social network, and the role these components of friendship have on coping with school-based peer-victimisation. This relationship will also be examined within the context of children's experiences of loneliness, providing an understanding of how friendship and coping can protect against this maladaptive outcome from peer-victimisation. Through adopting a range of rigorous and sophisticated statistical techniques, a thorough exploration of the role of friendship within peer-victimisation coping will be achieved. This in turn will provide guidance for the development of future peer-victimisation intervention and prevention programmes.

1.2 THESIS AIMS

This thesis will investigate the concurrent and longitudinal effects of friendship for coping with school-based peer-victimisation in late childhood. In relation to this, the current thesis has two research questions:

Research Question 1: What is the role of friendship for coping with school-based peer-victimisation?

Research Question 2: Does friendship buffer against the negative effects of maladaptive peer-victimisation coping?

Related to these research questions are six research aims, which will be addressed within three empirical chapters. These specific research aims are as follows:

Research Aim 1: To examine cross-sectionally the relationship between children's reports of friendship (friendship quality, reciprocated friendship, centrality) and their expected peer-victimisation coping behaviour (Chapter 6).

[1] Due to the nature of the social network analysis, all children will need to be included in the analysis (Burk et al., 2007; Snijders et al., 2010). Subsequently, some children in sample may be reporting on hypothetical coping behaviour as some children will not have experienced peer-victimisation. The use of the term 'expected coping' indicates that coping behaviour measured may reflect *actual* coping behaviour (in instances of victimised children) or *hypothetical* coping behaviour (in instances of non-victimised children). More information on the measurement of coping in the current thesis is provided in Chapter 5 Section 5.5.2.

Research Aim 2: To examine cross-sectionally the relationship between children's expected peer-victimisation coping behaviour and the buffering effect of friendship (friendship quality, reciprocated friendship, centrality) on the experience of school loneliness. (Chapter 6).

Research Aim 3: To examine longitudinally the relationship between children's reports of friendship (friendship quality, reciprocated friendship, centrality) and their future expected peer-victimisation coping behaviour (Chapter 7).

Research Aim 4: To examine longitudinally the relationship between children's expected peer-victimisation coping behaviour and the buffering effect of friendship (friendship quality, reciprocated friendship, centrality) on the experience of school loneliness (Chapter 7).

Research Aim 5: To examine longitudinally the relationship between children's social activity and popularity in the classroom and expected peer-victimisation coping behaviour (Chapter 8)

Additionally, given that literature has highlighted some gender differences pertaining to peer-victimisation coping (see Chapter 3), the thesis will also examine whether these relationships vary as a function of gender.

1.3 Original Contribution to Literature

Using rigorous methodological approaches, the thesis will advance knowledge on the role of friendship for coping with school-based peer-victimisation. Specifically, the thesis will provide an original contribution to the following four areas of literature:

1. Through considering multiple facets of children's friendship (reciprocated friendship, centrality, and friendship quality), the thesis will present a thorough investigation into the role of friendship on coping with school-based peer-victimisation. Specifically, the current thesis will examine the extent to which friendship can provide a buffering effect against the negative outcomes associated with maladaptive coping. Furthermore, the role of friendship as a predictor of expected peer-victimisation coping behaviour will also be examined. Previous literature has not yet considered the role of friendship within these two capacities, and therefore this will provide an important contribution to the current literature on individual factors associated with peer-victimisation coping. Identifying individual factors pertaining to expected peer-victimisation coping behaviour is vital as it will further academia's understanding of peer-victimisation coping behaviour,

which will subsequently have implications for the development of intervention and prevention programmes.

2. This thesis will provide a theoretical contribution to the literature via the extension of the Friendship Protection Hypothesis (Boulton et al., 1999); through including peer-victimisation coping within the theoretical model. Children's responses to peer-victimisation experiences have been shown to play a crucial role in predicting the outcomes associated with experiences of peer-victimisation (Holt & Espelage, 2007; Kochenderfer-Ladd & Skinner, 2002; Visconti & Troop-Gordon, 2010). Additionally, children's friendship experiences have also been found to be vital in protecting a child from future peer-victimisation or psychosocial adjustment issues (Beran & Violato, 2004; Kendrick, Jutengren, & Stattin, 2012). However, coping researchers have rarely considered the function that friendship may play in either predicting coping behaviours, or buffering against the negative effects of maladaptive coping. Subsequently, this thesis will examine the interplay between expected peer-victimisation coping behaviour and friendship within the Friendship Protection Hypothesis framework (Boulton et al., 1999). The thesis will also consider the negative components of friendship (i.e. conflict and non-reciprocated friendships) and the role these negative experiences may play in increasing the child's risk of psychosocial outcomes.

3. The current thesis will examine the role of friendship both concurrently and longitudinally. Although previous literature has examined peer-victimisation coping over time, the number of studies is limited, and the findings are mixed. Specifically, some studies identify that coping is predictive of future peer-victimisation experiences and levels of psychosocial adjustment (Houbre et al., 2010; Kochenderfer-Ladd, 2004), whereas other longitudinal studies have found no association (Spence, de Young, Toon, & Bond, 2009; Visconti & Troop-Gordon, 2010). It is possible that coping only has short-term implications, although the mixed findings and lack of longitudinal research in the field highlights the need for further research into this area. This thesis will therefore address this omission by examining expected peer-victimisation coping, friendship, and school loneliness using a three-wave longitudinal design. This in turn will provide important empirical evidence for the association between expected peer-victimisation coping and psychosocial adjustment (measured as school loneliness in the current thesis) over time.

4. Previous research using longitudinal social network analytical techniques have demonstrated that children's behaviour co-evolves alongside their social network (Brechwald & Prinstein, 2011; Logis, Rodkin, Gest, & Ahn, 2013; Shin & Ryan, 2014). These effects have been shown to be important in understanding the dynamic relationship between friendship and bullying perpetration behaviour and peer-victimisation experiences (e.g., Dijkstra et al., 2011; Sentse et al., 2013). However, research has not yet examined peer-victimisation coping behaviour within a social network context. Consequently, the current thesis will provide a unique contribution to the literature on social networks and peer-victimisation coping by examining the co-evolution of children's friendship networks and expected peer-victimisation coping behaviour over time. Subsequently, the thesis will not only examine friendship facets pertinent to the individual (friendship quality, reciprocated friendships, and centrality), but will also consider the role of the whole friendship network.

1.4 METHODOLOGICAL OVERVIEW

This section of the chapter will briefly outline the methodological approaches used throughout the thesis to enable the five research aims to be met. The empirical research in this thesis employed a longitudinal design, whereby data were collected at three-time points across one school academic year (September to July). The sample was drawn from a population of primary school children aged between 9 to 11 years old (England Year 5 and Year 6), representing those children in late childhood. A total of 529 children were invited to take part in the study from across eight schools (more information regarding sampling is discussed in Section 5.2). Using paper questionnaires, data were collected via self-report for measures pertaining to peer-victimisation, expected peer-victimisation coping, friendship quality, and school loneliness. Reciprocated friendship, centrality and the social network was measured using a within-classroom unlimited peer-nomination approach. The measurement construct of all latent variables (peer-victimisation, expected peer-victimisation coping behaviour, friendship quality, and school loneliness) was assessed using confirmatory factor analyses (See Section 5.6.2) and measurement invariance was examined across gender and time. Research Aims 1 to 4 were addressed using cross-sectional and longitudinal latent structural equation modelling, which provided a statistically robust approach to the analyses (Byrne, 2012;

Hox & Bechger, 1998). Research Aim 5 was addressed using stochastic actor orientated models, a longitudinal social network analysis technique (Burk et al., 2007; Snijders et al., 2010; for more information see Section 4.4 and Section 8.3).

1.5 THESIS OVERVIEW

The next section of this chapter provides an overview of the remaining thesis chapters. In Chapter 2, the definition, outcomes, prevalence rates and measurement of peer-victimisation are reviewed. Furthermore, Chapter 2 will focus on peer-victimisation literature and will also provide a rationale for a) the sampling age for the thesis, b) the selection of school loneliness as an indicator of psychosocial outcomes and, c) the approach to measuring of peer-victimisation in the current thesis. Chapter 3 will discuss literature pertaining to the conceptualising of coping, types of peer-victimisation coping and associated outcomes. The chapter will also consider factors that may predict peer-victimisation coping endorsement or the outcomes associated with peer-victimisation coping. Chapter 4 will discuss previous literature on friendship, focusing on the theoretical importance of friendship, facets of friendship (friendship quantity and friendship quality), and social networks. The chapter will also discuss stochastic actor orientated models and present a rationale for using longitudinal social network analysis. The rationale for examining the relationships between friendship and peer-victimisation coping will also be discussed and the aims of the thesis presented.

In Chapter 5, the materials and the methodology that will be used throughout the thesis will be presented. Chapter 5 will also present the results for measurement invariance tests across gender and time for all self-report measures. Chapter 6 presents the results from the cross-sectional analyses examining the relationship between children's friendship, peer-victimisation coping and school loneliness (addressing Research Aims 1 and 2). Chapter 7 presents the results from the longitudinal analyses examining the relationship between children's friendship, peer-victimisation coping and school loneliness (addressing Research Aims 3 and 4). Chapter 8 presents the findings from the stochastic actor-oriented models investigating the popularity and social activity effects associated with peer-victimisation coping (addressing Research Aim 5). The concluding chapter (Chapter 9) of the thesis will present the general discussion of the thesis. This chapter will review the thesis findings, discuss implications and limitations of the thesis, suggest areas for future research and review the unique contribution of the thesis to the research area.

CHAPTER 2: SCHOOL-BASED PEER-VICTIMISATION

2.1 INTRODUCTION TO THE CHAPTER

This chapter will define and conceptualise peer-victimisation, a key variable within the thesis. Firstly, the chapter will focus on defining the conceptual features of peer-victimisation, concluding with the definition that will be used within the current thesis. Secondly, the chapter will discuss the outcomes associated with experiencing peer-victimisation in childhood, with a specific focus on the measured psychosocial outcome in this thesis, school loneliness. This section will also present a rationale for selecting school loneliness as an indicator of psychosocial adjustment. Thirdly, the chapter will discuss the prevalence rates of peer-victimisation in schools, both in the UK and internationally. Finally, the chapter will discuss common approaches to measuring peer-victimisation in research, and highlight the methodological focus pertaining to peer-victimisation measurement.

2.2 DEFINING PEER-VICTIMISATION

Although peer-victimisation and bullying has been a heavily researched topic area since the early 1970's, the definition and conceptualisation of bullying and peer-victimisation is still debated by researchers in the field today. One of the earliest cited theories of bullying was by the Swedish researcher Peter-Paul Heinemann who, in 1972, defined bullying (*mobbning* in Swedish) as "the group's collective aggressiveness towards an individual or group or group of individuals who provoke or attract this aggressiveness" (Heinemann, 1972, p.7). This early work by Heinemann was further extended in 1978 by Dan Olweus, who was interested in focusing on the individual characteristics of the bully. Subsequently, Olweus' pioneering work led to a definition of bullying and peer-victimisation that is still widely adopted by researchers, practitioners and policy makers to date. According to Olweus (1999) "a person is bullied when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other persons. It is a negative action when someone intentionally inflicts or attempts to inflict injury or discomfort to another…" (p.10). Similar definitions of bullying have also appeared in the literature, for example Smith, Schneider, Smith, and Ananiadou (2004) defined bullying as "a particularly vicious kind of aggressive behaviour distinguished by repeated acts against weaker victims who cannot easily defend themselves" (p.547). The importance of defining bullying, and not just relying on the word to convey meaning, is evident when examining cultural and language differences. For example, Smorti, Menesini, and Smith

(2003) examined the conceptualisation of bullying across five different countries (Japan, England, Portugal, Spain, and Italy), observing notable differences in definitions and a lack of direct translation for the word 'bullying'. However, despite variations in the exact definition for bullying, it is commonly asserted in the literature that bullying is a unique form of *interpersonal aggression*, characterised by an *imbalance of power*, *intentionality,* and *repetition* (Olweus, 2001; Smith, Cowie, Olafsson, & Liefooghe, 2002).

2.2.1 Interpersonal Aggression

Interpersonal aggression refers to the experience of hurt, harm, or damage to the victim within a social context (Swearer, Siebecker, Johnson-Frerichs, & Wang, 2010). The interpersonal aggression experienced by a victim could be physical, verbal, or social in nature (Hong & Espelage, 2012; Smith, 2004). Although researchers agree that bullying is the experience of negative actions from peers across a range of domains (Hong & Espelage, 2012; Olweus, 2010; Salmivalli, 2010), there is less consensus amongst children and adolescents regarding the types of victimisation that are experienced. Many children agree that bullying involves negative aggressive behaviour (Vaillancourt et al., 2008), although younger children tend to associate bullying with acts of physical aggression, such as hitting and kicking (Smith & Levan, 1995; Smith, Madsen, & Moody, 1999). In contrast, older children and adolescents are more likely to incorporate indirect acts of aggression into their definition, including peer exclusion and verbal aggression (Smith et al., 2002, 1999). It has been suggested that age differences in definitions may reflect the actual real-life experiences of victimisation (Monks & Smith, 2006). For example, it has been found that during early school years (4 to 6 years old), victimisation is a less stable event, with children experiencing frequent but short-lived aggression (Monks, Smith, & Swettenham, 2003). Peer-victimisation then begins to stabilise in later childhood and early adolescence, with children experiencing more relational and indirect forms of victimisation (Boulton & Smith, 1994). In comparing teacher and pupil (aged between 8 and 14 years) definitions, Menesini, Fonzi, and Smith (2002) found that pupils were more inclusive of a broad range of behaviours in their definitions, such that they were more likely to mention social exclusion, gender exclusion and verbal bullying in definitions than teachers. Evidence from Menensini et al. (2002) suggests that children have a much broader view of peer-victimisation than educators.

2.2.2 Imbalance of Power

An imbalance of power criterion refers to the notion that those who bully gain more power than their victim, whether physically, socially, or psychologically (Olweus, 2010). The imbalance of power criterion can vary dependent upon the type of victimisation, for

example physical vs. relational. In physical victimisation, superiority of strength is required, in physical strength or numbers. Contrastingly, relational victimisation relies upon an imbalance in social standing or manipulation (Hawker & Boulton, 2000; Sutton, Smith, & Swettenham, 1999). The notion of a power imbalance has also been identified in children's definition of bullying and victimisation, for example Vaillancourt et al. (2008) conducted a large scale study involving 1787 students aged between 8-18, of which 26% endorsed power imbalance in their definitions. However, the inclusion of imbalance of power in the definition could be dependent on the type of victimisation experienced. For example, Cuadrado-Gordillo (2012) also examined adolescents' definitions of bullying and peer-victimisation, finding that power imbalance was only included in definitions referring to physical victimisation.

2.2.3 Intentionality

The intentionality criterion stipulates that bullies are purposively and consciously aggressive to others. However, the intentionality behind bullying acts is one of the most debated components of the definition. For example, Horton (2011) argues that this view frames the bully as extraordinary, aggressive, and deviant, rather than considering the social context and processes in which victimisation can occur, that may in turn result in such events. In support of this, research observes that bullies display both reactive and proactive aggressive behaviour (Camodeca & Goossens, 2005; Salmivalli & Nieminen, 2002). This suggests that children who display reactive aggressive tendencies are more likely to have social-information processing deficits, and thus these children may have difficulty accurately interpreting a social situation or understanding how their actions may affect others. This indicates that bullying behaviour may occur without intentionality, whereby children who are reactively aggressive may not have the intent to cause harm to another child. Furthermore, research examining children's definition of bullying regularly finds that intentionality is one of the most under-reported components of bullying by children (Naylor, Cowie, Cossin, Bettencourt, & Lemme, 2006; Vaillancourt et al., 2008). For example, Vaillancourt et al. (2008) found that when asked to define bullying, only 1.7% of students (aged between 8 to 18 years old) included the intentionality criterion. Other studies have also observed a similarly low proportion of young people endorsing the intentionality criteria (e.g., Madsen, 1996; Naylor et al., 2006). Additionally, Olweus (2013) also argues that intentionality is a difficult concept to measure objectively and that the assessment of intentionality may not occur at the measurement stage, but instead is acknowledged through understanding the context in which bullying and peer-victimisation occur.

2.2.4 Repetition

The repetition criterion focuses on the actual or potential frequent nature of peer-victimisation. Some researchers focus on whether bullying behaviour happens more than once (e.g., Branson & Cornell, 2009; Felix, Sharkey, Green, Furlong, & Tanigawa, 2011; Solberg & Olweus, 2003), whereas other researchers are more concerned with the *potential* for these behaviours to occur more than once. For example, Guerin and Hennessy (2002) argue that bullying does not need to be repeated to be considered bullying. Specifically, they contend that just once incident could cause a long-term fear of repetition, and therefore this would meet the criteria of repetition. Like the intentionality criteria, repetition is also under-reported in children and adolescents' definition of bullying and peer-victimisation. For example, content analysis of 147 high school pupils' definitions of bullying found that 'repetition' was cited in under half the examples of bullying (Land, 2003). Additionally, Vaillancourt et al. (2008) found that only 6% of their sample (*n*=1787, aged 8 to 18 years) reported repetition when defining bullying. This percentage was lower for children aged 8-years old (4%) than those aged 18-years old (8%). The variation in children's definition may be linked to peer-victimisation experiences, whereby it has been suggested that that the repetitive nature of peer-victimisation only begins to occur during later childhood, where the relationship between aggressor(s) and victim(s) is more pronounced (Monks & Smith, 2006).

Researchers have attempted to address the repetition component of peer-victimisation by integrating cut-off criteria within their measurement process (Swearer et al., 2010). For example, Solberg and Olweus (2003) argue that that the cut-off points for victimisation should be "2 or 3 times per month" (p.263). However, the use of cut-offs needs to be carefully considered as the application of cut-off criteria can have a knock-on effect on subsequent analyses and the interpretation of the impact of peer-victimisation (Beckman, Hagquist, & Hellström, 2013). Specifically, the application of a cut-off point, especially one that may be too high, could potentially mis-identify the proportion of children who are victims of bullying. Furthermore, there is a lack of agreement amongst both researchers and educators regarding the categorisation of children along the victim continuum (Espelage, Bosworth, & Simon, 2001), as cut-offs inherently make an assumption regarding the repetitive nature of bullying and how much repetition is needed to classify the experience as peer-victimisation. Thomas, Connor, and Scott (2015) suggest that researchers should adopt a continuous approach to avoid issues pertaining to dichotomisation. Specifically, dichotomisation can have methodological implications in addition to conceptual, for example, dichotomisation can result in lost information, reduced power, and obscured relationships (Peacock, Sauzet,

Ewings, & Kerry, 2012). Subsequently, the majority of peer-victimisation measures have been developed as continuous variables (Vivolo-Kantor, Martell, Holland, & Westby, 2014). Further considerations regarding measurement of peer-victimisation will be discussed in Section 2.5.

2.2.5 Thesis Definition

Considering the above discussion on defining of peer-victimisation, this thesis will adopt the following definition as outlined recently by Volk, Dane, and Marini (2014):

"An aggressive, goal-directed behaviour that harms another individual within the context of power imbalance." (p.328).

This definition was selected as it addresses many of the limitations raised with the components of peer-victimisation put forward by Olweus (2001). Firstly, it does not include the intentionality criterion, given that it is a) difficult to objectively measure a bully's intention (Olweus, 2010; Sercombe & Donnelly, 2013) and b) children of all ages do not regularly recognise intention as a component of peer-victimisation (Vaillancourt et al., 2008). The goal-orientated component of the definition indicates that peer-victimisation behaviours can be both proactive and reactive in nature (Salmivalli & Nieminen, 2002), and thus is viewed as alternative to the intentionality criterion. The definition acknowledges that aggressive behaviour experienced may be proactive (Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009), but also that an aggressive act could be in response to challenges to one's social status.

Volk et al. (2014) also state that their definition acknowledges that harm is as perceived by the victim and could relate to either the repetition of the act or the intensity of the act. Specifically, one act of aggression could constitute peer-victimisation if it results in negative long-term effects (Volk, Veenstra, & Espelage, 2017). Although Volk et al.'s (2014) definition is a recent addition to the literature, it still incorporates important and agreed upon components of peer-victimisation i.e., interpersonal aggression that results in an individual experiencing harm within a context whereby there is an imbalance of power. Furthermore, this definition has been used throughout the field during the last four years (e.g., Stearns, Carson, Spence, Faulkner, & Leatherdale, 2017), including studies with a similar demographic to the sample used in the current thesis (e.g., Van Der Ploeg, Steglich, Salmivalli, & Veenstra, 2015; Williford & Zinn, 2018). The thesis will be focusing on experiences of being a victim of bullying via peers, rather than bullying behaviour and therefore will refer to this as peer-victimisation throughout the thesis.

2.2.6 Different Facets of Peer-Victimisation

The current thesis will also acknowledge the multiple facets of peer-victimisation, wherein research indicates that the construct of peer-victimisation can present itself in different forms, such as physical, verbal, social, and attacks on property (Espelage & Swearer, 2003; Mynard & Joseph, 2000; Raskauskas, 2009; Taki, 2010). Subsequently, not all children experience the same forms of peer-victimisation (Jimerson, Swearer, & Espelage, 2010; Raskauskas, 2010) and in turn, these victimisation experiences have been found to be related to different psychosocial outcomes (Prinstein, Boergers, & Vernberg, 2001; Taki, 2010). Physical victimisation includes acts such as hitting and kicking, and has been associated with externalising problems (Hampel, Manhal, & Hayer, 2009; Rivers & Smith, 1994). Verbal victimisation occurs as a result of the bully saying hurtful things and calling the victim names (Olweus, 2001). Physical and verbal victimisation are direct forms of peer-victimisation, whereas social victimisation (also referred to as relational) is an indirect form of victimisation. Social victimisation includes acts such as active social exclusion and manipulation i.e., trying to turn other children against the victim (Crick & Nelson, 2002; Raskauskas, 2009). It is argued that social victimisation may be the most harmful form of peer-victimisation, given that children and adolescence heavily emphasise the importance of peer relationships (Coleman & Byrd, 2003). Indirect victimisation (i.e., social exclusion and social manipulation) has been associated with higher levels of maladjustment in children (aged 9 to 12 years), including higher levels of depression, loneliness, peer-rejection, and lower levels of self-esteem (Crick & Grotpeter, 1996; Linder, Crick, & Collins, 2002; Van der Wal, De Wit, & Hirasing, 2003).

Given that not all children experience the same forms of peer-victimisation and associated outcomes can vary depending on the victimisation type, the current thesis will measure the different facets of peer-victimisation separately. Subsequently, this will allow for the individual contribution of each peer-victimisation to be assessed. Furthermore, coping with peer-victimisation has also been shown to vary as a function of the peer-victimisation type (See Section 3.3) and thus measuring different facets of peer-victimisation will also enable the current thesis to contribute further to this field of literature. It should also be noted that more recently cyber-victimisation has emerged as an additional facet of peer-victimisation (Smith & Slonje, 2010). However, due to the target age of the sample size in the thesis (9 to 11 years) and the lack of evidence to suggest that all children in late childhood are exposed to cyber contexts (OfCom, 2017), the research presented in this thesis did not measure cyber victimisation.

2.3 OUTCOMES OF PEER-VICTIMISATION

The importance of researching peer-victimisation is evident when examining the negative psychosocial and physical consequence that can emerge as a result of being victimised by peers. Victimised children and adolescents have a greater risk of experiencing mental health issues, including depression (Hunter et al., 2004; Lemstra, Nielsen, Rogers, Thompson, & Moraros, 2012), anxiety (Craig, 1998), and self-harm (Barker, Arseneault, Brendgen, Fontaine, & Maughan, 2008), and somatic symptoms such as headaches and stomach complaints (Fekkes, Pijpers, Fredriks, Vogels, & Verloove-Vanhorick, 2006). Other psychosocial symptoms also include low self-esteem, loneliness, hopelessness, and self-destructive behaviours (Nansel et al., 2001; Swearer, 2011) . In extreme cases, peer-victimisation has led to suicidal ideation in both children and adolescents (Hinduja & Patchin, 2010). Victimisation is also associated with a number of externalising problems with research identifying increased levels of aggressive behaviour in victimised children (Arseneault et al., 2006). Furthermore, a high prevalence of peer-victimisation within schools has been shown to predict higher levels of school drop-out (Cornell, Gregory, Huang, & Fan, 2012). For some children these negative effects of victimisation may be short-term, however, for others the consequences can continue throughout school and into adult-hood, increasing the likelihood of psychiatric morbidity (Sourander et al., 2007; Tritt & Duncan, 1997; Wolke, Copeland, Angold, & Costellano, 2013). Peer-victimisation also predicts poor occupational and financial achievement in adulthood (Wolke et al., 2013). Although there are many maladaptive outcomes associated with peer-victimisation, the current thesis will focus on school loneliness as an indicator of psychosocial adjustment. The following section will therefore conceptualise loneliness and justify the choice of assessing school loneliness as an indicator of psychosocial adjustment in the thesis.

2.3.1 School Loneliness

Loneliness is one of the most commonly observed outcomes of peer-victimisation (Hawker & Boulton, 2000; Kochenderfer-Ladd & Wardrop, 2001; McDougall & Vaillancourt, 2015; Schäfer et al., 2004) and can be defined as an individual's awareness of a deficiency in their social relationships, resulting in sadness and a sense of isolation (Asher & Paquette, 2003). Parkhurst and Hopmeyer (1998) also defined loneliness as a "sad or aching sense of isolation, that is, of being alone, cut-off or distanced from others…associated with a felt deprivation of, or longing for, association, contact or closeness" (p.50). It is also argued, however, that children can have many friends and still experience loneliness (Asher & Paquette, 2003). Specifically, children who experience social dissatisfaction in their friendships and low levels of friendship quality

can experience elevated levels of loneliness (Parker & Asher, 1993). Therefore, the social benefits afforded to children from friendships are important in buffering against the experience of loneliness beyond just the presence of friends. The role of friendship for children's psychosocial adjustment is further explored in Chapter 4.

Loneliness can be persistent across the lifespan (Qualter et al., 2013), although general trends indicate that loneliness peaks during early adolescence and again in older age (Heinrich & Gullone, 2006). A more recent longitudinal study of 209 English pupils observed that levels of persistent loneliness increased between ages 8-years and 9.5 years of age, but reduced by the time the children were 11-years old (Harris et al., 2013). The authors argued that this reduction coincided with the transition from primary to secondary school, affording the opportunity for new friendships to be formed. Although some children and adolescents experience persistent loneliness, the majority will only experience low levels of loneliness at occasional points in life (Qualter et al., 2013). Therefore, loneliness is not pathological, but rather a normative state that is experienced by almost all children and adolescents (Asher & Paquette, 2003; Ladd & Ettekal, 2013).

However, chronic loneliness can have both detrimental short- and long-term consequences. Specifically, chronic loneliness in childhood appears to be a precursor for mental health issues in adolescence and adulthood, including depression and anxiety (Harris et al., 2013; Pedersen, Vitaro, Barker, & Borge, 2007). School loneliness in children has also been found to predict children's perceptions of their own academic competence, whereby children with high levels of school loneliness were more likely to perceive themselves as having poor academic competence (Guay et al., 1999). The development of chronic loneliness has been attributed to a range of social situations, including peer-rejection (Rubin, Bukowski, & Parker, 2006), low-quality friendships (Asher & Gazelle, 1999), and peer-victimisation (McDougall & Vaillancourt, 2015). Peer-victimisation, specifically, has been shown to play a crucial role in determining experiences of loneliness, particularly due to associations between peer-victimisation and a lack of peer-acceptance and friendship (Boulton & Smith, 1994; de Bruyn, Cillessen, & Wissink, 2010). Furthermore, feelings of mistrust towards peers as a result of peer-victimisation may in turn cause children to further isolate themselves away from others, resulting in chronic loneliness (Ladd & Troop-Gordon, 2003; Rotenberg et al., 2010). The Social Deficits Theory has been used to understand the development of loneliness in children (Segrin & Flora, 2000). Specifically, lonely children, or those at risk of loneliness may have deficits in their social skills (Segrin & Flora, 2000). These deficits include an inability to accurately perceive social information, and subsequently children

may have difficulties in forming and maintaining successful social relations. Children with poor social skills could therefore have smaller social networks to draw upon, and the quality of those friendships may be poor (Crawford & Manassis, 2011; Locke, Ishijima, Kasari, & London, 2010; Lodder, Scholte, Goossens, & Verhagen, 2017). This, in turn, is likely to result in increased levels of loneliness (Parker & Asher, 1993). Social skills deficits have also been linked to children who persistently experience peer-victimisation (Fox & Boulton, 2003), whereby deficits in social skills predicts problematic social relations, including peer-victimisation. Those children who exhibit poor social skills may also lack the social skills necessary to cope with the negative peer interactions resulting in continued victimisation.

It is also important to note that the experience of loneliness in children may also act as a risk and maintaining factor for peer-victimisation. For example, work by Hawker and Boulton (2000), Kochenderfer-Ladd (1996), and Kochenderfer-Ladd and Waldrop (2001) all found evidence to support the notion of loneliness as a risk factor. Research evidence suggests that lonely children are easier targets for bullies (Scholte, Engels, Overbeek, de Kemp, & Haselager, 2007). Specifically, lonely children may not have access to the social buffers that can protect them from victimisation (Asher & Paquette, 2003). Furthermore, this relationship could be cyclic in nature, wherein lonely children are victimised, which then increases their experience of loneliness over time, which in turn then further increases their risk of victimisation (Baker & Bugay, 2011). Lonely individuals tend to have poorer social skills than their non-lonely peers (Lodder, Goossens, Scholte, Engels, & Verhagen, 2016). These social deficits are confirmed via self- and peer-report methods, whereby lonely individuals have a negative view of their own social interactions, but also exhibit actual social deficits, as reported by peers (Lodder et al., 2016). It is these social deficits that can put a child at risk of victimisation (Perren & Alsaker, 2006). However, although there is evidence for loneliness as a risk factor for peer-victimisation, the dyadic relationship between loneliness and peer-victimisation appears to be stronger when considering peer-victimisation as an antecedent to loneliness (Acquah, Topalli, Wilson, Junttila, & Niemi, 2016; Kochenderfer & Ladd, 1996). Given that the current thesis is focused on how children cope with peer-victimisation, loneliness will be treated as an indicator of psychosocial adjustment following peer-victimisation, as opposed to a risk factor. This will enable the thesis to examine the effectiveness of coping behaviour and the role that friendship plays within this relationship. Furthermore, the current thesis aims to build on a body of literature that has examined the relationship between peer-victimisation, coping and, loneliness

(e.g., Kochenderfer-Ladd, 2004; Kochenderfer-Ladd & Skinner, 2002), wherein loneliness has been treated as an outcome measure.

Regarding measurement, research indicates that children as young as five years old have a basic understanding of loneliness (Cassidy & Asher, 1992), and therefore can respond to measures of loneliness accurately (Asher & Paquette, 2003). Given this, Asher and Paquette (2003) emphasise the importance of using measures that assess 'pure' loneliness (e.g., "I am lonely at school"; Parker & Asher, 1993) as opposed to other associated factors such as asking children whether they have friends or whether they are getting along with their friends. This is important given that it has been argued that loneliness is distinct from other similar social relational factors including social isolation or peer rejection (Qualter et al., 2010). Predominately, children's loneliness is measured within the context of school, due to a child's peer world being largely focused on school friendships (Larson, 1999). Subsequently, the current thesis will measure school loneliness using an assessment strategy that assesses 'pure' school loneliness.

For the current thesis, school loneliness was selected as the outcome variable owing to the following three reasons. Firstly, many of the alternative psychosocial outcomes (e.g., depression and anxiety) associated with peer-victimisation tend to be relatively stable over shorter periods of time (Abela & Hankin, 2008). However, in the current thesis a measure of psychosocial adjustment more sensitive to change in environmental factors, such as peer-victimisation (Kochenderfer-Ladd & Wardrop, 2001), was needed as a three-wave longitudinal design across 7-months was used. Specifically, loneliness is shown to emerge as an outcome of peer-victimisation, prior to other psychosocial outcomes (Kochenderfer-Ladd & Wardrop, 2001). Secondly, more stable psychosocial outcomes such as depression and anxiety may not reflect the on-goings of the school and peer context but rather are also influenced by other factors (Abela & Hankin, 2008). School loneliness, however, is an indicator of problematic peer relations (Asher & Paquette, 2003; Kochenderfer-Ladd & Wardrop, 2001) and therefore is more likely to be dependent on those factors of interest in the thesis, namely peer-victimisation and friendship. It has been argued that loneliness is the most consistently linked outcome associated with peer-victimisation (Kochenderfer-Ladd & Wardrop, 2001; McDougall & Vaillancourt, 2015). Predictably, school loneliness is frequently researched within the context of both peer-victimisation and peer-victimisation coping. Thus, the third reason that school loneliness was measured as an indicator of psychosocial adjustment was to facilitate comparison of the current thesis' findings with previous research.

2.4 Prevalence of Peer-Victimisation in Relation to Age and Gender

The prevalence rate of peer-victimisation across and within countries varies considerably between studies, although evidence indicates a serious problem for youths. Studies including children and pre-adolescents (8 to 12 years) suggest that prevalence rates for peer-victimisation can lie anywhere between 8% to 51% and bullying from as little as 3% to around 23% (Currie et al., 2012; Nansel, Craig, Overpeck, Saluja, & Ruan, 2004; Wang, Iannotti, & Nansel, 2009; Wolke, Woods, Stanford, & Schulz, 2001). A recent World Health Organisation report by Currie and colleagues (2012) identified clear variations across countries in levels of peer-victimisation and bullying. For example, their report indicated that rates of victimisation varied from 2% to 32% across countries and rates of bullying varied from 1% to 36%. Peer-victimisation has also been shown to vary across the life-span. More recent statistics have suggested that almost 59.5% of young people aged between 11 to 17 years have experienced peer-victimisation during their lifetime, with 35.3% experiencing this within the last year (Bentley et al., 2017). Regarding types of peer-victimisation, a large-scale study (n = 29, 127; Craig et al., 2009) found that in children aged 11-years, direct verbal victimisation was the most commonly experienced (15%), followed by indirect victimisation (12%) and then direct physical victimisation (6%). This provides evidence to suggest that not all children experience the same form of peer-victimisation, and subsequently provides further justification for the focus on multiple facets of peer-victimisation in the current thesis.

Although there is evidence that peer-victimisation is prevalent in children as young as three years (Camodeca, Caravita, & Coppola, 2015), research has typically found that reports of peer-victimisation peak around the ages of 10 to 11 years old (Cillessen & Borch, 2006; Craig et al., 2009; Currie et al., 2012). This often coincides with the pre-transition from primary to secondary school. The prevalence rates observed by empirical studies is supported by recent statistics from Childline, who report that the most common reason children under 11 years old call ChildLine is due to peer-victimisation related problems (NSPCC, 2015). Considering these statistics, the empirical research in this thesis will draw from a sample of 9 to 11 years old, thus capturing experiences of peer-victimisation at their peak. The prevalence rates across males and females was also captured in the WHO report. More specifically, at 11-years old statistically significant gender differences in reports of being victimised were only found in a minority of countries, not including England, Wales, or Scotland (Currie et al., 2012). Regarding the UK, significant gender differences were only present in Scottish

15-year olds, whereby males in Scotland reported higher levels of victimisation than females (8% vs. 4%).

Although research indicates that prevalence rates across countries, age, and gender exist (Currie et al., 2012), it is important to consider that the variation in levels of peer-victimisation may be due in part to methodological and theoretical variations present in victimisation research. For example, the disparity in measures employed to assess victimisation and bullying can make it difficult to ascertain whether differences in prevalence rates are genuine or the result of measurement choice. Considering this, the following section outlines several methods of measuring and assessing school-based peer-victimisation.

2.5 MEASURING PEER-VICTIMISATION

The accurate measurement of peer-victimisation is crucial for a range of important issues associated with peer-victimisation research and practice, including understanding the prevalence of victimisation experiences, how peer-victimisation impacts on young people, the development of intervention programmes and the subsequent evaluation of their effectiveness. Unequivocally, accurate measurement of peer-victimisation is also fundamental for the reliability and validity of empirical research. However, alongside disagreements associated with defining peer-victimisation, there is also often a lack of agreement regarding the most suitable approach to measuring school-based peer-victimisation in children and adolescents (Swearer et al., 2010). The following section therefore outlines the different methodological approaches to measuring peer-victimisation, including teacher-report, observation, peer-report, and self-report. The section will finish by justifying the methodological approach to measuring peer-victimisation in the current thesis.

2.5.1 Teacher-Report

Teachers can be a useful source of information for identifying victims and bullies within the classroom (Crothers & Levinson, 2004). To ascertain this information teachers are provided with a roster of the students' names and asked to indicate which children exhibit bully or victim behaviour (Crothers & Levinson, 2004). Alternatively, teachers are provided with behavioural descriptors associated with bullying and victimisation, and are then asked to identify children in their class who match these descriptors (Cornell & Bandyopadhyay, 2010). Confidence in teacher reports amongst peer-victimisation researchers is mixed. Although researchers such as Olweus (1993) and Craig and Pepler (1997) advocate confidence in using teacher reports, others suggest

that teachers may underestimate the presence of bullying in the classroom and nomination could reflect unconscious or conscious biases (Pellegrini & Bartini, 2000). Within the context of the current thesis, the use of teacher reports does not support the thesis definition of peer-victimisation, which emphasises that the harm experienced by peer-victimisation is the perception of the victim (Volk et al., 2014). Thus, teacher reports were not deemed an appropriate source of measurement for peer-victimisation for the empirical work conducted as part of this thesis.

2.5.2 Observation

Observational methods are also used less frequently within bullying research, particularly in older children/adolescents, but can provide a rich source of data and have several advantages over self-report and peer-report. Observations can include collecting information systematically, including the frequency, duration, or types of bullying across different locations (Craig & Pepler, 1997). The ability to observe bullying interactions in-vivo is a distinct advantage over alternative methods. Not only can researchers gather information regarding bullies and their victims, but they can also observe the behaviours of others involved (such as peer bystanders and teachers). Furthermore, although common assessment methods such as self-report and peer-report provide researchers with the 'who' and 'what'; using an observational method can further examine the process involved in bullying behaviour to help further understand the 'how' and 'why'. However, one clear limitation associated with observational methods is that not all bullying occurs in observable settings. Bullying is often a covert behaviour and can occur in places that are inaccessible to the researcher, such as within toilets (Griffin & Gross, 2004; Shaw, Dooley, Cross, Zubrick, & Waters, 2013). Furthermore, there is also potential variation regarding how an observer would interpret the behaviour versus a child. This is particularly true for indirect forms of peer-victimisation, such as social exclusion, which may not be observable by an individual outside that social context. Therefore, similar to teacher reports, an observation approach does not support the current thesis definition of peer-victimisation and thus observations were not used to measure peer-victimisation.

2.5.3 Peer-Report

Peer-reports (often known as peer-nominations) are a popular alternative to self-report assessments of bullying and victimisation. This approach provides an assessment of bullying behaviour and victimisation relative to the peer-group's perception (Pellegrini, 2001). As such, this method typically involves asking students to identify classmates who match behavioural descriptors or a definition of bullying and/or victimisation

behaviour. For example, 'Who is often called names by others?' (Gottheil & Dubow, 2001). A benefit of using a peer-report approach is that the assessment of a child's bullying and/or victimisation behaviour is via multiple informants, and thus this can reduce measurement errors and yield more reliable data (Vaillancourt, McDougall, Hymel, & Sunderani, 2010). However, with regards to limitations, educators may raise concerns over pupils being asked to make judgements about their peers. For example, there is some evidence to suggest that negative sociometric assessments may cause upset in children (Iverson, Barton, & Iverson, 1997). A second issue surrounding the application of peer-reports is with regard to cut-off points. Cut-off points are used to identify a pupil as either a victim or bully. However, the decision regarding the cut-off point to use is often arbitrary, with there being a lack of consistency across studies (Branson & Cornell, 2009; Olweus, 2010; Solberg & Olweus, 2003). Furthermore, although peer-reports can be a very good tool for measuring bullying and peer-victimisation, they can be susceptible to limitations when evaluating interventions and detecting change over time (Olweus, 2010; Paul & Cillessen, 2003). It has been found that often the same children are nominated at Time 1 and Time 2, regardless of whether the level of bullying has reduced or not (Paul & Cillessen, 2003). This is attributed to the notion that peer-reports reflect a child's social reputation, such that a child nominated as a bully or victim at Time 1 may still display bullying or peer-victimisation behaviours at Time 2, and so will be nominated, even if these behaviours have reduced. The current thesis will use a longitudinal research design, and therefore peer-reports are not a suitable measurement approach, given that they are less susceptible to change over time.

2.5.4 Self-Report

Self-report measures (predominately psychometric scales) are the most commonly used method in the assessment of bullying behaviour and victimisation, making up around 75.60% of the 1988 to 2012 published peer-victimisation report methods (Vivolo-Kantor et al., 2014). In comparison to alternative methods, self-reports provide a personal account of bullying and victimisation experiences whereby the child answers a series of questions often relating to the frequency and severity of such events (Juvoven, Nishina, & Graham, 2001). This supports the definition of peer-victimisation used in the thesis, with an emphasis on the child's perspective of the victimisation experience. Another benefit is the ease associated with administering self-report measures, with there being less burden with regards to both time and cost compared to alternatives (such as peer-report and teacher report; Furlong, Sharkey, Felix, Tanigawa, & Greif-Green, 2010). Owing to the increased empirical focus on school-based bullying, researchers are faced with numerous psychometric scales designed to assess bullying

and victimisation (Vivolo-Kantor et al., 2014). Many self-report scales are also designed to allow researchers to assess and distinguish between multiples forms of bullying and victimisation, such as physical, relational, verbal, and cyber etc. (Hamburger, Basile, & Vivolo-Kantor, 2011). The ability to differentiate is an important feature as the different forms of bullying behaviour and victimisation experiences have been shown to be heterogeneous with regards to their prevalence, stability, and association with other variables of interest (Jimerson, Swearer, & Espelage, 2010).

There are two forms of self-report approaches that are commonly used to measure peer-victimisation either (a) a definition-based approach or (b) a behaviour-based approach. A definition approach, as the named suggests, provides students with a definition of peer-victimisation at the beginning of the scale before asking students to respond to items relating to peer-victimisation behaviour. Some researchers maintain that using a definition-based approach to measure peer-victimisation ensures a shared and consistent meaning of the peer-victimisation experience across all participants (Solberg & Olweus, 2003). However, there are limitations associated with using a definitional approach. Specifically, those studies using a definitional approach but also wishing to measure sub-types of peer-victimisation risk producing data that is unable to distinguish amongst various forms of peer-victimisation due to the definition masking the trends (Cornell et al., 2006). For example, providing pupils with a definition that contains a list of different types of peer-victimisation may produce homogenous data that is unable to distinguish between sub-types of peer-victimisation (Furlong et al., 2010). In contrast, a behaviour-based approach does not provide participants with a definition but rather asks participants to respond to behavioural descriptors i.e., 'Kicked in the face' to indicate how often this behaviour occurred. It is argued that by not providing a definition of peer-victimisation reduces the stigma and bias associated with the word 'bullying' (Thornberg, 2015). Asking a child to associate themselves with an emotional-laden word may reduce the likelihood of a child endorsing the item and therefore risks underestimating the true extent of the peer-victimisation experience (Cornell & Brockenbrough, 2004; Furlong et al., 2010; Kert, Codding, Tryon, & Shiyko, 2010), this can be overcome with the use of a behaviour-based approach. Subsequently, reducing the stigma associated with reporting peer-victimisation experiences ensures a more accurate measure of the phenomena.

2.6 Measurement of Peer-Victimisation in the Current Thesis

The current thesis will employ a self-report strategy to measuring peer-victimisation, specifically using a behaviour-based self-report strategy rather than a definitional

approach. The justification for this approach is as follows: firstly, the thesis is interested in obtaining the child's self-perception of the events rather than an evaluation of social reputation and agreement amongst peers. This also aligns with the thesis' adopted definition of peer-victimisation (Volk et al., 2014). Secondly, peer-victimisation researchers have highlighted that there can be some ethical implications associated with a peer-report procedure, including asking children to rate each other, which may make it difficult to obtain approval from schools and/or guardians (Espelage & Swearer, 2003). Thirdly, the current thesis will use a longitudinal research design and thus a self-report measure is more appropriate due to self-report measures being more sensitive to change over time than peer-reports (Olweus, 2010). Fourthly, self-report approaches can more accurately assess and distinguish between the different types of peer-victimisation, of which the current thesis aims to measure in order to explore the differential impact of each type (Crick & Grotpeter, 1996; Linder et al., 2002; Van Der Wal, de Wit, & Hirasing, 2003). Finally, a behaviour-based approach will be used as it is argued that this is less susceptible to measurement error when measuring different types of peer-victimisation (Cornell et al., 2006) and reduces non-reporting associated with stigma and bias (Cornell & Brockenbrough, 2004; Furlong et al., 2010). The specific peer-victimisation measure of choice will be outlined in Section 5.5.1.

2.7 CHAPTER SUMMARY

In summary the current chapter discussed several key factors associated with peer-victimisation that have implications for the remainder of the thesis. Firstly, the chapter discussed the conceptualisation of peer-victimisation, drawing attention to the lack of one universally agreed upon definition. However, literature has argued that peer-victimisation can be defined by four criteria: interpersonal aggression, intention to harm, repetition of the behaviour, and an imbalance behaviour. The current thesis uses a definition outlined by Volk et al. (2014) that encompasses three of these criteria – interpersonal aggression, intentional (goal-directed) behaviour, and an imbalance of power. The repetition component of peer-victimisation was not included in Volk et al.'s (2014) definition, given that there are conceptual and methodological difficulties with regards to determining the level of repetition that constitutes victimisation. Furthermore, several researchers argue that single events of peer-victimisation can be just as harmful, or more so, than repeated events (Olweus 2013; Volk et al., 2014). Researchers also agree that peer-victimisation is multifaceted in nature, and hence the current thesis will measure peer-victimisation within a multidimensional context. This

will therefore enable the thesis to examine the individual contribution of each peer-victimisation type.

Secondly, the chapter outlined the severe short- and long-term outcomes that children can experience as a result of peer-victimisation. Specifically, loneliness has been identified as one of the most consistently linked outcomes associated with peer-victimisation (McDougall & Vaillancourt, 2015) and consequently is frequently researched within the context of peer-victimisation. Alternative measures of psychosocial outcomes such as depression and anxiety may not reflect the on goings of school and the peer context and can also be influenced by other factors (Abela & Hankin, 2008). Therefore, the school loneliness will be measured as an indicator of psychosocial adjustment, enabling the effect of peer-victimisation and problematic peer-relations to be assessed and to facilitate the comparison of the current thesis' findings with previous peer-victimisation research.

Thirdly, the chapter discussed the prevalence rates of school-based peer-victimisation both in the UK and internationally. Specifically, it was noted that peer-victimisation peaks at around 10 to 11 years old, coinciding with pre-transition from primary to secondary school. This is a time whereby social dominance is important and new friendships are formed (Weller, 2007). Considering this, the current thesis will capture this peak in peer-victimisation experiences and social change by drawing from a sample of 9 to 11 years old.

Finally, the chapter considered the common approaches to measuring peer-victimisation in school research, discussing the relative strengths in each. Predominately research adopts a self-report or peer-nomination procedure to measuring peer-victimisation, although both teacher reports and observation methods have been used. Subsequently, based on a number of factors discussed in the chapter pertaining to the aims of the thesis, the selected definition of peer-victimisation, ethical implications and measurement accuracy, the thesis will use a behaviour-based self-report approach to measure peer-victimisation.

CHAPTER 3: COPING WITH PEER-VICTIMISATION

3.1 INTRODUCTION TO THE CHAPTER

The literature presented in Chapter 2 suggests that school-based peer-victimisation remains a persistent problem in UK schools (NSPCC, 2015). Associated with both short- and long-term psychosocial problems, the extent to which a child copes effectively with peer-victimisation can be a crucial protective factor against future peer-victimisation and associated outcomes (Dirks, Cuttini, Mott, & Henry, 2017). Contrastingly, maladaptive coping strategies can be detrimental, further exacerbating the effects of peer-victimisation (Harper, 2012; Houbre et al., 2010). Therefore, identifying coping strategies that are associated with adaptive coping, and the predictors of these effective coping strategies is of importance. Subsequently, the aim of this chapter is to present literature pertaining to a key variable for this thesis, coping with school-based peer-victimisation. Firstly, the literature review will conceptualise coping and discuss key coping theories. Secondly, the chapter will examine the distinct types of peer-victimisation coping, specifically focusing on the outcomes associated with peer-victimisation coping strategies and the individual differences in endorsement of peer-victimisation coping strategies. Finally, the chapter will highlight the current omissions in the field of peer-victimisation coping research.

3.2 DEFINING AND CONCEPTUALISING COPING

Broadly speaking, coping can be defined as a process that individuals use to manage the demands of a stressor (Folkman et al., 1986). As such, the processes by which individuals cope with stress can reduce or increase the associated effects, both in the short and long-term (Skinner, Edge, Altman, & Sherwood, 2003; Zimmer-Gembeck, 2016). Although coping is a heavily researched topic in the field of social sciences, there is still a lack of consensus regarding the conceptualisation of coping and subsequently how to measure the construct (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2011). One core issue is the vast number of ways of coping being researched in the field of coping and stress. For example, a comprehensive review by Skinner at al. (2003) identified that there were over 400 different ways of coping being examined within coping research papers. Examples of 'ways of coping' include avoidance, aggression, getting upset, problem-solving, and support seeking etc. Resultantly, this lack of consensus regarding the conceptualisation of coping has resulted in stunted progress in the field and an inability to compare and

cumulate findings from across different studies (Skinner et al., 2003). Furthermore, this problem also exists within peer-victimisation coping literature (Parris, 2013). As such, issues associated with progression in the field and difficulties with comparing and contrasting findings also extend to peer-victimisation coping literature. It is therefore important that new research in the field also considers the conceptualisation and approach to measuring coping used in previous research, in order to facilitate comparisons across studies. Subsequently, this thesis will consider the conceptualisation and approach to measuring coping in previous peer-victimisation research. This is further discussed in Section 3.3.

Coping researchers and theorists (e.g., Compas et al., 2001; Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2011) have argued that it is advantageous to differentiate between the *different levels* of coping. At the lowest level, there are 'instances' of coping, which represent the 'real-time' and objective responses to stressors. For example, "I hid from the bully" or "I told the teacher about the bullying". These instances of coping can then be clustered into strategies, according to their functions. These coping strategies are sometimes referred to as *families of coping* (Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2011), or *types of coping*. For example, hiding from the bully may be clustered into an 'Avoidance' type of coping, whereas telling the teacher could be clustered into a 'Support-seeking' type of coping. Two seminal and popular theories of coping, The Transactional Model of Stress (Lazarus & Folkman, 1984) and the Approach/Avoidant Model (Roth & Cohen, 1986) both use higher order categories to cluster instances of coping. However, it has been argued that both these theories adopt a narrow view in conceptualising instances of coping that may not suitable (Compas et al., 2001; Lazarus, 2006; Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2011). These theories have previously been applied in peer-victimisation coping research (e.g., Hampel & Petermann, 2005; Hunter & Boyle, 2004; Kochenderfer-Ladd, 2004; Kokkinos, Panagopoulou, Tsolakidou, & Tzeliou, 2015). Although occasionally published peer-victimisation coping studies do not directly refer to a specific theory of coping (e.g., Andreou, 2001; Konishi & Hymel, 2009; Kristensen & Smith, 2003; Naylor, Cowie, & del Rey, 2001), highlighting a discrepancy in the theoretical (or atheoretical) approaches in peer-victimisation coping literature. However, given the prevalence of both the Transactional Model of Stress (Lazarus & Folkman, 1984) and Approach/Avoidant Model (Roth & Cohen, 1986) in literature, the following sections will outline both theories, highlighting the potential problems associated with classifying coping as emotion focused versus problem-focused or approach versus avoidant. This is important

to consider for the conceptualisation of coping within the current thesis, which will argue that types of coping should not be conceptualised using the traditional dichotomous approaches. This will be discussed further in Section 3.2.3.

3.2.1 Transactional Model Stress and Coping

Lazarus and Folkman (1984) proposed that considering the relationship between the individual and the stressor was fundamental to understanding coping. They posit that the process of coping occurs via a series of appraisals made by the individual, which then results in an instance or instances of coping. When faced with a stressor, the individual makes a primary appraisal regarding the nature of this stressor and the degree of threat posed. This appraisal culminates in the individual ascertaining whether the stressor results in direct harm, potential harm or is a challenge to overcome. The secondary appraisal of the situation is the individual's assessment of their personal (e.g., self-competence) and environmental (e.g., support from teacher) resources. The coping response that follows these appraisals is said to be either emotion- or problem-focused. Problem-focused coping involves strategies that aim to find a solution to the problem (stressor). An example problem-focused coping strategy in the context of peer-victimisation may be 'standing up to the bully' or 'informing the teacher'. Emotion-focused coping strategies, in contrast, are centred upon managing the emotional consequences that may result from a stressor. An example emotion-focused coping strategy may be 'crying after the incident' or 'using deep breathing techniques'.

One limitation associated with classifying coping strategies as emotion-focused versus problem-focused is that this approach is "not conceptually clear, mutually exclusive or exhaustive" (Skinner et al., 2003, p.227). For example, there are number of instances of coping that could be categorised as both emotion-focused and problem-focused. An example of this in the context of peer-victimisation is when a child retaliates and hurts the bully back. This could be construed as emotion-focused coping, as they release feelings of anger, as well as approach focused coping by dealing directly with the stressor. Furthermore, some instances of coping, such as social support seeking, are difficult to place in either emotion- or problem-focused coping and therefore may not be accounted for within Lazarus and Folkman's (1984) original framework. Incidentally, Lazarus (1996) has since recommended that coping researchers should no longer focus on the problem-focused versus emotion-focused coping distinction, and doing so risks oversimplifying coping. An alternative approach to this will be outlined in Section 3.2.3.

3.2.2 Approach- Avoidant Model of Coping

Another seminal theory of coping was developed by Roth and Cohen in 1986, who theorised that coping could be categorised as approach or avoidant in nature. Specifically, coping strategies that aim to deal directly with the stressor are referred to as approach strategies. For example, asking the bully to stop or reporting the bullying to an adult. In contrast, avoidant coping involves strategies that attempt to avoid the stressor and/or ignore any associated emotional consequence. For example, pretending that the bullying did not happen or repressing negative emotions. Roth and Cohen (1986) argued that avoidant coping allows the individual to alleviate stressors and provides a barrier to the stressor.

Similar to those limitations associated with the Transactional Model of Coping (Lazarus & Folkman, 1985), coping theorists also argue that the approach-avoidant model makes distinctions that are not conceptually clear, nor exhaustive (Skinner et al., 2003). For example, coping strategies such as 'reporting the bully to an adult' could be construed as both approach and avoidant coping. Reporting the incident allows the child to deal (in)directly with the stressor via the teacher, but it is also emotionally constructive, giving the child time to escape and alleviate the stressors. Popular coping measures such as the 'Ways of Coping' scale by Causey & Dubow (1992) have frequently attempted to categorise lower-order ways of coping such as problem solving, distancing, and social support seeking into approach vs avoidant higher orders of coping. However, Skinner et al. (2003) argue that that this higher-order categorisation does not represent heterogenous functions and this can be problematic regarding the conceptualisation of coping. They posit that any higher order categorisation (i.e., approach-avoidant or problem-emotion) should represent a mutually exclusive function and not a coping type.

3.2.3 Moving Beyond Seminal Theories of Coping: Multidimensional Models of Coping

Although previous seminal theories of coping, such as the Transactional Model of Coping (Lazarus & Folkman, 1984) and the Approach-Avoidant Model of Coping (Roth & Cohen, 1986) have provided a solid foundation for the conceptualisation of coping, both these models have a number of limitations that warrant the conceptualisation of coping types to extend beyond a two-dimensional approach used by these theories (Lazarus, 2006; Parris, 2013; Parris, Varjas, Meyers, & Cutts, 2012; Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2011). Specifically, Skinner et al.'s (2003) comprehensive review of coping argued that coping has too many variants to enable it to be divided into emotion versus problem-focused coping or approach versus avoidant coping. The review concluded, rather, that most coping instances could be categorised into the following five

types of coping: problem-solving (i.e., direct actions to stop the stressor), support seeking (i.e., seeking comfort or advice from others), avoidance (i.e., orientating oneself away from the stressor) distractions (i.e., thinking/doing something else), and positive cognitive restructuring (i.e., reframing the problem in a more positive way).

However, although Skinner and colleagues (2003) identified five types of coping that capture the majority of coping instances, their review considers all types of stressors, not just peer-victimisation. The authors acknowledge this and state that coping types need to be considered with reference to the stressor and the context of the trauma. In addition, as alluded to earlier, Skinner et al. (2003) also argued that types of coping could be grouped into further higher order types of coping, as long as these higher order types represented functions or outcomes of coping rather than types of coping. Specifically, they posit that on the basis of associated developmental outcomes coping strategies can be categorised into 'good news' versus 'bad news' coping (Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2016). This suggests that not all coping is adaptive and can be associated with prolonged psychosocial issues. This observation is particularly true in peer-victimisation, whereby coping strategies such as internalising (i.e., self-blame, getting upset) have been shown to predict further peer-victimisation and poor psychological adjustment (Hampel et al., 2009; Harper, 2012).

3.2.4 Conceptualising Coping Section Summary

In summary, this section of the thesis has discussed the conceptualisation and theoretical underpinnings of coping, highlighting a number of key limitations associated with two seminal and popular theories of coping. This thesis will therefore instead focus on the types of coping most commonly associated with peer-victimisation and the functions that these types of coping serve i.e., adaptive or maladaptive, rather than adopting either approach- avoidant or emotion-problem-solving models of coping. This will allow for a more comprehensive examination of coping within the peer-victimisation context. Given that types of coping are dependent upon the nature of the stressor (Compas et al., 2001; Parris et al., 2012; Skinner et al., 2003) the next section of this chapter will focus specifically on peer-victimisation coping literature, identifying those types of coping behaviour most commonly observed in the field.

3.3 PEER-VICTIMISATION COPING

Despite strong empirical evidence for the association between the experience of peer-victimisation and psychological, emotional, and social outcomes; not all children are affected by peer-victimisation in the same manner (Tenenbaum, Varjas, Meyers, &

Parris, 2011). Research has, in part, attributed this phenomenon to individual differences in coping strategies following victimisation by peers (Skrzypiec et al., 2011). Given the detrimental outcomes associated with peer-victimisation, researchers have focused their efforts on identifying those coping strategies associated with more adaptive and positive outcomes. Although coping theorists such as Skinner et al. (2003) posit that coping can be categorised into five types (see Section 3.2.3) or good news versus bad news coping, there is less consistent agreement in peer-victimisation literature regarding the types of coping. However, much of previous peer-victimisation literature has focused on five core types of peer-victimisation coping, namely: social support seeking, externalising, internalising, problem solving, and avoidance (e.g., Houbre et al., 2010; Kochenderfer-Ladd & Skinner, 2002; Spence et al., 2009). Although it is possible that the most commonly observed coping strategies in the literature are a function of the frequently used coping measurement scales. For example, the Self-Report Coping Measure (Causey & Dubow, 1992) or variants of the scale (i.e., 'What would I do' scale; Kochenderfer-Ladd & Pelletier, 2008) contains sub-scales measuring seeking social support, problem solving, distancing, internalising, and externalising. The 'Ways to Cope' checklist (Folkman & Lazarus, 1985) or variants of (e.g., Adolescent version; Halstead, Johnson, & Cunningham, 1993) is also a popular coping measure in the peer-victimisation literature and contains sub-scales measuring: problem solving, social support seeking, wishful thinking, and avoidance. Both these scales (and associated variants) are commonly used in peer-victimisation literature, and thus are likely to influence the most commonly measured types peer-victimisation coping.

In addition to identifying types of peer-victimisation coping behaviour and associated adaptive or maladaptive outcomes, researchers have also explored individual variations in the endorsement of these coping strategies. This has included both psychological factors, such as appraisal of the situation and emotional response, and individual factors such as age and gender (Hansen et al., 2012). Through examining individual differences in coping, both researchers and practitioners can identify those victimised children at risk of experiencing maladaptive outcomes. The following section will therefore outline the most frequently researched and endorsed peer-victimisation coping types in the literature, individual differences in endorsement of these coping types, and the associated outcomes.

3.3.1 Seeking Social Support Coping

Defined as attempts to obtain comfort or advice from others (Skinner et al., 2003), social support seeking is one of the most commonly reported (and researched) coping strategy

in peer-victimisation literature (e.g., Kanetsuna et al., 2006; Tenenbaum et al., 2011). However, there are many ways in which social support seeking has been assessed, thus making it difficult to identify consistent trends in the literature. For example, the majority of peer-victimisation coping studies adopt a broad approach to measuring social support and subsequently do not specify a type of social support (e.g., instrumentational or emotional) or from where the social support is sourced (e.g., parent, peer, or teacher). More specifically, many studies will group together sources social support (i.e., peers, teachers, and adults) into one composite social support measure (e.g., Kochenderfer-Ladd & Pelletier, 2008; Kochenderfer-Ladd & Skinner, 2002; Shelley & Craig, 2010). In contrast, other studies have focused on measuring specific sources of social support, for example Hunter and Borg (2006) considered social support from friends, best friends, teachers, head teachers, and parents. Davidson and Demaray (2007) also considered various sources of social support, measuring support received from parents, teachers, classmates, close friends, and school support. Furthermore, social support does not always need to be sourced from humans, with Bourke and Burgman's (2010) qualitative study finding that peer-victimised children also seek strength and support from pets. As such, peer-victimisation coping studies have tested an array of social support coping mechanisms.

In line with expectations outlined by the stress buffering hypothesis (S. Cohen & Wills, 1985) and the friendship protection hypothesis (Boulton et al., 1999), social support has been shown to act as a buffer between experiences of peer-victimisation and psychosocial outcomes (e.g., Holt & Espelage, 2007; Rothon et al., 2011). This effect has occasionally been found to vary by gender (e.g., Davidson & Demaray, 2007; Kochenderfer-Ladd & Skinner, 2002). Specifically, Davidson and Demaray (2007) found that teacher, peer, and school support moderated the pathway between peer-victimisation and internalising distress, but only for males, and parent support moderated the pathway, but only for females. This suggests that the buffering effect of social support may vary according to the interaction between the type of social support and gender. However, other studies have found no difference for the effect of gender on the buffering effect (e.g., Spence et al., 2009). Although no specific reasons were given by the authors for these gender differences, there are several plausible explanations. Firstly, girls frequently use social support (particularly peer support) more than boys (e.g., Davidson & Demaray, 2007; Frydenberg & Lewis, 1991; Rose & Rudolph, 2006) regardless of whether they are experiencing peer-victimisation or not. Therefore, social support is a more normalised experience for girls and thus social support may not have

the same 'potency' effect for girls in reducing internalising distress as it does for boys, whereby social support is used less frequently on a day-to-day basis. Secondly, for girls their peer support may also involve elements of co-rumination (see Section 4.2.3.1), which could counter-balance the positive effects of peer support. In contrast, co-rumination is less commonly observed in boys' peer support interactions (Rose, 2002; Tompkin, Hockett, Abraibesh, & Witt, 2011). Thirdly, biological evidence suggests that males and females process social support differently. For example, Kirschbaum, Klauer, Filipp, & Hellhammer (1995) found that men's cortisol stress responses reduced when supported by a close partner during a stressful situation, whereas female's cortisol responses increased (indicating high levels of stress) when supported by a close partner. This literature therefore suggests that males and females have different experiences of social support in friendship and may also process these experiences differently. It is less clear, however, why gender differences exist with regards to parental support in Davidson and Demeray's (2007) study. It may be that parents provided different forms of support to their children, dependent on their gender, and this in turn has an effect on the child's experience of psychosocial symptoms (Chaplin, Cole, & Zahn-Waxler, 2005; Scaramella, Conger, & Simons, 1999).

In contrast to those studies finding a positive effect of social support coping, many other studies have found no evidence to suggest that social support coping buffers against negative outcomes (e.g., Griese & Buhs, 2014; Houbre et al., 2010; Kochenderfer-Ladd, 2004; Terranova, 2009). Furthermore, a more recent longitudinal study found that seeking support from teachers, friends, or parents was associated with increased psychosocial problems over the course of the year (Visconti & Troop-Gordon, 2010). This longitudinal study supports similar cross-sectional findings from Kochenderfer-Ladd and Skinner's (2002) study, whereby social support seeking was associated with higher levels of loneliness, although this finding was only observed in male participants. Together these studies put into question the adaptive nature of social support seeking. Additionally, the success of social support seeking in reducing future peer-victimisation experiences has also been found to be limited, whereby many studies, particularly those of a longitudinal nature, find that social support is not effective in reducing future experiences of peer-victimisation (Houbre, Tarquino, & Lanfranci, 2010; Kochenderfer-Ladd, 2004; Spence et al., 2009; Visconti & Troop-Gordon, 2010). Although there are mixed outcomes associated with social support, both students and educators consider social support seeking as one of those most effective responses to peer-victimisation (Bourke & Burgman, 2010; Cowie, 2000).

Peer-victimisation coping researchers have also explored demographic variations in the endorsement of social support seeking strategies. For example, as mentioned previously, gender differences have been demonstrated in a number of studies, whereby females have been found to be more likely to report social support seeking behaviour than males (Holt & Espelage, 2007; Hunter & Borg, 2006; Hunter et al., 2004). Although gender differences are not always found in children who seek social support (Boulton et al. 2013; Spence et al., 2009). There is also mixed evidence for social support seeking endorsement across age groups. For example, Naylor, Cowie, and del Ray (2001) compared coping strategies of those in Year 7 (ages 11 to 12 years old) and Year 9 (ages 13 to 14 years old), finding that older females were more likely to tell someone they were being victimised than younger females. In contrast, work by Hunter and Boyle (2004) found that younger students (aged 9 to 10 years old) were more like to use social support coping strategies than older students (aged 13 to 14 years old). Although it is worth noting that neither of these studies specified the source of the support i.e., teacher, parent, other adult, or peer, and therefore it is possible that age variations in social support seeking vary as a function of whom the child is seeking support from. In addition to age and gender, research has also explored the impact of being victimised in multiple ways of coping responses, whereby Skrzypiec et al. (2011) noted that Australian adolescents who reported being victimised in more than one way were much less likely to report the victimisation or use peer support. Furthermore, children's emotional responses to peer-victimisation and their own attributions of their ability to cope with the victimisation have also been found to be associated with social support coping. Specifically, children who demonstrate helplessness, anger, or experience forgiveness are more likely to endorse social support seeking strategies (Flanagan et al., 2012; Hunter & Borg, 2006). Together these studies highlight that there are variations amongst victims in regard to social support coping endorsement.

3.3.2 Externalising Coping

Externalising or retaliation coping is a strategy more unique to peer-victimisation than other stressors, due to the nature and context of bullying (Salmivalli & Nieminen, 2002). Externalising behaviour may encompass general aggressive behaviours (verbal and physical), venting, or retaliation (Compas et al., 2001; Skinner et al., 2003). It has been found that both victims and bully-victims have a high preference for externalising coping (Camodeca & Goossens, 2005). Children may use aggression and retaliation as a way of dominating and re-gaining power over the bully and peers (Camodeca & Goossens, 2005). However, the effectiveness of externalising in reducing future peer-victimisation experiences has lacked empirical support (Hampel et al., 2009; Kochenderfer-Ladd,

2004). Specifically, the use of externalising coping is associated with declines in children's social adjustment (e.g., Hampel et al., 2009; Kochenderfer-Ladd & Skinner, 2002; Visconti & Troop-Gordon, 2010). Furthermore, aggression and retaliation strategies are consistently shown to be predictive of further victimisation (Houbre et al., 2010; Mahady Wilton, Craig, & Pepler, 2000; Visconti & Troop-Gordon, 2010). It is therefore less clear as to why some children and adolescents choose to retaliate or act aggressively in response to peer-victimisation. It is possible, however, that retaliation does have some adaptive mechanism. For example, Visconti and Troop-Gordon's (2010) longitudinal study found that retaliation was predictive of significant decreases in self-report anxiety for those children who were victimised at Time 1.

Previous peer-victimisation research has identified a range of factors associated with variation in externalising coping endorsement, including gender, appraisal of the situation and emotional regulation. It is often observed that males are more likely to use externalising coping, particularly coping that includes aggressive behaviour and retaliation (e.g., Hunter et al., 2004; Kristensen & Smith, 2003; Tenenbaum et al., 2011). However, like social support seeking, gender differences are not always present (e.g., Mahady Wilton, Craig, & Pepler, 2000). Children and adolescents' emotions have also been associated with externalising coping endorsement. For example, Flanagan et al. (2012) found that adolescents who experienced forgiveness were less likely to use retaliation coping as a response to peer-victimisation. Furthermore, the emotional response of anger has also been associated with revenge seeking behaviour, whereby children who experience anger are more likely to seek revenge in response to peer-victimisation (Kochenderfer-Ladd, 2004). It is possible that this emotional response is linked with helplessness or a loss of control (Camodeca & Goossens, 2005), although having a sense of a control has not always been found to have a positive outcome and could also result in increased levels of aggression in victimised children (Terranova, Harris, Kavetski, & Oates, 2011). The presence or absence of a mutual friend has also been shown to predict externalising coping endorsement. Specifically, Burgess et al.'s (2006) experimental study examined the presence of a mutual friend versus an unfamiliar friend on peer-victimisation coping strategy use in children aged 10 to 12 years old. They found that the presence of a mutual friend decreased the likelihood that a child would endorse externalising coping tactics. This therefore suggests that peers may play a role in peer-victimisation coping endorsement.

3.3.3 Internalising Coping

In general internalising coping strategies are approaches that attempt to relieve stress through internal processes and are often categorised as emotion-focused strategies (Kochenderfer-Ladd & Skinner, 2002; Spence et al., 2009). Internalising peer-victimisation coping strategies can be adaptive or maladaptive in nature, depending on the specific strategies involved. For example, adaptive internalising strategies may include counting to ten or deep-breathing (Tenenbaum et al., 2011). Alternatively, maladaptive strategies include self-blame, getting upset, and worrying about the bullying (Harper, 2012; Skryzpiec et al., 2011).

Maladaptive internalising is a commonly used strategy in children and adolescents, particularly in those who experience elevated levels of victimisation (Smith et al., 2004; Spence, de Young, Toon, & Bond, 2009). Females have been shown to engage more in internalising behaviour than males (Skrzypiec et al., 2011; Spence et al, 2009), although again gender differences are not always found (Terranova et al., 2011). The type of peer-victimisation has also been shown to be associated with internalising coping. Specifically, Roecker-Phelps (2001) found that children (aged 8 to 13 years) reported greater use of internalising coping in response to relational aggression than direct aggression. Those children who employ strategies such as self-blame and getting upset are more likely to experience psychosocial problems following peer-victimisation, including elevated levels of loneliness and anxious-depressive tendencies (Harper, 2012). Although the effect of internalising coping may vary dependent on the outcome and gender of the child. For example, Kochenderfer-Ladd and Skinner (2002) found evidence to suggest boys who used internalising coping were less preferred by peers and more anxious-depressed, and girls who used internalising coping had higher levels of social problems. Additionally, internalising coping is also associated with continued experiences of peer-victimisation (Houbre et al., 2010; Shelley & Craig, 2010; Spence et al., 2009). There is less research focused on adaptive internalising strategies, although one qualitative study argues that children who use adaptive internalising strategies such as deep-breathing or focusing on the positive can help alleviate the negative feelings associated with victimisation (Tenenbaum et al., 2011).

3.3.4 Problem Solving Coping

Problem-solving is another coping strategy that is frequently observed in peer-victimisation literature. Predominately problem-solving coping centres around solution focused strategies aimed at directly putting an end to the peer-victimisation. This may include speaking with the bully and asking them why they are bullying (Hunter et al., 2004; Tenenbaum et al., 2011; Waasdorp & Bradshaw, 2011), asking the bully nicely to

stop (Newman, Murray, & Lussier, 2001), or telling the bully to stop in a more assertive manner (Hunter & Boyle, 2004).

Similar to other coping strategies, there is variance in who adopts a problem-solving approach to peer-victimisation. Appraisal of the situation is often found to be an important predictor of problem-solving coping, whereby children who feel that there could be a positive outcome are more likely to use problem-solving coping (Hunter & Boyle, 2004). In addition, children who believe the victimisation is due to their own behaviour or that they are deserving of the victimisation are less likely to use problem-solving coping (Visconti, Sechler, & Kochenderfer-Ladd, 2013), suggesting that self-blame is linked to problem-solving coping endorsement. Research has also examined problem-solving coping behaviour according to the severity of peer-victimisation experience. Although some research suggests that those who experience lower levels of peer-victimisation are more likely to endorse problem-solving coping (Terranova et al., 2010), other studies have shown no difference between victim versus non-victim or the number of ways a child has been victimised (Elledge et al., 2010; Spence et al., 2009). Evidence for gender difference is also conflicting, with one study identifying that females are more likely to use problem-solving coping (Skryzpiec et al., 2011), but other studies have found no gender differences (e.g., Hampel et al., 2009; Kochenderfer-Ladd, 2004). Nonetheless, endorsement of problem solving coping does appear to be an effective strategy in reducing the risk of future peer-victimisation and associated outcomes (Dirks et al., 2017; Kochenderfer-Ladd, 2004; Kochenderfer-Ladd & Skinner, 2002). However, what is less clear is whether problem-solving is only effective in those children and adolescents who experience peer-victimisation infrequently.

3.3.5 Avoidance Coping

Avoidance coping, sometimes referred to as distancing, is a strategy that focuses on orientating away from the stressor (Causey & Dubow, 1992; Skinner et al., 2003). Research into avoidance coping has focused on two types of avoidance: cognitive avoidance and physical avoidance. Cognitive avoidance strategies may include not thinking about the victimisation, socially withdrawing, pretending it did not happen, or wishing things were different (Causey & Dubow, 1992; Goodman & Southam-Gerow, 2010; Hunter & Boyle, 2004) . In contrast, physical avoidance strategies include avoiding certain areas where victimisation may take place, or walking away from the bullying incident (Bellmore, Chen, & Rischall, 2013; Hunter et al., 2004). Although frequently associated with maladaptive outcomes, avoidance coping is one of the most common

coping strategies used by children and is regularly recommended as an effective strategy by parents (Harper, 2012; Naylor et al., 2001; Smith & Shu, 2000).

Regarding individual differences, avoidance coping is more commonly used by those children who are frequently victimised and who experience a lack of control over the situation (Hunter & Boyle, 2004; Terranova, Harris, & Kavetski, & Oates, 2011). Avoidance coping responses may also vary as a function of peer-victimisation type, whereby avoidance strategies are more commonly used in those children who are physically victimised (Kanetsuna et al., 2006). This is logical, given that physical victimisation is a direct form of peer-victimisation, which requires the actual presence of both the bully and the victim (Rivers & Smith, 1994). Furthermore, females have been shown to be more likely to endorse both cognitive and physical avoidance strategies (Skryzpiec et al., 2011; Hunter & Boyle, 2004). This effect is predominately found in older children and adolescents (Craig, Pepler, & Blais, 2007), although, similar to other coping behaviours, age and sex differences are not always found (Roecker, Dubow, & Donaldson, 1996; Terranova et al., 2011). Like externalising and internalising coping, avoidance coping is predictive of psychosocial problems and continued experiences of victimisation (Fields & Prinz, 1997; Kochenderfer-Ladd & Skinner, 2002; Visconti & Troop-Gordon, 2010) .

3.3.6 Other coping types

Researchers have also examined other types of coping within the peer-victimisation framework, including cognitive restructuring (Mahady-Wilton et al., 2000), prosocial behaviour (Griese & Buhs, 2014), forgiveness (Flanagan et al., 2012), cognitive coping (rumination, catastrophising, positive reappraisal; Garnefski & Kraaij, 2014), and wishful thinking (Hunter & Boyle, 2004; Hunter, Boyle, & Warden, 2007). These types of coping strategies have received less empirical attention than the aforementioned types of coping, which may suggest that these coping strategies are used less frequently by peer-victimised children. The current thesis aims to build on existing coping literature through examining the roles of peers and friends, and thus ensuring that the types of coping measured capture the most commonly endorsed ways of coping by peer-victimised children is of importance. Furthermore, measuring the commonly examined types of coping by existing research will also facilitate important comparisons across studies. Subsequently, although it is recognised that there are wide range of coping styles in the literature, the current thesis will not focus on those less frequently measured and endorsed types of coping, instead focusing on the following five types of coping: social support seeking, externalising, internalising, problem solving, and avoidance.

3.4 COPING AND LONELINESS

As highlighted throughout this chapter, several studies have considered the role of coping on the experience of loneliness following peer-victimisation. Given that the current thesis will measure school loneliness as an indicator of psychosocial functioning, this sub-section will review those coping studies that have also measured loneliness as an outcome of peer-victimisation in more detail.

Early work by Kochenderfer-Ladd and Skinner (2002) examined peer-victimisation coping strategies as potential moderators of the pathway between peer-victimisation and loneliness. Effects differed for girls and boys (aged 9 to 10 years), such that the use of distancing coping was found to increase school loneliness in girls but not in boys. For boys, the use of problem-solving coping was associated with reduced loneliness, however the use of social support coping was associated with increased feelings of loneliness. There was no effect of social support or problem-solving on coping for girls. This finding is unexpected, given that social support is often proposed as an effective coping strategy for responding to peer-victimisation (e.g., Holt & Espelage, 2007; Rothon et al., 2011). Visconti and Troop-Gordon's (2010) study also failed to identify an adaptive coping function via social support in their longitudinal study. Furthermore, their analyses indicated that both teacher support predicted increased levels of loneliness in children over time (aged 9 to 11 years). They argue that seeking social support from others could lead to a child ruminating about the situation, which may not help resolve the situation and in turn result in greater distress (for a further discussion see Section 4.2.3.1). Visconti and Troop-Gordon's (2010) study also examined the role of retaliation coping, identifying a positive predictive effect of retaliation coping on school loneliness, although only for boys. Specifically, boys who endorsed retaliation coping were more likely to experience future loneliness. Harper (2012) also studied peer-victimisation coping and loneliness in a similar aged sample of U.S children (aged 10 to 12 years). Their cross-sectional study found that although emotion-focused coping (i.e., feeling sorry one's self) did not predict loneliness, self-blame coping did. Specifically, self-blame coping was found to mediate the relationship between peer-victimisation and experiences of loneliness. These findings support work by Graham and Juvonen (1998) who also observed that self-blame, specifically characterological self-blame, predicted loneliness. Together these studies demonstrate that peer-victimisation coping can protect or exacerbate feelings on loneliness in victimised children. However, the studies also highlight that the effects of coping on loneliness are mixed and often inconsistent across studies. Subsequently, the empirical work presented in this thesis

will further contribute towards the understanding of the role of coping on school loneliness following peer-victimisation in late childhood.

3.5 Coping with Peer-Victimisation Summary and Gap in the Literature

Research into peer-victimisation coping has found that children and adolescents vary in respect to their peer-victimisation coping mechanisms. Yet, the most commonly endorsed and researched coping strategies can be captured by the following five types: social support seeking, externalising, internalising, problem solving, and avoidance. However, although these five types of coping are regularly endorsed by victimised youths, not all coping strategies are associated with adaptive outcomes. Specifically, internalising, externalising, and avoidance coping are more commonly associated with maladaptive outcomes such as psychosocial problems and continued victimisation (Houbre et al., 2010; Visconti & Troop-Gordon, 2010). In contrast, strategies such as problem-solving and seeking social support are more likely to be associated with reduced levels of victimisation and can buffer against the negative outcomes associated with bullying (Dirks et al., 2017; Holt & Espelage, 2007; Rothon et al., 2011). This alignment of maladaptive versus adaptive peer-victimisation coping strategies supports Skinner et al. (2003) argument that coping can be categorised broadly as 'good news' versus 'bad news' according to their associated outcomes.

However, it should be noted that the current literature base on peer-victimisation coping is predominately cross-sectional in nature, with there being a dearth of longitudinal studies that enable the examination of the temporal stability of peer-victimisation coping. Of those studies that adopt a longitudinal design, there are mixed findings regarding the associated outcomes following the endorsement of a particular coping strategy. Although some studies identify that coping is predictive of future peer-victimisation experiences and levels of psychosocial adjustment (Houbre et al., 2010; Kochenderfer-Ladd, 2004), other longitudinal studies have found no association (Spence et al., 2009; Terranova, 2009) or the evidence is weak (Visconti & Troop-Gordon, 2010). It is possible that coping only has short-term implications, although the mixed findings and lack of longitudinal research in the field highlights the need for further research into this area.

In addition to identifying those coping strategies commonly used following peer-victimisation and the associated outcomes, previous research has also identified that not all children use the same coping strategies, despite evidence suggesting that

some coping strategies are associated with maladaptive outcomes. Subsequently, previous research has explored and identified a range of factors that may explain individual differences in coping endorsement. These factors include individual factors such as gender, age, the child's emotional response to the peer-victimisation, appraisal of the situation, and factors associated with peer-victimisation, such as the type of victimisation, the frequency of the victimisation, and the duration of the victimisation. Although research has considered the role of demographic information, situational appraisals and factors associated with peer-victimisation, almost no studies have examined the extent to which peers may play a role in coping strategy endorsement. This omission will therefore be addressed in the current thesis.

Considering the fundamental importance of peers and friendship for children and adolescence (Bukowski, 2001), and the social context in which peer-victimisation and coping exist (Salmivalli, 2010), it is important for peer-victimisation coping researchers to consider the role peers play in children's coping responses to peer-victimisation. Only several published studies to date have considered the role of peers and friendship as predictors or moderators of peer-victimisation coping endorsement and effectiveness. These studies will be outlined in more detail in the next chapter, but in short, these studies provide evidence to suggest peers may play a role in peer-victimisation coping, beyond that of social support (Burgess et al., 2006; Jones, Bombieri, et al., 2012; Jones et al., 2009; Jones, Manstead, & Livingstone, 2012). However, it is not yet clear from the literature whether interactions with peers are associated with a child's propensity to adopt adaptive or maladaptive coping strategies following school-based victimisation. This highlights a gap in the literature, whereby further research is warranted to explore the role of peers in children's peer-victimisation coping. Consequently, this gap in the literature will be addressed in the current thesis. Specifically, the thesis will examine the role that peer's play in children's peer-victimisation coping behaviour, providing a more in-depth understanding of the endorsement of adaptive or maladaptive coping strategies and their associated outcomes. A more detailed overview of the thesis will be presented in Section 4.7.

3.6 Statistical Treatment of Coping

The treatment of coping behaviour as a mediator or moderator has varied considerably across peer-victimisation literature. Table 3.1 presents those papers that have examined coping as a mediator or moderator between peer-victimisation and associated outcomes (psychosocial or continued peer-victimisation), highlighting the discrepancies in the

statistical treatment of the variable. Furthermore, there are no clear patterns associated with the outcome variable and the treatment of coping as a moderator or mediator.

Table 3.1 *Treatment of Coping Behaviour as a mediator or moderator in peer-victimisation studies examining the role of coping on psychosocial outcomes or continued victimisation*

Paper	Measured Coping Behaviour	Mediator	Moderator
Outcome: Peer-Victimisation			
Camodeca and Goossens (2005)	Retaliation*, nonchalance* and assertiveness*		✓
Dirks et al. (2017)	Assertion*, aggression, doing nothing*, telling an adult*, ending the relationship		✓
Elledge et al. (2010)	Internalising, retaliation*, social support (friend and adult), avoidance*		✓
Griese and Buhs (2014)	Prosocial behaviour*		✓
Shelley and Craig (2010)	Externalising, internalising, social support, avoidance, conflict resolution and self-reliant	✓	
Spence et al. (2009)	Avoidance, social support, problem-solving, internalising*, aggression	✓	
Outcome: Psychosocial			
Davidson and Demarary (2007)	Social support (parent, teacher*, class mate*, close friend, school support*)		✓
Garnefski and Kraaij	Rumination*, Catastrophising*, Positive reappraisal*		✓
Harper (2012)	Emotion-focused coping	✓	
Holt and Espelage (2007)	Peer social support*, maternal social support		✓
Kochenderfer-Ladd and Skinner (2002)	Social support, Problem-solving, distancing*, internalising, externalising*		✓
Kochenderfer-Ladd (2004)	Cognitive distancing*, conflict resolution*, advice seeking*, revenge seeking*	✓	
Konishi and Hymel (2009)	Problem-solving, avoidance, distraction*, support seeking (peer, family*, teacher)		✓
Lodge and Feldman (2007)	Avoidance*	✓	
Troop-Gordon et al. (2015)	Effortful engagement*, effortful disengagement, involuntary engagement*, involuntary disengagement*	✓	
Visconti and Troop-Gordon (2010)	Parent social support, teacher social support*, friend social support, avoidance, retaliation*		✓

Note: * indicates a significant effect was found.

This problem is not confined to peer-victimisation literature, with Grant et al.'s (2006) review highlighting that studies examining explanatory effects between stressors and outcomes in child and adolescent populations also lack a consistent approach. Furthermore, the lack of consistency in studies appears to be atheoretical in nature, with little consideration given to theoretical models (Grant et al., 2006). This is a concern as

variables construed as a mediator or moderator have very different functions, often with opposing underlying theoretical arguments (Baron & Kenny, 1986). More specifically, a moderator is defined as "a variable that affects the direction and/or strengths of the relation between a variable and a criterion variable" (Baron & Kenny, 1986, p. 1174), whereas a mediator is defined as a variable that "accounts for the relationship between a predictor and a criterion variable" (Baron & Kenny, 1986, p. 1176). Resultantly, treating a variable as a mediator, assumes that there is a causal relationship between the predictor and the mediator, and the mediator and the dependent (criterion) variable. Whereas when treated as a moderator, the variable is only assumed to have a causal relationship with the dependent variable. Subsequently, it is important to consider not only the function of the variable, but also the causal relationships that are assumed as a result of that function.

Coping theories have typically given limited attention to the statistical (and conceptual) treatment of coping within models and furthermore, there is lack of consistency across those theorists that do. However, those theories or theorists that do imply the function of coping within a model will be briefly discussed. One of the earliest theoretical papers that considered the function of coping was Lazarus and Folkman's (1988) paper on coping and emotion, which proposed that coping could be treated as a mediator between the stressor and an emotional outcome. Specifically, they argued that coping behaviours are 'generated' following exposure to a stressor, and it is these coping behaviours that are then linked to emotional responses to stressors. At similar time, however, theoretical work by Frese (1986) argued that a distinction should be made been coping variables, with regards to their statistical treatment as a moderator or mediator. Like Lazarus and Folkman (1988), Frese (1986) posits that coping serves as a mediator when that coping variable provides a link between a stressor and the reaction. More specifically, the stressor *causes* the coping reaction, which in turn *causes* the outcome stress reaction. In this instance, Frese (1986) argues that the mediator needs to be related to both the stressor and the outcome. In contrast, coping variables treated as moderators are said to highlight variations in 'good' and 'bad' copers, and refer to coping mechanisms that are already learnt and can be employed as and when needed. Frese's arguments stem from theoretical foundations of psychoanalysis, wherein they make a distinction between conscious and unconscious coping mechanisms. Specifically, Frese states that conscious coping mechanisms are problematic, and lead to poor outcomes, whereas automatic or unconscious coping mechanisms are more adaptive. With regards to mediation and moderation, conscious coping mechanisms are said to

result from how the individual perceives of the stressor and are therefore mediators within a model, whereas unconscious coping mechanisms are implemented with little thought and therefore should be modelled as moderators.

Contemporary theorists Wadsworth, Raviv, Compas, and Connor-Smith (2005) Wadsworth, Raviv, Compas, and Connor-Smith (2005) also theorise a distinction between mediation and moderation with respect to the statistical treatment of coping (specifically work on poverty-related stress), however their distinction is linked to developmental periods as opposed to the function of coping. Guided by the Responses to Stress Model (Compas, Connor, Saltzman, Thomsen, & Wadsworth, 1999), they propose that when coping is stable and trait-like it can be considered a moderator within the model. On the other hand, when coping is more malleable and less stable it functions as a response to the stressor, and thus acts as a mediator. The stability of coping responses is attributed to the developmental stage of the individual, wherein children's coping responses are argued as fairly unstable but become more trait-like as the children move into later life (Wadsworth et al., 2005). Empirical support for this theory is identified in Wadsworth et al. (2005) paper on poverty-related stress, however from a broader perspective there is a distinct lack of empirical evidence on developmental changes associated with coping behaviour (Skinner & Zimmer-Gembeck, 2007), specifically with regards to coping with peer-victimisation.

More recent theoretical work has considered the function of coping and proposes that some coping behaviour is reactive in nature i.e., it emerges *as a result of* the stressor (Moring, Fuhrman, & Zauszniewski, 2011), whereas other coping styles are more proactive i.e., they are present at the time of the stressor and often provide a buffer (Moring et al., 2011; Schwarzer, 2001). With this in mind, it can be argued that reactive coping behaviour can be modelled as a mediator, such that the presence of a stressor *causes* the reactive coping. In contrast, proactive coping could be modelled as a moderator, given that there is no causal relationship assumed between the stressor and coping behaviour, but the presence or absence of this coping behaviour may modify the strength of the relationship between peer-victimisation and the psychosocial outcome. Reactive coping tends to be more maladaptive, for example, getting upset, retaliating or, actively avoiding the situation are all associated with poor outcomes i.e., psychosocial problems and continued victimisation (Flanagen et al., 2013). Contrastingly, proactive coping has been attributed to strategies such as social support seeking and problem solving (Singh & Bussey, 2009), which are more often associated with adaptive outcomes (Dirks et al., 2017; Rothon et al., 2011). This perspective aligns with the theoretical

position of the thesis outlined in Section 3.2.4, whereby coping can be considered 'bad news' versus 'good news', or 'maladaptive' vs 'adaptive' (Skinner et al., 2003). Treating maladaptive coping as a mediator, and adaptive coping as a moderator also aligns with Frese's (1986) arguments on conscious and unconscious coping mechanisms. Furthermore, Grant's (2006) review of coping literature also asserts that maladaptive coping tends to present itself as a mediator, whereas protective factors such as social support function as moderators. Therefore, in the context of the current thesis, it is argued that social support and problem-solving coping are more likely to be proactive and adaptive in nature, whereas internalising, externalising, and avoidance coping are maladaptive and reactive in nature. Subsequently, social support and problem-solving coping will be modelled as moderators in statistical models, whereas internalising, externalising, and avoidance coping will be modelled as mediators.

3.7 CHAPTER SUMMARY

The following section will summarise the main discussion points of this chapter and highlight the implications that these discussion points have for the rest of the thesis. Firstly, the chapter discussed the conceptualisation of coping in the field, highlighting limitations with popular and seminal theories of coping. Specifically, seminal theories of coping focus on dichotomising coping into either problem-focused versus emotion-focused coping or approach versus avoidant coping. However, these categories are not mutually exclusive and thus can introduce limitations in research when examining the function of coping (Skinner et al., 2003). The current thesis will therefore not theoretically align with the classical coping theories, but rather will consider the different types of peer-victimisation coping individually and the functions that they serve in protecting or reducing school loneliness and future peer-victimisation experiences. Subsequently, the chapter reviewed literature on peer-victimisation coping, identifying five coping strategies most commonly observed and researched in the field. The five coping strategies identified were social support, internalising, externalising, problem-solving, and avoidance. It is argued that these five coping strategies capture the majority of peer-victimisation coping in children. Therefore, the current thesis will measure these five coping strategies as indicators of expected peer-victimisation coping behaviour, thus enabling comparisons of empirical finding with previous literature. Furthermore, the chapter also considered the statistical treatment of these variables, arguing that social support and problem-solving coping were to be treated as moderators, whereas avoidance, internalising, and externalising coping were to be treated as mediators within statistical models.

In addition to examining those coping strategies commonly used following peer-victimisation, the current chapter also presented evidence that suggests not all children endorse the same coping strategies following peer-victimisation experiences. This variation in coping strategy endorsement has been shown to vary as a function of both individual and situational factors. Through examining individual differences in coping, both researchers and practitioners can identify those victimised children at risk of experiencing maladaptive outcomes. One key individual difference that has received a lack of research focus is the role of peers and children's friendship. Friendship networks have been shown to be pertinent to understanding the phenomena of bullying (Espelage, Green, & Wasserman, 2007; Salmivalli, 2010), and thus it is surprising that literature has not examined the role of friendship with regards to variation in coping with school-based peer-victimisation. The current thesis will therefore examine the role of peers within the context of expected peer-victimisation coping to address this omission. This will further build on coping researchers' understanding of individual variation in coping endorsement. The current chapter also highlighted that there is a lack of longitudinal research examining both the long-term effects of peer-victimisation coping and the temporal stability of coping strategies. The current thesis will therefore address this omission by examining peer-expected victimisation coping behaviour using a longitudinal design. Specifically, the thesis will capture experiences of peer-victimisation and expected coping at three time-points across one academic school year.

In sum, the current thesis will add to the current literature and understanding of peer-victimisation coping via the following: (1) investigating the role of peers in children's expected peer-victimisation coping behaviour and (2) examining this relationship both concurrently and longitudinally, thus capturing the temporal processes underlying expected peer-victimisation coping and friendship. Given this, the next chapter of this thesis will focus on literature relating to children's friendships and social networks, with a specific focus on peer-victimisation.

CHAPTER 4: CHILDREN'S FRIENDSHIP AND SOCIAL NETWORKS

4.1 INTRODUCTION TO CHAPTER

The literature presented in Chapter 3 suggests that children's peer-victimisation coping behaviour can vary as a function of individual or contextual factors. However, one function that has received little attention in peer-victimisation coping literature is the association between friendship, endorsement of peer-victimisation coping strategies, and outcomes associated with coping. As children move into late childhood and pre-adolescence they begin to spend a significant amount of their social time with friends, who play a crucial role in influencing children's attitudes and behaviours (Sullivan, 1953). This therefore highlights a gap in the literature regarding understanding children's coping behaviour and thus the aim of this chapter is to define and conceptualise the key variable of friendship. Firstly, the chapter will focus on defining friendship, highlighting several theoretical propositions for the function of friendship in childhood. Secondly, the chapter will discuss the key components of friendship in relation to peer-victimisation and school loneliness, including the quantity of friends a child has, and the quality of those friendships. Thirdly, the chapter will then discuss literature pertaining to children's friendship networks, specifically focusing on literature that applies stochastic actor oriented modelling techniques to examine the interplay between children's behaviour and their friendship network. Fourthly, the chapter will consider the limited research exploring the role of friendship for coping with general stressors and peer-victimisation coping. Finally, drawing from literature also presented in Chapters 2 and 3, this chapter will further highlight the unique contribution of the thesis and outline the aims and objectives.

4.2 CHILDREN'S FRIENDSHIP

4.2.1 Defining Friendship

Defined as a positive and emotional dyadic relationship between individuals (Ladd, 1999), friendship is said to be a fundamental component for normative human development (Bukowski, 2001). Even in children as young as two, signs of early friendship begin to emerge, with toddlers displaying preferences for certain peers (Howes, Unger, & Seidner, 1989). As children grow and develop in the social world, friendships become increasingly important throughout both childhood and adolescence (Wentzel & Battle, 2001). Furthermore, these friendships can be extremely powerful,

impacting on both a child's short- and long-term psychosocial adjustment (Bukowski & Adams, 2005).

There are several theoretical propositions for the function of friendship in childhood and adolescence. For example, Sullivan (1953) argued that close and reciprocated friendships help the child to develop important interpersonal skills. Without the opportunity to develop these important skills, relationships later in life may prove to be unsuccessful, or individuals may not fully capitalise on the benefits afforded to them by their relationships. Bukowski (2001) also suggested that friendship enables children to challenge each other in ways that extend beyond interactions with adults, which leads to the enhancement of cognitive functioning. Furthermore, he believed that friendship can introduce children to new cultures and experiences. The extant literature on children's friendship provides clear evidence for the developmental and social benefits associated with friendship. For example, friendship can serve as a 'secure base' for children at school, supporting both children's self-esteem and willingness to participate in school activities (Birch & Ladd, 1996). The provision of companionship and social support can also improve children's positive mood, feelings of well-being and enhance school-liking (Wentzel, 1996). Theorists also posit that friendship in late childhood is particularly crucial for preventing feelings of loneliness and isolation (Sullivan, 1953). Specifically, lonely children or those at risk of loneliness may have difficulty forming friendships due to deficits in their social skills (Segrin & Flora, 2000).

Theoretical arguments for the function of friendship in peer-victimisation have predominately drawn from two social psychology theories, the Social Learning Theory (Bandura, 1969) and the Friendship Protection Hypothesis (Boulton et al., 1999). Although neither of these theories have been applied to understand the function of friendship in peer-victimisation coping specifically, it is argued that both these theories provide key explanations for the function of friendship that could be extended to understand the role of friendship in coping. Subsequently, both of these theories and their application in the current thesis will be discussed in turn.

4.2.1.1 Social Learning Theory

Social learning theory posits that that social behaviour is learnt through the observation of others (Bandura, 1969). Furthermore, it has been suggested that this social learning is further enhanced when peers have more positive relations with their friends (Berndt, 2002). Social learning does not always have to occur via direct observation, but rather children can also acquire new behaviour through the observation of outcomes and consequences experienced by others in response to their behaviour and actions (Bandura, 1969). Subsequently, social learning theory has been applied to a range of

developmental and social phenomena, including both bullying behaviour and bullying bystander behaviour. For example, peer-victimisation researchers have argued that both acts of aggression towards others and bystander behaviour are learnt through observing peers (e.g., Price & Dodge, 1989; Salmivalli, Voeten, & Poskiparta, 2011). Peers are thought to influence both prosocial and deviant behaviour, with the strength of the bond between friends an indicator of norm transmission i.e. observing a close friends' behaviour increases the normative value of that behaviour (Kendrick et al., 2012).

Social learning theory has also been applied to test parental influences on children and adolescents' response to daily stressors (Kliewer, Fearnow, & Miller, 1996). Here it is argued that parents' behavioural responses to stressors provide a model for adolescent coping behaviour, regardless of whether this behaviour is adaptive or maladaptive (Frydenberg, 1999). Therefore, applied to peer-victimisation coping behaviour, social learning theory would suggest that peers provide a model for coping behaviour, which is then adopted by the child. Since 85% of peer-victimisation episodes are observed by peers (Craig, Pepler, & Atlas, 2000), friends are therefore likely to be influential modellers of peer-victimisation coping behaviour. However, this is yet to be tested in peer-victimisation coping literature outside of an experimental setting (see Section 4.5). Subsequently, this omission in the literature will be addressed in the current thesis and as such the concept of friendship influence will be discussed in further detail in Section 4.3.1

4.2.1.2 Friendship Protection Hypothesis

The 'friendship protection hypothesis' provides a theoretical basis for the argument that friends can provide a buffer against the experience of victimisation, and associated negative outcomes (Boulton et al., 1999). It is argued that friendship serves to promote positive well-being and therefore disrupts the link between peer-problems and psychosocial adjustment issues (Laursen et al., 2007). Again, although this theory has not been applied to support understanding of why children endorse certain peer-victimisation coping strategies, this thesis posits that friendship may provide a buffer against the endorsement of maladaptive coping strategies. Furthermore, maladaptive coping has also been shown to predict increased levels of psychosocial problems (including school loneliness) and continued peer-victimisation experiences (Harper, 2012; Spence et al., 2009). Therefore, applied to peer-victimisation coping, it could also be argued that positive friendship experiences may provide a buffer against the negative effects of maladaptive coping. However, to observe the mechanisms behind friendship as a protective factor, it is important to consider and examine the different facets of

friendship, as they each provide unique contribution to the friendship experiences (Nangle et al., 2003). This includes: (1) the quantity or number of friends a child has and (2) the quality of these friendships. The next section of the chapter will discuss each of these in turn.

4.2.2 Friendship Quantity

Although friendship is constructed of different facets, research has predominately focused upon the quantity of friends a child has when examining the extent to which friendship acts as a protective factor. More specifically, research has focused on whether these friendships are reciprocal in nature. A friendship is regarded as 'reciprocal' or 'mutual' when both parties in the dyad confirm that the friendship exists (Ladd, 1999). This type of relationship is found even in children as young as five (Hanish, Ryan, Martin, & Fabes, 2005) and research suggests that statistically around 60 to 80% of children and adolescents will have at least one reciprocated friendship (Burgess et al., 2006; Parker & Asher, 1993). However, these friendships may not always be stable, with friendship stability found to fluctuate throughout the year (Poulin & Chan, 2010). This varies according to age, whereby younger children (around 6-7 years) have been found to maintain 50% of their friendships across the year, with this increasing to 75% for children aged between 9 to 10 years of age. Despite this, reciprocity is viewed as a defining feature of friendships, affording opportunities for social exchange (Laursen & Hartup, 2002). Subsequently, reciprocated friendships are more likely to be emotionally supportive and more resourceful than friendships that are not reciprocated (Vaquera & Kao, 2008). As such, those children who find it difficult to form and maintain friendships are more likely to experience poor psychosocial and academic outcomes (Hartup, 1989; Vaquera & Kao, 2008). Furthermore, children with fewer friends, or no friends, often report experiencing more loneliness than those who report having more or closer friendships (Asher & Paquette, 2003; Qualter & Munn, 2005). The presence of a reciprocated friendship, as opposed to unilateral friendships, appears to be particularly important, with Lodder et al. (2017) finding that the number of reciprocated friendships was the strongest predictor of loneliness in early adolescents. Friendship ties that are not reciprocated are often associated with peer rejection, putting the child at greater risk of negative developmental outcomes (Parker & Asher, 1987). Subsequently, the presence or absence of reciprocated ties may have implications for how children respond to peer-victimisation.

It has been suggested that victimised children have fewer friends. Specifically, those children without a reciprocal or mutual friend are more likely to be victimised than children with a mutual or reciprocal friend (Beran & Violato, 2004; Boulton et al., 1999;

Hodges et al., 1999; Perren & Hornung, 2005; Wang et al., 2009). This relationship occurs at both a concurrent level (Mouttapa, Valente, Gallaher, Rohrbach, & Unger, 2004; Pellegrini, Bartini, & Brooks, 1999; Wang et al., 2009) and longitudinally (Beran & Violato, 2004; Boulton et al., 1999; Hodges et al., 1999). Specifically, Boulton and colleagues (1999) examined 170 early adolescents across one academic year, finding that those without a 'very best-friend' at Time 1 or Time 2 showed increased in peer-victimisation experiences. These effects have also been observed in late childhood, for example Pellegrini et al. (1999) examined peer-victimisation and friendship in 154 US children aged between 10 to 11 years, finding that having friends and being liked by peers provided protection against peer-victimisation experiences. However, this study was only conducted at one time point and a review of the literature highlights a lack of longitudinal research examining friendship quantity and peer-victimisation experiences in late childhood samples. This omission will be addressed in the current thesis via measuring children's friendship quantity alongside their experiences of peer-victimisation across time.

The protective role of friendship quantity has also been observed in groups of children whom have only known each other for a few weeks (Jia & Mikami, 2015), suggesting that even during early formation friendship plays a key role in protecting against victimisation. The effect of friendship on victimisation severity is also thought to increase over time, with children who have friends in kindergarten experiencing steeper declines in peer-victimisation during primary school compared to those children who did not have a friend at aged five (Reavis, Keane, & Calkins, 2010). Additionally, the effect of friendship quantity is found to extend across most types of victimisation, except cyber-bullying (Wang et al., 2009). This relationship is stronger for relational forms of bullying, whereby the child experiences social exclusion, rumour spreading, and social humiliation (Malcolm, Jensen-Campbell, Rex-Lear, & Waldrip, 2006). Together, these studies suggest that children with a greater number of friends, particularly reciprocated friendships, are less likely to experience peer victimisation. Extended to peer-victimisation coping, it would therefore be expected that greater number of reciprocated friendships would protect against the endorsement of maladaptive outcomes and/or the negative effects of maladaptive outcome endorsement. Additionally, it would also be expected that children with reciprocated friendships will be more likely to endorse adaptive coping strategies, such as social support or problem solving.

4.2.3 Friendship Quality

Alongside focusing on the number of friends that children have, researchers have also explored the quality of these friendships. Friendship quality has been defined as

comprising of five dimensions: companionship, help, security, closeness, and conflict Bukowski et al., 1994). Specifically, companionship is considered a basic feature of all friendships, providing the child with opportunities for positive interactions (Parker & Asher, 1993). Help, or access to help, is also a key component of children's friendship. Theorists assert that the presence of friendship provides aid and support to a child, particularly in times of need (Bukowski et al., 1994; Parker & Asher, 1994; Asher & Paquette, 2003). High quality friendships also possess elements of security, indicating that these friendships are likely to continue even in the face of problems or conflicts. Children who report having security in their friendship have a belief that they can rely on their friends and trust them (Berndt & Perry, 1986; Parker & Asher, 1993). Closeness in a friendship refers to the notion that a friendship can afford feelings of acceptance and validation (Bukowski et al., 1999). A lack of conflict in friendship is a sign of that the friendship is more likely to endure and is stable (Bukowski et al., 1994). Together, friendships that are considered to be of a high-quality score higher on each of these dimensions, with the exception of conflict. High quality friendships can have a positive impact on a child, including the regulation of emotions (Lopes et al., 2005), problem solving (Strough et al., 2001), and academic success (Crosnoe, Cavanagh, & Elder, 2003; Wentzel & Caldwell, 1997). Furthermore, friendship quality is also associated with the experience of school loneliness. Children who experience high levels of companionship, help, intimacy, and less conflict in their friendships are less likely to experience loneliness than those children who have poor friendship quality (Nangle et al., 2003; Parker & Asher, 1993).

The quality of a child's friendship as a protective factor has received less attention within peer-victimisation literature, with research predominately focusing on the number of friends a child has. Nonetheless, there is increasing evidence to suggest that high-levels of friendship quality serve to buffer against both the experience of, and the negative outcomes of, victimisation. Social support theories propose that friendships that are of a high-quality have a positive effect on children's behaviour and adjustment to negative situations (Berndt, 2002). Specifically, children who have positive friendships are more likely to make positive contact with other children in the classroom, which turn increases access to social support resources (Berndt, 2002). Children who have poor friendship qualities may be at risk of victimisation because they lack the protection that a friendship can provide (Bagwell & Schmidt, 2011). This in turn may increase the risk that they will endorse maladaptive coping strategies in response to victimisation experiences.

Both cross-sectional and longitudinal research has provided empirical support for argument that friendship quality is important for buffering against the experience of peer-victimisation. For example, victimised children are more likely to report lower levels of support and intimacy from their friends, greater levels of conflict, and are less satisfied with their friendships (Bagwell & Schmidt, 2011; Bollmer, Milich, Harris, & Maras, 2005; Erath, Flanagan, & Bierman, 2008; Gini, 2007). Longitudinal research has come to similar conclusions. For example, Kendrick et al. (2012) investigated perceived support from friends and both bullying involvement and victimisation across one year in 12- to 16-year- olds. Kendrick and colleagues found that not only was friendship quality linked to lower levels of victimisation a year later, but also lower levels of bullying involvement. Researchers and practitioners have suggested that friendship quality may be more crucial to reducing the negative effects of peer-victimisation as opposed to reducing the likelihood that a child will be victimised. Waldrip, Malcolm, and Jensen-Campbell (2008) found that even after controlling for adolescents' other social relationships and the number of friends they have, friendship quality was associated with relatively higher levels of adjustment in adolescents. In other words, an adolescent needs only one friend whom provides a high quality friendship in order to increase the likelihood that they will adjust successfully after negative life-events, such as peer-victimisation. Cuadros and Berger (2016) also found a buffering effect of friendship, whereby high-quality friendship categorised by disclosure and support interact with peer-victimisation to affect well-being. However, this effect was only found in boys.

The effect of friendship quality has also been found in samples of late childhood children, whereby low friendship quality has been shown to predict the onset and continuation of peer-victimisation (Goldbaum, Craig, Pepler, & Connolly, 2008). However, not at all studies have found a relationship between friendship and peer-victimisation, for example, Shin, Hong, Yoon, and Espelage (2014) examined bullying roles (victim, bully, uninvolved) in 12 to 13-year olds from South Korea, finding no significant difference in friendship quality between these groups. Although, the authors do emphasise the cultural difference in friendship between Western societies and South Korea, whereby South Korean children are taught the importance of avoiding interpersonal conflict and ensuring harmony within the group. The relationship between friendship quality and peer-victimisation appears to be bi-directional, such that Bagwell and Schmidt (2011) found that conflictual friendships predicted relational victimisation and that elevated levels of peer-victimisation also predicted conflictual friendships and less friendship security in children over-time.

4.2.3.1 Negative Aspects of Friendship

The positive aspects of friendship for children are heavily documented in the literature, but negative aspects of friendship also exist. These can include poor friendship quality (as mentioned in Section 4.2.3), non-reciprocated friendship ties (as mentioned in Section 4.2.2), negative social influences, (see Section 4.4) and co-rumination. Co-rumination is defined as "excessively discussing personal problems within a dyadic relationship" (Rose, 2002, p. 1830) and has been attributed to poor emotional adjustment in young people (Broderick, 1998; Rose, 2002; Rose, Carlson, & Waller, 2007). Specifically, persistent discussion of problems with close friends may exacerbate any negative feelings associated with the situation, which in turn leads to depression and other health problems (Guarneri-White, Jensen-Campbell, & Knack, 2015; Rose et al., 2007). Co-rumination is distinct from self-disclosure as it involves frequent focus on the negative experience and the associated effects (Rose, 2002), whereas self-disclosure is a social discussion of concerns but does not include a persistent focus or rumination of the problem. Co-rumination is more prevalent in female friendship dyads than male friendships (Rose, 2002; Rose et al., 2007), this is likely due to the intensity of female friendships (Rose et al., 2007). Existing literature on co-rumination and peer-victimisation has found that adolescents who experience peer-victimisation and co-ruminate with peers are at an increased risk of experiencing psychosocial problems (Guarneri-White et al., 2015). Additionally, adolescents who report high levels of co-rumination within their friendship are more likely to experience peer-victimisation later on (McLaughlin & Nolen-Hoeksema, 2012). Interestingly, although co-rumination in friendships can result in negative outcomes for individuals, it is often associated with reports of high friendship quality, specifically with regards to levels of support (Rose, 2002). Subsequently, it is possible that reports of high friendship quality may not provide a buffer against the negative outcomes of maladaptive outcomes, given that high friendship quality could be associated with co-rumination.

4.2.3.2 Function of Friendship

Examining how and why friendships are able to buffer against the experience of peer-victimisation and associated negative outcomes, is also of equal importance to friendship quantity and quality. It has been suggested that friendship provides children with a social skillset that may ensure effective coping when faced with peer-victimisation. Interactions with friends allow children to practise important skills such as conflict management, help-seeking, and emotional regulation, all of which can compensate for early risk factors associated with victimisation (Fox & Boulton, 2005; Mishna, 2012).

Children with high-quality friendships may also enable victimised children access to other peers in the class, and thus allow for the development of new positive relationships (Berndt, 2002). Conversely, children with low-quality friendship may develop a more negative style of interaction with peers that promotes aggression and therefore increases the risk of being bullied. Furthermore, experiences of co-rumination in friendship can also increase a child's risk of experiencing poor psychosocial outcomes and victimisation (Guarneri-White et al., 2015; Rose, 2002). It has further been suggested that the experience of peer-victimisation is an antecedent for social problems. For example, victimised children have been found to have difficulties with the formation and maintaining of friendships (Ellis & Zarbatany, 2007). As victimisation increases, children report decreased levels of trust and affection with friends (Goldbaum et al., 2008). It is argued that this is the result of instances whereby friends are unable to support the child being victimised, and thus the child begins to lose trust in their friendship group.

Taken together these studies provide evidence to suggest that friendship, both the number of friends and the quality of a child's friendship, provide an important function within the experience of peer-victimisation in childhood. Specifically, friendship can buffer against the negative effects of peer-victimisation, including school loneliness, and can serve to protect children against future peer-victimisation experiences. Within the context of this thesis it is therefore argued that this buffering effect may also protect children from the negative effects associated with maladaptive coping. Furthermore, it is argued that positive ties with peers can provide children with a social skillset that promotes effective coping following stressors (Fox & Boulton, 2005). Therefore, it is also maintained that friendship can serve to promote adaptive coping mechanisms following peer-victimisation experiences. In contrast, however, the negative aspects of friendship, such as friendship conflict and friendship rejection, may put the child at risk of maladaptive outcomes. The current thesis will therefore test both the buffering protection hypothesis of friendship on maladaptive coping and the social influence effect of friendship on peer-victimisation coping. Subsequently, this will provide a theoretical extension to the Friendship Protection Hypothesis (Boulton et al., 1999) via the incorporation of peer-victimisation coping. Given the limited research comparing the importance of number of friends versus friendship quality, the thesis will examine multiple facets of friendship, including the quantity of friends a child has and their self-perceived friendship quality. This will allow for the comparison and assessment of the contribution of each construct.

4.3 CHILDREN'S SOCIAL NETWORKS

To date much of the current literature on children's friendships has focused primarily on the number of friends a child has and the quality of these relationships. Although this is important for understanding friendship at a dyadic level, this approach ignores the wider peer-group in which the child is embedded and the dependent nature of social relationships (Lusher, Koskinen, & Robins, 2013). Dependencies in social networks is the notion that friendship ties between children are not isolated from the rest of the peer-network. Specifically, the presence of one friendship tie between two children can impact the presence or absence of another friendship tie in the network (Robins & Lusher, 2013). For instance, if Child A was friends with Child B and Child C, then Child B and Child C would be indirectly connected via Child A. This is often referred to as a 'friend of a friend' and evidence suggests that social information can be passed indirectly from one individual to another via this route (Goodreau, Kitts, & Morris, 2009). Furthermore, being indirectly connected to an individual via a friend will increase the likelihood that those two individuals will form a social tie of their own (Lusher & Robins, 2013). This is also known as transitivity and is a commonly observed structure in networks (Burk et al., 2007). This example therefore highlights that friendship cannot be viewed just in isolation, but rather it is important to also consider the whole social network and the influence this network has on behaviour. Additionally, membership of a peer social network provides important context and experiences for social development in childhood, beyond that experienced in dyadic friendships (Gest, Farmer, Cairns, & Xie, 2003). Based on the foundations of graph theory, a social network can be described as a social structure containing a set of social actors and the dyadic ties between these actors (Lusher et al., 2013). This whole network approach therefore allows not only for the modelling of dyadic relations but also a complex array of social structures, for example cliques and clusters of social actors (Robins, 2015). Therefore, to fully understand the function of friendship within peer-victimisation coping, it is important to consider the social network in which the child is embedded in addition to dyadic friendships.

One of the most commonly observed social networks in children is the classroom, whereby children represent social actors and friendship represents social ties between the actors (Betts & Stiller, 2014; Carolan, 2014). Friendship networks are usually constructed by asking actors to state whom they are friends with in the social network and therefore observing a child within their social network provides information beyond just the number of friends a child has. For example, a social network will contain information regarding not only the number of children a child has nominated as a friend (referred to as *out-degree*) but also the number of friendship nominations received

(referred to as *in-degree*). It is often of interest to researchers to examine both in-degree and out-degree statistics as individuals with very high values or extreme low values may indicate social hierarchy in the network (Snijders, van de Bunt, & Steglich, 2010b). Furthermore, in-degree statistics indicate popularity in the network (Moody, Brynildsen, Osgood, Feinberg, & Gest, 2011), whereby out-degree statistics indicate how socially active a child is (Pearson, Steglich, & Snijders, 2006). These degree statistics can be further used to calculate a child's prominence in the network, also referred to as an actor's *centrality*. There are different types of centrality scores (i.e. degree centrality, betweenness, and closeness) but in short, these scores are interested in actors' activity in the network (degree), actors who link other actors together (betweenness), and how close (in network distance) an actor is from other actors in the network (closeness). High centrality scores in children are associated with prosocial behaviour, leadership skills, and academic ability (Farmer & Rodkin, 1996; Gest et al., 2001). In contrast, children with low centrality or whom are isolates, are more likely to be shy and exhibit withdrawal behaviour (Farmer & Rodkin, 1996). In- and out-degree can also be used to calculate the number of mutual (reciprocated) ties and the number of asymmetrical ties i.e., those out-going ties which are not reciprocated. The role of reciprocated and asymmetrical (unilateral) ties was outlined previously in Section 4.2.2. Although social network indicators such as in-degree, out-degree, reciprocity, and centrality provide a picture of a child's social position, they do not acknowledge the interaction between a child's social network and their behaviour. This will be discussed in the following section.

4.3.1 Homophily, Social Selection and Social Influence

By their very nature children will bring an array of behaviours and attitudes to the social network and, interestingly, research finds that these behaviours and attitudes tend to be similar to their friends' attributes (Brechwald & Prinstein, 2011). This inter-related process between an individual's attributes and their friendship affiliation is also known as homophily (Kandel, 1978). Homophily theory posits that similarities between friends can be explained by children's tendency to affiliate themselves with other children who have similar behaviours and attitudes (Brechwald & Prinstein, 2011). This process is also referred to as *friendship selection*. Social selection in social networks is underpinned by the similarity-attraction hypothesis (Byrne, 1971, 1997), which theorises that humans are socially attracted to individuals whose attributes and behaviours align with their own. It is thought that this social attraction to similar others provides corroboration that an individual is not alone in their own beliefs and behaviours. Furthermore, it has been suggested that individuals are more likely to attempt to form a

social connection with similar others as this increases the likelihood that the friendship will be reciprocated, thus reducing the risks associated with non-reciprocated friendships (Byrne, 1997). In conjunction with friendship selection, research also indicates that children's behaviour and attitudes tend to align themselves with their friends' behaviour and attitudes over time (Snijders, et al., 2010) . This process is also referred to as *friendship influence*. Social influence in social networks is supported by the theoretical positions asserted by social influence theories such as the Social Comparison Theory (Festinger, 1954), Social Information Processing Theory (Salancik & Pfeffer, 1978), and Social Learning Theory (Bandura, 1969), which posit that individuals compare and evaluate themselves against others, particularly with regards to attitudes and behaviours. Social influence is therefore said to occur as one person (also referred to as the *ego* in social networks) compares themselves with another (also referred to as the *alter* in social networks) and hence wishes to meet the expectations of that individual (de Klepper, Sleebos, van de Bunt, & Agneessens, 2010; Deutsch & Gerard, 1955). This effect is particularly strong in friendships, whereby the ego perceives the behaviour of their alter friend as credible, and therefore adapts their own behaviour to match that of the alter's (de Klepper et al., 2010). The presence of homophily in children's friendships is an important part of a child's social development, increasing levels of trust and open communication amongst friends (Veenstra, Dijkstra, Steglich, & Van Zalk, 2013).

4.3.2 Social Activity and Popularity in Networks

A child's popularity and social activity in a network is also related to their behaviour, and vice-versa. Specifically, *popularity* refers to the in-coming ties a child receives, whereas *social activity* indicates how many out-going friendship ties a child makes (Snijders et al., 2010). Children's behaviour can influence their popularity in the network, and additionally children's network popularity can also affect their future behaviour (Burk, 1996; Snijders, Bunt, et al., 2010). Acceptance and popularity are important to school-aged children and are related to their well-being and sense of belonging (Bukowski, Hoza, & Boivin, 1993; Sullivan, 1953). Furthermore, popularity is often a goal for children and adolescents, with popular individuals being viewed as having a higher-status in the network (Berger & Dijkstra, 2013). Less is known theoretically about social activity (or out-going ties) in the network. However, socially active children in the network tend to be less deviant and have lower levels of depressive symptomology (Veenstra et al., 2013). Children who nominate fewer friends over-time may be exhibiting signs of social corrosion, whereby their behavioural traits (e.g., depression) affect their ability to socially interact with others and therefore they withdraw from the social network (Coyne, 1976; Veenstra & Dijkstra, 2014).

4.3.3 Analysis of Social Networks

The interdependency between social networks and behaviour can be difficult to disentangle i.e. do social network changes predict behaviour changes, or do behaviour changes predict social network changes? Historically researchers would address this question using a two-step process whereby they would (1) collect network data and collapse the data into individual-level variables i.e., a child's sociometric position or dyadic similarity and then (2) use these variables as predictor variables in a longitudinal analyses whereby the network data would be treated as a predictor for assessing friendship influence and an outcome variable for assessing friendship selection (Burk et al., 2007). However, this approach presents several limitations. Firstly, individual level variables do not account for the various aforementioned structures observed in the network i.e., reciprocity, centrality, and clique formation. Secondly, the data in social networks is interdependent and therefore violates the assumptions that underlie most statistical methods. Thirdly, the relationship between the social network and the behaviour of interest is a dynamic process, in which it is highly likely that changes will occur between observed measurement points. However again, traditional statistical methods are often not able to account for these unobserved changes (Burk et al., 2007; Veenstra et al., 2013). Subsequently, a group of researchers have since developed a longitudinal social network modelling technique that can address the limitations of traditional statistical methods and model both complex network processes and disentangle the interdependency between social networks and behaviour (Burk et al., 2007; Snijders et al., 2010). These longitudinal statistical models are called *stochastic actor orientated models* and will be discussed in the next section.

4.4 STOCHASTIC ACTOR ORIENTATED MODELS

Stochastic Actor Oriented Models (SAOMs) model the co-evolution of social networks and actor's behaviour, allowing the researcher to examine both the changes in social networks and individual (actor) behaviour over time. SAOMs also acknowledge that these changes in the network and behaviour occurs in-between moments of observation and therefore applies continuous-time Markov chain modelling to account for these changes (Burk et al., 2007). Specifically, Markov chains assume that changes in the network are dependent only on the present network formation, and not on existing formations of the network (Taylor & Karlin, 1998). Furthermore, SAOMs can simultaneously control for network structures we would commonly expect to observe in a social network, for instance in-going ties, out-going ties, reciprocity, transitive triads, and more complex clustering. With network structures accounted for, SAOMs can then

model two inter-related processes, (1) decisions by actors regarding their outgoing ties and (2) decisions by actors regarding their behaviour. These decisions culminate in changes in both the social network and the actor's behaviour. Subsequently, through modelling the co-evolution of the social network dynamics and behaviour over time, SAOMs can disentangle the interdependency between social networks and behaviour. In the context of the current thesis the application of SAOMs enables the examination of the role of in-coming friendship ties on changes in expected peer-victimisation coping (i.e. do network changes predict changes in expected coping behaviour?) and the role of expected peer-victimisation coping behaviour on children's popularity in the network (i.e. does expected coping behaviour predict friendship network changes?). Social influence and social selection effects pertaining to homophily were not examined in the current thesis due to the measurement of peer-victimisation coping and the inclusion of non peer-victimised children within the network. This is discussed in more detail in Chapter 5, but in short social selection and social influence similarity effects are not examined in this thesis given that some children will be reporting *expected* or *hypothesised* coping behaviour, and thus it is possible that other children in the network may not be aware of non-victimised children's hypothesised coping behaviour. Therefore, children cannot adapt or adjust their own coping behaviour (actual or hypothetical) to match that of a friend's. However, due to the prevalence of social selection and social influence similarity effects in existing studies, previous literature was still reviewed and is discussed below.

Much of the research applying SAOMs to examine social influence and selection effects in children and adolescents' friendship networks have predominately focused on anti-social, deviant and health risk behaviours. For example, Mercken, Snijders, Steglich, Vertiainen, and De Vries (2010) examined smoking behaviour in 1326 Finnish adolescents' and found that although both males and females select friends based on similarity in smoking behaviour, only females were influenced by their friends smoking behaviour. Selection and influence effects also emerge for adolescent drinking behaviour, with findings suggesting that adolescents who view alcohol consumption as a desirable asset are more likely to therefore select friends who drink similar levels to themselves but also are influenced by their friends drinking behaviour (Osgood et al., 2013). Friendship selection effects have also been demonstrated with regards to health behaviours, whereby adolescents tend to select friends with a similar weight status to themselves (i.e. overweight or not overweight; De La Haye, Robins, Mohr, & Wilson, 2011). However, in contrast, adolescents' healthy eating behaviour is more strongly

associated with friendship influence effects (de la Haye, Robins, Mohr, & Wilson, 2013). Mental health and internalised distress are also found to be associated with social selection and influence effects in adolescence. For example, Mercer and Derosier (2010) observed adolescents across a 1-year period and found that adolescents tended to select peers as friends who experienced similar levels of internalising distress as themselves. This work was further supported by Van Zalk and colleagues (2010) who found adolescents befriended those with similar levels of depression and also that friends exacerbated each other's levels of depression over time. They argued that this social influence of depressive symptoms may be the result of co-rumination, whereby negative thoughts and feelings are reinforced by peers experiencing similar symptoms (Rose et al., 2007) .

Although much of longitudinal social network research has been applied in adolescent samples, more recent studies have also considered similarities between friend's behaviour in late childhood. For example, Shin and Ryan (2014) observed achievement goals behaviour in 587 US children aged between 11 to 12-years of age, finding that children were similar to their friends in their achievement goals as a function of both friendship selection and friendship influence effects. These effects have since been replicated in a similar aged sample (Laninga-Wijnen, Ryan, Harakeh, Shin, & Vollebergh, 2018). Friendship selection in children has also been observed in actual academic achievement, such that children are more likely to select friends with similar reading fluencies as themselves (Kiuru et al., 2017). Popularity also appears to be an important grouping mechanism in late childhood, with child research suggesting that children (aged 10 to 11 years) tend to select friends based on similarities in levels of popularity (Logis et al., 2013).

Research applying SAOMs have also examined the role of the behaviour on children and adolescents' popularity (in-coming ties) and propensity to send friendship nominations (out-going ties). This is also known as alter effects and ego effects, respectively. For example, De la Haye and colleagues' (2013) continued work on healthy eating in adolescents' friendships found that adolescents who engaged in higher levels of unhealthy eating were more likely to receive friendship nominations than those adolescents who had healthier diets. Van Zalk and colleagues (2010) also found ego and alter effects in their study on adolescent depression and friendship. Notably, adolescents with high depression scores were less popular than peers (i.e., they received less friendship nominations over time). However, depression was not found to predict the likelihood of adolescents sending friendship nominations. Research drawing from

childhood samples has also observed ego and alter effects. For example, popular children unequivocally receive more friendship nominations than other children in the class (Logis et al., 2013), and those children with aggressive behaviour receive fewer friendship nominations than their peers (Logis et al., 2013).

Taken together the group of studies presented in this sub-section provide evidence to suggest that children and adolescents' behaviour and friendship is an inter-related process. Although social selection and influence effect sizes tend to be small to medium, with odds-ratios (OR) in the discussed studies ranging between 1.16 to 6.82 (Chen, Cohen, & Chen, 2010). Chen et al.'s (2010) paper aligns OR with Cohen's *d* effect size, wherein it is proposed that an OR of 1.68, 3.47 and 6.71 are indicative of Cohen's *d* of 0.2, 0.5 and 0.8, respectively. Effect sizes are larger for social influence effects (OR: 2.85-6.82) than for social selection effects (OR: 1.06-5.05). However, effect sizes vary considerably across studies, even when considering similar behavioural traits. For example, Laninga-Wijnen et al. (2018) reported an OR of 2.29 for the social influence effect of performance goal behaviour, whereas Shin and Ryan (2014) reported a social influence OR of 6.82 in their study on achievement goal behaviour. Effect sizes for out-going (social activity) and in-coming (popularity) effects are smaller with ORs ranging between 1.11 and 1.28, with the exception of a social activity effect in Van Zalk et al.'s (2010) study whereby an OR of 8.75 was observed for out-going nominations and depression. Under the guidelines outlined by Chen et al. (2010), an effect size of 8.75 would be considered large.

It should be noted, however, that the majority of studies applying SAOM models to investigate friendship and behaviour have predominately focused on adolescent friendship networks. Hence further research applying SAOMs to late childhood friendship networks is needed, especially when considering the importance of friendship and peers in this age group (Rubin et al., 2006; Sullivan, 1953). The work presented in this thesis will address this current gap in the literature and provide a unique contribution in terms of how SAOM is applied. The next section of this chapter will focus specifically on bullying and peer-victimisation behaviour within SAOMs

4.4.1 Bullying and peer-victimisation behaviour within stochastic actor orientated models

SAOMs have also been used to investigate social selection and influence effects within bullying behaviour, although the findings have been mixed to date. For example, Dijkstra et al. (2011) examined relational and physical aggression in the social networks of 274 Chilean children aged between 10 and 12 years of age. Peer influence effects were only

observed for relational aggression (OR: 2.61), with neither influence nor selection effects being present for physical aggression. The authors explain this finding by suggesting that aggression is more likely to be a by-product of other network effects, such as popularity, rather than friendship similarity. Laninga-Wijnen and colleagues (2017) recent study provides empirical support for this assumption. They examined longitudinal aggressive behaviour and friendship in 1134 early adolescents and found that both friendship selection (OR: 1.36) and influence (OR: 2.29) processes relating to aggression were dependent upon their being a positive association between popularity and aggression in the classroom. Furthermore, they also found that aggressive behaviour was associated with lower levels of popularity (OR: 1.08). However, Langinga-Wijnen et al. (2017) did not distinguish between variations of aggressive behaviour and therefore it is unclear whether this finding varies according to the type of aggression. In line with Dijkstra et al. (2011) findings, Sijtsema, et al.'s (2009) study also failed to find any evidence to support social selection and influence effects in early adolescents' physical aggressive behaviour. However, they did find that friendship selection (OR: 2.85) and influence effects (OR: 1.74) exist for relationally aggressive behaviour. Dijkstra and Berger's (2018) study also found no evidence for either friendship selection or influence effects for physical aggression in adolescents. Bullying behaviour has been found to be associated with friendship popularity, however. For example, Dijkstra and Berger (2018) found that females who exhibited higher levels of physically aggressive behaviour were less popular than their peers (OR: 1.32), such that they received few friendship nominations. This effect was also observed in a large-scale study of 9183 early adolescent Finnish students, whereby students who exhibited high levels of bullying behaviour were less liked by peers (OR: 1.03; Sentse, Kiuru, Veenstra, & Salmivalli, 2014). This effect may only persist at high levels of bullying behaviour, however. Merrin et al. (2018) noted that although adolescents with the highest levels of bullying behaviour received fewer friendship nominations, those with elevated levels of bullying behaviour were actually more popular than those adolescents who did not engage in bullying behaviour (OR: 1.22). This suggests a non-linear relationship between bullying perpetration and receiving friendship nominations

In addition to bullying behaviour, peer-victimisation behaviour has also been examined within the context of friendship networks. For example, Sentse et al.'s (2013) study found that even after controlling for gender and baseline aggressive behaviour, similarity in physical victimisation experiences predicted early adolescent friendship formation (OR: 1.51). However, no friendship selection effects were observed for

relational victimisation. This suggests that friendship selection and influence effects may vary according to victimisation type. Sijtsema, Rambaran, and Ojanen (2013) also explored friendship selection and influence in physical and relational victimisation in a sample of 504 middle-school (12 to 14 years old) students and observed social influence effects for both types of victimisation (OR: 6.32, 4.69). They also found that relational victimisation was associated with receiving fewer friendship nominations from peers (OR: 1.08), indicating that relationally victimised early adolescents are more undesirable as friends. Befriending others who are also victimised may be important for a victim's adjustment, specifically, research suggests that when victims are not alone in their experience within the social network this can result in better adjustment (Huitsing, Veenstra, Sainio, & Salmivalli, 2012). Although the outcomes of studies applying actor-orientated modelling techniques to examine bullying and victimisation behaviour are mixed, findings do imply that it is not just the individual characteristics that predict bullying and victimisation behaviour, but also that group processes play a crucial role (Salmivalli, 2010).

Although longitudinal network modelling techniques have been applied to child and adolescent friendships to understand the role of bullying and victimisation behaviour, these models are yet to be applied in peer-victimisation coping literature. Subsequently, there is little known regarding the extent in which peer-coping strategy endorsement (actual or hypothetical) influences a child's propensity to make friends or receive friendship nominations, as an indicator of popularity. This therefore highlights a clear gap in the literature that will be addressed empirically in the current thesis. There are, however, a few studies which have considered the role of friendship within more a generalised coping context and peer-victimisation coping within experimental settings. The following section will discuss the current literature on children's friendship and coping.

4.5 CHILDREN'S FRIENDSHIP AND COPING

As children move into late childhood and early adolescence there is an increased reliance on peer relationships, including an increased response to cues from interpersonal relationships and peer group dynamics (Steinberg & Silverberg, 1986; Weinstein, Mermelstein, Hedeker, Hankin, & Flay, 2006). This social feedback is important across multiple situations, including identity development, prosocial behaviour, and mental health (Cassidy, Ziv, Mehta, & Feeney, 2003; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007). Research has also suggested that friendship may play role for coping with stressors. Although the literature exploring the relationship between friendship and

response to peer-victimisation is limited, research has briefly considered the role of friendship within the context of other stressors (e.g., digital stressors, family conflict and academic stress) and coping. These studies will briefly by discussed in the next section.

4.5.1 Young people's friendship and coping with other stressors

Research has shown that adolescents offer coping advice for dealing with digital stressors to other adolescents in an online setting. Specifically, Weinstein et al.'s (2016) content analysis found that adolescents recommend strategies aligned with five common approaches: social support seeking, communicate with the stressor, cutting ties, ignoring the stressor, or utilising digital solutions. They suggest that peers, particularly in online settings, provide an important source of support for adaptive coping with stressors. However, peers may not always provide positive influences. For example, Kombarakaran (2004) interviewed 73 street children in Bombay on the stressors of street-life and found that the influence of peers was often a trigger for maladaptive coping strategies, including reliance on tobacco, alcohol, and drugs. Furthermore, studies investigating the role of friendship for coping with stressors have not always found any effect. Tompkins, Hockett, Abraibesh, and Witt (2011) hypothesised that coping with family conflict may be attributed to peer co-rumination behaviours, whereby co-rumination is observed as a repetitive problem-focused conversation that is linked to friendship quality in young people (Rose, 2002). However, they found that co-rumination was not found to correlate with individual coping response to family conflict in a middle adolescence sample. More recently research has applied SAOMs to examine the interplay between academic help-seeking behaviour and adolescent's social network over-time. Specifically, Shin (2018) observed South Korean adolescents' (12 to 13 years old) friendship and academic help-seeking behaviour across two-time points. The study found that friends were like each in regard to both adaptive (OR: 1.72) and avoidant help-seeking behaviours (OR: 15.33). They also observed that avoidant help-seeking behaviour was associated with becoming less popular over-time (OR: 1.28). Although Shin's (2018) research is the only study, to the author's knowledge, to apply SAOM to coping behaviour, it does demonstrate that friendship selection, social influence, and popularity effects do pertain to coping behaviour within the context of academic help-seeking. It is therefore plausible that these effects may also extend to peer-victimisation coping behaviour. The next section highlights the current empirical work to date examining the role of friendship within peer-victimisation coping.

4.5.2 Children's friendship and peer-victimisation coping

Although limited in number, research has previously considered the role of friendship within the context of coping with peer aggression. Using an experimental design and vignettes Burgess et al. (2006) examined the coping strategies of shy/withdrawn and aggressive children to explore whether responses varied according to the context of friendship. Children were presented with hypothetical situations that contained either an unfamiliar friend or a good mutual friend that ended in a negative outcome from peer aggression (e.g., milk being spilt down the child's back). The study found that the presence of a mutual friend influenced the child's coping response. For example, children were less likely to choose retaliation techniques if a good mutual friend was present. However, children endorsed adult support related strategies regardless of the friendship presence (i.e., mutual friend versus unfamiliar friend). This work suggests that friendship does have an influence on the endorsement of peer-victimisation coping strategies, but only for specific types of coping. This study was extended by Bowker, Rubin, Rose-Krasnor, and Booth-LaForce (2007) who used a similar methodology to examine whether friendship moderates the relationship between a child's aggressive tendencies and their aggressive response to scenarios involving a mutual friend or unfamiliar peer who was being aggressive to the child. Findings indicated that less aggressive coping techniques were used when the child had a friend of similar aggressive-tendencies, with whom they had a high-quality friendship with. However, aggressive children had the tendency to endorse more aggressive coping mechanisms when they experienced conflict in their friendships. These findings indicate that the quality of friendships a child has can influence their response to negative peer situations. Jones et al. (2009) also studied the role of peers within an experimental setting by examining the extent to which Year 6 children's reactions to cyberbullying varied as a function of group membership. Their study suggests that group norms influence the emotional responses to cyberbullying incidences, which in turn predict the actions that children will take in response to the bullying. This work was further extended to examine school-based peer-victimisation and group processes in a group of Italian school children aged 10 to 13 years (Jones et al., 2012). Again, the study found evidence to suggest that social group norms predicted the child's emotional response to the bullying event, which in turn predicted the actions would take in response to the bullying incident.

Together these four studies provide evidence to suggest that peers do play a role in determining a child's response to peer-victimisation. However, these studies draw evidence from experimental settings, whereby friendship and peers were often

represented within the context of vignettes rather than acknowledging real-life friendships and social groups. Both the lack of research and the previous focus on experimental design highlights the need for further research examining the role of friendship within the context of coping with peer-victimisation, specifically with a research design that acknowledges the child's true peer group circumstances. Furthermore, existing literature in this area also fails to account for different facets of friendship, including the quantity and quality of friendships that children have. Although Bowker et al.'s (2007) study examines the influence of friendship quality, their study only focused on aggressive children's responses and the use of aggressive coping strategies. Therefore, other coping behaviours were not considered. Furthermore, the study does not account for the number of friends a child has. As highlighted earlier in this chapter, both the quantity and quality of friendships have been associated with providing protection against the negative effects of peer-victimisation and thus it is important consider both facets of friendship.

4.6 Chapter Summary and Gap in the Literature

In summary, the present chapter has reviewed the extant literature, which suggests that friendship is a vital component of a child's social development, particularly within the context of peer-victimisation (Boulton et al., 1999; Waldrip et al., 2008). As children grow and develop in the social world, these friendships become increasingly important throughout childhood and adolescence (Wentzel & Battle, 2001). However, less is known about the mechanisms under which friendship may influence coping with peer-victimisation. Given the detrimental outcomes associated with maladaptive coping and the importance of friendship, it is imperative that research considers how these two factors may interact and the mechanisms underlying the relationship between friendship and peer-victimisation coping. Subsequently, the current thesis will address this gap in the literature through examining the role of friendship within three domains. Firstly, the thesis will examine whether a child's friendship experiences are associated with, and predictive of, expected peer-victimisation coping behaviour. Secondly, the thesis will examine whether friendship can buffer or protect against the negative effects of peer-victimisation experiences, specifically focusing on school loneliness. Thirdly, the thesis will examine whether expected peer-victimisation coping behaviour has an effect on a child's friendship, thus acknowledging the potential bi-directional interplay between friendship and coping. Together focusing on these three areas will provide a comprehensive insight into the function of friendship for coping with school-based peer-victimisation.

The argument for the protective role of friendship following maladaptive coping stems from literature pertaining to the friendship protection hypothesis (Boulton et al., 1999). The work in this area provides empirical evidence to suggest that friendship plays a key role in protecting against the experience of, and negative outcomes associated with peer-victimisation (Waldrip et al., 2008; Wang et al., 2009). Subsequently, literature has considered the role of both the number of friends a child has and the quality of these friendships (Bollmer et al., 2005; Malcolm et al., 2006), and although further empirical work is needed, research suggests that as long as a child has one friendship of a high quality, the number of friends is less important in protecting against the experience and effects of peer-victimisation. (Waldrip et al., 2008). However, given that research has not considered the role of friendship quality or the number of friends a child has within peer-victimisation coping, the current thesis will measure both facets of friendship. The presence or absence of reciprocated ties has been shown to be a particularly important feature of friendship (Lodder at al., 2017; Vaquero & Kao, 2008) and therefore the thesis will measure the number of reciprocated friendship ties a child has and, in addition, a measure of asymmetrical (non-reciprocated) friendship ties. Furthermore, how central a child is within their friendship network will also be considered. Centrality is indicative of a child's popularity and social standing within the social network, and thus is another key component of friendship (Gifford-Smith & Brownell, 2003). Through measuring friendship as reciprocated friendships, centrality and friendship quality, the current thesis can concurrently compare and assess the contribution of each construct, thus further contributing to the literature on the protective role of friendship. Furthermore, the five components of friendship quality will be measured separately (companionship, conflict, help, security, and closeness). Hence, the individual contribution of each friendship quality component will also be examined. Not all friendship experiences are positive, however, and therefore friendship experiences that are negative (e.g., non-reciprocated ties and friendship conflict) are unlikely to play a protective role, but rather may put the victimised child at further risk of poor psychosocial outcomes. For example, friendship conflict can affect the way in which a child processes their social world (Bowker et al., 2007), often confirming any negative attributes they hold. The confirmation of these negative attributes may, in turn, put children at risk of endorsing maladaptive coping behaviours. As such, in addition to positive friendship experiences, the effect of negative friendship experiences will also be considered in subsequent empirical chapters.

The literature reviewed in this chapter also provides support for the notion that children's social networks and their behaviours are inter-related (Bandura, 1969; Mercken et al., 2010; Snijders et al., 2010; Van Zalk et al., 2010). Specifically, although limited, research on children's friendship and responding to peer-victimisation and peer-aggression demonstrates that children's responses are influenced by the responses that peers make, particularly when affiliation with those peers is high (Burgess et al., 2006; Jones et al., 2009). However, previous literature in this area has predominately been experimental in nature. Although an experimental design allows the researcher to manipulate the variables of interest and control for potential confounding factors (Banyard & Grayson, 1996), in the context of friendship and peer-victimisation coping this design fails to represent the true social ties of a child. Accounting for and measuring a child's social network is crucial in order to understand the social factors that may be related to a child's peer-victimisation coping behaviour. This therefore highlights a clear gap in the literature, whereby previous research has not yet examined the interplay between a child's friendship network and their peer-victimisation coping behaviour. With the increase in computing power and the development of new statistical techniques, researchers can now model the interdependency between social networks and the development of children's behaviour over time. Therefore, through the application of longitudinal social network models, specifically stochastic actor oriented models (Burk et al., 2007), the current thesis will examine the interplay between the social network and children's endorsement of peer-victimisation coping behaviour. Specifically, the analysis will examine how children's friendship network influences their expected coping behaviour, and equally, how their expected coping behaviour influences the social network. This will enable the examination of both the positive and negative aspects of the social network. For example, increases in popularity could be associated with increases in adaptive coping behaviour, whereas negative friendship experiences such as being unpopular could be associated with maladaptive coping behaviour. This will further extend the current work on social networks and peer-victimisation behaviour (Laninga-Wijnen et al., 2017; Sentse et al., 2013).

In summary, the current thesis provides a unique contribution to the literature by considering different components of friendship throughout, in particular, reciprocated friendship, centrality, friendship quality and the wider friendship social network. Through examining the role of friendship at the individual, dyadic, and group level, it is possible to comprehensively ascertain the relative contribution of each component of friendship on peer-victimisation coping. Furthermore, within the thesis

both a cross-sectional and longitudinal designs have been employed. As previously discussed, there is dearth of longitudinal literature within the developmental psychology, specifically within the field of coping. Therefore, through examining peer-victimisation, friendship, expected peer-victimisation coping and school loneliness over-time, the current thesis can examine the temporal stability of these variables and assess both the concurrent and long-term effects of friendship and expected peer-victimisation coping on psychosocial outcomes.

4.7 AIMS OF THE THESIS

Based on the current gaps in the literature discussed throughout Chapters 2, 3 and 4, the current thesis will investigate the concurrent and longitudinal effects of friendship for coping with school-based peer-victimisation in late childhood. This will be addressed via the following two research questions:

Research Question 1: What is the role of friendship for coping with school-based peer-victimisation?

Research Question 2: Does friendship buffer against the negative effects of maladaptive peer-victimisation coping?

The thesis will examine these relationships using two types of methodology. Firstly, the relationship between friendship, expected peer-victimisation coping and school loneliness will be examined using cross-sectional and longitudinal structural equation modelling techniques. This allows for the modelling of mediating and moderating effects to be tested, whilst also controlling for any measurement error associated with the self-report measures (Byrne, 2012; Chapter 6 and Chapter 7). Secondly, the relationship between friendship and expected peer-victimisation coping using stochastic actor orientated models will be examined. This allows for the longitudinal modelling of the both the social network and expected peer-victimisation coping behaviour and social activity and social popularity can be examined with respect to expected peer-victimisation coping (Chapter 8). Given this, the specific research aims of the thesis are as follows:

Research Aim 1: To examine cross-sectionally the relationship between children's reports of friendship (friendship quality, reciprocated friendship, centrality) and their expected peer-victimisation coping behaviour (Chapter 6).

Research Aim 2: To examine cross-sectionally the relationship between children's expected peer-victimisation coping behaviour and the buffering effect of friendship

(friendship quality, reciprocated friendship, centrality) on the experience of school loneliness. (Chapter 6).

Research Aim 3: To examine longitudinally the relationship between children's reports of friendship (friendship quality, reciprocated friendship, centrality) and their future expected peer-victimisation coping behaviour (Chapter 7).

Research Aim 4: To examine longitudinally the relationship between children's expected peer-victimisation coping behaviour and the buffering effect of friendship (friendship quality, reciprocated friendship, centrality) on the experience of school loneliness (Chapter 7).

Research Aim 5: To examine longitudinally the relationship between children's social activity and popularity in the classroom and their expected peer-victimisation coping behaviour (Chapter 8)

Additionally, given that literature has highlighted some gender differences pertaining to peer-victimisation coping (see Chapter 3), the thesis will also examine whether these relationships vary as a function of gender.

Additionally, given that literature has highlighted some gender differences pertaining to peer-victimisation coping, the thesis will also examine whether these relationships vary as a function of gender. Figure 4.1 and Figure 4.2 provide a conceptual overview of the relationships to be examined in the current thesis, addressing Research Question 1 and Research Question 2, respectively.

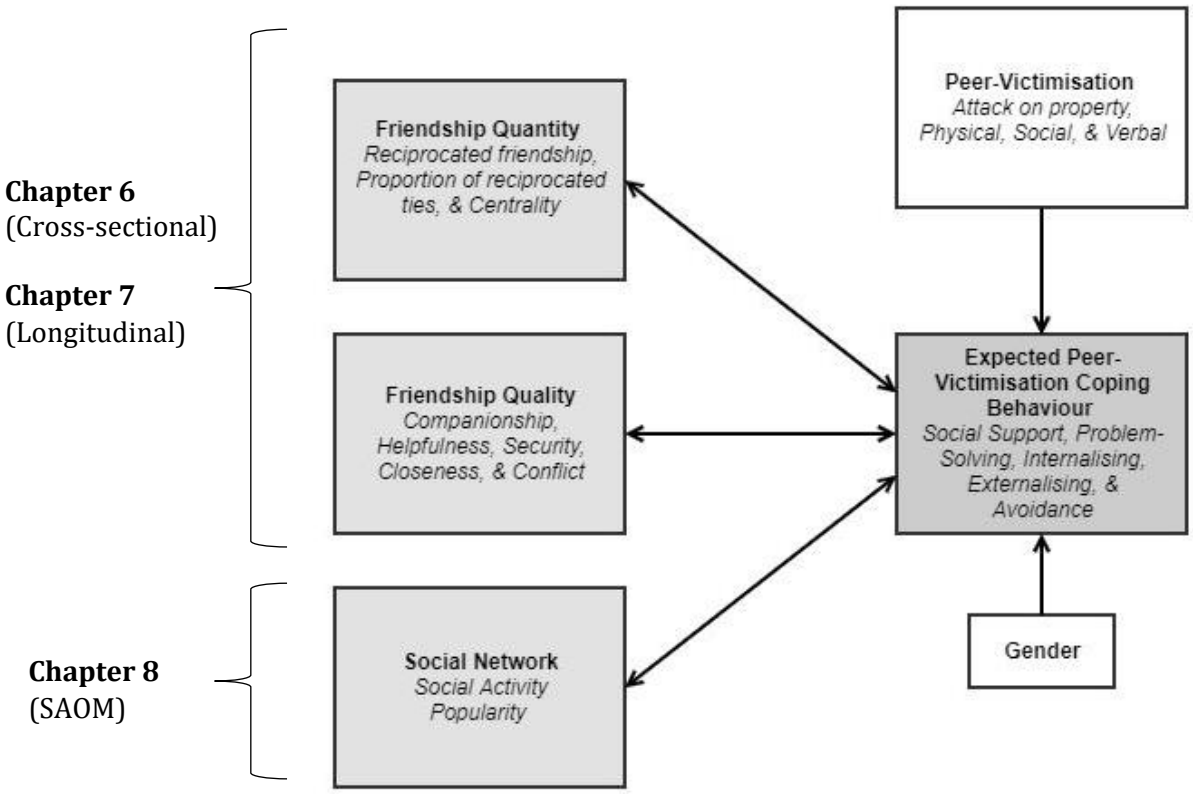

Figure 4.1. Conceptual model to demonstrate the relationships between friendship and expected peer-victimisation coping in children aged 9 to 11 years to address Research Question 1 of the thesis.

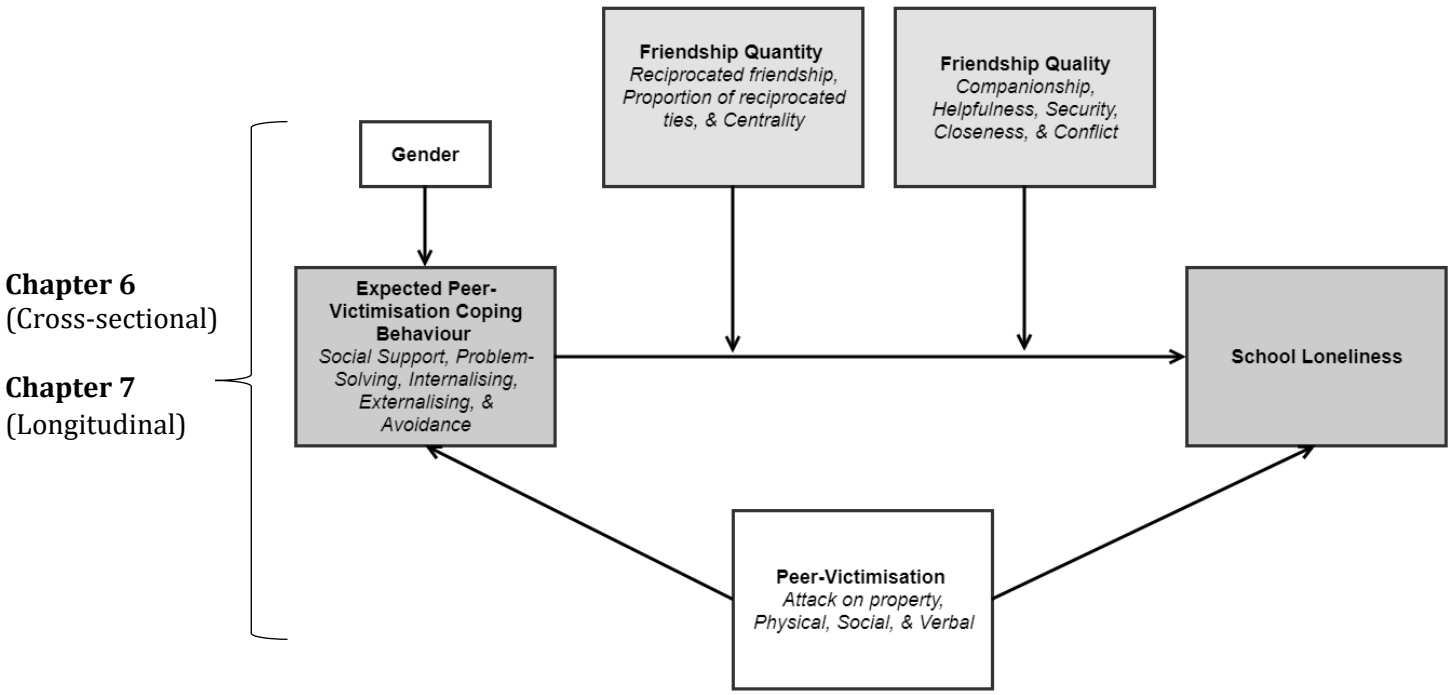

Figure 4.2. Conceptual model to demonstrate the relationships between friendship and expected peer-victimisation coping in children aged 9 to 11 years to address Research Question 2 of the thesis.

CHAPTER 5: METHODOLOGY AND MEASURES

5.1 INTRODUCTION TO CHAPTER

The current chapter will discuss the methodology and measures used throughout this thesis. Firstly, the chapter outlines the sampling requirements for the study in light of the research questions and aims. The chapter then focuses on the characteristics of the sample, the procedures used and the ethical considerations pertinent to the study. The chapter will then present all the measures used, including evidence for their reliability, validity, and suitability for the current study via exploratory and confirmatory factor analysis. Finally, results from the measurement invariance testing for each scale across gender and time are provided. Specifically, the measurement invariance analyses will test whether gender differences can subsequently be examined in the empirical chapters.

5.2 SAMPLING

The sample size requirements for the empirical study was determined by the aims of the thesis and the subsequent analyses that would be used to test the research hypotheses. In order to explore the relationships between the measured constructs, structural equation modelling (SEM) was used to not only examine the association between variables, but also to account for any possible measurement error. Determining the sample size needed for SEM can be difficult due to the complexity of models, and thus a number of rules of thumbs have been applied. For example, Tabachnick and Fidell (2007) argue that a minimum of 100 to 150 participants are required, whereas (Bentler and Chou (1987) state that for normally distributed data, 5 observations per estimated parameter is sufficient. Other researchers have argued that larger sample sizes are necessary, e.g., N = 200 (Kline, 2011). However, it is important that one is cautious of these rules of thumbs, as they can lead to biased parameter estimates (Wolf, Harrington, Clark, & Miller, 2013).

The sample size requirements are also governed by the research questions pertaining to longitudinal relationships, which will use a form of SEM known as cross-lagged models. The sample size requirements for cross-lagged models are similar to cross-sectional SEM, but the number of time-points is also an important consideration. Little (2013) argues that there is no rule of thumb for sample size requirements in longitudinal SEM models, however guidance can be drawn from simulation data that considers the effect of sample sizes on standard error reduction and detection of effect

sizes. Sample sizes of around 120 to 150 participants are able to detect effect sizes when Cohen's *d* is around 0.10 (Little, 2013), although this assumes a normal distribution. Furthermore, sample sizes greater than 150 see a small improvement in standard error reduction, but this is marginal (Little 2013). Subsequently, Little (2013) recommends that sample sizes should be around 120 participants or greater in order to detect small effect sizes and to provide reasonable confidence in the estimates.

Finally, the current thesis will also analyse the data using stochastic orientated models (SAOM; longitudinal social network analysis) in Chapter 8. There is less information on sample size requirements for SAOMs given the difficulties surrounding power analyses for this technique (Stadtfeld, Snijders, Steglich, & van Duijn, 2018). Furthermore, due to the infancy of SAOMs Stadtfeld et al. (2018) argue that rules of thumb cannot yet be formulated. It is also important to be considerate of the number of parameters specified in the model, as this requires additional demands. However, using a simulation study, Stadtfeld and colleagues (2018) found that a sample of 120 individuals across five waves provided excellent power for both selection and influence effects. Given this, it is expected that the current thesis target sample of ~450 across three waves will be sufficient enough for the SAOM, even after accounting for attrition.

5.2.1 Sample Size Requirements

To take into account the sampling requirements for all the analyses, it was decided to recruit a sample of 450 children across three time-points. This would ensure a sufficient sample size for the analyses, as well as accounting for potential attrition between Time 1, Time 2, and Time 3.

5.2.2 Participant Recruitment

Initial recruitment of the schools was achieved via emailing directly to the head teachers of primary schools in Nottinghamshire. Staff at schools who showed initial interest were offered a short face-to-face meeting at the school to discuss the project in detail and allow for any questions to be asked in person. These meetings with staff were primarily held with the head teacher of the school, although in some instances meetings were held with other members of teaching staff from the school. In return for collaboration in the project, schools were offered feedback reports, and for those taking part in the longitudinal project, £100.00 worth of National Book Tokens was awarded to the school at the end of the study. The anonymity of the children was maintained in all reports provided to the schools.

The longitudinal study ran during the 2015 to 2016 academic year, with data-collection occurring once every term (See Fig 5.1 for schedule). Every effort was made

to keep the distance between the data-collection points equal, however due to the busy time schedule of school teaching, KS2 SATS exams, school trips and holidays, this was not always possible.

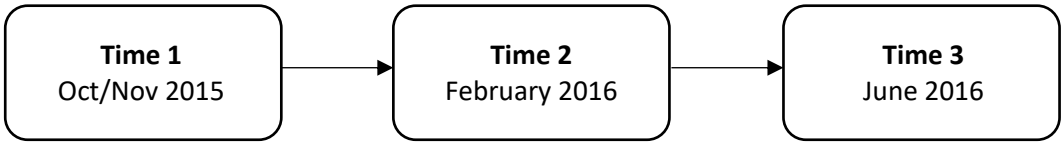

Figure 5.1 *Data collection schedule*

5.2.3 Participants

This section will provide information regarding the participant sample that was used in the thesis. Figure 5.2 indicates the final sample size for each time point (number of children and number of participating schools).

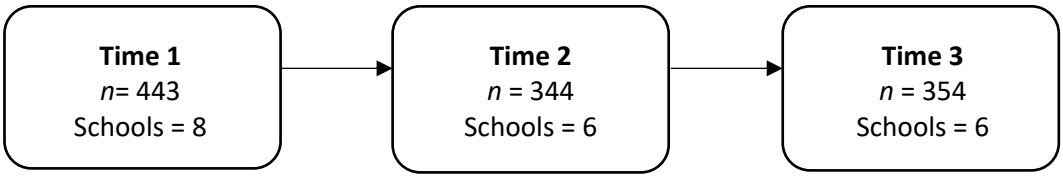

Figure 5.2 Final sample size across all three time-points

5.2.3.1 Time 1

Five-hundred and twenty-nine Year 5 and Year 6 children were initially invited to take part in the study, from eighteen classrooms across eight schools. Twelve of these children (2.27%) were withdrawn by guardians. On the day of testing a total of 59 children (11.20%) did not take part due to absence either from school or the classroom (attending a sport event or music lesson). Data were removed from the dataset for a further 14 children due to there being a substantial amount of missing data. Specifically, these children either stopped completing the questionnaire part way through or completed the questionnaire inaccurately (i.e., they ticked the same response for every item throughout the entire questionnaire). This resulted in a total sample of 443 children at Time 1 (October to November 2015). The participating children's mean age was 9 years and 10 months (SD = 10 months) at Time 1, whereby 55.7% (n = 259) of the sample were female.

5.2.3.2 Time 2

Three-hundred and eighty-nine children were invited to take part in Time 2 of the study from thirteen classrooms across six schools. The reduction in children being invited to take part was due to two schools dropping out of the study at Time 2 (one of these schools later returns for Time 3). Of the 389 children invited to take part at Time 2, 2 had joined the school since Time 1. Twelve of these children (3.10%) were withdrawn by their guardians, and a further one child chose not to participate at Time 2. On the day of testing a total of 30 children (7.72%) did not take part due to absence and data were removed for two children due to a substantial amount of missing data. This resulted in a total of 344 children at Time 2 (February 2016). The participating children's mean age at Time 1 was 10 years and 1 month (SD = 10 months), whereby 55.5% (*n* = 191) of the sample were female.

5.2.3.3 Time 3

Three-hundred and ninety-six children were invited to take part in Time 3 of the study from thirteen classrooms across six schools. The increase in children being invited to take part was due to one of schools returning at Time 3. However, an additional one school dropped out between Time 2 and Time 3. Of the 396 children invited to take part at Time 3, six had joined the school since Time 2. Eleven of these children (2.78%) were withdrawn by their guardians, and a further two children chose not to participate at Time 3. On the day of testing 24 children (6.10%) did not take part due to absence and data was removed for five children due to a substantial amount of missing data. This resulted in a total of 354 children at Time 3 (June/July 2016). The participating children's mean age at Time 1 was 10 years 2 months (SD = 7 months), whereby 57.9% (*n*=205) of the sample were female.

5.2.3.4 Participating School Information

Table 5.1 provides the details of participant sampling per school at each time point.

Table 5.1 *Participant Sampling Per School*

School	Number of Participating Classes	Time 1 (Oct)	Time 2 (Feb)	Time 3 (June)
School 1	4	110	110	112
School 2	1	28	29	29
School 3	2	34	38	38
School 4	2	54	54	55
School 5	2	41	51	-
School 6	3	61	-	51
School 7	2	51	-	-
School 8	2	64	62	69
Total N	18	443	344	354

Note: '- 'Indicates that the school did not participate in the study/time point.

Table 5.2 provides demographic details about each school, including their last Ofsted rating, the percentage of children on free school meals, the percentage of children who are considered as having English as an Additional Language (EAL) and the school size.

Table 5.2 *School Demographics of Participating Schools*

School	Area Type	Last Ofsted Rating*	% Free school meals**	% EAL***	School Size
School 1	Rural	1 (2009)	4.0%	1	372
School 2	Rural	2 (2015)	29.8%	1	117
School 3	Suburban	3 (2013)	26.8%	3	306
School 4	Suburban	2 (2013)	3.6%	1	472
School 5	Suburban	2 (2013)	3.3%	2	220
School 6	Suburban	4 (2014)	47.7%	1	555
School 7	Rural	2 (2009)	7.3%	1	130
School 8	Rural	2 (2014)	13.0%	1	192

* 1 = Outstanding, 2 = Good, 3 = Satisfactory 4 = Requires improvement

** Average claiming free-school meals in 2015 was 16.3% (Department for Education, 2015)

*** 1 = Below average, 2 = Average, 3 = Above average (average in East Midlands was 14.5%, Department for Education, 2016).

5.3 ETHICS

Ethical approval was sought and granted from the College Research Ethics Committee at Nottingham Trent University (Reference: BLSS CREC 2015_74). All head-teachers of the school were fully informed about the aims of the research and permission was granted via a signed consent form to survey the children at the school (Appendix A). Parents and guardians were then sent an information sheet (Appendix B) about the study at least two weeks prior to each visit and were provided with the opportunity to opt their child out of the study.

Prior to completing the questionnaire, the children were read the information sheet (Appendix C) by the researcher and were given time to answer any questions. The children were informed that the questionnaire was not a test, that their answers would remain confidential, and that they did not have to complete the questionnaire if they did not wish to. All children were given a unique identifier, which they kept throughout the three time-points, allowing the researcher to match up the cases. A register of the children's names per class, and their unique identifier was kept in a password protected digital file, separated from the children's data. This file was used to allocate the children's correct unique identifier at each time point, and to keep record of which children had been withdrawn from the study or had not given consent at Time 1 or Time 2 (and so were subsequently asked to give consent during the next data collection). To allocate the correct questionnaire to each child with their subsequent unique identifier, the children's names were written on a post-it note, which was attached to the questionnaire. The children were told to remove the post-it note during the data collection session, thus ensuring that the completed questionnaires were anonymous when returned to the researcher. At the end of each session the researcher delivered a verbal debrief with the children in addition to providing them with a debrief letter to take home (Appendix D).

5.4 PROCEDURE

The questionnaire was administered to the children during a one-hour session in school-time, with the researcher leading all the sessions. This approach was to ensure procedural consistency across the data collection. The sessions took part in the children's normal classrooms, with all children that were given parental permission taking part together. Any child that was not given permission to participate was given work by the schoolteacher to complete in another classroom. The researcher provided the information about the study to the children both verbally and via an information sheet. Children were given adequate time to ask any questions about the study prior to

data collection starting. During completion of the questionnaire, the children were asked not to talk to each other about the questions both during the session and after. The researcher read the questions out-loud to ensure that any children with poor reading abilities were not disadvantaged. The questionnaire was administered again at Time 2 and Time 3 using the same format as Time 1.

5.5 MEASURES

This section outlines the measures used in the empirical studies, including any changes made to the scales as a result of subsequent EFA and CFA analyses (see Section 5.8). See Appendix E for a list of all final scales used within the thesis, including sub-scales and associated items.

5.5.1 Peer-Victimisation

The 16-item Multidimensional Peer-Victimisation Scale (MPVS; Mynard & Joseph, 2000) served as a measure of school-based peer-victimisation experiences. This measure was selected given that it uses a behavioural-based self-report approach. As discussed in Section 2.5.4 of the thesis, a behaviour-based approach is less susceptible to measurement error when measuring different types of peer-victimisation (Cornell & Bandyopadhyay, 2010). Furthermore, the MPVS can be scored along a continuum. Volk et al. (2017) recently asserted that continuous behavioural scores should be used as opposed to categorising children, as grouping children into 'victim' and 'non-victim' can result in unequal group sizes, which may inflate the Type I error (Glass & Hopkins, 1996; Parra-Frutos, 2014). Additionally, the MPV scale has previously been used with primary school-aged children (Murphy, Murphy, & Shevlin, 2015; Raine, Fung, & Lam, 2011) and thus is suitable for the current thesis sample.

The MPVS measures four types of peer-victimisation: (1) Physical victimisation, (2) Social Victimisation, (3) Verbal Victimisation and, (4) Attack on physical property. Example items for each sub-scale include "Punched me", "Made other people not talk to me", "Called me names", and "Deliberately damaged something that belonged to me", respectively. The original scale suggests asking children to report peer-victimisation experiences during the school year, however as the present research was interested in the temporal stability of peer-victimisation across the three time-points, a shorter time-frame was chosen to reflect the time in-between data-collection. In addition, researchers have argued that it may be difficult for children to remember incidents of peer-victimisation over a long period of time e.g. 12-months (Furlong, Morrison, Cornell, & Skiba, 2004; Furlong et al., 2010). Therefore, children were asked to report any experiences of peer-victimisation since the beginning of the school term i.e., "How often

during this term has somebody done the following to you?". To minimise any variation in the reporting time between schools, intensive data-collection took place over a 2-3 week period. The children responded using a 5-point scale whereby 1 = *Never*, 2 = *One or Twice*, 3 = *A Few Times*, 4 = *Once or twice a week*, and 5 = *A few times or more a week*, to indicate how often they experienced the type of peer-victimisation. Higher scores on the MPVS indicated greater frequency of peer-victimisation.

5.5.2 Expected Coping with Peer-Victimisation Behaviour

Based on the literature presented in Chapter 3, expected peer-victimisation coping was measured using the 'What would I do' scale (Kochenderfer-Ladd & Pelletier, 2008). This scale was chosen in order to measure the five most commonly measured (and observed) types of coping in the peer-victimisation coping literature and thus facilitated comparison of findings. The scale was originally published as a five-factor solution measuring fives types of coping: (1) Adult support, (2) Avoidance, (3) Problem solving, (4) Retaliation, and (5) Internalising coping. However, due to a poor model fit in the confirmatory factor analysis (CFA) at Time 1, an exploratory factor analysis (EFA) and further CFAs was conducted to identify the suitability of the items and the dimensionality of the scale (see section 5.7.1). The analysis identified a six-factor solution, whereby the five original coping types were retained but the problem-solving coping sub-scale split into two factors measuring problem solving and a new factor, peer support. The new scale also dropped Item 2 (''Tell the mean child that I do not care"), as it did not meet the necessary statistical criteria. Previous research has also used revised versions of the scale with primary school aged children. For example, Visconti et al. (2013) split the social support sub-scale into three sub-scales measuring teacher support, parent support, and peer-support.

Given that non-victimised children will be included in the analyses the measurement of peer-victimisation coping in these children could reflect their *expected* or *hypothesised* coping behaviour. This is because these children may not have experiences of peer-victimisation and thus may not be aware of their *actual* coping responses to peer-victimisation. However, previous literature (Compas et al., 1988) does suggest a strong degree of consistency in coping strategy use across domains (e.g., peer stressors and academic stressors), and therefore it is plausible that non-victimised children's reported coping behaviour does reflect their actual peer-victimisation coping behaviour. Previous peer-victimisation coping literature (e.g., Dirks et al., 2017; Harper et al., 2012; Kochenderfer-Ladd, 2004; Visconti & Troop-Gordon, 2010) has also used a whole sample approach, whereby some children reporting on coping behaviour in the sample may not have experienced peer-victimisation. However, to acknowledge that

some children's report of coping will be hypothetical the term 'expected coping behaviour' will be used when referring to the measure of coping behaviour This term reflects both actual and hypothetical coping behaviour.

In summary, the revised scale measured six types of expected coping behaviour: (1) Adult support, (2) Peer support (3) Avoidance, (4) Problem solving, (5) Retaliation, and (6) Internalising coping. Example items include (1) "Tell my mum or dad what happened", (2) "Ask a friend what I should do", (3) "Act like nothing happened", (4) "Try to find out why it happened", (5) "Hurt the mean child back", and (6) "Become so upset that I cannot talk to anyone", respectively. Similar to Kochenderfer-Ladd and Pelletier (2008), children were asked to imagine how they would respond if another child was mean to them (i.e., hurt me, called me names, or made me upset). Children responded using a 3-point scale whereby 1 = *Never*, 2 = *Sometimes,* and 3 = *Most of the time*, to indicate how often they used each strategy or expected to use the strategy. Higher scores indicated greater expected use of the specific coping type.

5.5.3 Friendship Quantity

Children's friendship quantity (number of friends and the peer network) was measured using a peer-nomination strategy, whereby children were asked to nominate those in the class whom they felt 'Gave them help, support and cared about them'. This approach was taken in response to feedback from the schools. Several educators raised concerns about directly asking children to nominate friends in the classroom. Previous research has overcome these issues by asking children who they play with in the classroom (e.g. Buhs & Ladd, 2001; Burr, Ostrov, Jansen, Cullerton-Sen, & Crick, 2005). However, the current thesis wanted to ensure that friendship was measured rather than just social interactions and therefore selected three key components of friendship that could be understood by the children and would provide an approximate measure of friendship (Berndt & Perry, 1986; Bukowski et al., 1994). Children nominated on average 4.41 children in the class at Time 1, 4.39 children at Time 2 and 4.75 children at Time 3. This average aligns with existing literature examining children's friendship (Bukowski & Adams, 2005; Echols & Graham, 2016; Rubin et al., 2006).

Although a space for a total of seven names was given, children were informed that they could nominate as many or as few people from their class as they would like. This unlimited nomination procedure has been used in previous research, with children typically selecting between three and five names (Bukowski & Adams, 2005; Echols & Graham, 2016; Rubin et al., 2006). Children were asked only to nominate other children

in their class. The peer-nominations were used to calculate three measures that represented children's quantity of friendship. These are as follows:

5.5.3.1 Total Number of Reciprocated Friendships (referred to as reciprocity (total))

The number of mutual ties a child received was calculated by summing the total number of out-going ties that were reciprocated i.e., Child A nominated Child B and Child B nominated Child A. This provided an indication of the number of friends a child had.

5.5.3.2 Proportion of Reciprocated Friendship Ties (referred to as reciprocity (proportion))

To account for children with a high number of out-going ties being more likely to receive a reciprocated tie (Vaquera & Kao, 2008), the current thesis also calculated the number of ties that were reciprocated as a proportion of out-going ties. i.e., A child who nominated 6 peers but received only 2 back would have a proportion score of $2/6 = 0.33$, whereas a child who nominated 4 children and received 3 nominations back would have a proportion score of $3/4 = 0.75$. This measure represents the extent to which children are 'successful' in identifying friendship in the class and additionally, which children are rejected by those who they nominated as friends. This measure was validated via examining the bivariate association between the proportion of reciprocated ties score and school loneliness, which indicated that the proportion of reciprocated ties a child received was negatively associated with their experience of school loneliness (Time 1: $r = -.29$, $p<.01$, $n = 439$; Time 2: $r = -.19$, $p<.01$, $n = 334$; Time 3: $r = -.20$, $p<.01$, $n = 347$).

5.5.3.3 Centrality (Closeness)

A child's centrality score was calculated using the closeness centrality measure. Closeness centrality accounts for the whole network (unlike some other centrality measures i.e., degree; Prell, 2015) and measures the extent to which an actor (child) can easily access the rest of the network. This is important should the actor wish to seek support or information from multiple actors (Leavitt, 1951). The formula for closeness centrality is as follows:

$$C_c(i) = \sum_{j=1}^{n} d_{ij}$$

Where d_{ij} = the distance connecting actor *i* and actor *j*

5.5.4 Friendship Quality

Children's friendship quality was measured using the Friendship Qualities Scale (FQS; Bukowski et al., 1994). Children were asked to think of a best friend whilst answering the questions and responded using a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The original scale consists of five subscales measuring (1)

Companionship, (2) Conflict, (3) Help, (4) Security, and (5) Closeness. However, examination of the factor structure (see Section 5.6.2.3) indicated poor model fit at Time 1 and therefore the dimensionality of the FQS was further examined using EFA and CFA. Results indicated a number of poor items, which were eliminated from the scale reducing it to a 3-factor solution. The new 14-item scale measured: (1) Security, (2) Help and, (3) Conflict. Higher scores for the security and help sub-scales represented greater perceived quality of friendship, whereas higher scores for the conflict sub-scale indicated lower perceived quality friendship. Example items include 'If I have a problem at home or school, I can talk to my friend about it', 'My friend helps me when I am having trouble with something', and 'My friend and I can argue a lot', respectively. The FQS has been used extensively in research with children (e.g., Defeyter, Graham, & Russo, 2015; Zucchetti, Candela, Sacconi, & Rabaglietti, 2015).

5.5.5 School Loneliness

A 4-item measure of school loneliness was constructed from the Loneliness and Social Dissatisfaction Questionnaire (Asher, Hymel, & Renshaw, 1984), e.g., "I am lonely at school". Children responded using a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Example items include "I feel alone at school" and "I feel that I have nobody to talk to at school". Higher scores indicate higher levels of perceived school loneliness. The scale has previously been used in early childhood and middle childhood UK populations (e.g., Rotenberg et al., 2010).

5.6 PSYCHOMETRIC PROPERTIES OF MEASURES

This section provides the results of all confirmatory factor analyses (CFAs) that were run on the self-report measures used within the study. Details regarding factor loadings and residual variance are only given for the Time 1 CFAs, however the model fit for the variables across all three time-points are provided in Table 5.9. The CFAs were initially conducted using the structure outlined by the scales' authors, and the model fit was assessed using the fit criteria as discussed in Section 5.6.1. Two scales produced a poor fit to the data ('What would I do' coping scale and Friendship Qualities Scale) and therefore exploratory factor analysis was used for these scales to identify the dimensionality of the items. The CFAs for all measures were run separately with Time 1, Time 2, and Time 3 data, including the new structures for identified for 'What would I do' coping scale and the Friendship Qualities scale. By running the CFAs with the Time 1, Time 2, and Time 3 datasets this ensured a robust test of the measurement model for

each scale and avoided concerns associated using the same dataset to build (EFA) and test (CFA) a measurement model (Furr, 2011).

5.6.1 Model Fit Criteria for Structural Equation Models

The model fit for all structural equation models, including the CFAs, was assessed using the fit criteria outlined in Schreiber, Nora, Stage, Barlow, and King (2006). The chi-square (χ^2) ratio test was used an indicator of absolute fit, whereby a ratio of χ^2 to $df \leq 3$ was considered acceptable. The χ^2 *p*-values were not used as an indication of model fit due to the over-sensitivity of χ^2 statistic to sample size (Vandenberg, 2006). The comparative fit of the model was assessed using the Comparative Fit Index (CFI; Bentler, 1990) and the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), with values greater or equal to 0.95 considered acceptable. The standardised RMR (SRMR) was also used with values less than 0.08 indicating acceptable model fit. In instances whereby ordinal data was used, then the weighted root mean residual (WRMR) was used as an alternative to the SRMR, with values less than 0.90 being acceptable (Wirth & Edwards, 2007). However, it is worth noting that the WRMR statistic has been reported as having a higher rejection rate in moderately to heavily non-normal samples (Hsu, 2011) and it is advised to only use the statistic as additional evidence. Finally, the root mean square error of approximation (RMSEA) was employed, with a 95% confidence interval between 0.06 and 0.08 indicating acceptable model fit (Hooper et al., 2008).

5.6.2 Confirmatory Factor Analysis

The reliability and dimensionality of all self-report measures were assessed with confirmatory factor analysis using robust maximum likelihood (MLR) estimation for measures with ordinal approximation of a continuous variable (Johnson & Creech, 1983; i.e., Loneliness and Social Dissatisfaction Questionnaire and the Friendship Qualities Scale) and weighted least squares means and variance adjusted (WLSMV) estimation for measures with ordinal response items (i.e., Multidimensional Peer-Victimisation Scale and the 'What would I do' coping scale). The MLR estimator is an appropriate estimation method as it accounts for any non-normality in the data, which could lead to an over-estimation of the chi-square goodness of fit statistics (Asparouhov & Muthén, 2005). The MLR estimator adjusts for any issues pertaining to skewness of kurtosis of the observed variables using a scaling factor, therefore negating the need to transform data prior to analyses. For ordinal variables, the WLSMV estimator is an important alternative to the MLR estimator as it provides "asymptotically unbiased, consistent, and efficient parameter estimates as well as correct test statistics" (Moshagen & Musch, 2014, p.60). The fit of the CFAs were assessed using the model fit criteria outlined in section 5.6.1.

The final CFA fit criteria for each measure, for Time 1, Time 2, and Time 3, is presented in Table 5.9. In instances whereby the model fit for the CFA was poor, the loadings of the items were examined via exploratory analysis (EFA) and the CFA was re-run with the solution proposed by the EFA.

5.6.2.1 Peer-Victimisation CFA

The published 4-factor solution (Mynard & Joseph, 2000) with all 16 items was retained in the final model. Table 5.3 provides the unstandardised and standardised estimates for the factor loadings, their standard errors, and the residual variances from Time 1. All factor loadings and factor covariances were statistically significant. The standardised loadings for the items ranged from 0.71 to 0.92 for the physical victimisation factor, 0.65 to 0.87 for the social victimisation factor, 0.78 to 0.81 for the verbal victimisation factor and 0.76 to 0.93 for the attack on property victimisation factor. The R^2 values for each factor ranged from 0.50 to 0.66. Cronbach's alpha for the four sub-scales were α =0.80 (physical), α=.80 (social), α=.78 (verbal), and α=.83 (attack on property). The model fit for the peer-victimisation scale is presented in Table 5.9 for all three time-points.

Table 5.3 *CFA Time 1 Loadings and Residual Variance for the Four-Factor Multidimensional Peer-Victimisation Scale at Time 1*

Factor	Item	Unstandardised Loading (SE)	Standardised Loading (SE)	Residual Variance
Physical	1. Punched me	1.00 (--)	0.71 (0.04)	0.50
	5. Kicked me	1.28 (0.08)	0.90 (0.02)	0.19
	10. Hurt me physically	1.30 (0.08)	0.92 (0.02)	0.16
	12. Beat me up	1.13 (0.10)	0.80 (0.06)	0.36
Social	2. Tried to get me in trouble with my friends	1.00 (--)	0.77 (0.03)	0.40
	6. Tried to make my friends turn against me	1.13 (0.05)	0.87 (0.02)	0.24
	11. Refused to talk to me	0.84 (0.06)	0.65 (0.04)	0.58
	13. Made other people not talk to me	1.10 (0.06)	0.82 (0.03)	0.27
Verbal	3. Called me names	1.00 (--)	0.81 (0.03)	0.35
	8. Made fun of me because of my appearance	1.00 (0.05)	0.81 (0.03)	0.35
	16. Made fun of me for some reason	0.98 (0.04)	0.79 (0.03)	0.37
	14. Swore at me	0.97 (0.05)	0.78 (0.04)	0.39
Attack on Property	4. Took something of mine without permission	1.00 (--)	0.76 (0.03)	0.43
	7. Stole something from me	1.11 (0.06)	0.84 (0.03)	0.30
	9. Tried to break something of mine	1.17 (0.06)	0.89 (0.03)	0.21
	15. Deliberately damaged something of mine	1.22 (0.06)	0.93 (0.03)	0.14

n = 443

5.6.2.2 Expected Coping with Peer-victimisation EFA and CFA

The original five-factor solution for the 'What would I do' scale (Kochenderfer-Ladd & Pelletier, 2008) produced a poor fit (χ^2/ *df* = 3.07; CFI/TLI = 0.92/0.90; 95% CI RMSEA = [0.06, 0.07]; and WRMR = 1.56) and thus an alternative factor solution was sought. As the loadings and estimates from the original five-factor solution did not signify any

immediate solutions, an EFA using principal components analysis was conducted to determine the dimensionality for the 'What would I do' scale with the given data.

A number of criteria was used to examine the suitability of the items prior to identifying the number of factors and the loadings of the items. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.77, above the recommended value of 0.60, and Barlett's test of Sphericity was significant. (χ^2 (276) = 3102.31, $p < .01$; Pett, Lackey, & Sullivan, 2003). The diagonals of the anti-image correlation matrix were also all above the recommended 0.50 level. In addition, all item communality values were above the recommend 0.40 level (Furr, 2011).

A principal components analysis was then conducted using a Geomin rotation. Geomin rotation is an oblique rotation, and therefore the factors are assumed to be correlated (Hattori, Zhang, & Preacher, 2017). This analysis was run in M*plus* 7.4 (L. K. Muthén & Muthén, 2012) as it has the capacity to perform EFA with ordinal data using the WLSMV estimator. The scree plot and Eigen values suggested a six-factor solution. Initial Eigenvalues indicated that the six factors explained a total of 58.04% of the variance. Variance for individual factors is not provided as EFA focuses on factors that account for common variance in the data (Brown, 2009). One item (Item 2; 'Tell the mean child that I do not care') was removed after examining the rotated component matrix due to cross-loading at 0.32 or above. The EFA was re-run with the final 23 items, which again suggested a 6-factor solution. The loadings of the items in the 6-factor solution were almost identical in dimensionality to the original 5-factor solution, with the exception of 2-items moving from the 'Problem Solving' coping sub-scale to a new 6th factor. These items were Item 14 (Ask a friend what to do) and Item 21 (Tell a friend what happened). The new factor was subsequently labelled 'Peer-Support'. Although two-item measures are not typically recommended (Furr, 2011), they can be retained if they represent a meaningful construct (Worthington & Whittaker, 2006). The final solution communalities and loadings for the revised 'What would I do' coping scale EFA are provided in Table 5.4.

The internal consistencies for the six factors ranged from α=0.62 to α=0.84. It is worth noting that although an arbitrary cut-off of α=0.70 is often used as an indicator of acceptable internal consistency, Cronbach's alpha has been shown to be spuriously deflated when a scale has less than five response points (Gelin, Beasley, & Zumbo, 2003). The 'What would I do' scale uses a 3-point response scale and thus the low internal consistency could be the result of a deflated Cronbach's alpha.

Table 5.4 *Final Solution Communalities and Loadings for the 'What Would I do' Scale Exploratory Factor Analysis*

Item	Communality	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
5. Feel like crying	0.56	0.70					
13. Become so upset that I cannot talk to anyone	0.63	0.89					
15. Worry that other children may not like me	0.53	0.67					
17. Think about it for a long time	0.45	0.49					
19. Go off by myself	0.43	0.54					
24. Blame myself for doing something wrong	0.40	0.53					
1. Tell my mum and dad what happened	0.61		0.50				
6. Ask the teacher what to do	0.74		0.68				
9. Tell the teacher what happened	0.83		0.83				
18. Ask my mum or dad what to do	0.70		0.49				
7. Forget the whole thing	0.72			0.89			
10. Act like nothing happened	0.44			0.60			
23. Tell myself it doesn't matter	0.53			0.60			
4. Shout at the child who is being mean	0.52				0.71		
12. Hurt the mean child back	0.76				0.94		
16. Hurt the child who was mean to me	0.78				0.95		
20. Throw or hit something because I get angry	0.51				0.64		
22. Do something mean back to the person	0.76				0.91		
3. Try to think of ways to stop it	0.56					0.49	
8. Try to find out why it happened	0.56					0.40	
11. Change things to keep it from happening again	0.34					0.43	
14. Ask a friend what to do	0.72						0.79
21. Tell a friend what happened	0.74						0.79

Note: n = 442; Factor 1 = Internalising coping, Factor 2 = Adult Support coping, Factor 3 = Avoidance coping, Factor 4 = Retaliation coping, Factor 5 = problem solving coping, Factor 6 = Peer Support coping.

The 6-factor EFA solution was validated using CFA (with Time 1, Time 2, and Time 3 data), which produced a good fit to the data. The model fit for Time 1, Time 2, and Time 3 are given in Table 5.9. The final six-factor solution is provided in Table 5.5, including the unstandardised and standardised estimates for the factor loadings, their standard errors, and the residual variances from Time 1. All factor loadings were significant. On the basis of the findings from the EFA and CFA all subsequent analyses used the 6-factor solution.

Table 5.5. *'What would I do' Coping Scale CFA Time 1 Loadings and Residual Variance*

Factor	Item*	Unstandardised Loading (SE)	Standardised Loading (SE)	Residual Variance
Internalising	5	1.00 (--)	0.64 (0.04)	0.59
	13	1.34 (0.11)	0.86 (0.03)	0.27
	15	1.06 (0.09)	0.68 (0.04)	0.55
	17	0.85 (0.09)	0.55 (0.04)	0.70
	19	0.91 (0.09)	0.58 (0.04)	0.66
	24	0.84 (0.10)	0.54 (0.05)	0.71
Adult Support	1	1.00 (--)	0.71 (0.04)	0.49
	6	1.19 (0.07)	0.85 (0.03)	0.28
	9	1.16 (0.06)	0.83 (0.03)	0.33
	18	1.14 (0.07)	0.81 (0.03)	0.44
Avoidance	7	1.00 (--)	0.74 (0.06)	0.51
	10	1.05 (0.13)	0.70 (0.05)	0.45
	23	0.86 (0.10)	0.61 (0.05)	0.63
Retaliation	4	1.00 (--)	0.70 (0.04)	0.51
	12	1.36 (0.08)	0.95 (0.02)	0.11
	16	1.34 (0.08)	0.94 (0.02)	0.12
	20	0.94 (0.08)	0.66 (0.05)	0.57
	22	1.34 (0.08)	0.94 (0.02)	0.13
Problem Solving	3	1.00 (--)	0.71 (0.05)	0.50
	8	0.92 (0.10)	0.65 (0.05)	0.58
	11	0.87 (0.10)	0.62 (0.05)	0.62
Peer Support	14	1.00 (--)	0.86 (0.04)	0.28
	21	0.96 (0.09)	0.82 (0.04)	0.32

Note: n = 442 *Item labels can be found in Table 5.4 corresponding to the item number.

5.6.2.3 Friendship Quality EFA and CFA

The original five-factor solution for the Friendship Qualities Scale (Bukowski et al., 1994) produced a reasonable fit to the data (χ^2/ *df* = 1.71; CFI/TLI = 0.92/0.91; 95% CI RMSEA = [0.03, 0.05]; and SRMR = 0.05), however the CFI and TLI values were below those recommended by Shreiber et al. (2006) and suggested low correlation amongst some indictors. Furthermore, examination of the Cronbach's alpha values of each sub-scales suggested poor internal reliability for the companionship and security sub-scales (α=0.58 and α= 0.63), respectively. An alternative factor solution was therefore

explored. In order to identify any problematic items and the dimensionality of the scale, an EFA was conducted using principal components analysis.

A number of criteria was used to examine the suitability of the items prior to identifying the number of factors and the loadings of the items. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.89, above the recommended value of 0.60, and Barlett's test of Sphericity was significant. ($\chi 2$ (253) = 2699.92, $p < .01$; Pett et al., 2003). The diagonals of the anti-image correlation matrix were also all above the recommended 0.5 level. All except two items had communality extractions above 0.4, indicating that these two items had shared common variances with other items (Furr, 2011). Item 1 ("I feel happy when I am with my friend") and Item 7 ("My friend thinks of fun things for us to do together") had communality values below the recommended level (0.33 and 0.38 respectively) and thus were removed from further analyses.

A principal components analysis using Direct Oblimin rotation was then run in SPSS 23 (IBM, 2015) to examine the dimensionality of the final items. Direct Oblimin rotation is another type of orthogonal rotation and was selected as it was assumed the factors would be correlated (Costello & Osborne, 2005). The scree plot and Eigen values indicated a 5-factor solution. Initial eigenvalues indicated that the five factors explained 27.75%, 10.59%, 5.84%, 5.25%, and 4.89% respectively. Two items were eliminated after examining the factor loadings in the pattern matrix. Item 22 'Sometimes my friend does things for me or makes me feel special' was removed due to cross-loadings of 0.32 or above. Item 6 'When I go a good job at something my friend is happy for me' was also dropped due to theoretical misalignment, whereby item 6 loaded onto the 'Help' factor. Finally, 2 factors (Companionship and Closeness) were removed as they both contained only 2 items each and had poor internal consistency (α=0.54 and α=0.39). The total variance explained by the final three factors was 53.96%. The communalities and factor loadings for the three-factor solution are provided in Table 5.6.

Table 5.6 *Final Solution Communalities and Loadings for the Friendship Qualities Scale Exploratory Factor Analysis at Time 1*

Items	Communalities	Factor 1 (Help)	Factor 2 (Conflict)	Factor 3 (Security)
2. My friend would help me if I needed it	0.45	0.62		
4. If I have a problem at home or school, I can talk to my friend about it	0.44	0.66		
9. If other children were bothering me, my friend would help me	0.52	0.74		
12. If I forgot something I needed for school (e.g. pen, ruler), my friend would let me borrow one of his/hers	0.40	0.63		
15. My friend helps me when I am having trouble with something	0.64	0.80		
20. My friend would stick up for me if another person was causing me trouble	0.56	0.75		
23. If there is something bothering me, I can tell my friend about it even if it is something I cannot tell other people	0.47	0.65		
3. My friend and I disagree about many things	0.60		0.77	
8. My friend can bug me or annoy me even when I ask him/her not to	0.50		0.69	
14. My friend and I can argue a lot	0.68		0.74	
19. I can get into fights with my friend	0.60		0.66	
10. If I said I was sorry after I had a fight with my friend, they would still stay mad at me	0.50			0.70
16. If my friend or I do something that bothers the other one of us, we can make up easily	0.61			0.68
21. If my friend and I have a fight or argument, we can say 'I'm sorry' and everything will be alright	0.59			0.62
Variance Explained		31.51%	14.60%	7.85%

Note: n = 443

The final solution retained 14-items from the original 23-items, with 3-factors. The three retained factors measured security, help and conflict. The three-factor solution provided by the EFA was validated using CFA (with Time 1, Time 2, and Time 3 data). The final solution provided a good model fit across Time 1, Time 2, and Time 3 (see Table 5.9). The unstandardised and standardised estimates for the two-factor item loadings, their standard errors, and the residual variances for time 1 are provided in Table 5.7. All factor loadings and the factor covariances were statistically significant. Internal consistency for the security, help and conflict factors were α =0.82, α =0.80 and α =0.72 respectively.

Table 5.7 *Friendship Qualities Scale CFA Time 1 Loadings and Residual Variance*

Factor	Item*	Unstandardised Loading (SE)	Standardised Loading (SE)	Residual Variance
Help	2	1.00 (--)	0.60 (0.05)	0.64
	4	1.47 (0.18)	0.60 (0.05)	0.64
	9	1.50 (0.20)	0.68 (0.05)	0.54
	12	1.37 (0.17)	0.57 (0.05)	0.67
	15	1.50 (0.16)	0.75 (0.03)	0.43
	20	1.34 (0.18)	0.68 (0.05)	0.54
	23	1.62 (0.20)	0.61 (0.04)	0.63
Conflict	3	1.00 (--)	0.44 (0.05)	0.81
	8	1.50 (0.23)	0.54 (0.05)	0.70
	14	2.05 (0.28)	0.80 (0.04)	0.38
	19	1.80 (0.27)	0.69 (0.04)	0.53
Security	10	1.00 (--)	0.43 (0.06)	0.82
	16	1.31 (0.19)	0.69 (0.04)	0.52
	21	1.39 (0.19)	0.73 (0.05)	0.47

Note: n = 443 *Item labels can be found in Table 5.6 corresponding to the item number

5.6.2.4 School Loneliness CFA

The validity of the unidimensional school loneliness scale was assessed, providing a good model fit to the data across Time 1, Time 2, and Time 3 (see Table 5.9). The unstandardised and standardised estimates for the item loadings, their standard errors, and the residual variances for time 1 are provided in Table 5.8. All factor loadings were statistically significant. The internal consistency for the scale was excellent, whereby α= 0.87.

Table 5.8 *School Loneliness Scale CFA Time 1 Loadings and Residual Variance*

Factor	Item	Unstandardised Loading (SE)	Standardised Loading (SE)	Residual Variance
Loneliness	1. I feel alone at school	1.00 (--)	0.86 (0.02)	0.26
	2. I feel left out of things at school	0.90 (0.05)	0.77 (0.03)	0.41
	3. I am lonely at school	0.94 (0.05)	0.87 (0.02)	0.25
	4. I have nobody to talk to	0.81 (0.05)	0.75 (0.04)	0.43

n = 443

Table 5.9 *Final CFA Model Fit Statistics for all Self-Report Measures*

	Time 1				Time 2				Time 3			
Measures	**χ^2(*df*)**	**CFI/TLI**	**RMSEA (95%)**	**SRMR***	**χ^2(*df*)**	**CFI/TLI**	**RMSEA (95%)**	**SRMR***	**χ^2(*df*)**	**CFI/TLI**	**RMSEA (95%)**	**SRMR***
Peer-Victimisation	202. 83 (98)	0.98/0.98	0.04, 0.06	0.83	163.03 (98)	0.99/0.99	0.03, 0.05	0.71	216.79 (98)	0.98/0.98	0.05, 0.07	0.89
Coping	538.40 (215)	0.95/0.94	0.05,0.07	1.32	505.51 (215)	0.96/0.96	0.06, 0.07	1.29	576.02 (215)	0.96/0.95	0.06, 0.08	1.40
Friendship Quality	127.10 (74)	0.96/0.95	0.03,0.05	0.04	99.08 (74)	0.98/0.97	0.01, 0.05	0.06	138.00 (74)	0.94/0.93	0.04, 0.06	0.05
School Loneliness	0.14 (2)	1.00/1.00	0.00,0.03	0.01	4.90 (2)	0.99/0.97	0.00, 0.14	0.02	0.78 (2)	1.00/1.00	0.00, 0.08	0.01

*SRMR is WRMR for ordinal variables

5.7 UNIVARIATE NORMALITY TESTING

The univariate normality of the School Loneliness scale and the Friendship Qualities Scale was examined via skew and kurtosis values. A skew or kurtosis value of ±2 is considered acceptable (George & Mallery, 2005). The normality of the 'What would I do' coping scale and the Multidimensional Peer-Victimisation scale were not assessed as these two scales have categorical indicators, and therefore normality is not assumed. Skew and kurtosis values for the school loneliness scale at Time 1 and Time 2 were within the normal range (Skew T1 = 1.22, Kurtosis T1 = 0.84, Skew T2 = 1.26, Kurtosis T2 = 1.30). At Time 3 the skewness statistic was within the accepted range (Skew T3 = -1.43), however kurtosis was beyond the accepted range (Kurtosis T3 = 2.14), indicating that school loneliness at Time 3 has a leptokurtic distribution. The two friendship qualities sub-scales, Security and Conflict indicated acceptable skew and kurtosis across all three time-points (Security: T1 Skew = -0.75, T1 Kurtosis = 0.42, T2 Skew = -0.87, T2 Kurtosis = 0.50, T3 Skew = -1.10, T3 Kurtosis = 0.98; Conflict: T1 Skew = -0.25, T1 Kurtosis = 0.57, T2 Skew = 0.59, T2 Kurtosis = -0.24, T3 Skew = -0.68, T3 Kurtosis = -0.09). The Help sub-scale indicated acceptable skew and kurtosis values at T1 (Skew = -1.31, Kurtosis = 1.92) and acceptable skew values at Time 2 and Time 3 (T2 Skew = -1.23, T3 Skew = -1.43). However, the kurtosis values were beyond the accepted range at Time 2 and Time 3 (T2 Kurtosis = 2.20, T3 Kurtosis = 3.08). Similar to the school loneliness measure, this indicated that the Help sub-scale has a leptokurtic distribution. Given the issues with normality, subsequent analyses in Chapters 6 and 7 will utilise a robust maximum likelihood estimator, which can account for issues pertaining to normality (Hox, Maas, & Brinkhuis, 2010; Muthén & Muthén, 2012)

5.8 MEASUREMENT INVARIANCE

Measurement invariance, sometimes referred to as measurement equivalence, is the statistical principle that a measure applied across multiple groups (or time-points) is considered to be on the same scale i.e., the scale or measure being used is measuring the same psychological construct in each group or at each time-point (Gregorich, 2006). If this assumption does not hold true, then any comparisons between groups or time will yield unreliable estimates (Milfont & Fischer, 2010). Measurement invariance does not only apply across groups, but also across time. In this instance, it is important ensure that a measure or scale is assessing the same construct at different points of time. Examining whether a measure is invariant can be achieved through a sequence of multigroup confirmatory factor analyses.

To infer measurement invariance three forms of measurement invariance models are typically examined sequentially, with increasing levels of constraint across parameters. These are referred to as (1) Configural measurement invariance, (2) Metric (or pattern) measurement invariance, and (3) Scalar (or strong) measurement invariance. Configural invariance is the assumption that each group (or time point) is measured with the same structure, i.e., each factor is associated with identical item sets in each group (Gregorich, 2006). This is examined by specifying the same factorial structure in each group (or time-point) of interest but allowing the loadings and intercepts to be estimated freely. This model often serves as a baseline model in which to compare more restrictive models. Following configural invariance, the metric invariance model is specified, whereby the factor loadings are constrained to be equal across groups. This model tests whether the factors have the same meanings across groups (Gregorich, 2006). If metric invariance is supported, then we can make comparisons across estimated factor variances (but not observed variances or means). To compare across the observed means (i.e., summed item or composite scores) we must ensure the measure is scalar invariant. This model involves constraining both the loadings and intercepts to be equal across groups, thus representing equal response styles in both groups.

5.8.1 Measurement Invariance Across Gender

It is proposed that there will be a moderating effect of gender on a number of relationships, and therefore it is important to ensure that measurement invariance exists across the male and female groups. Subsequently measurement invariance testing was conducted on all self-report measures, using the procedure outlined above (Section 5.8), whereby nested models with increasing levels of constraints were specified and evaluated against the previous using chi-square difference testing i.e., metric against configural and scalar against metric. Table 5.10 provides the model fit for each invariance model per measure, and the results of the chi-square difference tests at Time 1.

Results from the measurement invariance testing at Time 1 indicated that the Multidimensional Peer-Victimisation Scale and the measure of school loneliness were all measurement invariant at the configural, scalar and metric level. However, the 'What would I do' coping scale and the Friendship Qualities scale were not measurement invariant at the scalar or metric level. Researchers suggest that in instances whereby measurement invariance has not been established then partial measurement invariance can be explored (Steinmetz, 2013; Vandenberg & Lance, 2000).

Table 5.10 *Time 1 Model fit and Model Comparisons for Measurement Invariance Testing Across Gender (Male/Female)*

Measure	Model Type	$\chi^2(df)$	CFI/TLI	RMSEA 95% CI	SRMR*	$\Delta\chi^2$	Δp	Accept?
Multidimensional Peer-Victimisation Scale	Configural	228.43 (142)	0.99,0.98	0.04, 0.07	0.95	-	-	-
	Metric	242.15 (152)	0.99, 0.98	0.04, 0.06	0.99	59.23 (48)	0.13	✓
	Scalar	271.55 (190)	0.99, 0.99	0.03, 0.06	1.01	45.13 (38)	0.20	✓
'What Would I do' Coping Scale	Configural	702.62 (430)	0.95, 0.94	0.05, 0.06	1.51	-	-	-
	Metric	748.35 (447)	0.94, 0.94	0.05, 0.06	1.56	91.94 (34)	<0.01	×
	Scalar	779.22 (464)	0.94, 0.93	0.05, 0.06	1.60	38.17 (17)	<0.01	×
Friendship Qualities Scale	Configural	197.73 (148)	0.96, 0.95	0.02, 0.05	0.05	-	-	-
	Metric	215.30 (159)	0.95, 0.95	0.03, 0.05	0.07	17.15 (11)	0.10	✓
	Scalar	235.73 (170)	0.95, 0.94	0.03, 0.05	0.07	21.52 (11)	0.03	×
School Loneliness	Configural	2.82 (4)	1.00, 1.00	0.00, 0.09	0.02	-	-	-
	Metric	4.16 (7)	1.00, 1.00	0.00, 0.06	0.02	0.77 (3)	0.86	✓
	Scalar	6.56 (10)	1.00, 1.00	0.00, 0.05	0.02	3.05 (3)	0.38	✓

*WRMR for ordinal indicators ('Multidimensional Peer-Victimisation Scale' and 'What would I do' coping scale); n = 443

5.8.1.1 Partial Measurement Invariance Testing

Although full scalar invariance must be established in order to compare observed composite scores across groups, latent means can still be used to compare groups if partial invariance is established (Steinmetz, 2013; Vandenberg & Lance, 2000). To establish partial invariance, at least two invariant indicators are required per factor (Steenkamp & Baumgartner, 1998).

Both the Friendship Qualities Scale and the 'What would I do' Coping scale were found to be measurement variant at either the metric or scalar level in the full measurement invariance testing stage, and therefore were further examined to ascertain whether partial invariance could be established. During the full measurement invariance testing the Friendship Qualities Scale was found to be invariant at the configural and metric level, but not at the full scalar level whereby the chi-square difference testing indicated that the scalar model was a significantly worse fit to the data (p=0.02). This finding therefore suggests that the measurement variance lies at the intercept level. The scalar model was re-specified with one intercept freed per indicator until variant indicator was identified. Item 20 was found to be the only problematic item ($\chi^2(1) = 5.43$, $p<.05$) and therefore partial measurement invariance was established in the Friendship Qualities Scale. Subsequently, gender differences can be examined with regards to friendship quality if latent means are used.

The 'What would I do' scale was found to have measurement variance at the configural, metric, and scalar level. This finding suggests that the measurement variance lies at the factor level and indicates that male and females ascribe different meanings to the latent construct (van de Schoot, Lugtig, & Hox, 2012). Similarly, to the Friendship Qualities Scale, the model fit was further examined to identify whether partial measurement invariance could be obtained. However, the loadings proved invariant across all sub-scales and was not resolvable through freeing specific item loadings (van de Schoot & Hox, 2012). This has implications for subsequent analyses. Specifically, gender differences pertaining to coping cannot be examined, given that any observed differences could be the result of measurement variance, rather than true differences in expected coping behaviour (Cheung & Rensvold, 2002; Meredith, 1993). Therefore, within the context of this thesis gender differences will not be examined.

5.8.2 Measurement Invariance Across Time

Although no direct comparisons across time were planned in future analyses, the extent to which the measures exhibited measurement invariance and structural invariances

across time was examined, should any comparisons take place in post-hoc analyses. Using the procedure outlined in Section 5.8 nested models with increasing levels of constraints were specified and evaluated against the previous using the chi-square difference testing i.e. metric against configural and scalar against metric. The Satorra-Bentler scaled chi-square test (Satorra & Bentler, 2010) was used for models specified using the maximum likelihood robust estimator. Table 5.11 provides the model fit for each model invariance model per measure, and the results of the chi-square difference tests.

The results from the measurement invariance testing across time indicated that 'What would I do' coping scale and the School Loneliness scale were measurement invariant at the scalar level. This indicates that there are comparable response patterns to these measures across time, and thus additional analyses can be specified to examine whether there are differences expected coping and school loneliness across time. However, the Multidimensional Peer-Victimisation Scale and the Friendship Qualities Scale were only measurement invariant at the metric scale. This finding indicates that although participants ascribe similar meanings to the scale across time, the factor loadings vary significantly between time-points. Given that these measures will be specified as latent variables in subsequent analyses, the current thesis can also examine whether there are any differences across time regarding friendship quality and peer-victimisation experiences. The thesis cannot, however, compare across observed means (composite scores), given that the two measures were variant at the scalar level. Therefore, any post-hoc analyses examining differences across time must specify these variables using their latent constructs.

Table 5.11 *Measurement Invariance Testing Across Time*

Measure	Model Type	$\chi^2(df)$	CFI/TLI	RMSEA 95% CI	SRMR*	$\Delta\chi^2$	Δp	Accept?
Multidimensional Peer-Victimisation Scale	Configural	1557.83 (966)	0.90/0.89	0.03, 0.04	0.92	-	-	-
	Metric	1564.19 (990)	0.91/0.89	0.03, 0.04	0.95	20.60 (24)	0.62	✓
	Scalar	1607.24 (1022)	0.90/0.89	0.03, 0.04	0.99	47.06 (32)	0.04	×
'What Would I do' Coping Scale	Configural	3145.99 (2055)	0.89/0.87	0.03, 0.04	1.20	-	-	-
	Metric	3171.75 (2092)	0.89/0.87	0.03, 0.03	1.51	36.88 (37)	0.47	✓
	Scalar	3219.89 (2126)	0.88/0.87	0.03, 0.03	1.56	48.87 (34)	0.05	✓
Friendship Qualities Scale	Configural	1057.25 (741)	0.94/0.93	0.02, 0.03	0.05	-	-	-
	Metric	1072.79 (763)	0.94/0.93	0.02,0.03	0.06	15.54 (22)	0.84	✓
	Scalar	1138.42 (791)	0.93/0.92	0.02, 0.03	0.06	65.21 (28)	p<.01	×
School Loneliness	Configural	55.34 (39)	0.99/0.98	0.01, 0.05	0.04	-	-	-
	Metric	71.39 (47)	0.98/0.98	0.02, 0.05	0.06	16.69 (8)	0.03	×
	Scalar	76.01 (51)	0.98/0.98	0.02,0.05	0.05	2.19 (4)	0.70	✓

*WRMR for ordinal indicators ('Multidimensional Peer-Victimisation Scale' and 'What would I do' coping scale); n = 510 (Peer-Victimisation), n = 508 (Coping), n = 510 (Friendship), n = 506 (School Loneliness

5.9 ANALYSIS TECHNIQUES

The following two sub-sections of this chapter will briefly outline and justify the statistical analytical approaches used in Chapters 6, 7 and 8.

5.9.1 Structural Equation Modelling

Over the last 45 years Structural Equation Modelling (SEM) has become one of the most important data analysis techniques used by social scientists. Its strength lies in the ability to represent theoretical constructs as latent factors (Hox & Bechger, 1998), with the relationships between these factors examined via regression analyses. Concomitantly, SEM is often viewed as superior to other multivariate procedures as it can account for measurement error within variables (Byrne, 2012). Alternative methods, such as general linear models, are unable to account for this error, specifically in independent variables, and thus are at risk of inaccurate estimations (Byrne, 2012). In addition, the application of SEM, or path analysis in general, allows for the examination of complex indirect effects, including those in series, parallel, and moderated indirect effects (Hayes, 2015). The application of SEM also provides robust methods for dealing with missing and skewed data, including estimators such as maximum likelihood robust (MLR) that utilises a robust approach to estimating chi-square and standard errors (Hox et al., 2010). This estimator is assumed to be robust against moderate violations of the assumptions pertaining to regression analyses (Hox et al., 2010). SEM will be used in Chapter 6 to address Research Aims 1 and 2. SEM can also be applied to longitudinal analyses in order to model causal inferences (Little, 2013). Specifically, cross-lagged models will be applied in Chapter 7 of the thesis to examine the causal relationships between peer-victimisation, expected coping behaviour, friendship, and school loneliness (Research Aims 3 and 4). Given the research aims and the various statistical strengths of SEM, the current thesis employed SEM as the most appropriate statistical technique for the analyses (Research Aims 1 – 4).

5.9.1.1 Multilevel Modelling

One could contend that, given the structure of the data, multilevel modelling should be employed to account for variance at the higher level (i.e., classrooms or schools). However, the number of classrooms (n=18) and the number of schools (n=8) in the current dataset mean that multilevel modelling could result in biased estimates. Specifically, Maas and Hox (2005) simulations indicate that a small sample size at the higher level (n<50) results in biased estimates of the higher-level standard errors. This results in alpha levels operating way beyond the agreed 5% range (Hox, Maas, & Brinkhuis, 2010). The importance of a large higher-level sample is further supported by Snijders (2005). Resultantly, given the small number of schools and classrooms in the current dataset, it was decided not to employ multilevel modelling techniques in the analyses.

5.9.2 Stochastic Actor Orientated Models (SAOM)

Until more recently, the constraints of computing power availability meant that social networks were often examined via traditional regression based techniques (Burk et al., 2007; Snijders et al., 2010). However, these techniques are unsuitable for social networks, given the dependent and stochastic nature of social ties (Snijders et al., 2010). Subsequently, a specific type of longitudinal social network analytical technique has been developed that addresses these limitations, called stochastic actor orientated models, which has been made more accessible via increased computing power and R packages (Snijders et al., 2007). This longitudinal network modelling technique estimates change in social networks over time and the influences underlying these changes. Furthermore, a strength of SAOMs is the ability to model parameters of interest, whilst also controlling for common network structural effects (Burk et al., 2007; Snijders et al., 2010). Given the strengths of SAOMs, the current thesis employed SAOM as the most appropriate statistical technique to address Research Aim 5. A more detailed overview of SAOM is provided in Chapter 8.

5.10 CHAPTER SUMMARY

To summarise, this chapter has discussed the methodology and measures to be used in the three empirical chapters (Chapter 6, Chapter 7, and Chapter 8). This chapter first outlined the sampling requirements for the study and presented the characteristics of the sample to be used in the three empirical chapters. Next the chapter provided information pertaining to the data-collection procedures, including ethical considerations. The chapter also examined the psychometric properties of the measures used, including the overall structure of the latent variables. Specifically, it was found that the Friendship Qualities Scale and the 'What would I do' coping scale had different factor solutions than the original scales. This meant that the structure of the scales used in subsequent analyses is different to the original published scales. Specifically, subsequent analyses will examine three types of friendship quality (helpfulness, security, and conflict) and six types of expected coping (peer-support, adult-support, problem-solving, retaliation, avoidance, and internalising). The current chapter also examined whether the scales were measurement invariance across both time and gender. It was found that the 'What would I do' coping scale was measurement variant across gender. Furthermore, partial invariance could not be achieved. This means that boys and girls, in the current sample, ascribe different meanings to the latent construct (expected peer-victimisation coping) and therefore any observed differences on the measure may be the result of measurement variance, rather than true differences in expected coping behaviour. This has implications for the subsequent empirical chapters, such that gender differences pertaining to expected coping behaviour cannot be examined. Measurement invariance was also examined across time, with analyses indicating that

the Friendship Qualities Scale and the Multidimensional Peer-Victimisation Scale had significantly different factor loadings across time. Thus, any examination of differences across time must specify these variables using latent constructs. Finally, the chapter introduced the analytical techniques that will be used to address the thesis research aims in Chapter 6, 7, and 8, structural equation modelling (Chapter 6 and 7) and stochastic actor orientated models (Chapter 8). Both these modelling techniques will be discussed in further detail in the subsequent empirical chapters.

CHAPTER 6: EXAMINING THE CONCURRENT ASSOCIATION OF FRIENDSHIP ON PEER-VICTIMISATION COPING - TIME 1

6.1 INTRODUCTION TO CHAPTER

This chapter presents the results from a series of statistical models that examine the mechanisms under which friendship may be associated with expected peer-victimisation coping behaviour at a concurrent level. The analyses presented in this chapter will be split into three sections. Firstly, Section 1 of the chapter examines the extent to which friendship is associated with expected coping behaviour (Research Aim 1). This will be achieved via a series of linear models with variables specified as latent variables. Next the chapter models the explanatory and buffering effects of expected coping between peer-victimisation and school loneliness and examines the role of friendship within these models (Research Aim 2). Based on the previous literature discussed in Chapter 4, the analyses make a distinction between maladaptive and adaptive coping mechanisms. It is hypothesised that maladaptive coping mechanisms act as explanatory variables between peer-victimisation and school loneliness, whereas adaptive coping buffers the negative effects of peer-victimisation. Subsequently all expected maladaptive coping behaviours (internalising, retaliation, and avoidance) are specified as mediators in the analyses, whereas expected adaptive coping behaviours (peer-support, adult-support, and problem-solving) will be specified as moderators. Following identification of statistically significant coping mechanisms, the role of friendship quality and friendship quantity on expected coping behaviour will then be examined (Research Aim 1 and Aim 2). The analyses for maladaptive coping will be presented in Section 2 and the analyses for adaptive coping will be presented in Section 3. The hypotheses for the three sections of analyses are as follows:

<u>Section 1 Hypotheses: Relationship Between Friendship and Coping</u>

H6.1a: Positive friendship quality and friendship quantity will be positively associated with peer-support, adult-support, and problem-solving expected coping behaviour

H6.1b: Negative friendship quality (conflict) will be negatively associated with peer-support, adult-support, and problem-solving expected coping behaviour

H6.2a: Positive friendship quality and friendship quantity will be negatively associated with internalising coping, retaliation, and avoidance expected coping behaviour.

H6.2b: Negative friendship quality (conflict) will be positively associated with internalising coping, retaliation, and avoidance expected coping behaviour.

Section 2 Hypotheses: Maladaptive Coping Models

H6.3: Internalising coping, retaliation, and avoidance expected coping behaviour will act as mediators between peer-victimisation and school loneliness.

H6.4: Friendship (Friendship quality and friendship quantity) will moderate the relationship between peer-victimisation and expected maladaptive coping behaviour, and the relationship between expected maladaptive coping behaviour and school loneliness.

H6.5: Friendship (Friendship quality and friendship quantity) will moderate the indirect relationship between peer-victimisation and school loneliness via expected maladaptive coping behaviour.

Section 3 Hypotheses: Adaptive Coping Models

H6.6: Peer-support, adult support, and problem-solving expected coping behaviour will moderate the pathway between peer-victimisation and school loneliness.

H6.7: Friendship (Friendship quality and friendship quantity) will predict the moderation between expected adaptive coping behaviour and peer-victimisation.

6.2 SAMPLE

This chapter uses data collected during Time 1 (October 2015-November 2015). In total 443 children were included in the analyses, whereby 58% of children are female, with a mean age of 9.79 years (SD=0.64). The data used in the analyses were collected from eight schools. More details about the sample can be found in Chapter 5 Section 5.2.

6.2.1 Missing Data

The sample size (*n*=443) represents the number of children present on the day of testing. Across all latent variable indicators and observed variables missing data-points ranged between 0.00 to 2.00%. Given the low proportion of data and the use of maximum likelihood estimation in the analyses the missing data was viewed as admissible and thus no further action was taken with regards to missing data.

6.3 STATISTICAL PROCEDURES

This chapter employs a range of statistical procedures in order to test the research hypotheses. Specifically, the chapter uses tests for mediation (also known as indirect effects[2]), moderation

[2] Note that the term 'effect' is used throughout Chapter 6 to refer to indirect (mediation) and interaction (moderation) effects as these are terms commonly used in the literature (e.g. Hayes, 2013), however the term effect in this chapter does not imply causality.

(also known as interaction effects) and moderated mediation. These are each briefly described in turn in the following sections.

6.3.1 Testing for Indirect Effects

Testing for indirect effects in a model (Hypothesis 6.3), also known as mediation, is used when one hypothesises that a direct relationship may be explained by an underlying mechanism. For example, if a construct X predicts effect Y, we may also predict that there is an intermediary variable M that accounts, in part, for the relationship between X and Y. This relationship can be modelled figuratively (see Figure 6.1), whereby X predicts changes in M, which in turn predicts changes in Y. We often refer to M in this model as the mediator.

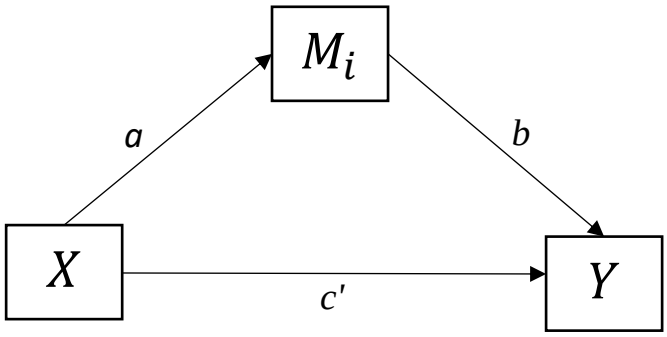

Figure 6.1 Conceptual diagram of simple mediation/indirect effect model

The conceptual diagram (Figure 6.1) can also be represented mathematically via two equations, estimating all three regression coefficients in the model:

$$M = i_1 + aX \tag{6.1}$$

$$Y = i_2 + bM + c'X \tag{6.2}$$

The mediation model depicted in Figure 6.1 can be partitioned into two parts: the *direct effect* of X on Y and the *indirect* of X on Y, which combined give us the *total effect*. This relationship is often written as $c = c' + ab$. Whereby c represents the total effect, c' the direct effect, and ab the

indirect effect. As researchers we are often interested in the proportions of the indirect and direct effects that make up the total effect. Rearranging the two regression equations for M (6.1) and Y (6.2) we can calculate the indirect and direct effects. Firstly, we need to substitute the equation for M (6.1) into the equation for Y (6.2), thus expressing Y as a function of X only:

$$Y = i_1 + b(i_2 + aX) + c'X \quad (6.3)$$

Next, the terms are multiplied:

$$Y = i_1 + bi_2 + baX + c'X \quad (6.4)$$

Equation 6.4 can then be re-written in a more recognisable format using the equation for a linear regression ($Y = i_1 + bX$):

$$Y = (i_2 + bi_1) + (ab + c')X \quad (6.5)$$

Whereby ab represents the indirect effect and c' represents the direct effect.

6.3.1.1 Statistical Inference

Historically, testing for mediation was often conducted using the *causal steps approach* recommended by Baron and Kenny (1986). However, this standard regression procedure has been shown to have a number of limitations. Firstly, the causal steps approach does not require any direct inferential test of the indirect effect, and inferences about the indirect effect through this approach are almost implicit in nature (Hayes & Scharkow, 2013). In addition, the causal steps approach has been shown to often lack in statistical power, due to its reliance on multiple hypothesis tests (Hayes & Scharkow, 2013). This can result in potential indirect effects being missed. Finally, mediation is often confirmed using the Sobel's test (Sobel, 1982), however simulation studies have shown that this test often produces less accurate confidence intervals than alternatives, due to its assumption that the indirect effect is normally distributed (MacKinnon, Lockwood, & Williams, 2004). This assumption that the distribution of $a \times b$ is normally distributed has frequently been falsified. Subsequently, given the limitations of the causal steps approach, the current thesis will apply structural equation modelling to test for indirect effects. Aside from the strengths associated with modelling variables as latent factors (Gunzler, Chen, Wu, & Zhang, 2013), the use of structural equation modelling enables the estimation of the indirect effect simultaneously, avoiding limitations associated with the four-step approach. In addition, robust estimators can be used, which can eliminate some of the issues surrounding the assumption of normality and the Sobel's test (Hox et al., 2010).

6.3.2 Testing for Moderation/Interaction Effects

Testing for moderation (Hypotheses 6.4, 6.6, and 6.7) is the process by which ones examines whether a moderator (W) affects the strengths of, or presence of, the relationship between X and

Y. This is also known as an interaction effect. The conceptualisation of moderation is depicted in Figure 6.2.

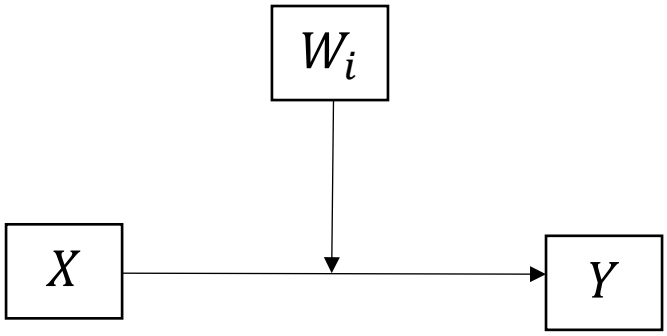

Figure 6.2 Conceptual diagram of simple moderation/interaction effect model

Mathematically, the estimation of the interaction effect is achieved via the estimation of three parameters:

$$Y = i_1 + b_1X + b_2W + b_3XW \quad (6.6)$$

Whereby *XW* is the product of *X* and *W* and is often referred to as the *interaction effect.* The direct relationship of *W* and *X* on *Y*, are known as the direct or *main effects.* These relationships are depicted in Figure 6.3.

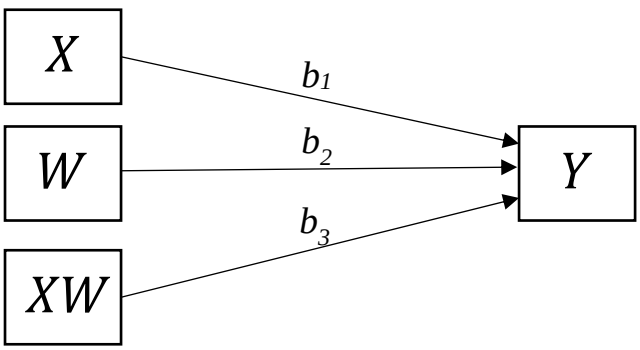

Figure 6.3 Statistical diagram of simple moderation/interaction effect model

In instances whereby the analyses reveals a statistical interaction effect, further tests can be conducted to probe the interaction. These are referred to as *simple slopes analyses.* Typically, this procedure entails selecting vales of the moderator, and calculating the conditional effect of *X* on *Y* at those values. These values can be anything the researcher wishes, but it is common to select the mean, 1SD above and below the mean to represent low, average, and high values of the moderator (Hayes, 2012). The current thesis will examine all significant interaction effects at the mean, 1SD above the mean, and 1SD below the mean unless otherwise specified.

6.3.3 Moderated mediation

Moderated mediation (Hypothesis 6.5), sometimes referred to as conditional process analysis, is applied when a researcher wishes to examine under which conditions an indirect effect may occur. This can be achieved by piecing together mediation and moderation models and then testing the hypotheses regarding the conditional indirect effects. There are many potential variants for a moderated mediation model, but Figure 6.4 represents the conceptual moderated mediation model to be tested for Hypothesis 6.5, whereby the effects to and from the mediator (M) are moderated by W.

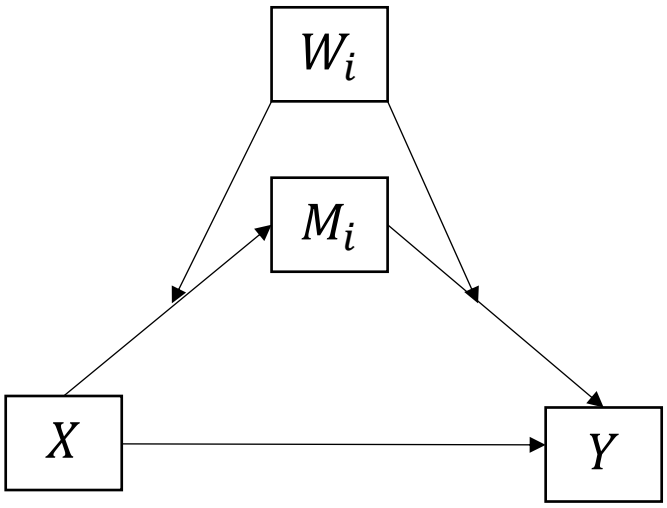

Figure 6.4 Conceptual diagram of moderated mediation model

The conceptual diagram (Figure 6.4) can also be represented in its statistical form (see Figure 6.5):

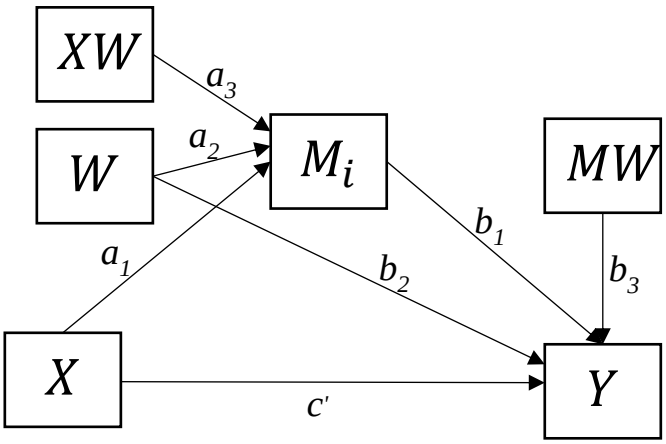

Figure 6.5 Statistical diagram of moderated mediation model

This model represents the conditional indirect of X and Y, which can be defined as

$$\theta_{X\rightarrow M}\theta_{M\rightarrow Y} = (a_1 + a_3W)(b_1 + b_3W) \quad (6.7)$$

Simple slopes analyses can also be applied in moderated mediation analyses, whereby the researcher examines the indirect effect at different levels of the moderator (i.e., mean, +1SD and -1SD).

6.4 DESCRIPTIVE STATISTICS

Table 6.1 provides the means, standard deviation and range for all Time 1 variables used in this chapter. The full range of possible scores was present in all variables except Friendship Helpfulness (friendship quality), whereby the possible range of scores is between 7 and 35.

Table 6.1. *Mean, standard deviation and range for Time 1 variables*

Variable	Mean	SD	Min	Max
School Loneliness	7.36	3.91	4.00	20.00
Expected Coping Behaviour				
Peer Support	4.68	1.15	2.00	6.00
Adult Support	8.98	2.15	4.00	12.00
Problem Solving	6.56	1.61	3.00	9.00
Internalising	10.50	2.80	6.00	18.00
Retaliation	6.59	2.31	5.00	15.00
Avoidance	5.19	1.62	3.00	9.00
Friendship Quality				
Friendship Helpfulness	29.93	4.64	11.00	35.00
Friendship Security	12.25	2.37	3.00	15.00
Friendship Conflict	10.46	2.74	4.00	20.00
Friendship Reciprocity (Total)	2.59	1.68	0.00	8.00
Friendship Reciprocity (Proportion)	0.59	0.32	0.00	1.00
Centrality	35.85	41.48	0.00	292.79
Peer-Victimisation				
Attack on Property	5.58	2.80	4.00	20.00
Physical	5.52	2.61	4.00	20.00
Verbal	6.88	3.56	4.00	20.00
Social	6.91	3.40	4.00	20.00

Note: n ranges between 427 to 443

6.4.1 Bivariate Associations

Table 6.2 shows the test of correlations amongst measures. As expected, these correlations provide evidence for the positive association between all four types of peer-victimisation and school loneliness (r = .32 to .43), whereby higher levels of self-reported peer-victimisation experiences were associated with higher levels of self-report school loneliness. Regarding types of expected coping behaviour, peer support, retaliation, and internalising coping were associated with school loneliness. Specifically, peer support was negatively associated with school loneliness (r = - .17), whereby retaliation (r = .17) and internalising coping (r = .47), were positively associated with loneliness. This is line with expectations, whereby peer support is an adaptive coping style, and retaliation and internalising coping are maladaptive coping style. There was no significant association between adult support, problem-solving, and avoidance coping styles and school loneliness. In terms of the associations with peer-victimisation, internalising coping, and retaliation were both positively associated with all four types of peer-victimisation, such that higher levels of peer-victimisation were associated with higher endorsement of expected internalising and retaliation coping behaviour. However, peer support, adult support, problem-solving and avoidance were not found to be associated with peer-victimisation.

Regarding friendship quality, friendship helpfulness, friendship security, and friendship conflict were associated with peer-victimisation and expected coping behaviour. Specifically, friendship helpfulness was negatively associated with all four peer-victimisation types (r = -.11 to -.14), whereby higher levels of peer-victimisation experiences was associated with lower levels of perceived friendship quality. Friendship helpfulness was also positively associated with adult support (r = .21), peer support (r = .50), and problem solving (r = .24). In these instances, higher rating of friendship helpfulness was associated with higher endorsement of peer support, adult support, and problem-solving coping. Friendship helpfulness was also negatively associated with retaliation coping (r = -.16) but was not found to be significantly associated with either avoidance or internalising coping. Friendship security was found to be negatively associated with all four peer-victimisation types (r = -.19 to -.28), and positively associated with adult support (r = .11), peer support (r = .27), and problem-solving (r = .11). Friendship security was also negatively associated with internalising (r = -.11) and retaliation coping (r = -.17), however similarly to friendship it was not associated with avoidance coping. Regarding friendship conflict, this variable was positively associated with all four peer-victimisation types (r = .17 to .24), such that higher levels of peer-victimisation was associated with higher levels of friendship conflict. Furthermore, friendship conflict was also associated with peer support (r = -.23), adult support (r = -.12), internalising (r = .17), and retaliation coping (r = .29).

In terms of friendship quantity, there was a significant negative association between both types of reciprocity (total and proportion) and peer-victimisation (r = -.13 to -.23). The only

expected coping behaviour that reciprocity (total and proportion) was associated with was retaliation (r = -.18 and r = -.13, respectively), whereby there was a significant negative association. Centrality scores were not significantly associated with any peer-victimisation types but were significantly positively associated with adult support (r = .16) and avoidance (r = .11).

The association between peer-victimisation, expected internalising coping, expected retaliation coping, and school loneliness provides justification for the mediation models outlined in Section 6.7 below.

Table 6.2. *Bivariate Correlations between all peer-victimisation types, expected coping behaviour, friendship variables, and school loneliness*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Attack on Property PV	-															
2. Physical PV	**.61*** **	-														
3. Social PV	**.60*** **	**.50*** **	-													
4. Verbal PV	**.61*** **	**.56*** **	**.65** **	-												
5. Adult Support	-.02	.01	-.08	.00	-											
6. Peer Support	.00	-.01	.00	-.04	**.38** **	-										
7. Problem Solving	.02	.03	-.02	.02	**.40** **	**.36** **	-									
8. Retaliation	**.31*** **	**.26*** **	**.26*** **	**.17*** **	**-.24** **	**-.18** **	-.01	-								
9. Internalising Coping	**.26*** **	**.25*** **	**.35*** **	**.38*** **	.01	.03	**.13** **	**.11***	-							
10. Avoidance	.08	.02	.06	.02	**-.11***	.05	.09	.08	.07	-						
11. Friendship Helpfulness	**-.14** **	**-.12***	**-.12***	**-.11** **	**.21*** **	**.50*** **	**.24*** **	**-.16** **	-.07	.05	-					
12. Friendship Security	**-22** **	**-.20*** **	**-.28*** **	**-.19*** **	**.11***	**.27*** **	**.11***	**-.17** **	**-.11***	-.02	**.46*** **	-				
13. Friendship Conflict	**.24*** **	**.20*** **	**.24** **	**.17** **	**-.12***	**-.23** **	.04	**.29** **	**.17** **	.09	**-.11***	**-.21** **	-			
14. Centrality	.04	.08	.03	.07	**.16** **	-.01	.02	-.01	.05	**.11** **	.01	.04	.01	-		
15. Reciprocity (Total)	**-.19*** **	**-.13** **	**-.16** **	**-.21*** **	.02	**.11***	.09	**-.18*** **	-.07	.02	**.30*** **	**-.20*** **	**-.12** **	**.12***	-	
16. Reciprocity (Proportion)	**-.23*** **	**-.13** **	**-.18** **	**-.23** **	-.02	.07	.01	**-.13** **	-.09	-.06	.09	**-.15** **	.07	-.00	**.62*** **	-
17. School Loneliness	**.36*** **	**.32*** **	**.40*** **	**.43*** **	-.05	**-.17** **	-.08	**.17** **	**.47*** **	.01	**-.29*** **	**.23*** **	**.21*** **	-.01	-.31**	**-.29*** **

*Note: n = 443; * p<.05 **p<.01 ***p<.001 Significant estimates are highlighted in bold*

6.5 SECTION 1: RELATIONSHIP BETWEEN FRIENDSHIP AND EXPECTED COPING BEHAVIOUR

This section of the chapter presents the analyses examining the relationship between expected peer-victimisation coping behaviour and friendship (quantity and quality). Specifically, this section will test Hypotheses 6.1a, 6.1b, 6.2a, and 6.2b. The hypothesised theoretical model is outlined in Figure 6.6.

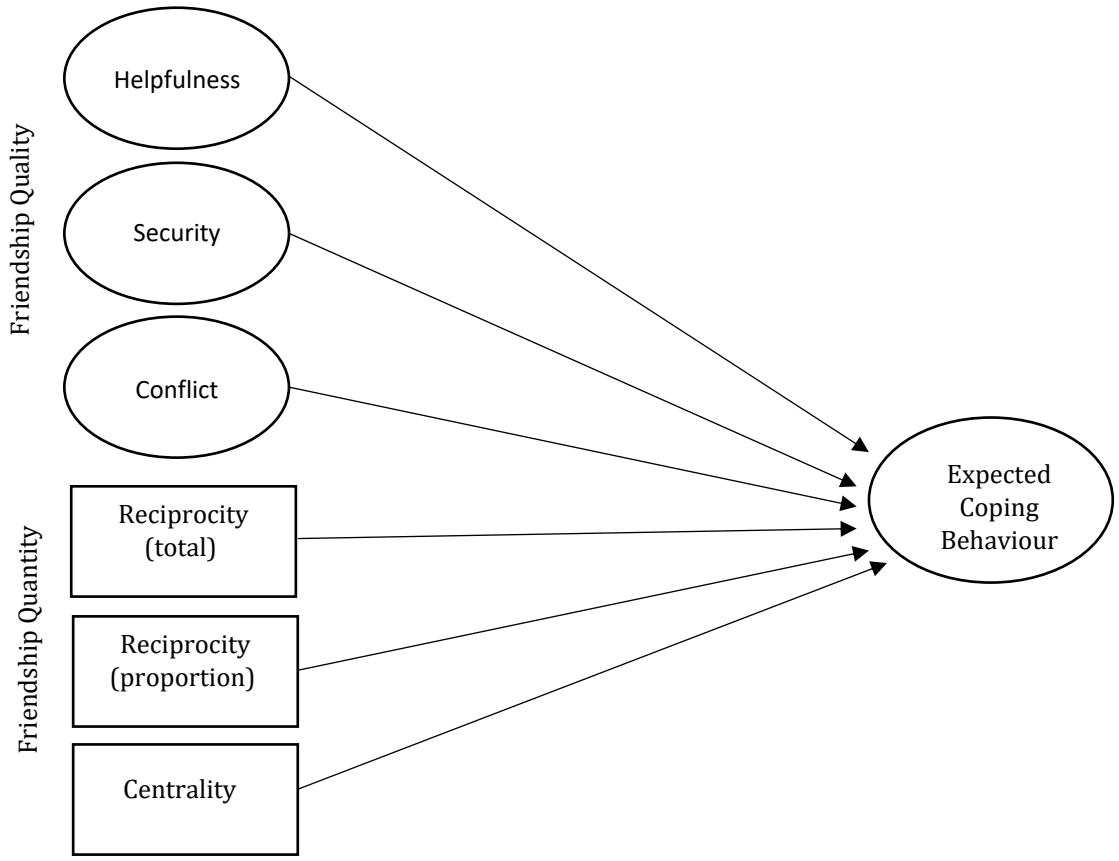

Figure 6.6 Hypothesised linear model examining the association between friendship quality friendship quantity, and expected coping behaviour

6.5.1 Section 1 Plan of Analyses

All variables except for the friendship quantity variables (number of reciprocated friendship (referred to as reciprocity (total)), proportion of reciprocated friendship ties (referred to as reciprocity (proportion)), and centrality) were operationalised as latent variables with their respective indicators (see Chapter 5). All models were specified using M*plus* 7.4 (Muthen & Muthen, 2012), using the Maximum Likelihood Robust (MLR) estimator. This estimator was chosen rather than WLSMV as subsequent analyses in this

chapter is required to use MLR given the latent interactions. Therefore, MLR was used to provide consistency throughout the chapter. Conventional fit indices are not available when MLR is used with categorical indicators, however R^2 was calculated in order to give an indication of model fit. A separate model was specified for each expected coping behaviour (peer-support, adult-support, problem-solving, internalising, retaliation, and avoidance), whereby all six friendship variables (friendship quality – helpfulness, security, and conflict; friendship quantity – reciprocated friendship, proportion of reciprocated friendship, and centrality) were included as predictors[3].

Finally, due to the number of multiple comparison being specified in the analyses, the Benjamini and Hochberg (1995) false discovery rate formulae was employed (see equation 6.8), limiting the risk of Type 1 errors. Any significant estimates that did not meet the false discovery rate criteria are italicised in the results tables. These estimates are subsequently interpreted as failing to reject the null hypothesis.

$$p(j) \leq \delta \frac{j}{m} \tag{6.8}$$

6.5.2 Linear Models

Table 6.3 provides the unstandardised coefficients and the 95% confidence intervals for the relationship between friendship (quality and quantity) and expected adaptive peer-victimisation coping. The adult support coping model indicated that both friendship helpfulness and centrality were positively and significantly associated with expected adult support coping behaviour. Specifically, this finding suggests that children who rate their friendship higher in the helpfulness domain had higher levels of adult support coping endorsement (b = 0.88, p<.05). Additionally, those children who were more central in the network were also found to endorse higher levels of expected adult support coping behaviour (b = 1.08, p<.01). Examination of the standardised estimates indicated that comparably friendship helpfulness (β = 0.29, p<.05) was a stronger predictor of expected adult support coping than centrality (β = 0.15, p<.01). No other significant relationships between friendship and adult support coping emerged in the model. The friendship variables in this model only accounted for 10% (R^2 = 0.10) of the variance in expected adult support coping behaviour. Together these findings provide

[3] Note that the terms 'predict', or 'predictors' are used throughout Chapter 6 when referring to the results of the regression models in Section 6.5, Section 6.6, Section 6.7, and Section 6.8. However, the term predict does not imply causality (Geher & Hall, 2014).

partial support for Hypothesis 6.1a, but no support was found Hypothesis 6.1b given that friendship conflict was not significantly associated with expected adult support coping.

The peer support coping model also indicated that friendship helpfulness predicted children's expected peer support coping behaviour, such that higher friendship helpfulness score was associated with higher levels of expected peer support coping behaviour (b = 2.77, p<.05). No other significant relationships between friendship and expected peer support coping emerged. The friendship variables in the expected peer support coping model accounted for 36% of the variance (R^2 = 0.36). Like the expected adult support coping model, this finding provides partial support for Hypothesis 6.1a, but no support was found for Hypothesis 6.1b. With regards to expected problem-solving coping, no friendship variables were found to be significantly associated with endorsement of problem-solving coping behaviour. This model therefore provided no support for either Hypothesis 6.1a or Hypothesis 6.1b.

Table 6.3 *Unstandardised coefficients [and 95% confidence intervals] for the relationships between friendship and expected adaptive coping*

	Expected Peer-Victimisation Coping (Outcome)		
	Adult Support	Peer Support	Problem Solving
Helpfulness	0.88* [0.05, 1.57]	2.77*** [1.17, 4.12]	1.68 [-0.01, 3.09]
Security	-0.16 [-0.88, 0.44]	0.49 [-0.61, 1.42]	0.04 [-1.25, 1.13]
Conflict	-0.24 [-0.65, 0.26]	0.17 [-0.45, 0.90]	0.68 [-0.01, 1.49]
Reciprocity (Total)	-0.04 [-0.16, 0.07]	0.09 [-0.23, 0.12]	0.14 [-0.08, 0.32]
Reciprocity (Proportion)	-0.23 [-0.86, 0.29]	-0.04 [-0.93, 0.94]	-0.60 [-1.62, 0.25]
Centrality	1.08** [0.26, 1.77]	-0.47 [-1.65, 0.51]	-0.003 [-1.23, 1.03]
R^2	0.10	0.36	0.13

*Note: * p<.05, *** p<.001, n = 433*

Table 6.4 provides the unstandardised coefficients and the 95% confidence intervals for the relationship between friendship (quality and quantity) and expected maladaptive peer-victimisation coping. For these models, the only significant predictor was friendship conflict, which was negatively associated with both expected internalising and retaliation coping. This provides partial support for Hypothesis 6.2b. Specifically, children who reported higher levels of friendship conflict were found to endorse higher levels of expected internalising coping behaviour (b = 0.74, p<.05). However, the

friendship variables only explained 7% (R^2 = 0.07) of the variance in expected internalising coping. Similar findings were observed in the retaliation coping model, whereby children with higher self-reported friendship conflict scores had higher retaliation coping endorsement (*b* = 1.03, β = 0.30, *p*<.01). The friendship variables accounted for 18% of the variance in expected retaliation coping. With regards to expected avoidance coping, no friendship variables were found to be significantly associated with endorsement of avoidance coping behaviour. Furthermore, given that neither positive friendship quality or friendship quantity was associated with any form of expected maladaptive coping, no support was found for Hypothesis 6.2a.

Table 6.4 *Unstandardised coefficients [and 95% confidence intervals] for the relationships between friendship and expected maladaptive coping*

	Expected Peer-Victimisation Coping (Outcome)		
	Internalising	Avoidance	Retaliation
Helpfulness	0.20 [-0.60, 1.01]	0.02 [-0.80, 0.85]	0.30 [-0.55, 1.02]
Security	-0.16 [-1.02, 0.69]	0.23 [-0.66, 1.12]	-0.51 [-1.37, 0.21]
Conflict	0.74* [0.12, 1.37]	0.44 [-0.21, 1.08]	1.03** [0.45, 1.73]
Reciprocity (Total)	0.02 [-0.13, 0.16]	0.09 [-0.03, 0.22]	*-0.19** *[-0.36, -0.04]*
Reciprocity (Proportion)	-0.64 [-1.39, 0.12]	-0.57 [-1.27, 0.13]	-0.10 [-0.89, 0.56]
Centrality	0.38 [-0.52, 1.28]	0.79 [-0.11, 1.69]	-0.05 [-0.92, 0.68]
R^2	0.07	0.04	0.18

*Note: * p<.05, ** p<.01, n = 433*

6.6 SECTION 2: MALADAPTIVE COPING AND FRIENDSHIP

This section of the chapter presents the results from the analyses examining the role of friendship on expected maladaptive coping behaviour, following experiences of peer-victimisation. Specifically, this section will test Hypothesis 6.3, Hypothesis 6.4, and Hypothesis 6.5.

6.6.1 Section 2 Plan of Analyses

Again, all variables except for the friendship quantity variables (reciprocated friendship, (reciprocity *(total)*) proportion of reciprocated friendships (reciprocity *(proportion)*), and centrality) were operationalised as latent variables with their respective indicators

(see chapter 5). All moderators, both latent and observed, were standardised to facilitate interpretation of any interaction effects. All models were specified using M*plus* 7.4 (Muthen & Muthen, 2012), using the Maximum Likelihood Robust (MLR) estimator. This estimator was selected given that the interaction between latent variables cannot be modelled using the WLSMV (Muthen & Muthen, 2012). Conventional fit indices are not available when MLR is used with categorical indicators or in models containing latent interactions, due to the integration technique used. Subsequently baseline models are estimated, and thus relative fit indices cannot be calculated. However, final models' suitability was assessed using a nested model approach and scaled log likelihoods. Nested models were compared via the difference in the scaled log-likelihood multiplied by two ($\Delta\chi^2$). A significant $\Delta\chi^2$ indicates that the additional parameters significantly improve the model.

Firstly, to test Hypothesis 6.3, the role of expected maladaptive coping behaviour as a mediator between peer-victimisation and school loneliness was explored. On the basis of the bi-variate correlations (see Table 6.2), internalising coping and retaliation were specified as mediators within the model. Hayes (2013) recommends that the inclusion of multiple independent variables into a mediation model can risk cancelling out the independent variables' effects, especially when these independent variables are highly correlated. Given the high correlations between the peer-victimisation variables (see Table 6.2) it was decided that a model would be specified for each peer-victimisation type.

To test Hypothesis 6.4 a series of models were specified to examine the role of friendship as a moderator on the relationship between 1) peer-victimisation and expected internalising coping and 2) expected internalising coping and school loneliness. Thirty models in total were specified to examine whether friendship quality (specified as helpfulness, security, or conflict) and friendship quantity variables (reciprocated friendship, (reciprocity *(total)*) proportion of reciprocated friendships (reciprocity *(proportion)*), and centrality) acted as moderators in the pathways containing expected internalising coping. Any significant interactions were then included in the final moderated mediation models.

The final moderated mediation models were specified using a four-step process, allowing the relative model fit of each component to be examined. The first model was an *indirect effects only* model. whereby the latent interactions and their main effects were constrained to be zero. The second model freed the main effects of the moderators, with the latent interactions still constrained to be zero. The third and fourth models freed each moderator separately, assessing each moderator's relative contribution to the

model fit. A final model, the *moderated mediation model*, freely estimated the latent interactions, in addition to their main effects and the indirect effect. In final models containing significant interactions, simple slopes analyses were estimated at high (+1SD), the mean and low (-1SD) values of the moderator. Finally, like the Section 1 analyses, the Benjamini and Hochberg (1995) false discovery rate formulae was applied.

6.7 SECTION 2: MALADAPTIVE COPING TIME 1 RESULTS

6.7.1 Indirect/Mediation Effects

To test Hypothesis 6.3, the indirect effects of expected internalising and retaliation coping were examined as potential mediators in the relationship between peer-victimisation and school loneliness (i.e., Peer-Victimisation → Expected Coping Behaviour → School Loneliness). Avoidance was not included in the analyses on the basis of the non-significant association between avoidance and peer-victimisation identified in the bivariate correlations (see Table 6.2). The indirect effects of internalising coping and relation coping were examined concurrently within the same model using a mediator in parallel design (see Figure 6.7 for hypothesised model). Four separate models were specified for each form of peer-victimisation.

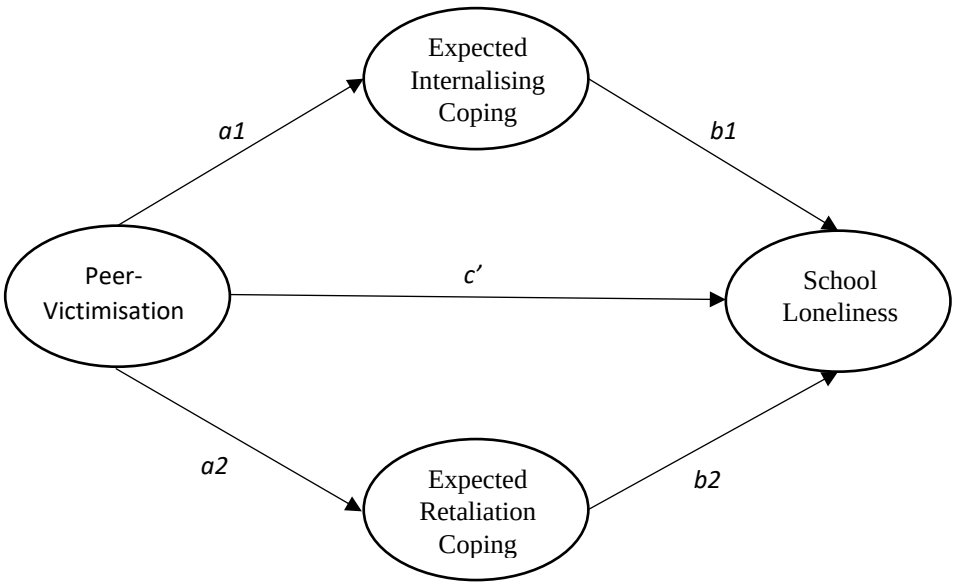

Figure 6.7 Hypothesised parallel mediation model examining the indirect effects of expected internalising and retaliation coping

Table 6.5 provides the unstandardised coefficients for the model pathways and indirect effects via expected internalising coping and expected retaliation coping for each peer-victimisation type (attack on property, physical victimisation, social victimisation, and verbal victimisation).

Table 6.5 *Unstandardised Coefficients [and 95% Confidence intervals] for model pathways and indirect effects via expected internalising coping behaviour (M1) and expected retaliation coping behaviour (M2)*

Model No.	Peer-Victimisation Type (IV)	Pathways							R^2
		IV → DV (c')	IV → M1 (a1)	IV → M2 (a2)	M1 → DV (b1)	M2 → DV (b2)	Indirect 1 (via M1: a1b1)	Indirect 2 (via M2: a2b2)	
1	Property	**0.10****	**0.25*****	**0.31*****	**0.31*****	0.01	**0.08*****	0.003	0.36
		[0.04, 0.16]	**[0.13, 0.37**	**[0.16, 0.46]**	**[0.19, 0.42]**	[-0.06, 0.08]	**[0.04, 0.11]**	[-0.02. 0.02]	
2	Physical	**0.10****	**0.19*****	**0.38*****	**0.32*****	0.01	**0.06****	0.004	0.36
		[0.04, 0.16]	**[0.08, 0.31**	**[0.20, 0.52]**	**[0.21, 0.44]**	[-0.06, 0.09]	**[0.03, 0.10]**	[-0.02, 0.03]	
3	Social	**0.12*****	**0.36*****	**0.30*****	**0.30*****	0.03	**0.11*****	0.01	0.36
		[0.04, 0.19]	**[0.21, 0.51**	**[0.16, 0.45]**	**[0.19. 0.41]**	[-0.04, 0.10]	**[0.06, 0.15]**	[-0.01, 0.03]	
4	Verbal	**0.13*****	**0.32*****	**0.22*****	**0.27*****	0.02	**0.09*****	0.004	0.39
		[0.07, 0.19]	**[0.19, 0.43]**	**[0.11, 0.34]**	**[0.16, 0.38]**	[-0.04, 0.08]	**[0.05, 0.12]**	[-0.01, 0.02]	

Note: IV = independent variable, M1 = Mediator 1 (Expected internalising coping behaviour), M2 = Mediator 2 (Expected retaliation coping behaviour) DV = Dependent variable (school loneliness). **p<.01 ***p<.001 Significant estimates are highlighted in bold. *n* = 443.

For all four models there was a significant direct effect between peer-victimisation and school loneliness (b= 0.10 to 0.13, p<.01), whereby higher rates of peer-victimisation experiences were associated with higher levels of school loneliness. Regarding indirect effects, expected internalising coping behaviour was found to act as a statistically significant mediator in all four models (b= 0.06 to 0.11, p<.01). This finding suggests that endorsement of internalising coping acts as an explanatory variable between peer-victimisation and school loneliness, such that peer-victimisation experiences predicts expected internalising coping use, which in turn predicts school loneliness. Specifically, higher levels of peer-victimisation are associated with higher levels of expected internalising coping, which in turn is associated with higher levels of school loneliness. The indirect effect via expected internalising coping behaviour was found to explain 42.86% of the total effect in the attack on property victimisation model (individual R^2 of 15.43%), 40.00% in the physical victimisation model (individual R^2 of 14.00%), 48.78% in the social victimisation model (individual R^2 of 17.56%), and 38.78% in the verbal victimisation model (individual R^2 of 15.12%).

Due to the non-significant indirect effect via retaliation, further models were specified to examine the indirect effect via expected internalising coping only, by constraining the *a2* and *b2* paths in the models to be zero. The model fit improvement of the models was then examined using the log-likelihood and chi-square ratio tests as detailed in Section 6.6. The inclusion of retaliation in the model was found to improve the overall model fit for all four models (Attack on property: $\Delta\chi^2$= -41.46 (2), p<.001; Physical: $\Delta\chi^2$= -101.53 (2), p<.001; Social: $\Delta\chi^2$= -27.14 (2), p<.001; Verbal: $\Delta\chi^2$= -169.85 (2), p<.001). However, although the inclusion of retaliation improved the overall model fit, it was decided to exclude expected retaliation coping from the model due to the results suggesting no significant association between retaliation and school loneliness and to improve model parsimony. Therefore, only internalising coping was included as a mediator in the final models. The finding that expected internalising coping behaviour mediates the relationship between peer-victimisation and school loneliness provides support for Hypothesis 6.3.

6.7.2 Moderation/Interaction Effects

To examine the role of friendship within peer-victimisation coping a series of models were specified to test whether friendship moderates the path between peer-victimisation and expected internalising coping, and between expected internalising coping and school loneliness (Hypothesis 6.4). This effect was examined across the three

types of friendship quality (helpfulness, security, and conflict) and three types of friendship quantity variables (reciprocated friendship, (*reciprocity (total)*) proportion of reciprocated friendships (*reciprocity (proportion)*) and centrality). All variables except the friendship quantity variables were specified as latent constructs. To ease interpretation the latent constructs were standardised by freeing the loadings and setting the factor variance to one. The observed friendship quantity variables were standardised by creating z-scores for each raw score i.e. $Z = \frac{x-\bar{x}}{\sigma^2}$. The hypothesised conceptual model is presented in Figure 6.8.

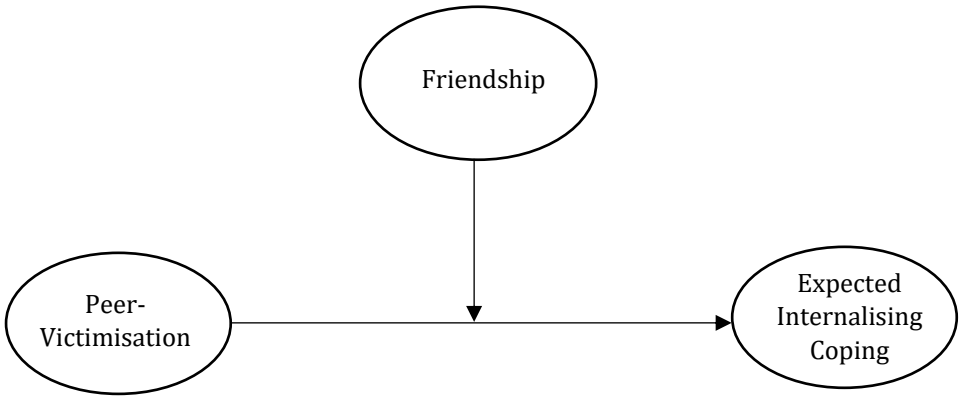

Figure 6.8 Hypothesised moderation regression model to test the moderating effect of friendship on the relationship between peer-victimisation and expected internalising coping behaviour.

Table 6.6 provides the unstandardised coefficients for the models examining the moderating effect of friendship on the relationship between peer-victimisation and expected internalising coping. Note that those coefficients in italics indicate effects that did not meet the false discovery rate criterion.

Table 6.6 *Unstandardised parameters [95% CI] for the main and interaction effects for each friendship moderator X peer-victimisation* on expected internalising coping behaviour

	Peer-Victimisation Types			
	Attack on Property	Physical	Social	Verbal
Moderator: Helpfulness				
Peer-Victimisation → Internalising Coping	**0.41*** [0.25, 0.58]**	**0.30** [0.14, 0.46]**	**0.48*** [0.33, 0.64]**	**0.57*** [0.40, 0.74]**
Help → Internalising Coping	0.01 [-0.14, 0.16]	0.10 [-0.14, 0.12]	0.02 [-0.12, 0.16]	0.05 [-0.10, 0.20]
Peer-Victimisation x Help → Internalising Coping	-0.01 [-0.13, 0.11]	-0.07 [-0.23,0.08]	-0.04 [-0.18, 0.10]	-0.12 [0.28, 0.05]
Moderator: Security				
Peer-Victimisation → Internalising Coping	**0.39*** [0.22, 0.57]**	**0.28** [0.10, 0.45]**	**0.48*** [0.32, 0.65]**	**0.56*** [0.38, 0.73]**
Security → Internalising Coping	-0.02 [-0.18, 0.15]	-0.05 [-0.21, 0.11]	0.04 [-0.13, 0.21]	0.04 [-0.14, 0.21]
P-V x Mod → Internalising Coping	-0.05 [-0.21, 0.10]	-0.05 [-0.23, 0.12]	-0.07 [-0.22, 0.08]	-0.11 [-0.29, 0.07]
Moderator: Conflict				
Peer-Victimisation → Internalising Coping	**0.33*** [0.15, 0.51]**	**0.22** [0.05, 0.40]**	**0.45*** [0.29, 0.61]**	**0.52*** [0.35, 0.68]**
Conflict → Internalising Coping	0.11 [-0.04, 0.27]	*0.18** *[0.03, 0.33]*	-0.11 [-0.04, 0.26]	0.10 [-0.05, 0.25]
P-V x Mod → Internalising Coping	*-0.19** *[-0.36, -0.03]*	-0.17 [-0.34, 0.01]	-0.003 [-0.19, 0.18]	-0.12 [-0.32, 0.07]
Moderator: Reciprocity (Proportion)				
Peer-Victimisation → Internalising Coping	**0.57*** [0.21, 0.94]**	0.13 [-0.21, 0.48]	*0.47** *[0.09, 0.21]*	**0.67*** [0.26, 1.09]**
Reciprocity → Internalising Coping	-0.12 [-0.51, 0.27]	-0.31 [-0.68, 0.07]	-0.17 [-0.56, 0.21]	-0.04 [-0.45, 0.36]
P-V x Mod → Internalising Coping	-0.14 [-0.68, 0.39]	0.34 [-0.16, 0.85]	0.13 [-0.39, 0.64]	0.02 [-0.57, 0.61]
Moderator: Reciprocity (Total)				
Peer-Victimisation → Internalising Coping	**0.49*** [0.23, 0.71]**	0.23 [-0.06, 0.52]	**0.47** [0.20, 0.75]**	**0.63*** [0.35, 0.91]**
Reciprocity → Internalising Coping	-0.02 [-0.09, 0.04]	-0.03 [0.89, 1.01]	-0.02 [-0.09, 0.05]	0.06 [-0.08, 0.10]
P-V x Mod → Internalising Coping	-0.04 [-0.15, 0.06]	0.03 [-0.07, 0.12]	0.002 [-0.09, 0.09]	0.05 [-0.12, 0.09]
Moderator: Centrality				
Peer-Victimisation → Internalising Coping	**0.46*** [0.24, 0.68]**	**0.44** [0.16, 0.72]**	**0.52*** [0.32, 0.73]**	**0.59*** [0.34, 0.83]**
Closeness → Internalising Coping	0.23 [-0.36, 0.81]	0.07 [-0.51, 0.64]	0.23 [-0.36, 0.82]	0.13 [-0.47, 0.73]
P-V x Mod → Internalising Coping	-0.21 [-0.90, 0.47]	-0.33 [-1.21, 0.55]	-0.19 [-0.89, 0.51]	-0.06 [-0.84, 0.72]

Note: * p<.05 **p<.01 ***p<.001. Significant estimates are highlighted in bold. Italicised estimates indicate p-values that did not meet the false discovery rate criteria. *n*=443.

Surprisingly, there was no significant interaction between peer-victimisation and friendship in any the tested models. This suggest that friendship does not affect the strength, or presence, of the relationship between peer-victimisation and expected internalising coping. There was also no significant main effect of the friendship variable on expected internalising coping. On the basis of these findings, no interaction effects between friendship and peer-victimisation were specified in the final models. Furthermore, these models also fail to provide support for Hypothesis 6.4.

Next, the moderating effect of friendship on the relationship between expected internalising coping and school loneliness was examined. The conceptual model for these analyses is presented in Figure 6.9. The unstandardised coefficients for these models are presented in Table 6.7. Again, those coefficients in italics indicate effects that did not meet the false discovery rate criterion.

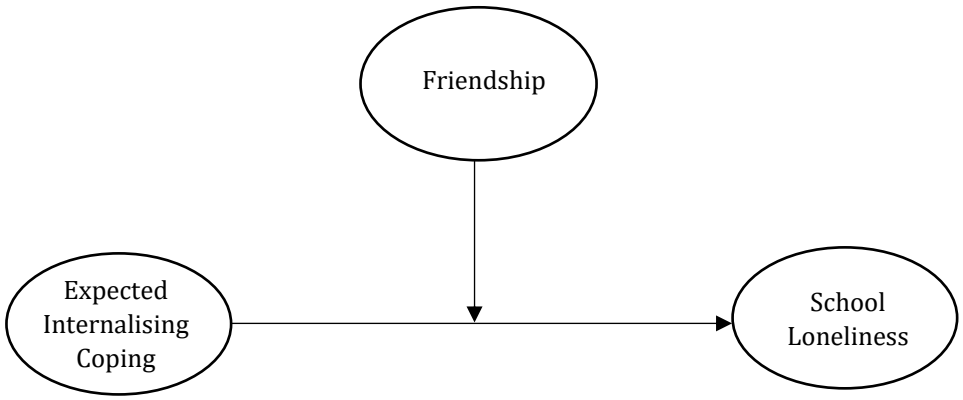

Figure 6.9 Hypothesised moderation regression model to test the moderating effect of friendship on the relationship between expected internalising coping and school loneliness

Table 6.7 *Unstandardised coefficients [95% CI] for the model pathways and interaction effects via expected internalising coping behaviour and school loneliness*

Moderators	Predictors		
	Expected Internalising Coping	Moderator	Moderator X Expected Internalising Coping
Helpfulness	**0.70*** [0.86, 0.53]**	**-0.49*** [-0.68, -0.30]**	-0.13 [-0.37, 0.12]
Security	**0.69*** [0.51, 0.87]**	**-0.26* [-0.45, -0.08]**	-0.21 [-0.45, 0.02]
Conflict	**0.68*** [0.51, 0.85]**	**0.20* [0.10, 0.35]**	**0.33** [0.15, 0.51]**
Reciprocity (Proportion)	**0.56*** [0.47, 0.65]**	**-0.25*** [-0.34, -0.16]**	**-0.17** [-0.30, -0.05]**
Reciprocity (Total)	**0.56*** [0.47, 0.65]**	**-0.31*** [-0.40, -0.22]**	*-0.15* [-0.28, -0.02]*
Centrality	**0.57*** [0.49, 0.67]**	-0.03 [-0.12, 0.05]	0.05 [-0.05, 0.15]

Note: * p<.05 ** p<.01 *** p<.001. Any italicised parameters indicates estimates that did not meet the false discovery rate criteria. n = 443.

As expected, in all six models there was a significant main effect of expected internalising coping on school loneliness, whereby increased levels of expected internalising coping behaviour was associated with higher levels of school loneliness (b=0.56-0.70, p<.001). In addition, there was a significant main effect for all three types of friendship quality. Regarding friendship quantity, reciprocity (proportion) and reciprocity (total) also significantly predicted school loneliness (b =-0.25, p<.001 and b =-0.31, p<.001 respectively). Specifically, higher levels of friendship reciprocity (both total and proportion) were associated with lower levels of school loneliness. Centrality was not a significant predictor of school loneliness (b=-0.03, p>.05). After taking into account the false detection rate, only friendship conflict (b=0.33, p<.01), and reciprocity (proportion) (b=-0.17, p<.01), were found to act as moderators between expected internalising coping and school loneliness. The interaction effects of conflict × expected internalising coping, and reciprocity (proportion) × expected internalising coping provides justification for

their inclusion in the moderated mediation models. Furthermore, these models provide partial support for Hypothesis 6.4.

6.7.3 Moderated Mediation Models

The final models in Section 2 examined the indirect effect of expected internalising coping on the relationship between peer-victimisation and school loneliness, whereby the path between expected internalising coping and loneliness was moderated by both friendship conflict and reciprocity (proportion). The models also examine the direct effect of conflict and reciprocity on expected internalising coping. Four final models were specified for each type of peer-victimisation (Attack on property, Physical, Social and Verbal). The hypothesised model is represented in Figure 6.10 whereby an oval represents a latent construct and a square represents an observed construct. Specifically, this model tests Hypothesis 6.5.

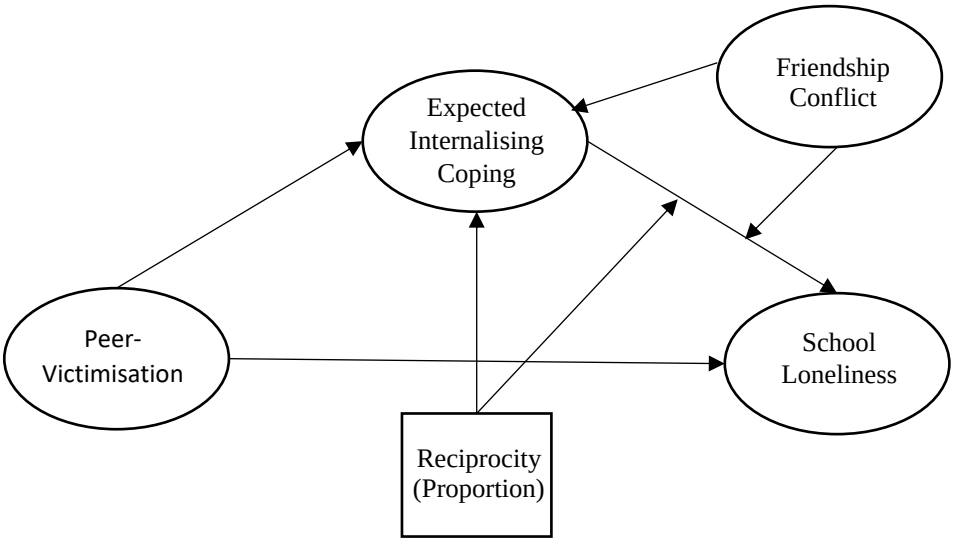

Figure 6.10 Hypothesised moderated mediation model

6.7.3.1 Attack on Property Peer-Victimisation Moderated Mediation Results

Table 6.8 provides the unstandardised parameter estimates for the final attack on property moderated mediation model. The model fit was examined using a nested approach to examine the relative improvement to the model following the inclusion of moderators to the indirect effect only model. The indirect effect only model had a log-likelihood of -8372.38 with 71 free parameters (scaling factor: 1.14). The addition of main effects (conflict and reciprocity (proportion) predicting expected internalising coping and school loneliness) resulted in a significant improvement to the model fit $\Delta\chi^2$=

-35.53 (4), p<.001. The improvement of the model fit for the inclusion of the interaction effects were then examined separately for Friendship Conflict × Expected Internalising Coping and Reciprocity (Proportion) × Expected Internalising Coping. Both interaction effects were found to significantly improve the model's fit to the data (Conflict: $\Delta\chi^2$= -9.07 (1), p<.01; Reciprocity (Proportion) $\Delta\chi^2$= -5.90 (1), p<.05). Finally, both interaction effects were modelled together and were found to significantly improve the model fit when comparing to the main effects only model $\Delta\chi^2$= -18.71 (2) p<.001. The R^2 value for the final model was 30.40%.

Table 6.8 *Unstandardised estimates for the attack on property peer-victimisation moderated mediation model*

	Estimate	**95% Confidence Interval**
Outcome: School Loneliness		
Attack on Property	0.17*	[0.02, 0.32]
Expected Internalising Coping	0.57***	[0.40, 0.75]
Friendship Conflict	*0.15**	*[0.03, 0.32]*
Reciprocity (Proportion)	-0.27***	[-0.41, -0.15]
Friendship Conflict × Expected Internalising Coping	0.22*	[0.04, 0.38]
Reciprocity (Proportion) × Expected Internalising Coping	-0.17*	[-0.31, -0.01]
Outcome: Expected Internalising Coping		
Attack on Property	0.37***	[0.27, 0.59]
Friendship Conflict	0.17*	[0.03, 0.31]
Reciprocity (Proportion)	-0.08	[-0.20, 0.04]
Conditional Indirect Effects		
High Conflict, Low Reciprocity (Proportion)	0.35***	[0.18, 0.52]
Mean Conflict, Mean Reciprocity (Proportion)	0.21***	[0.11, 0.31]
Low Conflict, High Reciprocity (Proportion)	0.07	[-0.03, 0.17]

Note: * p<.05 *** p<.001. Any italicised parameters indicates estimates that did not meet the false discovery rate criteria. n = 443.

The interaction term Friendship Conflict × Expected Internalising Coping significantly predicted school loneliness (b=0.22, p<.05), after controlling for the main effects of conflict on school loneliness (b=0.15, p>.05). Although the main effect conflict had a p-

value 0.047, it did not meet the false discovery rate of 0.04, and therefore the estimate failed to reject the null hypothesis. The interaction of Reciprocity (Proportion) × Expected Internalising Coping was also a significant predictor of school loneliness (b=-0.17, p<.05). The main effect of reciprocity on school loneliness was a negatively associated with school loneliness (b=-0.27, p<.001). These interactions were probed using simple slopes analyses at the mean, 1 *SD* above the mean, and 1 *SD* below the mean (See Figure 6.11). The simple slopes analyses suggest that the endorsement of internalising coping following attack on property victimisation has a stronger association with school loneliness in those individuals with high levels of friendship conflict and a low proportion of reciprocated ties (b=0.35, p<.001; 37.23% of the total effect) than those individuals with average levels of friendship conflict and reciprocity (b=0.21, p<.001; 26.23% of the total effect). The individual R^2 contribution of the moderated indirect effect was 7.97% at the mean reciprocity (proportion) and mean conflict level and 11.34% and the low reciprocity (proportion) and high conflict level. There was no significant conditional indirect effect when individuals had low levels of friendship conflict and a proportion of reciprocated friendship ties (b=0.07, p>.05). Together these results provide evidence to suggest that expected internalising coping mediates the relationship between attack on property peer-victimisation and school loneliness in individuals with relatively low and moderate levels of friendship conflict and reciprocity (proportion). In addition to the conditional indirect effects, conflict was found to significantly predict internalising coping (b=0.17, p<.05), such that those individuals with greater conflict in their friendship were more likely to endorse internalising coping strategies. There was no significant direct relationship between reciprocity (proportion) and expected internalising coping (b=-0.08, p>.05). The findings from this model provide partial support for Hypothesis 6.5.

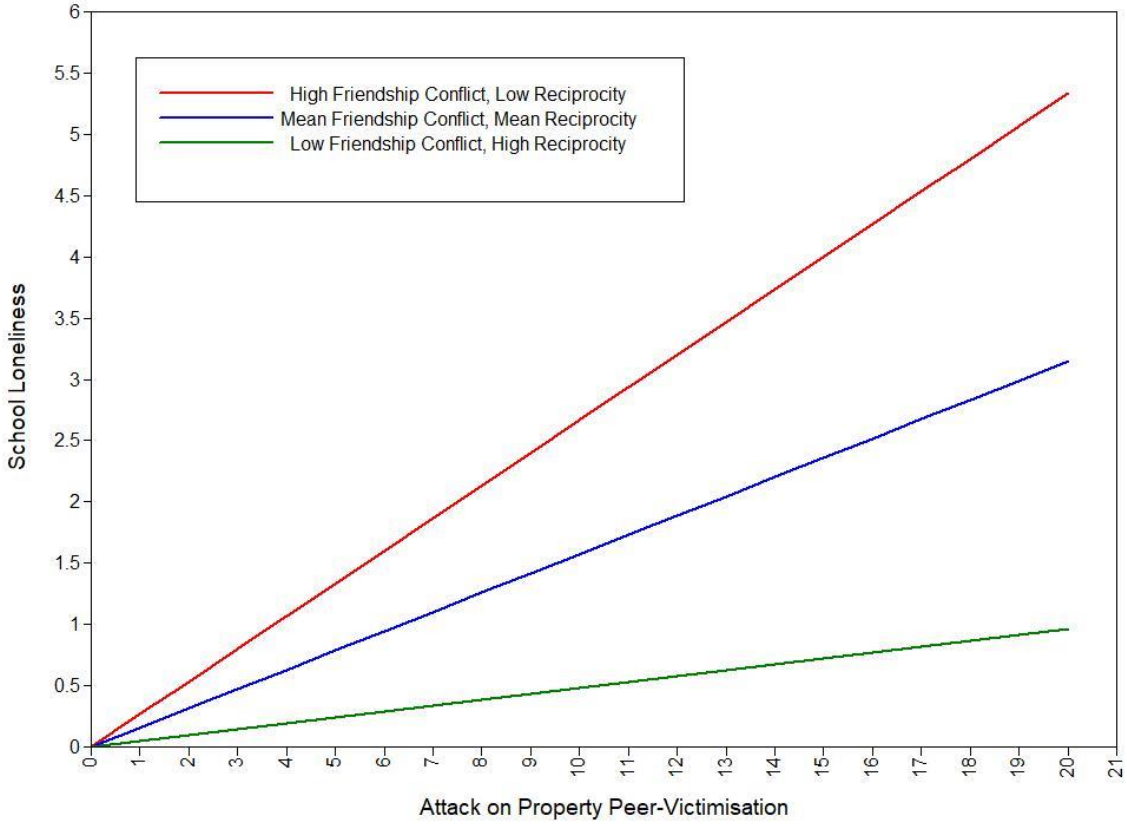

Figure 6.11 Simple slopes plot for attack on property moderated mediation model

6.7.3.2 Expected Physical Peer-Victimisation Moderated Mediation Results

Table 6.9 provides the unstandardised estimates for the final physical victimisation moderated mediated model. Regarding model fit, the indirect effect only model resulted in a log-likelihood of -8346.74 with 71 parameters (scaled correction: 1.15). The addition of main effects to the indirect effect only model significantly improved the model fit $\Delta\chi^2$= -42.90 (4), p<.001. The model fit for the inclusion of the interaction effects were then examined separately for Friendship Conflict × Expected Internalising Coping and Reciprocity (proportion) × Expected Internalising Coping. Both interaction effects were found to significantly improve the model's fit to the data (Friendship Conflict: $\Delta\chi^2$= -10.17 (1), p<.001; Reciprocity (proportion) $\Delta\chi^2$ = -7.85 (1), p<.01). Finally, both interaction effects were modelled together and were found to significantly improve the model fit when comparing to the main effects only model $\Delta\chi^2$= -21.77 (2) p<.001. The R^2 value for the final model was 44.80%.

Table 6.9 *Unstandardised Parameter Estimates for the expected physical peer-victimisation moderated mediation model*

	Estimate	**95% Confidence Interval**
Outcome: School Loneliness		
Physical Victimisation	0.23**	[0.07, 0.36]
Expected Internalising Coping	0.61***	[0.43, 0.79]
Friendship Conflict	0.14	[-0.09, 0.29]
Reciprocity (Proportion)	-0.28***	[-0.43, -0.16]
Friendship Conflict × Expected Internalising Coping	0.23**	[-0.05, 0.40]
Reciprocity (Proportion) × Expected Internalising Coping	-0.21*	[-0.36, -0.03]
Outcome: Expected *Internalising Coping*		
Physical Victimisation	0.24**	[0.15, 0.46]
Friendship Conflict	0.21**	[0.07, 0.34]
Reciprocity (Proportion)	-0.12	[-0.23, 0.00]
Conditional Indirect Effects		
High Conflict, Low Reciprocity (Proportion)	0.25**	[0.08, 0.42]
Mean Conflict, Mean Reciprocity (Proportion)	0.15**	[0.05, 0.25]
High Conflict, High Reciprocity (Proportion)	0.04	[-0.03, 0.11]

Note: * p<.05 ** p<.01 *** p<.001

The interaction term Friendship Conflict × Expected Internalising Coping significantly predicted school loneliness (b=0.23, p<.01), after controlling for the main effects of friendship conflict on school loneliness (b=0.14, p>.05). The interaction of Reciprocity (Proportion) × Expected Internalising Coping was also a significant predictor of school loneliness (b=-0.21, p<.05), after controlling for the main effect of reciprocity on school loneliness (b =-0.28, p<.001). These interactions were probed using simple slopes analyses at the mean, 1 *SD* above the mean, and 1 *SD* below the mean (See Figure 6.12). The simple slopes analyses suggest that the use of internalising coping following physical peer-victimisation has a stronger association with school loneliness in those individuals with high levels of friendship conflict and a low proportion of reciprocated friendship ties (b=0.25, p<.01; 27.78% of the total effect) than those individuals with average levels of conflict and reciprocity (proportion) (b=0.15, p<.01; 18.75% of the total effect). The

individual R^2 contribution of the moderated indirect effect was 8.40% at the mean reciprocity (proportion) and mean conflict level and 12.44% and the low reciprocity (proportion) and high conflict level. There was no significant conditional indirect effect when individuals had low levels of friendship conflict and a high proportion of reciprocated friendship ties (b=0.04, p>.05). Together these results provide evidence to suggest that expected internalising coping behaviour mediates the relationship between physical victimisation and school loneliness in individuals with relative low and moderate levels of friendship conflict and reciprocity (proportion). In addition to the conditional indirect effects, conflict was found to significantly predict expected internalising coping (b=0.21, p<.01), such that those individuals with greater conflict in their friendship were more likely to endorse internalising coping strategies. There was no significant direct relationship between reciprocity (proportion) and expected internalising coping (b=-0.12, p>.05). The findings from this model provide partial support for Hypothesis 6.5.

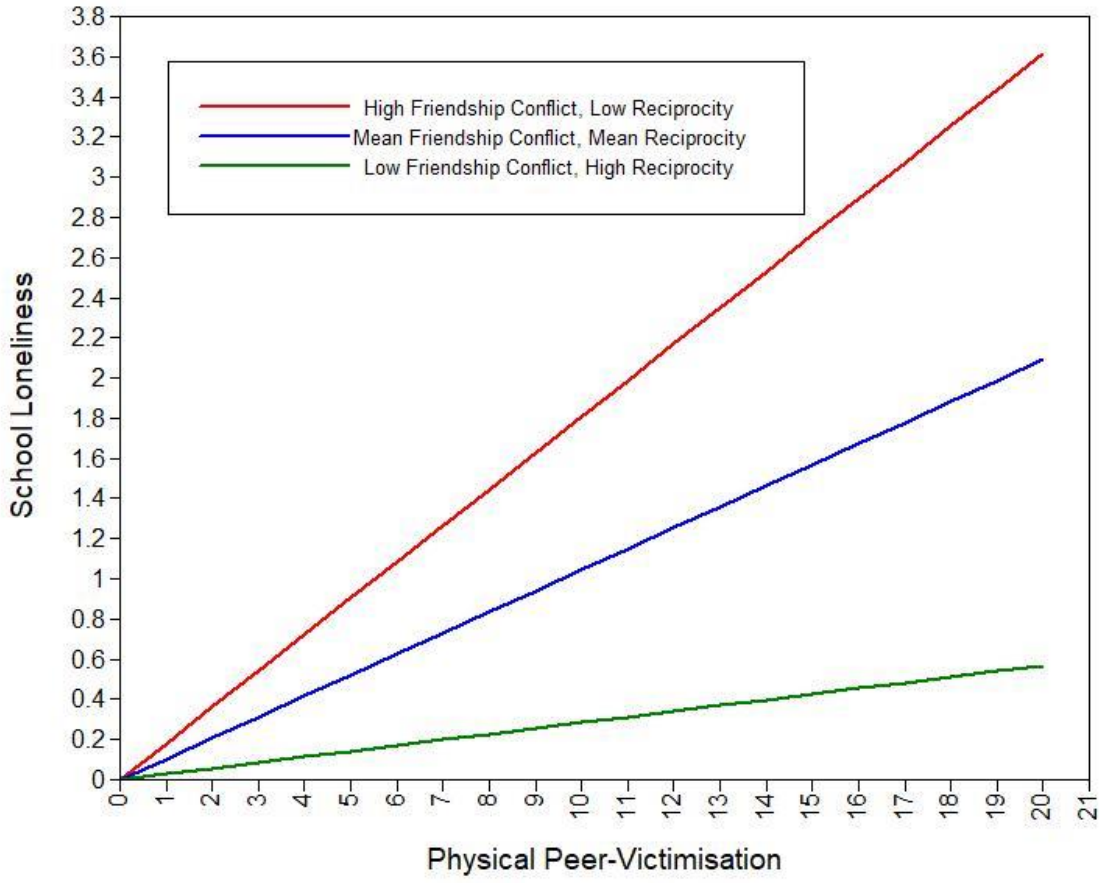

Figure 6.12 Simple slopes plot for physical victimisation moderated mediation model

6.7.3.3 Expected Social Peer-Victimisation Moderated Mediation Results

Table 6.10 provides the unstandardised estimates for the final social victimisation moderated mediated model. The indirect effect only model resulted in a log-likelihood of -8994.87 with 65 parameters (scaled correction: 1.14). The main effects model (conflict and reciprocity as predictors of expected internalising coping and school loneliness) resulted in a significant improvement to the model fit $\Delta\chi^2$= -34.81 (4) p<.001. The model fit after the inclusion of the interaction effects for conflict and reciprocity were examined separately in order to identify the relative improvement of each moderator on the model. The interaction of Conflict × Expected Internalising Coping resulted in a significant model improvement over the main effects model $\Delta\chi^2$= -122.96 (1) p<.001. Reciprocity × Expected Internalising Coping also significantly improved the fit of the main effect model $\Delta\chi^2$= -9.76 (1) p<.001. Finally, both interaction effects were modelled together and were found to significantly improve the model $\Delta\chi^2$= -22.67 (2) p<.001. The R^2 value for the final model was 46.70%.

Table 6.10 *Unstandardised Parameter Estimates for the social peer-victimisation moderated mediation model*

	Estimate	**95% Confidence Interval**
Outcome: School Loneliness		
Social Victimisation	0.23**	[0.08, 0.38]
Internalising Coping	0.55***	[0.37, 0.72]
Friendship Conflict	0.14	[-0.01, 0.29]
Reciprocity (Proportion)	-0.27***	[-0.40, -0.14]
Friendship Conflict × Expected Internalising Coping	0.25**	[0.08, 0.41]
Reciprocity (Proportion) × Expected Internalising Coping	-0.18*	[-0.34, -0.03]
Outcome: Expected *Internalising Coping*		
Social Victimisation	0.44***	[0.27, 0.56]
Friendship Conflict	0.16*	[0.02, 0.29]
Reciprocity (Proportion)	-0.09	[-0.21, 0.03]
Conditional Indirect Effects		
High Conflict, Low Reciprocity (Proportion)	0.43***	[0.25, 0.60]
Mean Conflict, Mean Reciprocity (Proportion)	0.24***	[0.14, 0.34]
Low Conflict, High Reciprocity (Proportion)	0.05	[-0.06, 0.17]

Note: * p<.05 ** p<.01 *** p<.001

The interaction between Friendship Conflict × Expected Internalising Coping was significantly associated with school loneliness (b=0.25, p<.01) after controlling for the main effects of conflict (b=0.14, p>.05), which was not a significant predictor of school loneliness. Reciprocity (Proportion) × Expected Internalising Coping was also significantly associated with school loneliness (b=-0.18, p<.05), in addition to the main effect of reciprocity (b=-0.27, p<.001). These interactions were probed using simple slopes analyses at the mean, 1 *SD* above the mean, and 1 *SD* below the mean (See Figure 6.13). The simple slopes analyses suggest that the use of expected internalising coping strategies are more strongly associated with school loneliness amongst participants with high to moderate levels of friendship conflict and a low proportion of reciprocated friendship ties (b=0.43, p<.001, 40.20% of the total effect; b= 0.24, p<.001; 27.27% of the total effect). This effect was stronger in individuals with high levels of conflict and low reciprocity (proportion). The individual R^2 contribution of the moderated indirect effect was 12.73% at the mean reciprocity (proportion) and mean conflict level and 18.77% and the low reciprocity (proportion) and high conflict level. There was no significant association between expected internalising coping and school loneliness in individuals with low levels of conflict and high proportion of reciprocated friendship ties (b=0.05, p>.05). Together these results provide evidence to suggest that expected internalising coping behaviour mediates the relationship between social peer-victimisation and school loneliness and relative high and moderate levels of friendship conflict and low and moderate levels of reciprocated friendships (proportion). In addition to the moderated indirect effects and main effects, conflict and reciprocity were included as predictors of expected internalising coping. Friendship conflict was identified a significant predictor of expected internalising coping (b=0.16, p<.05). The findings from this model provide partial support for Hypothesis 6.5.

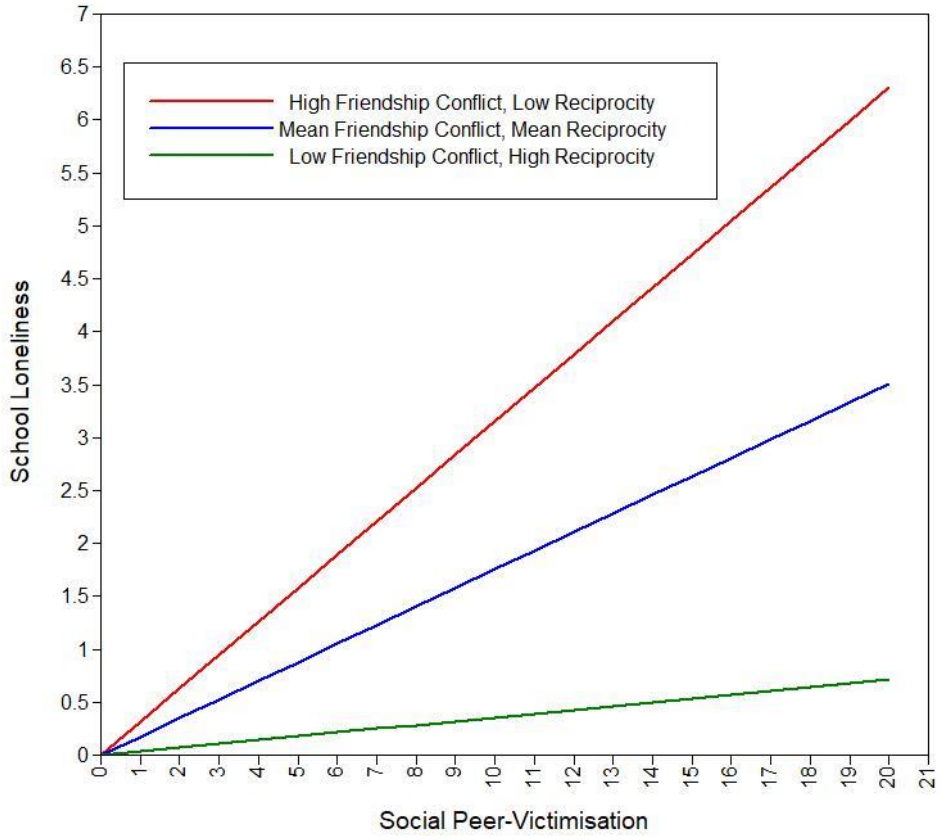

Figure 6.13 Simple slopes plot for the social victimisation moderated mediation model

6.7.3.4 Verbal Peer-Victimisation Moderated Mediation Model

Table 6.11 provides the unstandardised estimates for the final social victimisation moderated mediated model. The indirect effect only model resulted in a log-likelihood of -8994.87 with 65 parameters (scaled correction: 1.14). The main effects model (friendship conflict and reciprocity (proportion) as predictors of expected internalising coping and school loneliness) resulted in a significant improvement to the model fit $\Delta\chi^2$= -34.81 (4) p<.001. The model fit after the inclusion of the interaction effects for conflict and reciprocity were examined separately in order to identify the relative improvement of each moderator on the model. The interaction of Friendship Conflict × Expected Internalising Coping resulted in a significant model improvement over the main effects model $\Delta\chi^2$= -122.96 (1) p<.001. Reciprocity (proportion) × Expected Internalising Coping also significantly improved the fit of the main effect model $\Delta\chi^2$= -9.76 (1) p<.001. Finally, both interaction effects were modelled together and were found to significantly improve the model $\Delta\chi^2$= -22.67 (2) p<.001. The R^2 value for the final model was 47.70%.

Table 6.11 *Unstandardised Parameter Estimates for the verbal peer- victimisation moderated mediation model*

	Estimate	**95% Confidence Interval**
Outcome: School Loneliness		
Verbal Victimisation	0.30***	[0.15, 0.46]
Internalising Coping	0.49***	[0.32, 0.66]
Friendship Conflict	0.15	[0.00, 0.29]
Reciprocity (Proportion)	-0.26***	[-0.39, -0.13]
Friendship Conflict × Expected Internalising Coping	0.24***	[0.08, 0.40]
Reciprocity (proportion) × Expected Internalising Coping	-0.16*	[-0.32, -0.01]
Outcome: Expected *Internalising Coping*		
Verbal Victimisation	0.52***	[0.35, 0.64]
Friendship Conflict	0.16*	[0.02, 0.30]
Reciprocity (Proportion)	-0.06	[-0.18, 0.06]
Conditional Indirect Effects		
High Conflict, Low Reciprocity (Proportion)	0.46***	[0.27, 0.66]
Mean Conflict, Mean Reciprocity (Proportion)	0.26***	[0.15, 0.36]
Low Conflict, High Reciprocity (Proportion)	0.05	[-0.09, 0.18]

Note: * p<.05 *** p<.001

The interaction between Friendship Conflict × Expected Internalising Coping was significantly associated with school loneliness (b=0.24, p<.001) after controlling for the main effects of conflict (b=0.15, p>.05), which was not a significant predictor of school loneliness. Reciprocity (proportion) × Expected Internalising Coping was also significantly associated with school loneliness (b=-0.16, p<.05), in addition to the main effect of reciprocity (b=-0.26, p<.001). These interactions and the simple slopes were probed at the mean, 1 *SD* above the mean, and 1 *SD* below the mean (See Fig 6.14). The simple slopes analyses suggest that the endorsement of internalising coping strategies is more strongly associated with school loneliness amongst participants with high to moderate levels of conflict and a low to moderate reciprocity (proportion) (b=0.46, p<.001, 39.31% of total effect; b= 0.26, p<.001, 26.80% of total effect). This effect was stronger in individuals with high levels of conflict and a low proportion of reciprocated friendships. The individual R^2 contribution of the moderated indirect effect was 12.78%

at the mean reciprocity (proportion) and mean conflict level and 18.75% and the low reciprocity (proportion) and high conflict level. There was no significant association between expected internalising coping and school loneliness in individuals with low levels of conflict and high proportion of reciprocity (b=0.05, p>.05). Together these results provide evidence to suggest that expected internalising coping behaviour mediates the relationship between verbal victimisation and school loneliness in individuals with relative high and moderate levels of friendship conflict and relative low to moderate levels of reciprocated friendships. In addition to the moderated indirect effects and main effects, conflict and reciprocity were included as predictors of internalising coping. Conflict was identified a significant predictor of expected internalising coping (b =0.16, p<.05). The findings from this model provide partial support for Hypothesis 6.5.

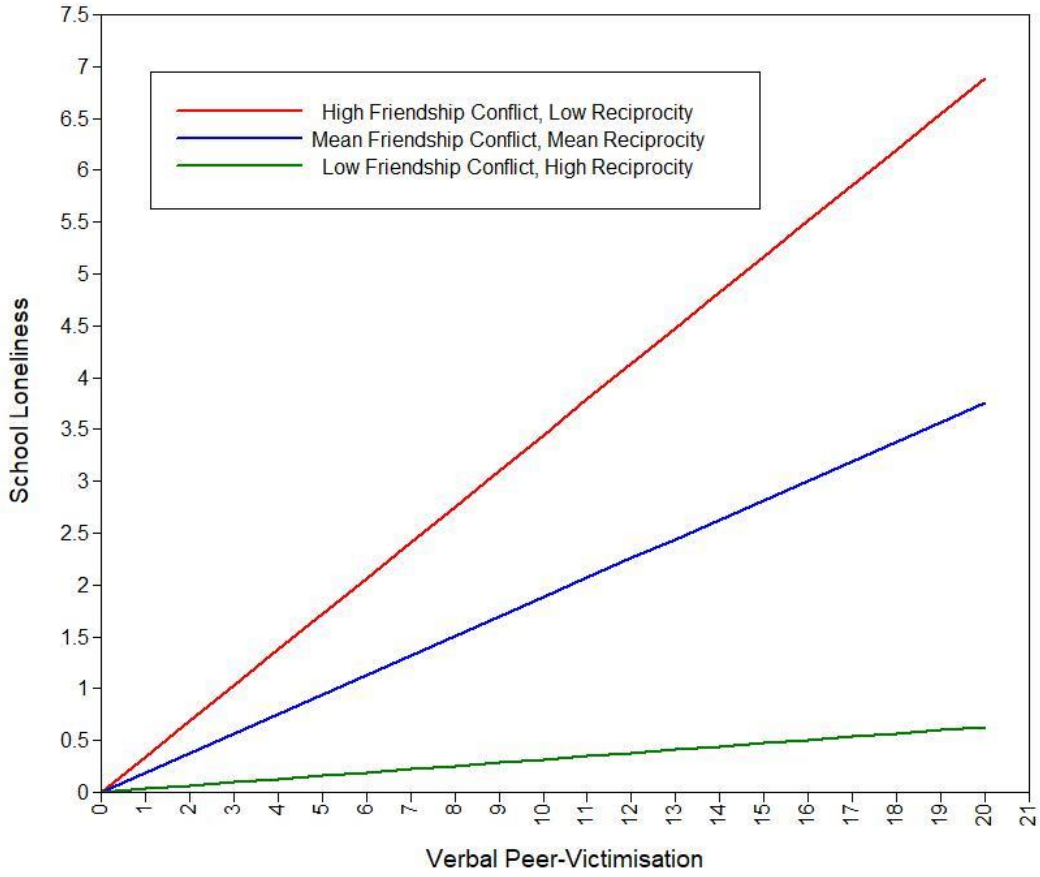

Figure 6.14 Simple slopes plot for the verbal victimisation moderated mediation model

6.8 SECTION 3: ADAPTIVE COPING AND FRIENDSHIP

This section of results examines the role of expected adaptive coping behaviour, specifically adult support coping, peer-support coping, and problem-solving coping, as moderators between the peer-victimisation and school loneliness. These results pertain to Hypotheses 6.6 and 6.7.

6.8.1 Section 3: Plan of Analyses

All variables involved in the interaction effect (peer-victimisation and expected adaptive coping) were specified as observed variables in order to allow for the interaction effect to be predicted by friendship as per Hypothesis 6.7. Although the analyses in Section 2 used latent interactions, these variables cannot be predicted due to having no mean or variance (Muthén & Asparouhov, 2015). All other variables were operationalised as latent variables with their respective indicators. The adaptive coping moderators were standardised in order to facilitate the interpretation of any interaction effects. All models were specified using M*plus* 7.4 (Muthen & Muthen, 2012), using the Maximum Likelihood Robust (MLR) estimator. Due to the number due to the number of multiple comparisons being specified in the analyses, the Benjamini and Hochberg (1995) false discovery rate formulae was employed. Finally, given that none of the expected adaptive coping behaviours acted as moderators between peer-victimisation and school loneliness (see Table 6.9), no further analyses were conducted to examine whether friendship predicted the interaction between peer-victimisation and expected coping.

6.9 SECTION 3: ADAPTIVE COPING TIME 1 RESULTS

6.9.1 Moderation/Interaction Effects

A series of models were specified to examine whether expected adaptive coping (adult support, peer support and problem solving) moderated the pathway between peer-victimisation and school loneliness. A separate model for specified for each combination of peer-victimisation (attack on property, physical victimisation, social victimisation, and verbal victimisation) and expected adaptive coping type (adult support, peer support and problem solving) giving 12 models in total. Figure 6.15 displays the conceptual model that was tested. Table 6.12 provides the standardised estimates and the 95% confidence intervals for the moderation models. Any parameters in italics indicates that's the *p*-value did not meet the false discovery rate criteria.

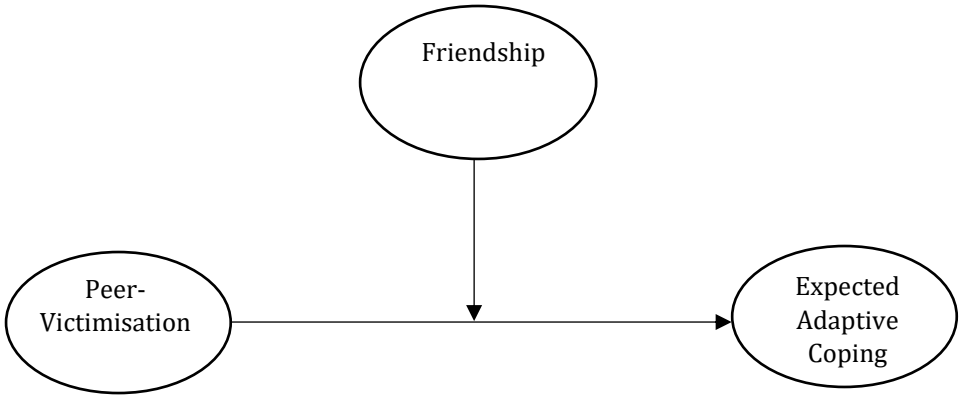

Figure 6.15 Hypothesised moderation regression model to test the moderating effect of friendship on the relationship between peer-victimisation and expected adaptive coping

Table 6.12 *Unstandardised estimates [and 95% CI] for the main and interaction effects of* expected *adaptive coping*

	Peer-Victimisation Types			
	Attack on Property	Physical	Social	Verbal
Moderator: Peer Support				
Peer-Victimisation → Loneliness	0.39*** [0.27, 0.50]	0.37*** [0.25, 0.48]	0.43*** [0.33, 0.53]	0.46*** [0.37, 0.56]
Peer Support → Loneliness	-0.21 [-0.57, 0.14]	0.12 [-0.14, 0.37]	-0.02 [-0.29, 0.26]	-0.10 [-0.36, 0.16]
Peer-Victimisation x Peer Support → Loneliness	0.09 [-0.28, 0.46]	*-0.25** *[-0.51, 0.00]*	-0.12 [-0.48, 0.23]	-0.04 [-0.29, 0.22]
Moderator: Adult Support				
Peer-Victimisation → Loneliness	0.27 [-0.16, 0.71]	0.18 [-0.27, 0.64]	0.23 [-0.21, 0.68]	0.50*** [0.18, 0.82]
Adult → Loneliness	-0.07 [-0.27, 0.14]	-0.11 [-0.34, 0.13]	-0.09 [-0.30, 0.13]	-0.02 [-0.16, 0.13]
Peer-Victimisation x Adult Support → Loneliness	-0.26 [-0.33, 0.60]	0.20 [-0.36, 0.76]	0.21 [-0.28, 0.70]	-0.04 [-0.41, 0.34]
Moderator Problem Solving				
Peer-Victimisation → Loneliness	0.34 [-0.19, 0.85]	0.33 [-0.19, 0.84]	0.04 [-0.11, 0.20]	0.26 [-0.19, 0.72]
Problem Solving→ Loneliness	-0.10 [-0.33, 0.13]	-0.09 [-0.34, 0.16]	-0.12 [-0.27, 0.04]	-0.17 [-0.26, 0.01]
Peer-Victimisation x Problem Solving→ Loneliness	0.07 [-0.50, 0.63]	0.04 [-0.57, 0.66]	0.01 [-0.01, 0.04]	0.23 [-0.26, 0.73]

Note: * $p<.05$ *** $p<.001$. $n = 443$.

Unexpectedly there were no significant interaction effects between expected adaptive coping (peer-support, adult support, or problem solving) and peer-victimisation on school loneliness. In addition, there were no main effects of adaptive coping on school loneliness. These results suggest that neither peer-support coping, adult-support coping, or problem-solving coping affect the presence of, or the strength, of the relationship between peer-victimisation and school loneliness. Therefore, there was no support for Hypothesis 6.6.

6.10 Summary of Findings According to Chapter Hypotheses

To facilitate interpretation a summary table of findings according to support for the hypotheses tested in the current chapter is presented below (See Table 6.13). Section 6.11 will then discuss these findings in more detail.

Table 6.13 *Chapter 6 Summary of Findings According to Hypotheses*

Hypothesis	Support (Yes, No or Partial)?
Section 1	
H6.1a: Positive friendship quality and friendship quantity will be positively associated with peer-support, adult-support, and problem-solving expected coping behaviour	**Partial** *(helpfulness associated with adult and peer support coping, centrality associated with adult support coping)*
H6.1b: Negative friendship quality (conflict) will be negatively associated with peer-support, adult-support, and problem-solving expected coping behaviour	**No**
H6.2a: Positive friendship quality and friendship quantity will be negatively associated with internalising coping, retaliation, and avoidance expected coping behaviour.	**No**
H6.2b: Negative friendship quality (conflict) will be positively associated with internalising coping, retaliation, and avoidance expected coping behaviour.	**Partial** *(conflict associated with expected internalising and retaliation coping)*
Section 2	
H6.3: Internalising coping, retaliation, and avoidance expected coping behaviour will act as mediators between peer-victimisation and school loneliness.	**Partial** *(expected internalising coping acted as mediator)*
H6.4: Friendship (Friendship quality and friendship quantity) will moderate the relationship between peer-victimisation and expected maladaptive coping behaviour, and the relationship between expected maladaptive coping behaviour and school loneliness.	**Partial** *(conflict and reciprocity (proportion) moderators between expected internalising coping and school loneliness)*
H6.5: Friendship (Friendship quality and friendship quantity) will moderate the indirect effect between peer-victimisation and school loneliness via expected maladaptive coping behaviour.	**Yes** *(friendship conflict and friendship (proportion)*
Section 3	
H6.6: Peer-support, adult support, and problem-solving expected coping behaviour will moderate the pathway between peer-victimisation and school loneliness.	**No**
H6.7: Friendship (Friendship quality and friendship quantity) will predict the moderation between expected adaptive coping behaviour and peer-victimisation.	**No**

6.11 CHAPTER SUMMARY

The current chapter presented a series of results pertaining to the role of friendship quality and friendship quantity for coping with school-based peer-victimisation. Specifically, the chapter examined the concurrent role of friendship on both expected maladaptive and expected adaptive coping, whereby a distinction was made in regards to the treatment of these coping variables. Based on previous literature (see Chapter 3), expected maladaptive coping (internalising, retaliation, and avoidance) was specified as a mediator in the statistical models, whereby expected adaptive coping (peer support, adult support, and problem solving) was specified as a moderator. This then guided subsequent statistical analyses regarding the exploration of the role of friendship.

Firstly, the analyses examined whether friendship quality and friendship quantity were associated with children's expected peer-victimisation coping behaviour. A latent linear model was specified for each peer-victimisation coping type, whereby both the friendship quality variables (helpfulness, security, and conflict) and the friendship quantity variables (number of reciprocated friendships, proportion of reciprocated friendships, and centrality) were specified as predictors. It was found that friendship helpfulness was associated with both adult support and peer support coping, suggesting that children who self-report as having higher friendship helpfulness with their best friend report high levels of expected social support coping. High friendship quality in a friendship is important for a child, providing intimacy, disclosure, and social exchange (Berndt, 2002; Nangle et al., 2003). Specifically, Berndt (2002) asserts that positive contact with friends increases a child's access to social resources, for example social support seeking. Centrality (closeness) was also found to be associated with expected adult-support coping but not expected peer-support coping. Specifically, high levels of network centrality were associated with higher levels of expected adult support seeking. Children with high closeness centrality can easily access others in the network (Leavitt, 1951) and may have more power in the network (Coleman, 1973). Closeness centrality is a more global measure of friendship indicating how close a child is to the whole network rather than focusing on dyadic friendships. One potential explanation, therefore, is that children who have high closeness centrality scores may be those children with more sophisticated social skills and it this social skillset that enables them to seek adult social support or anticipate that they would seek adult social support. This also supports assertions made by the social skills deficit theory (Segrin & Flora, 2000), which argues that social skills are crucial for positive and effective communication with others. Together these results provide partial support for Hypothesis 6.1a.

The analyses also found that conflict scores concurrently predicted both expected internalising coping and expected retaliation coping behaviour. Whereby children with higher scores on the conflict variable had higher scores on the expected internalising coping and expected retaliation coping variables. This finding suggests that those children who experience more conflicts in their friendship are more likely to endorse higher levels of internalising and retaliation coping behaviour. Children who are unable to resolve conflict exhibit weaker interpersonal skills (Champion, Vernberg, & Shipman, 2003), which in turn may reduce their ability to utilise adaptive forms of coping. Furthermore, Sullivan (1953) argues that children who experience unsupportive friendship environments may feel defensive and insecure. This argument is further supported by the current empirical findings. The association between friendship conflict and expected internalising and retaliation coping provides partial support for Hypothesis 6.2b, however no further significant associations were found in the analyses. Together, the analyses presented in Section 1 provide an important contribution to understanding individual variation in peer-victimisation coping endorsement.

Next, the indirect effects of expected internalising, retaliation, and avoidance coping were explored as expected maladaptive coping mechanisms between peer-victimisation and school loneliness in Section 2 of the chapter (Section 6.7.1). It was found that expected internalising coping mediated the relationship between all four peer-victimisation types (attack on property, physical, social, and verbal) and school loneliness. Specifically, these results suggest that for all types of peer-victimisation experiences the positive relationship with school loneliness can be partially explained via endorsement of internalising coping. The individual R^2 contribution of the indirect effect was between 14.00% and 17.56% across all four models, indicating a moderate effect size for the indirect effect via expected internalising coping (Cohen, 1988). This finding provides partial support for Hypothesis 6.3. However, neither expected retaliation coping nor expected avoidance coping were found to mediate the relationship between any peer-victimisation type and school loneliness.

Next the analyses explored the moderating role of friendship quality and friendship quantity on expected internalising coping. A series of separate moderation models were specified to examine whether any of the friendship quality factors (helpfulness, security, and conflict) or friendship quantity (number of reciprocated friendships, proportion of reciprocated friendship ties, and centrality) moderated the path between peer-victimisation and expected internalising coping and/or between expected internalising coping and school loneliness. Regarding the pathway between peer-victimisation and expected internalising coping it was observed that none of the

friendship variables acted as moderators. This finding suggests that the relationship between peer-victimisation and expected internalising coping use may not be dependent on a child's friendship quality or friendship quantity. However, the results did provide evidence to suggest that both friendship conflict and the proportion of reciprocated ties a child receives function as moderators on the pathway between expected internalising coping and loneliness. Specifically, high levels of friendship conflict and lower reciprocity proportion of reciprocated ties increased the strength of the relationship between expected internalising coping and school loneliness. This result provides support for Hypothesis 6.4.

To test for Hypothesis 6.5 the final models for maladaptive coping integrated the indirect effect of expected internalising coping and the interaction effects of friendship conflict and reciprocity (proportion). Both friendship conflict and the proportion of reciprocated ties were found to moderate the indirect effect of expected internalising coping on the relationship between peer-victimisation and school loneliness, in all four peer-victimisation models. These findings indicate that expected levels of internalising coping mediate the experience of peer-victimisation on school loneliness for individuals who have high friendship conflict and whom received lower levels of reciprocated friendship nominations. This effect was stronger in children with higher levels of conflict than those with lower levels of reciprocity. The individual R^2 contribution of the moderated indirect effect was between 7.97% and 12.78% across all four models at the mean conflict and mean reciprocated friendship level, indicating a small to moderate effect size for the moderated indirect effect via expected internalising coping (Cohen, 1988). This finding provides further support for literature that argues that the quality of a child's friendship is more important than the number of friends a child may have (e.g., Waldrip et al., 2008).

Finally, it was also found that that expected adaptive coping strategies (peer-support, adult-support and problem solving) did not moderate the pathways between peer-victimisation and school loneliness. This finding suggests peer-support, adult-support and problem solving do not provide a buffer against the negative effects of peer-victimisation. These results fail to provide evidence to support Hypothesis 6.7 and also contradict existing literature, which has suggested that social support can act as a protective buffer following peer-victimisation (e.g., Holt & Espelage, 2007). On the basis of these findings, friendship was not examined as potential predictor of expected adaptive coping. It is possible that in the context of this study expected adaptive coping may act as a buffer when examined over time. This will be explored in more detail in the subsequent chapter.

In summary, the findings in this chapter provide a unique contribution to the research area. Specifically, to the author's knowledge, the current thesis is the first to examine the mechanisms under which friendship quality and friendship quantity may impact on expected peer-victimisation coping behaviour, and in turn whether this mechanism is associated with school loneliness. Furthermore, these findings extend the theoretical assertions of the Friendship Protection Hypothesis (Boulton et al., 1999) by identifying an interplay between friendship and expected peer-victimisation coping behaviour. The Friendship Protection Hypothesis argues that friendship can buffer against the negative effects of peer-victimisation experiences. The findings from the current chapter indicate, however, that friendship may not buffer against the negative effects, but rather negative friendship experiences can further exacerbate the negative effects of peer-victimisation. The extension of the Friendship Protection Hypothesis will be further discussed in Chapter 9. The current chapter also examined six facets of friendship quantity and quality, enabling the research to identify the features of friendship that are associated with expected peer-victimisation coping. Moreover, the current research examined the effect of friendship with regards to six expected coping behaviours and four peer-victimisation types, providing the capacity to explore whether there were variations between types of coping styles and peer-victimisation experiences regarding the role of friendship. The identified effects of friendship conflict and reciprocity will be further examined using longitudinal analyses in Chapter 7 to investigate whether children's friendship predicts future expected peer-victimisation coping and the subsequent long-term effects on school loneliness.

CHAPTER 7: EXAMINING THE EFFECT OF FRIENDSHIP ON PEER VICTIMISATION COPING OVER TIME

7.1 INTRODUCTION TO CHAPTER

Previous literature examining peer-victimisation coping over time is limited and thus further empirical research in this area is warranted. This chapter therefore addresses this gap in the literature via a three-phase longitudinal study, in addition to building on findings from Chapter 6. The current chapter presents the results from a series of statistical models that examines expected peer-victimisation coping mechanisms over time and the role of friendship. Firstly, Section 1 (Section 7.6) of the chapter will examine whether children's friendship predicts future expected peer-victimisation coping behaviour (Research Aim 3). Specifically, these analyses aim to explore the friendship quality vs friendship quantity theoretical argument further by modelling both features of friendship as predictors of expected peer-victimisation coping behaviour. It is therefore hypothesised that:

H7.1: Children's friendship quality and friendship quantity will predict future expected peer-victimisation coping behaviour.

In Section 2 the analyses examine the mediating and moderating role of expected peer-victimisation coping. Similar to the analyses in Chapter 6, the current chapter's analyses make a distinction between maladaptive and adaptive coping mechanisms. It is hypothesised that expected maladaptive coping mechanisms will act as explanatory variables between peer-victimisation and psychosocial outcomes (i.e., school loneliness) over time, whereas expected adaptive coping will buffer the negative effects of peer-victimisation. Subsequently all expected maladaptive coping strategies (internalising, retaliation, and avoidance) are specified as mediators in the analyses, whereby expected adaptive coping strategies (peer support, adult support, and problem solving) will be specified as moderators. Following identification of statistically significant coping mechanisms, the role of friendship quality and friendship quantity on coping will then be examined (Research Aim 4). The hypotheses are as follows:

H7.2a: Expected internalising, retaliation, and avoidance coping behaviour will act as mediators between peer-victimisation and school loneliness over-time. Specifically, expected coping at Time 2 will mediate the relationship between peer-victimisation at Time 1 and School Loneliness at Time 3.

H7.2b: Friendship (friendship quality and friendship quantity) will moderate the relationship between peer-victimisation and expected maladaptive coping behaviour, and the relationship between expected maladaptive coping behaviour and school loneliness.

H7.3a: Expected peer support, adult support, and problem solving coping behaviour will moderate the pathway between peer-victimisation and school loneliness over-time. Specifically, the interaction between expected coping and peer-victimisation at Time 1 will predict school loneliness at Time 2 and the interaction between expected coping and peer-victimisation at Time 2 will predict school loneliness at Time 3.

H7.3b: Friendship (Friendship quality and friendship quantity) will predict the moderation between expected adaptive coping and peer-victimisation.

7.2 SAMPLE AND MISSING DATA

This chapter uses the data collected across all three time points (October 2015 to July 2016). In total data from 510 children are included in the analyses, this represents the number of children present on at least one day of testing across the three time points. Regarding sampling across the time points, n = 311 were present at both Time 1 and Time 2, n = 281 were present at both Time 2 and Time 3, n = 306 were present at Time 1 and Time 3 and n = 267 were present across all three time points. The data used in the analyses were collected from eight schools. More details about the sample can be found in Chapter 5 Section 5.2. Missing data was predominantly due to school drop-out at Time 2 (School 6 and School 7) and Time 3 (School 5). School 6 returned for Time 3. Missing data across all time-points ranged from 17.2% to 38.3%.

7.2.1 Missing Data Analysis

Additional analyses were conducted to examine whether there were any significant differences in any of the variables for those children who participated and those who did not participate at Time 2 or Time 3 but had participated at a previous time point. The results indicated that those children who did not participate at Time 3, had significantly lower reciprocity scores at Time 2, than those children who participated at Time 3 (p<.001). Specifically, those children who did not participate at Time 3 had an average of 1.84 mutual friends, whereby those children who participated at Time 3 had an average of 2.68 mutual friends. No other significant differences were observed.

7.3 STATISTICAL PROCEDURES

This chapter will use longitudinal structural equation panel models in order to test the research hypotheses. These panel models will test both mediation (indirect) and moderation (interaction) effects. Longitudinal panel models are briefly discussed in the following sections.

7.3.1 Longitudinal Cross-Lagged Panel Model

A cross-lagged panel model is a type of structural equation model that can be used on time-ordered panel data to model causal influences (Little, 2013). These models are estimated in a single step, rather than using a series of regression. Figure 7.1 displays a simple path diagram of a panel model with two variables across two-waves. Variables 1 subscript are measured at Time 1 and variables with 2 subscript are measured at Time 2.

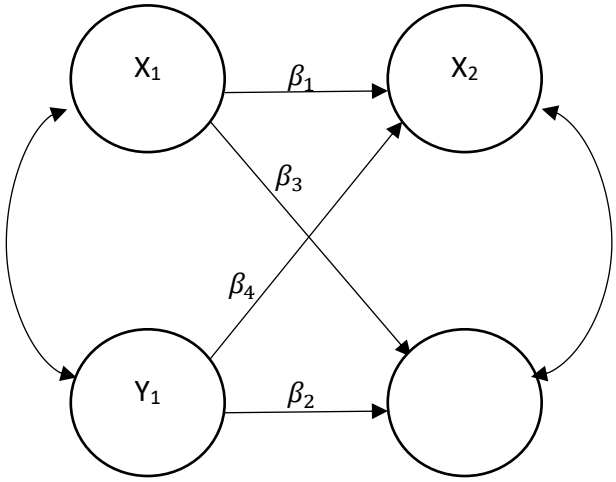

Figure 7.1 Path diagram of longitudinal panel model with two waves

In longitudinal panel models a path that links a Time 1 variable with itself at Time 2 (i.e. β_1 and β_2) is known as an *autoregressive path*. These paths represent the stability of individual differences in a measure from one time point to another. Small autoregressive coefficients represent a large change in individuals scores over time whereas large autoregressive coefficients indicate that individuals scores have changed very little over time (Selig & Little, 2012). It is important to include these autoregressive paths as they control for an individual's previous levels in the dependent variable. Paths β_3 and β_4 represent cross-lagged effects. These effects indicate the lagged predictive relationship between the two constructs. By controlling for prior levels at earlier stages (i.e., autoregressive paths), this allows the researcher to rule out that effect of Y_1 on X_2 was

due to X_1 and Y_1 being correlated at Time 1. This therefore reduces bias when examining cross-lagged effects (Cole & Maxwell, 2003).

When all possible paths are modelled, this is referred to as a saturated model. However, in a model with more constructs and time-points this can result in a large number of possible relationships. Therefore, it is argued that the goal of longitudinal cross-lagged modelling is to identify the most parsimonious model by reducing the set of specified pathways until a model that is theoretically aligned, parsimonious and still represents the data is identified (Little, 2013). The current chapter will utilise cross-lagged path modelling to explore both the predictive role of friendship, as well as the mediating and moderating roles of expected peer-victimisation coping behaviour. Additionally, the analyses focused on identifying the most parsimonious models by reducing the set of pathways as suggested by Little (2013).

7.4 Plan of Analyses

All variables except for the friendship quantity variable (proportion of reciprocated friendship ties) were operationalised as latent variables with their respective indicators (see Chapter 5). All moderators, both latent and observed, were standardised to facilitate interpretation of any interaction effects. Specifically, latent variables were standardised by setting their variance to 1 and the observed variable was standardised by creating z-scores. The hypotheses were tested using longitudinal SEM panel models in M*plus* 7.4 (Muthen & Muthen, 2012). All models were estimated using full information maximum likelihood (FIML) estimation with robust standard errors (MLR) to account for any non-normality in the data (See Chapter 5). The FIML estimation technique is most suitable approach for the missing data present in the current dataset as it avoids biases associated with listwise or pairwise deletion approaches, by including all available information when generating parameter estimates (Enders & Bandalos, 2001). As per Chapter 6, conventional fit indices are not available due to the integration technique used. Subsequently no baseline models are estimated, and thus relative fit indices cannot be calculated. However, the final model's suitability was assessed using a nested model approach and scaled log likelihoods. Nested models were compared via the difference in the scaled log-likelihood multiplied by two ($\Delta\chi^2$). A significant $\Delta\chi^2$ indicates that the additional parameters significantly improved the model. This approach is recommended by a number of statisticians, for example Bentler and Satorra (2010).

Firstly, to examine the predictive role of friendship on future expected peer-victimisation coping behaviour (Hypothesis 7.1) a series of models were specified for each coping type found to be associate with friendship (as indicated by the bivariate

associations). Each model included reciprocity (proportion) as an indicator of the proportion of reciprocated ties a child received and a friendship quality sub-scale (either help or conflict) as an indicator of children's friendship quality. The type of friendship quality sub-scale inclusion was based on the findings from the bivariate associations (see 7.5.1).

Secondly, to test Hypothesis 7.2a, the role of expected maladaptive coping as a mediator between peer-victimisation and school loneliness was explored. A model was specified for each expected maladaptive coping behaviour (internalising coping, retaliation coping, and avoidance) and each peer-victimisation type (social, verbal, physical, and attack on property). There was a lack of support for Hypothesis 7.2a and therefore no models were specified to test Hypothesis 7.2b. However, on the basis of the findings from Hypothesis 7.2a testing, further exploratory analyses was conducted to examine the moderating effect of friendship (reciprocity (proportion) and friendship conflict) on the relationship between expected internalising coping and future verbal victimisation, and expected retaliation coping and future physical victimisation. In models containing significant interactions, simple slopes analyses were estimated at high (+1SD), the mean and low (-1SD) values of the moderator.

To test Hypothesis 7.3a, the role of expected adaptive coping as a moderator between peer-victimisation and school loneliness was explored. A separate model for specified for each combination of peer-victimisation (attack on property, physical victimisation, social victimisation, and verbal victimisation) and expected adaptive coping behaviour (adult support, peer support, and problem solving) giving 12 models in total. Due to the results of Hypothesis 7.3a testing indicating that expected adaptive coping did not act as a moderator between peer-victimisation and school loneliness across time, the role of friendship was not explored further within these models. Therefore, Hypothesis 7.3b was not tested.

Finally, similar to Chapter 6, due to the number of multiple comparisons being specified in the analyses, the Benjamini and Hochberg (1995) false discovery rate formulae was employed to account for the number of multiple comparisons being specified in the analyses (See Section 6.5.1).

7.5 RESULTS

7.5.1 Descriptive Statistics

Table 7.1 provides the means, standard deviation and range for all Time 1 variables used in this chapter. The full range of possible scores was present in all variables except

Friendship Helpfulness (friendship quality), whereby the possible range of scores is between 7 and 35.

Table 7.1 *Descriptive statistics (mean, SD and range) for T1, T2, and T3 Variables*

		Time 1		Time 2		Time 3	
Variable	**Range**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
School Loneliness	4.00-20.00	7.36	3.91	6.92	3.43	6.94	3.65
Expected Coping Behaviour							
Peer Support	2.00-6.00	4.68	1.15	4.66	1.21	4.61	1.25
Adult Support	4.00-12.00	8.98	2.15	8.93	2.20	8.82	2.26
Problem Solving	3.00-9.00	6.56	1.61	6.59	1.56	6.46	1.56
Internalising	6.00-18.00	10.50	2.80	10.66	3.02	10.82	7.44
Retaliation	5.00-15.00	6.59	2.31	6.66	2.20	7.07	2.56
Avoidance	3.00-9.00	5.19	1.62	5.11	1.51	5.05	1.59
Friendship Quality							
Friendship Helpfulness	9.00-35.00	29.93	4.64	29.63	4.52	30.31	4.52
Friendship Security	3.00-15.00	12.25	2.37	12.36	2.38	12.68	3.70
Friendship Conflict	4.00-20.00	10.46	2.74	9.58	3.73	9.10	3.70
Friendship Reciprocity (Total)	0.00-8.00	2.59	1.68	2.53	1.69	2.86	1.87
Friendship Reciprocity (Proportion)	0.00-1.00	0.59	0.32	0.56	0.32	0.59	0.32
Centrality	0.00-324.49	35.85	41.48	39.77	46.65	35.37	42.67
Peer-Victimisation							
Attack on Property	4.00-20.00	5.58	2.80	5.46	2.83	5.37	2.34
Physical	4.00-20.00	5.52	2.61	5.47	2.68	5.36	2.23
Verbal	4.00-20.00	6.88	3.56	6.57	3.42	7.00	3.70
Social	4.00-20.00	6.91	3.40	6.86	3.50	7.02	3.59

Note: n ranges between 327 to 443

7.5.2 Bivariate Associations

Table G.1 (Appendix G) presents the table of bivariate associations across all three time-points. Those associations of interest will be briefly discussed. As expected, all four peer-victimisation types (verbal, social, physical, and attack on property) at Time 1 and Time 2 were positively associated with future experiences of school loneliness at Time 2 (r = .17 to r =. 33) and Time 3 (Time 1: r = .15 to r =. 32; Time 2: r = .22 to r =. 36). Specifically, those children who experienced higher levels of peer-victimisation at Time 1 and Time 2, had higher levels of school loneliness at later time-points, than those children who reported experiencing lower levels of peer-victimisation.

Regarding expected coping, all four peer-victimisation types at Time 1 were positively associated with expected internalising coping at Time 2 (r = .16 to r =. 23) and Time 3 (r = .13 to r =.25). All peer-victimisation types at Time 1 were also associated with expected retaliation coping at Time 2 (r = .15 to r = .22), and verbal, physical, and attack on property victimisation at Time 1 was associated with expected retaliation at Time 3 (r = .14 to r =.20). Peer-victimisation at Time 1 was not associated with expected adult support coping at Time 2, however verbal victimisation at Time 1 was associated with expected adult support coping at Time 3 (r =.13). Both verbal and physical victimisation at Time 1 were associated with expected peer support coping at Time 2 (r = -.13 and r = -.12, respectively), although only verbal victimisation at Time 1 was associated with expected peer support coping at Time 3 (r = -.12). No Time 1 peer-victimisation variables were associated with future expected problem solving or avoidance coping. Together, these bivariate associations indicate that peer-victimisation is associated with future expected peer-victimisation coping behaviour, however this varies according to the type of peer-victimisation experienced and the type of expected peer-victimisation coping behaviour.

Both friendship quality and friendship quantity were associated with future expected peer-victimisation coping, although this varied according to the type of friendship variable and coping. A summary of the relationship between expected coping and friendship variables overtime is provided in Table 7.1 to facilitate interpretation Specifically, expected internalising coping at Time 2 was not associated with any Time 1 friendship variable, however expected internalising coping at Time 3 was negatively associated with friendship security at Time 2 (r = -.18). Like expected internalising coping, expected adult support coping at Time 2 was not associated with any friendship variables at Time 1. However, friendship helpfulness at Time 1 and Time 2 was associated with expected adult support coping at Time 3 (r = .16 and r =.21, respectively).

Expected peer coping at Time 2 was associated with all friendship helpfulness and friendship security variables at Time 1 (r = .24 and r =.19, respectively). Peer coping at Time 3 was also associated with friendship helpfulness and friendship security at Time 1 (r = .16 and r =.12, respectively). Expected problem solving coping at Time 2 and Time 3 was associated with friendship helpfulness at Time 1 (r = .23 and r =.14, respectively). Friendship helpfulness at Time 2 was also positively associated with expected problem solving coping at Time 3 (r = .22). Retaliation coping at Time 2 and Time 3 coping was associated with all three Time 1 friendship quality variables, helpfulness (Time 2: r = -.14; Time 3: r = -.12), security (Time 2: r = -.15; Time 3: r = -.12), and conflict (Time 2: r = -.19; Time 3: r = .15). Both Time 1 friendship quantity variables were also associated with expected retaliation coping at Time 2, whereby the proportion of friendship ties a child receives at Time 1 was more strongly associated with expected retaliation coping at Time 2 (r = -.21) than the total number of reciprocated ties (r = -.12). Retaliation coping at Time 3 was also associated with both friendship conflict and friendship security at Time 2 (r = -.16 and r =.18, respectively). No other friendship variables at Time 2 were associated with expected retaliation coping at Time 3. A summary table of the bivariate associations between friendship and coping across Time 1, Time 2, and Time 3 can be found in Table 7.2.

Table 7.2 *Summary of bivariate associations between friendship at Time 1 or Time 2 with future* expected *peer-victimisation coping at Time 2 or Time 3.*

	Friendship Quality			Friendship Quantity		
	Help	Security	Conflict	Recip. (Total)	Recip. (Proportion)	Centrality
1. Internalising		✓				
2. Retaliation	✓	✓	✓	✓	✓	
3. Avoidance						
4. Peer Support	✓	✓				
5. Adult Support	✓					
6. Problem Solving	✓					

Note: Recip. = Reciprocity

7.6 SECTION 1: FRIENDSHIP AS A PREDICTOR OF FUTURE EXPECTED PEER-VICTIMISATION COPING

The following section presents the analyses to test Hypothesis 7.1, that children's friendship (friendship quality and proportion of reciprocated friendship ties) will predict future expected peer-victimisation coping behaviour. On the basis of the bivariate associations and findings from Chapter 6 four models were specified. Although the proportion of friendship ties was only associated with expected retaliation coping, it was decided to include this variable within the models in order to control for friendship quantity. Furthermore, proportion of reciprocated ties variable rather than the total number of ties reciprocated variable was included in the models, given that the effect size for the associated between proportion of reciprocated friendship ties and expected retaliation coping was greater than the association between total number of reciprocated ties and expected retaliation coping. Subsequently, the following four models were specified:

1. Reciprocity (proportion), friendship helpfulness (friendship quality indicator) and friendship security (friendship quality indicator) as predictors of future expected peer-supporting coping (Section 7.6.1.1).

2. Reciprocity (proportion) and friendship helpfulness (friendship quality indicator) as predictors of future expected adult-supporting coping (Section 7.6.1.2).
3. Reciprocity (proportion) and friendship helpfulness (friendship quality indicator) as predictors of future expected problem solving coping (Section 7.6.1.3).
4. Reciprocity (proportion), friendship conflict (friendship quality indicator) friendship security (friendship quality indicator) as predictors of future expected retaliation coping (Section 7.6.1.4).

The hypothesised model structure is depicted in Figure 7.2. Initially all cross-lagged paths were specified and then any non-significant paths were removed iteratively until the most parsimonious model emerged. This is in line with recommendations as outlined in Little (2013).

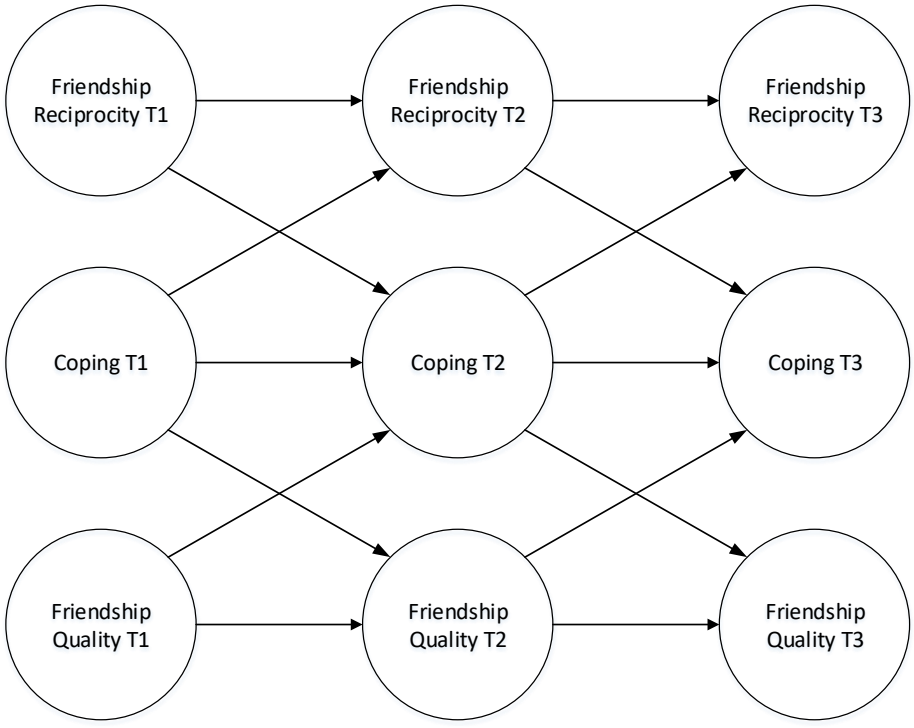

Figure 7.2 Hypothesised longitudinal friendship and expected coping model

7.6.1 Expected Peer Support Coping and Friendship Model

A longitudinal cross-lagged model was specified to explore the relationship between friendship and expected peer-support coping over time, whereby the role of three friendship variables, reciprocity (proportion), friendship security, and friendship helpfulness (friendship quality indicator) were examined. The estimates for the final model are presented in Table 7.3. All autoregressive paths were positive and significant across-time, indicating that the constructs predict themselves at a later time-point and represent construct stability. Regarding cross-lagged paths, two pathways were retained in the final model. Firstly, it was found proportion of reciprocated friendship ties scores at Time 1 predicted expected peer support at Time 2, whereby higher reciprocity scores at Time 1 were associated with a higher levels of expected peer-support coping at Time 2 (b=0.15, β =0.18, p<.05). Secondly, expected peer-support coping at Time 2 was found to predict higher levels of perceived friendship help at Time 3 (b=0.11, β =0.22, p<.001). The final model was a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= 22.45 (2), p<.001. This model thus provides partial support for Hypothesis 7.1.

Table 7.3 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Expected Peer-Support Coping, Friendship Quality (Help), and Reciprocity (Proportion) Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Peer Support T1 → Peer Support T2	0.49 (0.08)***	0.33, 0.65
Peer Support T2 → Peer Support T3	0.72 (0.09)***	0.54, 0.90
Friendship Quality (Help) T1 → Friendship Quality (Help) T2	0.70 (0.09)***	0.52, 0.88
Friendship Quality (Help) T2 → Friendship Quality (Help) T3	0.52 (0.05)***	0.43, 0.62
Friendship Quality (Security) T1 → Friendship Quality (Security) T2	0.86 (0.17)***	0.53, 1.19
Friendship Quality (Security) T1 → Friendship Quality (Security) T2	0.77 (0.15)***	0.47, 1.07
Reciprocity (Proportion)T1 → Reciprocity (Proportion)T2	0.45 (0.06)***	0.34, 0.56
Reciprocity (Proportion) T2 → Reciprocity (Proportion) T3	0.37 (0.06)***	0.24, 0.47
Cross Lagged Paths		
Reciprocity (Proportion) T1 → Peer Support T2	0.15 (0.06)*	0.03, 0.27
Peer Support T2 → Friendship Quality (Help) T3	0.11 (0.02)***	0.05, 0.14

Note: * p<.05 *** p<.001

7.6.2 Expected Retaliation Coping and Friendship Model

A longitudinal cross-lagged model was specified to explore the relationship between friendship and expected retaliation coping behaviour over time, whereby the role of two friendship variables, reciprocity, and friendship conflict (friendship quality indicator) were examined. The estimates for the final model are presented in Table 7.4. All autoregressive paths were significant across time, again indicating that that the constructs predict themselves and are stable over time. Two cross-lagged pathways were retained in the final model, whereby proportion of reciprocated friendship ties at

Time 1 predicted expected retaliation coping behaviour at Time 2. Specifically, higher levels of reciprocity at Time 1 are associated with lower levels of expected retaliation coping at Time 2 (b= -0.14, β = -0.18 *p*<.01). In addition, retaliation coping at Time 1 was negatively associated with reciprocity at Time 2, such that those children with higher expected retaliation coping at Time 1 had lower proportion of friendship nominations reciprocated than other children at Time 2 (b=0.19, β = -0.13 *p*<.001). The final model was a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= 25.98 (2), *p*<.001. This model provides partial support for Hypothesis 7.1.

Table 7.4 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Expected Retaliation Coping, Friendship Quality (Conflict), and Reciprocity (Proportion) Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Retaliation T1 → Retaliation T2	0.93 (0.08)***	0.77, 1.08
Retaliation T2 → Retaliation T3	0.84 (0.06)***	0.73, 0.95
Friendship Quality (Conflict) T1 → Friendship Quality (Conflict) T2	1.02 (0.20)***	0.64, 1.41
Friendship Quality (Conflict) T2 → Friendship Quality (Conflict) T3	0.80 (0.12)***	0.56, 1.04
Friendship Quality (Security) T1 → Friendship Quality (Security) T2	1.29 (0.27)***	0.77, 1.76
Friendship Quality (Security) T1 → Friendship Quality (Security) T2	0.61 (0.10)***	0.41, 0.81
Reciprocity (Proportion)T1 → Reciprocity (Proportion)T2	0.45 (0.06)***	0.34, 0.56
Reciprocity (Proportion) T2 → Reciprocity (Proportion) T3	0.36 (0.08)***	0.21, 0.50
Cross Lagged Paths		
Reciprocity (Proportion) T1 → Retaliation T2	-0.14 (0.05)**	-0.24, -0.05
Retaliation T1 → Reciprocity (Proportion) T2	-0.19 (0.09)*	-0.37, -0.001

Note: * *p*<.05 ** *p*<.01 *** *p*<.001

Although the bivariate associations indicate that expected problem solving coping and expected adult-support coping are associated with friendship quality (help), no

significant cross-lagged effects were identified and therefore no final model for these two coping types are reported.

In summary, Section 1 provides partial support for Hypothesis 7.1, whereby children's proportion of reciprocated friendship ties scores were found to predict future expected peer-support coping and expected retaliation coping. However, friendship was not found to predict any other type of future expected peer-victimisation coping behaviour (i.e., internalising coping, problem-solving coping, adult support, or avoidance). In addition, friendship quality was not found to be a predictor of any future expected peer-victimisation coping behaviour.

7.7 Section 2: Longitudinal Indirect and Moderating Effects of Expected Peer-Victimisation Coping

7.7.1 Indirect Effects: Expected Coping

Expected internalising coping, expected retaliation coping, and expected avoidance coping were examined as mediators in twelve longitudinal panel models whereby the effects of coping type, and peer-victimisation type (social, verbal, physical, and attack on property) were modelled separately. The hypothesised tested model is depicted in Figure 7.3 (representing Hypothesis 7.2a). To acknowledge that cross-lagged effects may occur over a longer time period the constructs were also specified to predict two time points ahead i.e., Coping at Time 1 predicting peer-victimisation at Time 3, however not all of these effects are not included in Figure 7.3 for the purpose of figure clarity. As per section 7.6, initially all cross-lagged paths were specified and then any non-significant paths were removed iteratively until the most parsimonious model emerged. This is in line with recommendations as outlined by Little (2013). The model fit for final models was subsequently compared with the respective auto-regressive only model, whereby no cross-lagged paths are specified.

Due to convergence issues there is no final model estimates for models pertaining to avoidance coping and (1) physical victimisation, and (2) attack on property victimisation. Therefore, there is a lack of support for Hypothesis 7.2a for models pertaining to physical victimisation and attack on property victimisation. All models with convergence issues received similar treatment to resolve the convergence problems including removal of pathways resulting in non-convergence, increasing the number of iteration points, and increasing the number of integration points in Monte Carlo numerical integration procedure. These approaches are in line with recommendations as found in the M*plus* handbook (Muthen & Muthen, 2012). In models whereby non-

convergence is still an issue this indicates that the model specification is too complex to be supported by the available data (Bates, Kliegel, Vasishth, & Baayen, 2015).

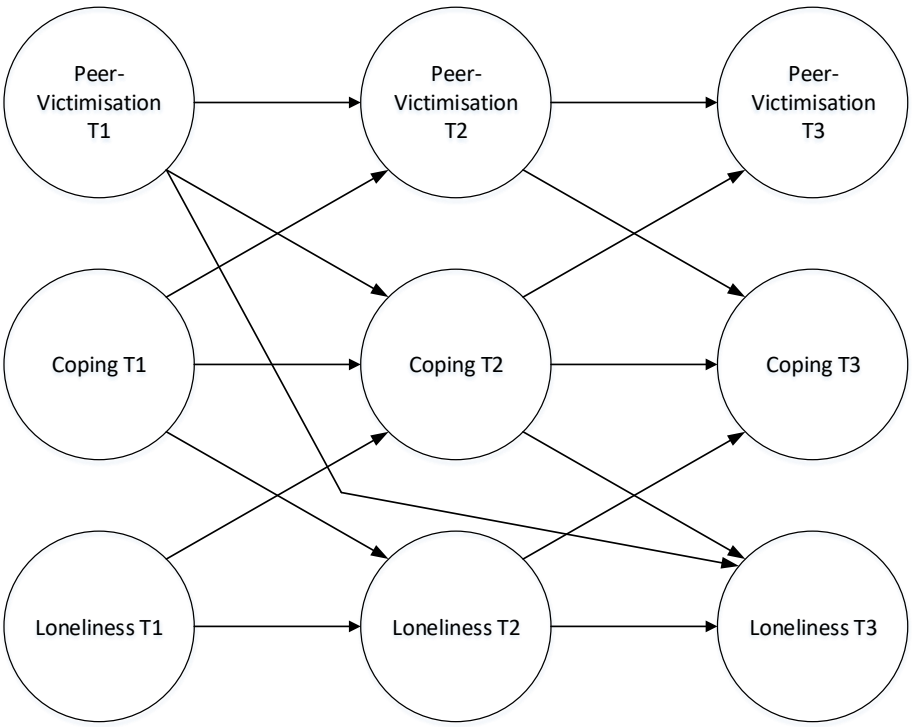

Figure 7.3 Hypothesised longitudinal cross-lagged mediation model

7.7.1.1 Expected Internalising Coping Models

Expected internalising coping was examined as a mediator between peer-victimisation and school loneliness across time, whereby expected internalising coping at Time 2 was hypothesised to mediate the relationship between peer-victimisation at Time 1 and School Loneliness at Time 3 (H7.2a). A model was specified for each peer-victimisation type.

The final estimates for the verbal peer-victimisation and expected internalising coping longitudinal cross-lagged longitudinal model can be found in Table 7.5. All specified autoregressive paths were significant predictors of later time-points. The only significant cross-lagged pathway was the relationship between expected internalising coping at Time 1 and verbal victimisation at Time 3, whereby higher levels of expected internalising coping at Time 1 predicted higher levels of verbal victimisation at T3 (b=0.51, p<.001). The final model fit the data significantly better than the auto-regressive model whereby $\Delta\chi^2$= -36.46 (1), p<.001. However, there was no support for Hypothesis 7.2a.

Table 7.5 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Verbal Victimisation and Expected Internalising Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Verbal T1 → Verbal T2	1.03 (0.21)***	0.63, 1.44
Verbal T2 → Verbal T3	0.97 (0.13)***	0.71, 1.22
Internalising T1 → Internalising T2	1.86 (0.14)***	1.60, 2.13
Internalising T2 → Internalising T3	0.68 (0.05)***	0.58, 0.79
Loneliness T1 → Loneliness T2	0.94 (0.12)***	0.89, 1.56
Loneliness T2 → Loneliness T3	0.81 (0.14)***	0.61, 1.11
Cross-Lagged Paths		
Internalising T1 → Verbal T3	0.51 (0.11)***	0.71, 1.22

Note: *** p<.001

The final estimates for the social victimisation and expected internalising coping longitudinal cross-lagged model can be found in Table 7.6. The autoregressive paths for social victimisation and school loneliness were significant predictors of later time points, however the autoregressive pathways for expected internalising coping resulted in model convergence issues and were therefore removed from the model. There were no significant cross-lagged pathways and therefore no model comparison was conducted. Subsequently, this model did not provide support for Hypothesis 7.2a.

Table 7.6 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Social Victimisation and Expected Internalising Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Social T1 → Social T2	1.03 (0.17)***	0.69, 1.38
Social T2 → Social T3	0.57 (0.24)*	0.11, 1.03
Internalising T1 → Internalising T2	--	--
Internalising T2 → Internalising T3	--	--
Loneliness T1 → Loneliness T2	0.73 (0.13)***	0.48, 0.98
Loneliness T2 → Loneliness T3	0.79 (0.13)***	0.53, 1.05

Note: * p<.05 *** p<.001

The final estimates for the attack on property victimisation and expected internalising coping longitudinal cross-lagged model can be found in Table 7.7. All specified autoregressive paths were significant predictors of later time-points. There were no significant cross-lagged pathways and therefore no model comparison was conducted. Similar to the verbal and social victimisation models, no support was found for Hypothesis 7.2a.

Table 7.7 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Attack on Property Victimisation and Expected Internalising Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Attack on Property T1 → Attack on Property T2	1.03 (0.17)***	0.31, 1.12
Attack on Property T2 → Attack on Property T3	0.57 (0.24)*	0.13, 1.36
Internalising T1 → Internalising T2	1.31 (0.11)***	1.10, 1.52
Internalising T2 → Internalising T3	0.97 (0.08)***	0.81, 1.12
Loneliness T1 → Loneliness T2	0.73 (0.13)***	0.63, 1.12
Loneliness T2 → Loneliness T3	0.79 (0.13)***	0.55, 1.08

Note: * $p<.05$ *** $p<.001$

The final estimates for the physical victimisation and expected internalising coping longitudinal cross-lagged model can be found in Table 7.8. All specified autoregressive paths were significant predictors of later time-points. There were no significant cross-lagged pathways and therefore no model comparison was conducted. Furthermore, no support was found for Hypothesis 7.2a.

Table 7.8 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Physical Victimisation and Expected Internalising Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Physical T1 → Physical T2	0.71 (0.11)***	0.49, 0.92
Physical T2 → Physical T3	0.62 (0.11)***	0.42, 0.84
Internalising T1 → Internalising T2	1.67 (0.11)***	1.45, 1.88
Internalising T2 → Internalising T3	0.81 (0.09)***	0.59, 0.92
Loneliness T1 → Loneliness T2	0.89 (0.12)***	0.64, 1.10
Loneliness T2 → Loneliness T3	0.81 (0.13)***	0.56, 1.06

Note: *** p<.001

7.7.1.2 Expected Retaliation Coping Models

Expected retaliation coping behaviour was examined as a mediator between peer-victimisation and school loneliness across time, whereby expected retaliation coping at Time 2 was hypothesised to mediate the relationship between peer-victimisation at Time 1 and School Loneliness at Time 3 (H7.2a). A model was specified for each peer-victimisation type.

The final estimates for the verbal victimisation and expected retaliation longitudinal cross-lagged model can be found in Table 7.9. All specified autoregressive paths were significant predictors of later time-points. However, there were no significant cross-lagged pathways and therefore no model comparison was conducted. Again, no support for Hypothesis 7.2a was observed.

Table 7.9 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Verbal Victimisation and Expected Retaliation Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Verbal T1 → Verbal T2	1.12 (0.15)***	0.83, 1.40
Verbal T2 → Verbal T3	0.76 (0.14)***	0.49, 1.02
Retaliation T1 → Retaliation T2	2.13 (0.21)***	1.73, 2.54
Retaliation T2 → Retaliation T3	0.83 (0.06)***	0.72, 0.94
Loneliness T1 → Loneliness T2	0.91 (0.13)***	0.66, 1.67
Loneliness T2 → Loneliness T3	0.83 (0.06)***	0.56, 1.09

Note: *** p<.001

The final estimates for the social victimisation and expected retaliation longitudinal cross-lagged model can be found in Table 7.10. All specified autoregressive paths were significant predictors of later time-points. There were no significant cross-lagged pathways and therefore no model comparison was conducted. Subsequently, the model did not provide any support for Hypothesis 7.2a.

Table 7.10 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Social Victimisation and Expected Retaliation Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Social T1 → Social T2	0.91 (0.12)***	0.68, 1.13
Social T2 → Social T3	1.23 (0.14)***	0.95, 1.50
Retaliation T1 → Retaliation T2	1.83 (0.14)***	1.56, 2.11
Retaliation T2 → Retaliation T3	0.89 (0.09)***	0.72, 1.05
Loneliness T1 → Loneliness T2	0.87 (0.06)***	0.60, 1.14
Loneliness T2 → Loneliness T3	0.83 (0.14)***	0.57, 1.10

Note: *** p<.001

The final estimates for the physical peer-victimisation and expected retaliation coping cross-lagged longitudinal model can be found in Table 7.11. All specified autoregressive paths were significant predictors of later time-points. The only significant cross-lagged pathway was the relationship between expected retaliation coping at Time 1 and physical victimisation at Time 3 (b= 0.31, p<.01), whereby higher levels of expected

retaliation at Time 1 predicted higher levels of physical victimisation at T3. The final model fit the data significantly better than the auto-regressive only model whereby $\Delta\chi^2$= -7.26 (1), p<.01. However, given that physical peer-victimisation did not predict future expected retaliation coping, no support for Hypothesis 7.2a was found.

Table 7.11 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Physical Victimisation and Expected Retaliation Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Physical T1 → Physical T2	0.67 (0.15)***	0.38, 0.97
Physical T2 → Physical T3	0.72 (0.16)***	0.40, 1.04
Retaliation T1 → Retaliation T2	1.59 (0.21)***	1.18, 1.99
Retaliation T2 → Retaliation T3	0.84 (0.11)***	0.62, 1.05
Loneliness T1 → Loneliness T2	0.30 (0.07)***	0.17, 0.43
Loneliness T2 → Loneliness T3	0.83 (0.13)***	0.57, 1.08
Cross-Lagged Paths		
Retaliation T1 → Physical T3	0.31 (0.12)**	0.07, 0.55

Note: ** p<.01 *** p<.001

The final estimates for the attack on property peer-victimisation and expected retaliation coping cross-lagged longitudinal model can be found in Table 7.12. All specified autoregressive paths were significant predictors of later time-points. There were no significant cross-lagged pathways, therefore no model comparison was conducted and nor was there any support for Hypothesis 7.2a.

Table 7.12 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Attack on Property Victimisation and Expected Retaliation Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Attack on Property T1 → Attack on Property T2	0.79 (0.10)***	0.60, 0.97
Attack on Property T2 → Attack on Property T3	0.43 (0.09)***	0.27, 0.60
Retaliation T1 → Retaliation T2	1.17 (0.15)***	0.88, 1.45
Retaliation T2 → Retaliation T3	1.45 (0.08)***	1.29, 1.62
Loneliness T1 → Loneliness T2	0.86 (0.13)***	0.61, 1.10
Loneliness T2 → Loneliness T3	0.82 (0.13)***	0.56, 1.08

Note: *** p<.001

7.7.1.3 Expected Avoidance Coping

Expected avoidance coping behaviour was examined as a mediator between peer-victimisation and school loneliness across time, whereby expected avoidance coping at Time 2 was hypothesised to mediate the relationship between peer-victimisation at Time 1 and School Loneliness at Time 3 (H7.2a). A model was specified for each peer-victimisation type.

The final estimates for the verbal peer-victimisation and expected avoidance coping cross-lagged longitudinal model can be found in Table 7.13. All specified autoregressive paths were significant predictors of later time-points. The only significant cross-lagged pathway was the relationship between verbal victimisation at Time 1 and School Loneliness at Time 3 (b=0.28, p<.01), whereby higher levels of verbal victimisation at Time 1 predicted higher levels of School Loneliness at Time 3. The final model fit the data significantly better than the auto-regressive only model whereby $\Delta\chi^2$= -13.61 (1), p<.001. However, given that there was no indirect effect between verbal victimisation and school loneliness via expected avoidance coping the final model did not support Hypothesis 7.2a.

Table 7.13 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Verbal Victimisation and Expected Avoidance Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Verbal T1 → Verbal T2	1.04 (0.12)***	0.81, 1.28
Verbal T2 → Verbal T3	0.77 (0.10)***	0.59, 0.96
Avoidance T1 → Avoidance T2	1.58 (0.27)***	1.06, 2.11
Avoidance T2 → Avoidance T3	0.61 (0.07)***	0.48, 0.75
Loneliness T1 → Loneliness T2	0.87 (0.12)***	0.62, 1.12
Loneliness T2 → Loneliness T3	0.77 (0.14)***	0.50, 1.03
Cross-Lagged Paths		
Verbal T1 → Loneliness T3	0.28 (0.09)**	0.12, 0.45

Note: * p<.05 ** p<.01 *** p<.001

The final estimates for the social peer-victimisation and expected avoidance coping cross-lagged longitudinal model can be found in Table 7.14. All specified autoregressive paths were significant predictors of later time-points. There were no significant cross-lagged pathways and therefore no model comparison was conducted.

Table 7.14 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Social Victimisation and Expected Avoidance Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Social T1 → Social T2	0.78 (0.11)***	0.55, 1.10
Social T2 → Social T3	0.87 (0.09)***	0.70, 1.11
Avoidance T1 → Avoidance T2	1.83 (0.17)***	1.49, 2.16
Avoidance T2 → Avoidance T3	0.44 (0.04)***	0.35, 0.52
Loneliness T1 → Loneliness T2	0.85 (0.13)***	0.57, 1.18
Loneliness T2 → Loneliness T3	0.71 (0.06)***	0.59, 0.86

Note: * p<.05 ** p<.01 *** p<.001

In summary Section 7.7.1 tested Hypothesis 7.2a, whereby it was found that there was a lack of support to suggest that expected maladaptive coping behaviour mediates the relationship between peer-victimisation and school loneliness over time. On the basis of these findings no further models were specified to test whether friendship moderates

the relationship between peer-victimisation and expected maladaptive coping, and the relationship between expected maladaptive coping and school loneliness (Hypothesis 7.2b). However, the findings did indicate that expected internalising coping behaviour predicted future verbal victimisation and expected retaliation coping behaviour predicted future physical coping and therefore the next section will explore the role of friendship within these models.

7.7.2 Post-Hoc Analyses: Expected Maladaptive Coping Behaviour and the Role of Friendship

Although no indirect effects via expected coping were identified in any of the models, two models (verbal victimisation and expected internalising coping, and physical victimisation and expected retaliation coping) indicated a relationship between expected coping behaviour and future peer-victimisation and therefore the role of friendship was examined in these models as additional analyses. On the basis of findings from Chapter 6 reciprocity (proportion) and friendship conflict (as an indicator of friendship quality) were examined as moderators. It was therefore hypothesised that:

H7.4: Friendship (reciprocity (proportion) and friendship conflict) will moderate the pathway between expected coping at Time 1 and future peer-victimisation at Time 3.

7.7.2.1 Expected Internalising Coping, Verbal Victimisation, and the Role of Friendship

A model was specified to examine the moderating effect of friendship conflict and reciprocity (proportion score) on the relationship between expected internalising coping at Time 1 and verbal victimisation. For the sake of parsimony, school loneliness was excluded from the model.

The final estimates for the interaction between friendship and expected internalising coping as a predictor of future verbal peer-victimisation can be found in Table 7.15. All specified auto-regressive paths were significant predictors of later time–points. The final model yielded one significant main effect of reciprocity at Time 1 as a predictor of future verbal peer-victimisation at Time 3 (b=-0.25, p<.05), whereby higher levels of reciprocity (proportion) predicted lower levels of verbal victimisation. There was a significant interaction between friendship conflict and expected internalising coping (b=0.51, p<.01), however there was no significant interaction between reciprocity (proportion) and expected internalising coping. The final model was compared to the main effects only model and found to significantly improve overall model fit $\Delta\chi^2$= 6.42 (2) p<.05.

The interaction between expected internalising coping at Time 1 × friendship conflict at Time 3 was probed at the mean, 1 *SD* above the mean, and 1 *SD* below the mean to indicate comparatively low, medium, and high levels of friendship conflict. The simple slopes analyses suggest that the use of expected internalising coping at Time 1 is strongly and significantly associated with verbal peer-victimisation at Time 3 in those children who have high conflict with their friends (b=0.69, *p*<.001). There was no significant association between expected internalising coping and future verbal victimisation in those children with average and low friendship conflict levels (b= 0.18, *p*>.05; -0.32, *p*>.05; See Fig 7.3). Subsequently, partial support was found for Hypothesis 7.4.

Table 7.15 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Moderation Model involving Verbal Victimisation,* Expected *Internalising Coping, and Friendship (conflict and reciprocity (proportion))*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Verbal T1 → Verbal T2	1.22 (0.21)***	0.69, 1.76
Verbal T2 → Verbal T3	1.14 (0.22)***	0.71, 1.56
Internalising T1 → Internalising T2	1.20 (0.11)***	0.98, 1.41
Internalising T2 → Internalising T3	0.93 (0.08)***	0.76, 1.10
Cross Lagged Paths		
Internalising T1 → Verbal T3	0.18 (0.24)	-0.29, 0.65
Reciprocity T1 → Verbal T3	-0.25 (0.11)*	-0.47, -0.03
Conflict T1 → Verbal T3	0.03 (0.11)	-0.19, 0.24
Reciprocity T1* Internalising T1 → Verbal T3	-0.03 (0.10)	-0.22, 0.17
Conflict T1*Internalising T1 → Verbal T3	0.51 (0.21)**	0.09, 0.93
Simple Slopes Paths (Friendship Conflict*Internalising Interaction)		
High Friendship Conflict	0.69 (0.14)***	0.42, 0.96
Mean Friendship Conflict	0.18 (0.24)	-0.29, 0.65
Low Friendship Conflict	-0.32 (0.43)	-1.18, 0.52

Note: * *p*<.05 *** *p*<.001

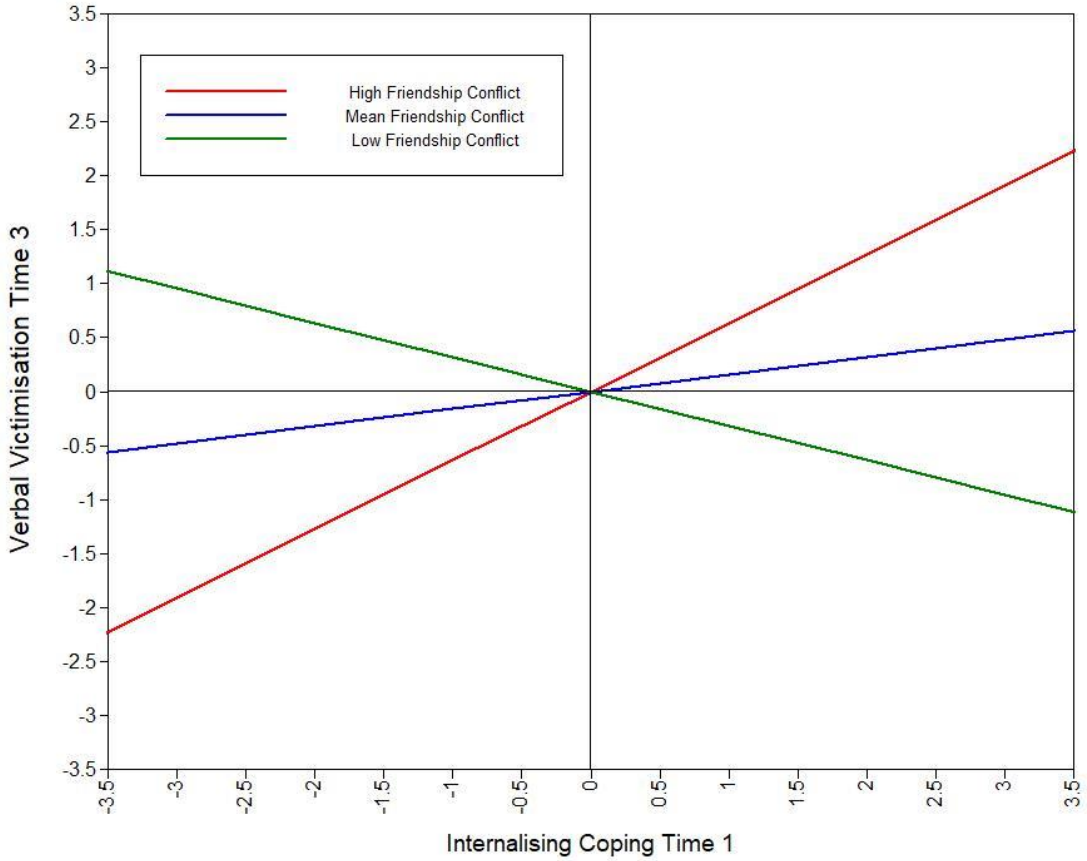

Figure 7.4 *Simple slopes plot for the interaction between* expected *internalising coping T1 and friendship conflict T1 on verbal victimisation T3*

7.7.2.2 Expected Retaliation Coping, Physical Victimisation, and the Role of Friendship

A model was specified to examine the moderating effect of friendship conflict and reciprocity (proportion score) on the relationship between expected retaliation coping behaviour at Time 1 and physical victimisation at Time 3 (H7.4). For the sake of parsimony, school loneliness was excluded from the model.

The final estimates for the interaction between friendship and expected retaliation coping as a predictor of future physical peer-victimisation can be found in Table 7.16. All specified auto-regressive paths were significant predictors of later time – points. The final model yielded no significant interaction effects, and the only significant main effect was the relationship between expected retaliation at Time 1 and physical victimisation at Time 3 (b=0.30, p<.05). The final model was not a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= 5.32 (5), p>.05. Therefore, this

indicates that the inclusion of friendship as a moderator within this model does not significantly improve the model fit to the data.

Table 7.16. *Final Unstandardised Estimates for Longitudinal Cross-Lagged Moderation Model involving Physical Victimisation,* Expected *Retaliation Coping and Friendship (conflict and reciprocity (proportion))*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Physical T1 → Physical T2	0.62 (0.15)***	0.33, 0.92
Physical T2 → Physical T3	0.76 (0.18)***	0.41, 1.11
Retaliation T1 → Retaliation T2	1.65 (0.10)***	1.45, 1.85
Retaliation T2 → Retaliation T3	0.79 (0.06)***	0.67, 0.90
Cross Lagged Paths		
Retaliation T1 → Physical T3	0.30 (0.14)*	0.02, 0.57
Reciprocity T1 → Physical T3	-0.02 (0.07)	-0.16, 0.13
Conflict T1 → Physical T3	0.01 (0.10)	-0.19, 0.21
Reciprocity T1* Retaliation T1 → Physical T3	-0.07 (0.10)	-0.28, 0.13
Conflict T1* Retaliation T1 → Physical T3	0.11 (0.17)	-0.22, 0.44

Note: * $p<.05$ *** $p<.001$

In summary Section 7.7.2 presented additional analyses to explore the role of friendship as a moderator between expected coping (retaliation and internalising) at Time 1 and future peer-victimisation at Time 3 (physical and verbal victimisation, respectively). The current findings provide partial support for the hypothesis (Hypothesis 7.4), such that friendship conflict was found to moderate the pathway between expected internalising coping at Time 1 and verbal victimisation at Time 3. However, there was a lack of support for the hypothesis that friendship would moderate the pathway between expected retaliation coping at Time 1 and physical peer-victimisation at Time 3.

7.7.3 Moderation Effects: Expected Coping

Expected adult support coping, expected peer support coping, and expected problem solving coping were examined as moderators in twelve longitudinal panel models whereby the effects of coping type, and bullying type (social, verbal, physical, and attack on property) were modelled separately. The hypothesised model is depicted in Figure 7.5 representing Hypothesis 7.3a. All main effects and interaction effects were included

in the final model and the model fit for final models was subsequently compared with the respective auto-regressive only model, whereby no cross-lagged paths are specified.

Due to convergence issues there is no final model estimates for models pertaining to expected peer-support coping and attack on property victimisation. All models with convergence issues received similar treatment to resolve the convergence problems as detailed in Section 7.7

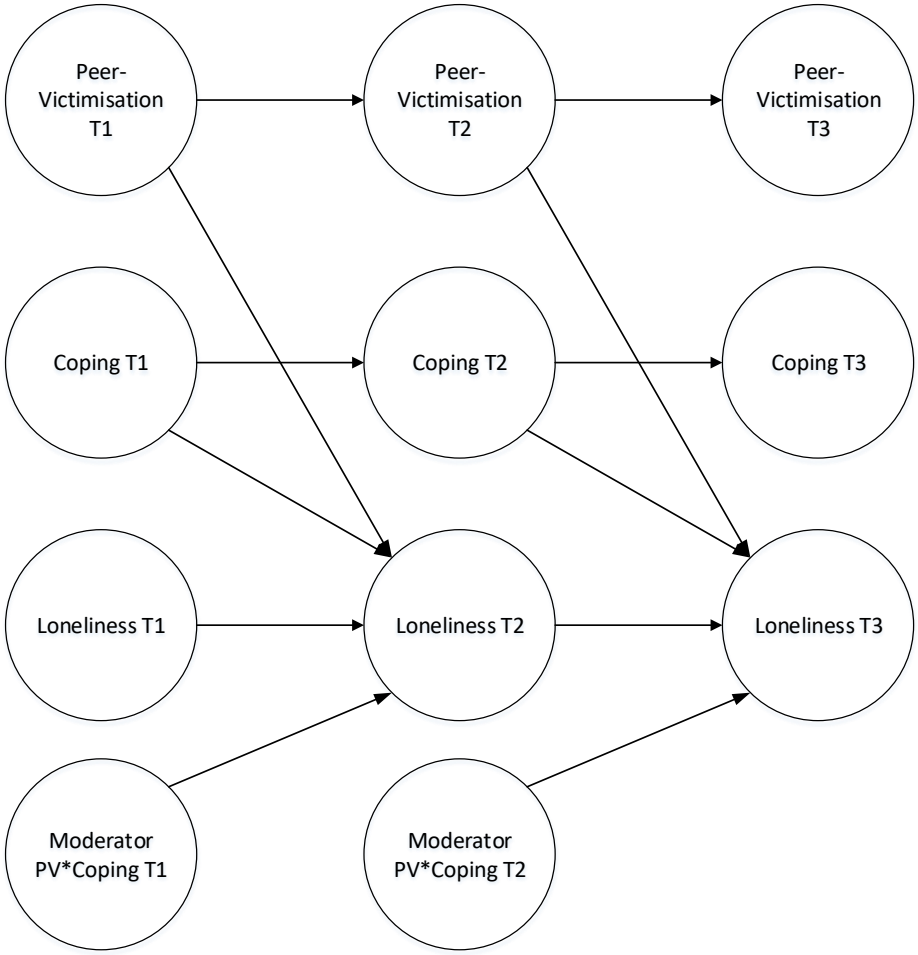

Figure 7.5 Hypothesised longitudinal cross-lagged moderation model

7.7.3.1 Expected Adult Support Coping

Expected adult-support coping was examined as a moderator for the pathway between peer-victimisation and school loneliness across time, whereby expected adult-supporting coping behaviour at Time 1 was hypothesised (Hypothesis 7.3a) to moderate the relationship between peer-victimisation at Time 1 and school loneliness at Time 2. Adult-supporting at Time 2 was hypothesised to moderate the relationship between

peer-victimisation at Time 2 and school loneliness at Time 3. A model was specified for each peer-victimisation type.

The final estimates for the social peer-victimisation and expected adult support longitudinal moderation model can be found in Table 7.17. All specified auto-regressive paths were significant predictors of later time –points. The auto-regressive path between adult support at Time 2 and adult support at Time 3 had to be removed due to convergence problems and therefore was replaced with covariance path instead. The final model yielded no significant main or interaction effects. The final model was not a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= -2.26 (6), p>.05. Therefore, this indicates that the inclusion of friendship as a moderator within this model does not significantly improve the model fit to the data. Subsequently, no support was identified within this model for Hypothesis 7.3a.

Table 7.17 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Social Victimisation and Expected Adult Support Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Social T1 → Social T2	1.40 (0.23)***	0.95, 1.34
Social T2 → Social T3	0.85 (0.08)***	0.69, 1.00
Adult Support T1 → Adult Support T2	1.15 (0.10)***	0.95, 1.34
Adult Support T2 → Adult Support T3	-- --	-- --
Loneliness T1 → Loneliness T2	0.85 (0.14)***	0.58, 1.11
Loneliness T2 → Loneliness T3	0.78 (0.13)***	0.52, 1.04
Cross Lagged Paths		
Social T1 → Loneliness T2	0.15 (0.09)	-0.04, 0.33
Adult Support T1 → Loneliness T2	0.01 (0.07)	-0.13, 0.14
Social T1*Adult Support T1 → Loneliness T3	-0.01 (0.08)	-0.16, 0.14
Social T2 → Loneliness T3	0.05 (0.05)	-0.05, 0.16
Adult Support T2 → Loneliness T3	-0.06 (0.06)	-0.17, 0.05
Social T2*Adult Support T2→ Loneliness T3	-0.03 (0.03)	-0.09, 0.03

Note: *** p<.001

The final estimates for the verbal peer-victimisation and expected adult support longitudinal moderation model can be found in Table 7.18. All specified auto-regressive paths were significant predictors of later time –points. The main effects of verbal victimisation at T1 predicting school loneliness at Time 2 and verbal victimisation at Time 2 predicting school loneliness at Time 3 were both significant, whereby higher levels of verbal victimisation predicted increased levels of school loneliness. There were no significant interaction effects between social peer-victimisation and expected adult support behaviour at Time 1 (b=-0.04, p>.05) or Time 2 (b=-0.03, p>.05), indicating that expected adult support behaviour does moderate the relationship between verbal victimisation and school loneliness across time. The final model was not a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$ = -6.31 (6), p>.05, indicating that the inclusion of the cross-lagged effects does not improve the model fit and furthermore, no support was found for Hypothesis 7.3a.

Table 7.18 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Verbal Victimisation and Expected Adult Support Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Verbal T1 → Verbal T2	1.51 (0.42)***	0.68, 2.33
Verbal T2 → Social T3	0.60 (0.07)***	0.47, 0.73
Adult Support T1 → Adult Support T2	0.95 (0.16)***	0.63, 1.27
Adult Support T2 → Adult Support T3	1.20 (0.10)***	1.01, 1.39
Loneliness T1 → Loneliness T2	0.79 (0.13)***	0.52, 1.06
Loneliness T2 → Loneliness T3	0.69 (0.06)***	0.50, 1.03
Cross Lagged Paths		
Verbal T1 → Loneliness T2	0.14 (0.06)*	0.02, 0.37
Adult Support T1 → Loneliness T2	-0.04 (0.09)	-0.29, 0.19
Verbal T1*Adult Support T1 → Loneliness T3	-0.06 (0.11)	-0.36, 0.21
Verbal T2 → Loneliness T3	0.13 (0.06)*	0.01, 0.23
Adult Support T2 → Loneliness T3	-0.04 (0.05)	-0.16, 0.07
Verbal T2*Adult Support T2→ Loneliness T3	-0.03 (0.06)	-0.09, 0.06

Note: * p<.05 *** p<.001

The final estimates for the physical peer-victimisation and expected adult support longitudinal moderation model can be found in Table 7.19. All auto-regressive paths were significant predictors of later time-points. The final model yielded no significant main or interaction effects. The final model was not a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= 4.23 (6), p>.05. Again, this no model did not provide support for Hypothesis 7.3a.

Table 7.19 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Physical Victimisation and Expected Adult Support Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Physical T1 → Physical T2	1.07 (0.12)***	0.83, 1.31
Physical T2 → Physical T3	0.47 (0.07)***	0.36, 0.61
Adult Support T1 → Adult Support T2	1.13 (0.12)***	0.83, 1.31
Adult Support T2 → Adult Support T3	1.05 (0.18)***	0.69, 1.40
Loneliness T1 → Loneliness T2	0.85 (0.13)***	0.59, 1.10
Loneliness T2 → Loneliness T3	0.80 (0.14)***	0.53, 1.08
Cross Lagged Paths		
Physical T1 → Loneliness T2	0.13 (0.09)	-0.04, 0.30
Adult Support T1 → Loneliness T2	-0.06 (0.11)	-0.27, 0.16
Physical T1*Adult Support T1 → Loneliness T3	-0.12 (0.11)	-0.34, 0.10
Physical T2 → Loneliness T3	0.01 (0.07)	-0.12, 0.14
Adult Support T2 → Loneliness T3	-0.06 (0.05)	-0.17, 0.05
Physical T2 *Adult Support T2→ Loneliness T3	-0.03 (0.04)	-0.12, 0.05

Note: * p<.05 ** p<.01 *** p<.001

The final estimates for the attack on property victimisation and expected adult support coping longitudinal moderation model are presented in Table 7.20. All auto-regressive paths were significant predictors of later time-points. The final model yielded no significant main or interaction effects. Although there were no significant main of interaction effects, the final model was a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$ = 17.21 (6), p<.01. However, no support was found for Hypothesis 7.3a.

Table 7.20 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Attack on Property Victimisation and Expected Adult Support Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Attack on Property T1 → Attack on Property T2	0.66 (0.13)***	0.41, 0.91
Attack on Property T2 → Attack on Property T3	0.44 (0.17)**	0.10, 0.78
Adult Support T1 → Adult Support T2	0.92 (0.18)***	0.56, 1.28
Adult Support T2 → Adult Support T3	0.90 (0.19)***	0.54, 1.26
Loneliness T1 → Loneliness T2	0.82 (0.14)***	0.56, 1.09
Loneliness T2 → Loneliness T3	0.77 (0.13)***	0.51, 1.03
Cross Lagged Paths		
Attack on Property T1 → Loneliness T2	0.15 (0.10)	-0.06, 0.35
Adult Support T1 → Loneliness T2	-0.08 (0.10)	-0.28, 0.11
Attack on Property T1*Adult Support T1 → Loneliness T3	-0.08 (0.12)	-0.31, 0.15
Attack on Property T2 → Loneliness T3	0.16 (0.09)	-0.02, 0.35
Adult Support T2 → Loneliness T3	-0.08 (0.07)	-0.21, 0.05
Attack on Property T2*Adult Support T2→ Loneliness T3	-0.11 (0.07)	-0.25, 0.04

Note: *** p<.001

7.7.3.2 Expected Problem Solving Coping

Expected problem solving coping behaviour was examined as a moderator for the pathway between peer-victimisation and school loneliness across time, whereby expected problem-solving coping at Time 1 was hypothesised to moderate the

relationship between peer-victimisation at Time 1 and school loneliness at Time 2. Expected problem-solving at Time 2 was hypothesised to moderate the relationship between peer-victimisation at Time 2 and school loneliness at Time 3. A model was specified for each peer-victimisation type.

The final estimates for the social peer-victimisation and expected problem solving coping longitudinal moderation model are presented in Table 7.21. All auto-regressive paths were significant predictors of later time-points. The final model yielded no significant main or interaction effects. The final model was not a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= 7.00 (6), p>.05. Similar to the adult support coping models, no support was found for Hypothesis 7.3a.

Table 7.21 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Social Victimisation and Expected Problem Solving Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Social T1 → Social T2	1.20 (0.12)***	0.96, 1.44
Social T2 → Social T3	0.68 (0.08)***	0.52, 0.83
Problem Solving T1 → Problem Solving T2	0.95 (0.08)***	0.80, 1.11
Problem Solving T2 → Problem Solving T3	0.92 (0.18)***	0.57, 1.27
Loneliness T1 → Loneliness T2	0.82 (0.14)***	0.55, 1.09
Loneliness T2 → Loneliness T3	0.77 (0.13)***	0.51, 1.03
Cross Lagged Paths		
Social T1 → Loneliness T2	0.12 (0.09)	-0.06, 0.29
Problem Solving T1 → Loneliness T2	-0.03 (0.09)	-0.27, 0.21
Social T1* Problem Solving T1 → Loneliness T3	-0.01 (0.14)	-0.27, 0.34
Social T2 → Loneliness T3	0.10 (0.06)	-0.02, 0.21
Problem Solving T2 → Loneliness T3	-0.13 (0.09)	-0.31, 0.05
Social T2* Problem Solving T2→ Loneliness T3	-0.02 (0.05)	-0.12, 0.08

Note: *** p<.001

The final estimates for the verbal peer-victimisation and expected problem solving coping longitudinal moderation model can be found in Table 7.22. All specified auto-

regressive paths were significant predictors of later time–points. The auto-regressive path between expected problem solving at Time 2 and problem solving at Time 3 had to be removed due to convergence problems and therefore was replaced with a covariance path instead. The final model yielded three significant main effects, whereby the relationship between verbal victimisation at Time 1 predicted school loneliness at Time 2 (b=0.22, p<.05), such that higher levels of victimisation predicted greater levels of school loneliness. Verbal victimisation at Time 2 also predicted school loneliness at Time 3 (b=0.15, p<.01), again with higher victimisation levels predicting higher levels of school loneliness at a later time point. Expected problem solving behaviour at Time 2 was also found to predict school loneliness at Time 3 (-0.18, p<.05), whereby higher levels of problem solving at Time 2 was associated with lower levels of school loneliness at Time 3. The final model was a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$ = 21.00 (6), p<.01. However, given that there were no significant interaction effects, this model did not provide support for Hypothesis 7.3a.

Table 7.22 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Verbal Victimisation and Expected Problem Solving Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Verbal T1 → Verbal T2	1.29 (0.16)***	0.99, 1.60
Verbal T2 → Verbal T3	0.85 (0.07)***	0.70, 0.98
Problem Solving T1 → Problem Solving T2	0.78 (0.08)***	0.62, 0.94
Problem Solving T2 → Problem Solving T3	--	--
Loneliness T1 → Loneliness T2	0.78 (0.14)***	0.50, 1.06
Loneliness T2 → Loneliness T3	0.76 (0.14)***	0.49, 1.02
Cross Lagged Paths		
Verbal T1 → Loneliness T2	0.22 (0.09)*	0.04, 0.39
Problem Solving T1 → Loneliness T2	0.08 (0.15)	-0.21, 0.37
Verbal T1* Problem Solving T1 → Loneliness T3	0.09 (0.16)	-0.22, 0.40
Verbal T2 → Loneliness T3	0.15 (0.05)**	0.05, 0.25
Problem Solving T2 → Loneliness T3	-0.18 (0.08)*	-0.34, -0.01
Verbal T2* Problem Solving T2→ Loneliness T3	-0.01 (0.05)	-0.10, 0.09

Note: * p<.05 ** p<.01 *** p<.001

The final estimates for the physical peer-victimisation and expected problem solving coping longitudinal moderation model are presented in Table 7.23. All auto-regressive paths were significant predictors of later time-points. The final model yielded no significant main or interaction effects. The final model was not a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2 = 5.44$ (6), $p>.05$.

Table 7.23 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Physical Victimisation and Expected Problem Solving Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Physical T1 → Physical T2	0.66 (0.09)***	0.49, 0.83
Physical T2 → Physical T3	0.33 (0.06)***	0.22, 0.45
Problem Solving T1 → Problem Solving T2	0.72 (0.09)***	0.56, 0.89
Problem Solving T2 → Problem Solving T3	1.12 (0.16)***	0.81, 1.44
Loneliness T1 → Loneliness T2	0.85 (0.13)***	0.59, 1.11
Loneliness T2 → Loneliness T3	0.80 (0.14)***	0.52, 1.08
Cross Lagged Paths		
Physical T1 → Loneliness T2	0.07 (0.08)	-0.09, 0.22
Problem Solving T1 → Loneliness T2	-0.01 (0.11)	-0.24, 0.22
Physical T1* Problem Solving T1 → Loneliness T3	-0.07 (0.14)	-0.34, 0.20
Physical T2 → Loneliness T3	0.05 (0.09)	-0.12, 0.23
Problem Solving T2 → Loneliness T3	-0.15 (0.08)	-0.30, 0.00
Physical T2* Problem Solving T2→ Loneliness T3	0.02 (0.09)	-0.15, 0.19

Note: *** $p<.001$

The final estimates for the attack on property peer-victimisation and expected problem solving coping longitudinal moderation model are presented in Table 7.24. All auto-regressive paths were significant predictors of later time-points. The final model contained two significant main effects, whereby both attack on property victimisation and expected problem solving coping at Time 2 predicted school loneliness at Time 3. Specifically, higher levels of attack on property victimisation predicted higher levels of school loneliness (b=0.23, $p<.05$), whereas higher levels of expected problem solving coping at Time 2 predicted lower levels of school loneliness at Time 3 (b=-0.17, $p<.05$).

The final model was a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= 13.13 (6), p<.05. However, given that there were no significant interaction effects, this model did not provide support for Hypothesis 7.3a.

Table 7.24 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Attack on Property Victimisation and Expected Problem Solving Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Attack on property T1 → Attack on property T2	0.51 (0.10)***	0.32, 0.35
Attack on property T2 → Attack on property T3	0.45 (0.06)***	0.34, 0.57
Problem Solving T1 → Problem Solving T2	0.74 (0.07)***	0.60, 0.88
Problem Solving T2 → Problem Solving T3	0.66 (0.09)***	0.48, 0.84
Loneliness T1 → Loneliness T2	0.80 (0.14)***	0.54, 1.08
Loneliness T2 → Loneliness T3	0.75 (0.13)***	
Cross Lagged Paths		
Attack on property T1 → Loneliness T2	0.15 (0.09)	-0.03, 0.33
Problem Solving T1 → Loneliness T2	-0.12 (0.11)	-0.34, 0.11
Attack on property T1* Problem Solving T1 → Loneliness T3	-0.12 (0.12)	-0.35, 0.12
Attack on property T2 → Loneliness T3	0.23 (0.11)*	0.01, 0.44
Problem Solving T2 → Loneliness T3	-0.17 (0.08)*	-0.33, -0.01
Attack on property T2* Problem Solving T2→ Loneliness T3	-0.01 (0.10)	-0.21, 0.18

Note: * p<.05 *** p<.001

7.7.3.3 Expected Peer Support Coping

Expected peer-support coping behaviour was examined as a moderator for the pathway between peer-victimisation and school loneliness across time, whereby expected peer-support coping at Time 1 was hypothesised to moderate the relationship between peer-victimisation at Time 1 and school loneliness at Time 2. Expected peer-support coping at Time 2 was hypothesised to moderate the relationship between peer-victimisation at Time 2 and school loneliness at Time 3. A model was specified for each peer-victimisation type. These models tested Hypothesis 7.3a.

The final estimates for the verbal victimisation and expected peer-support coping longitudinal moderation model are presented in Table 7.25. All auto-regressive paths were significant predictors of later time-points. The only significant cross-lagged effect was the main effect from verbal victimisation at Time 1 to school loneliness at Time 2, whereby higher levels of victimisation predicted higher levels of school loneliness (b =0.24, p<.05). The final model was a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$ = 13.64 (6), p<.05. However, given that there were no significant interaction effects, this model did not provide support for Hypothesis 7.3a.

Table 7.25 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Verbal Victimisation and Expected Peer-Support Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Verbal T1 → Verbal T2	1.05 (0.08)***	0.88, 1.21
Verbal T2 → Verbal T3	0.96 (0.10)***	0.77, 1.14
Peer Support T1 → Peer Support T2	0.60 (0.09)***	0.43, 0.77
Peer Support T2 → Peer Support T3	0.65 (0.09)***	0.47, 0.82
Loneliness T1 → Loneliness T2	0.77 (0.15)***	0.47, 1.07
Loneliness T2 → Loneliness T3	0.76 (0.14)***	0.49, 1.03
Cross Lagged Paths		
Verbal T1 → Loneliness T2	0.24 (0.10)*	0.04, 0.43
Peer Support T1 → Loneliness T2	-0.05 (0.16)	-0.35, 0.26
Verbal T1* Peer Support T1 → Loneliness T3	-0.12 (0.18)	-0.47, 0.23
Verbal T2 → Loneliness T3	0.11 (0.06)	-0.01, 0.24
Peer Support T2 → Loneliness T3	-0.05 (0.09)	-0.23, 0.13
Verbal T2* Peer Support T2→ Loneliness T3	0.04 (0.06)	-0.07, 0.15

Note: * p<.05 *** p<.001

The final estimates for the social victimisation and expected peer-support coping longitudinal moderation model are presented in Table 7.26. All auto-regressive paths were significant predictors of later time-points. The only significant cross-lagged effect was the main effect from social victimisation at Time 1 to school loneliness at Time 2, whereby higher levels of victimisation predicted higher levels of school loneliness (b =0.24, p<.05). The final model was a significantly better fit to the data than the auto-

regressive only model $\Delta\chi^2$ = 14.34 (6), p<.05. However, given that there were no significant interaction effects, this model did not provide support for Hypothesis 7.3a.

Table 7.26 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Social Victimisation and Expected Peer-Support Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Social T1 → Social T2	1.12 (0.11)***	0.90, 1.33
Social T2 → Social T3	0.72 (0.11)***	0.51, 0.94
Peer Support T1 → Peer Support T2	0.78 (0.09)***	0.60, 0.95
Peer Support T2 → Peer Support T3	0.68 (0.11)***	0.47, 0.89
Loneliness T1 → Loneliness T2	0.78 (0.15)***	0.49, 1.07
Loneliness T2 → Loneliness T3	0.74 (0.13)***	0.48, 0.99
Cross Lagged Paths		
Social T1 → Loneliness T2	0.24 (0.09)**	0.07, 0.41
Peer Support T1 → Loneliness T2	-0.01 (0.12)	-0.24, 0.22
Social T1* Peer Support T1 → Loneliness T3	0.01 (0.14)	-0.27, 0.29
Social T2 → Loneliness T3	0.10 (0.06)	-0.02, 0.22
Peer Support T2 → Loneliness T3	-0.11 (0.09)	-0.28, 0.06
Social T2* Peer Support T2→ Loneliness T3	-0.03 (0.06)	-0.15, 0.08

Note: ** p<.01 *** p<.001

The final estimates for the physical victimisation and expected peer-support coping longitudinal moderation model are presented in Table 7.27. All auto-regressive paths were significant predictors of later time-points. There were no significant main or interaction effects. The final model was not a significantly better fit to the data than the auto-regressive only model $\Delta\chi^2$= 4.37 (6), p>.05, providing no support for Hypothesis 7.3a.

Table 7.27 *Final Unstandardised Estimates for Longitudinal Cross-Lagged Model for the Physical Victimisation and Expected Peer-Support Coping Model*

Regression Path	**Estimate (S.E)**	**95% Confidence Interval**
Autoregressive Paths		
Physical T1 → Physical T2	0.77 (0.10)***	0.60, 1.11
Physical T2 → Physical T3	0.86 (0.13)***	0.57, 0.96
Peer Support T1 → Peer Support T2	0.54 (0.11)***	0.32, 0.76
Peer Support T2 → Peer Support T3	0.65 (0.09)***	0.48, 0.82
Loneliness T1 → Loneliness T2	0.84 (0.15)***	0.56, 1.13
Loneliness T2 → Loneliness T3	0.79 (0.14)***	0.51, 1.06
Cross Lagged Paths		
Physical T1 → Loneliness T2	0.11 (0.09)	-0.06, 0.28
Peer Support T1 → Loneliness T2	0.06 (0.12)	-0.18, 0.24
Physical T1* Peer Support T1 → Loneliness T3	-0.02 (0.14)	-0.29, 0.24
Physical T2 → Loneliness T3	0.03 (0.08)	-0.12, 0.17
Peer Support T2 → Loneliness T3	-0.11 (0.09)	-0.30, 0.07
Physical T2* Peer Support T2→ Loneliness T3	0.02 (0.10)	-0.17, 0.21

Note: *** p<.001

In summary section 7.7.3 presents a series of models that test whether expected adaptive coping (adult support, peer-support, and problem solving) moderate the pathway between peer-victimisation and school loneliness across time (Hypothesis 7.3a). The analyses presented in 7.7.3 fail to provide support for Hypothesis 7.3a, indicating that in the current study expected adaptive coping was not found to buffer (moderate) against the negative effects of peer-victimisation coping.

7.8 SUMMARY OF FINDINGS ACCORDING TO CHAPTER HYPOTHESES

To facilitate interpretation a summary table of findings according to support for the hypotheses tested in the current chapter is presented below (See Table 7.28). Section 7.9 will then discuss these findings in more detail.

Table 7.28 *Chapter 7 Summary of Findings According to Hypotheses*

Hypothesis	**Support (Yes, No or Partial)?**
Section 1	
H7.1: Children's friendship quality and friendship quantity will predict future expected peer-victimisation coping behaviour.	**Partial** *(reciprocity (proportion) T1 predicted expected peer support coping and expected retaliation coping T2)*
Section 2	
H7.2a: Expected internalising, retaliation, and avoidance coping behaviour will act as mediators	**No**
H7.2b: Friendship (friendship quality and friendship quantity) will moderate the relationship between peer-victimisation and expected maladaptive coping behaviour, and the relationship between expected maladaptive coping behaviour and school loneliness.	**No**
H7.3a: Expected peer support, adult support, and problem solving coping behaviour will moderate the pathway between peer-victimisation and school loneliness over-time.	**No**
H7.3b: Friendship (Friendship quality and friendship quantity) will predict the moderation between expected adaptive coping and peer-victimisation.	**No**
Post-Hoc Analyses	
H7.4: Friendship (reciprocity (proportion) and friendship conflict) will moderate the pathway between expected coping at Time 1 and future peer-victimisation at Time 3.	**Partial** *(friendship conflict moderated pathway between T1 expected internalising coping and T3 verbal victimisation*)

7.9 CHAPTER SUMMARY

The current chapter presented a series of results examining the longitudinal associations between peer-victimisation, expected coping behaviour, friendship, and school loneliness over time. Firstly, the chapter explored the role of friendship, both friendship quality, and proportion reciprocated friendship ties, as predictors of future expected peer-victimisation coping. Secondly, the chapter then modelled the longitudinal relationship between peer-victimisation, expected coping, and school loneliness via cross-lagged models whereby, as per Chapter 6, a distinction was made between expected adaptive and expected maladaptive coping behaviour. Subsequently, maladaptive coping (internalising, retaliation, and avoidance) was specified as a mediator in the statistical models, whereby adaptive coping (peer-support, adult-support, and problem solving) was specified as a moderator. The results from each of the analyses will now be discussed in further depth.

Firstly, Section 1 (Section 7.6) presented the analyses to test the hypothesis that friendship would predict future expected peer-victimisation coping use (H7.1). On the basis of findings from the bivariate associations and Chapter 6, the current chapter therefore specified a separate model for peer-support coping, retaliation coping, adult-support coping, and problem-solving, whereby both friendship quality and proportion of reciprocated friendship ties were modelled as predictors. The findings indicated that a higher proportion of reciprocated friends at Time 1 predicts greater use of expected peer-support coping at Time 2. Friendship quality, however, was not found to predict later expected peer-support coping use. This finding suggests that children who receive a higher proportion of reciprocated friendship nominations are more likely to have higher levels of expected peer-support coping behaviour regardless of the quality of those friendships. It is possible that having a higher proportion of reciprocated friendship ties indicates that a child has access to a greater pool of friends, which in turn enables that child to access peer-support or anticipate that they would access peer-support should they experience peer-victimisation. Previous research (e.g., Kendrick et al., 2012) and the findings from Chapter 6 suggest that friendship quality is important for buffering against the negative effects of peer-victimisation and expected maladaptive coping, however current findings suggest that the number of friends, or the proportion of friendship ties reciprocated is of more importance when predicting future expected coping use. The findings from the expected retaliation coping model also indicated that friendship reciprocity is a predictor of future coping intentions, whereby children with a higher proportion of reciprocated friendships at Time 1 were less likely to endorse expected retaliation coping behaviour at Time 2. However, regarding the other expected

coping types examined (problem-solving and adult-support), neither friendship quality nor reciprocal friendship scores were found to predict future expected coping behaviour.

In Section 2 (Section 7.7) of the chapter the indirect effects of expected internalising coping, expected retaliation, and expected avoidance coping were examined as maladaptive coping mechanisms between peer-victimisation and school loneliness. Specifically, it was hypothesised (H7.2a) that peer-victimisation at Time 1 would predict expected coping at Time 2, which in turn would predict school loneliness at Time 3. The findings did not provide support for Hypothesis H7.2a, such that peer-victimisation did not predict future expected coping mechanisms and expected coping mechanisms were not associated with future school loneliness. Therefore, no further models were specified to test Hypothesis 7.2b (which hypothesised that friendship would) moderate the relationship between peer-victimisation and expected maladaptive coping behaviour, and the relationship between expected maladaptive coping and school loneliness). However, it was found in the expected internalising coping model that higher levels of expected internalising coping predicted higher verbal peer-victimisation levels at Time 3. This suggests that although expected internalising coping does not act as a mediator between peer-victimisation and school loneliness (as per Chapter 6), it is associated with increased risk of future verbal peer-victimisation, even after controlling for earlier peer-victimisation experiences. Although not initially hypothesised, further exploratory analyses were conducted to examine whether friendship (friendship quantity and friendship quality) moderated this pathway between expected internalising coping at Time 1 and verbal victimisation at Time 3. It was found that friendship quality (conflict) at Time 1 moderated the pathway between expected internalising coping at Time 1 and verbal victimisation at Time 3 for children with high friendship conflict. However, in those children with average or low levels of friendship conflict at Time 1, there was no significant association between expected internalising coping and future verbal peer-victimisation. These findings suggest that children with high friendship conflict are at an increased risk of future peer-victimisation when endorsing expected internalising coping behaviour. Previous studies (e.g., Kendrick et al., 2012) have found that high friendship quality (specifically support in friendships) reduces future peer-victimisation in adolescents. The current findings therefore extend the work by Kendrick et al. (2012) by identifying the interplay between expected maladaptive coping and friendship quality, specifically friendship conflict. Conflict in friendships may indicate that the child has poor social skills, such that they may be unable to resolve conflicts with friends (Rose & Asher, 1999), which in turn puts them at risk of peer-victimisation (Fox & Boulton, 2006). Given these findings, intervention

programmes aimed at supporting victimised children may want to focus on social skill training in addition to promoting more adaptive forms of coping.

The expected retaliation coping and physical victimisation model also indicated an association between coping at Time 1 and peer-victimisation at Time 3, whereby higher levels of expected retaliation coping at Time 1 predicted increased physical peer-victimisation at Time 3. Again, the role of friendship as a moderator was also explored within this model, however it was found that neither friendship conflict nor the proportion of reciprocated friendship ties moderated the relationship between expected retaliation coping and physical peer-victimisation. These findings therefore fail to provide evidence to suggest that the relationship between expected retaliation coping behaviour and future physical peer-victimisation experiences is conditional on a child's friendship.

Finally, Hypothesis 7.3a was tested via a series of models examining the moderating effects of peer-support coping, adult-support coping, and problem-solving coping. More specifically, it was hypothesised that expected adaptive coping would moderate the relationship between peer-victimisation and school loneliness across time. The findings did not provide support for hypothesis H7.3a and therefore there is no evidence to suggest that expected peer-support coping, expected adult-support coping, and expected problem-solving coping buffer against the negative effects of coping over time. On the basis of these findings friendship was not examined as potential predictor of expected adaptive coping (Hypothesis 7.3b). Similar to the results in Chapter 6, the finding that neither peer-support nor expected adult-support behaviour buffer against the negative effects of peer-victimisation across time and contradicts existing literature, which has suggested that social support can act as a protective buffer (e.g., Kochenderfer-Ladd, 2004; Visconti & Troop-Gordon, 2010). However, not all longitudinal studies have found a prospective association between social support and psychosocial outcomes. For example, Griese and Buhs (2014) and Terranova et al. (2011) also found no longitudinal association between social support coping and psychosocial outcomes. The current findings therefore further contribute to the mixed findings in the field regarding the role of peer-victimisation coping in children.

In summary, despite a lack of support for the main hypotheses (H7.2b and H7.3b) the findings in this chapter still provide a unique contribution to the research area. Firstly, the research presented in this chapter is one of the first to examine both friendship quality and friendship quantity as predictors of future expected peer-victimisation coping use, contributing to literature regarding the role of friendship within children's peer-victimisation experiences. Additionally, the analyses presented is

also one of the first to investigate the temporal relationship between six coping styles and four peer-victimisation types across three time-points using sophisticated and rigorous statistical techniques. Subsequently the research was able to examine the potential mediating and moderating effects of expected coping, whilst controlling for the auto-regressive relationships in addition to any measurement error through the use of latent variable modelling. The findings did not provide evidence to suggest that peer-victimisation experiences predict future expected coping intentions and suggest that levels of expected coping are consistent over time, particularly in the short-term. This may have potential implications for intervention studies seeking to improve peer-victimisation experiences as it is possible that coping is robust to change. However, expected internalising coping use was found to be predictive of future verbal victimisation in children with high friendship conflict. This finding highlights the risk associated with poor friendship quality, especially in those children with maladaptive coping mechanisms, such as internalising. Considering all the analyses presented in this chapter, the findings further contribute towards literature focused on the friendship quality versus number of friends theoretical argument, through identifying the mechanisms under which both friendship quality and friendship reciprocity play a key role in children's peer-victimisation experience. The next chapter will continue to examine the role of friendship and expected peer-victimisation coping via a social network perspective, using longitudinal social network analyse

CHAPTER 8: THE COEVOLUTION OF FRIENDSHIP NETWORKS AND EXPECTED PEER - VICTIMISATION COPING BEHAVIOUR

8.1 INTRODUCTION TO CHAPTER

As social beings, we are all embedded within social networks comprising of a multitude of dyadic relationships that are constantly evolving and changing (Burk, Steglich, & Snijders, 2007). The social positions that children occupy within these networks can be instrumental in shaping their behaviour and equally, their behaviour influences the dyadic social ties that these children form and dissolve (e.g., Logis et al., 2013; Shin & Ryan, 2014; Snijders et al., 2010). As discussed in Chapter 4, social network researchers have observed that there is a co-evolution of friendship ties and behaviour over time, such that children's behaviour may be influenced by their social network, and equally their social network changes may result as function of a child's behaviour (Steglich, Snijders, & Pearson, 2010).

Although experimental peer-victimisation coping research to date has suggested that friendship may be an important component for coping (Burgess et al., 2006; Jones et al., 2012; Jones et al., 2009), there has been little research examining peer-victimisation coping within a social network context. Through examining expected peer-victimisation coping behaviour using longitudinal social network analysis the current chapter will examine the co-evolution of the friendship network and expected coping over time in a statistically sophisticated manner, yielding reliable estimates (Steglich, Snidjers, & Pearson, 2010). Peer-victimisation intervention programmes often rely on the role of the peers (e.g., Cartwright, 2005; Leadbeater & Sukhawathanakul, 2011) and therefore by understanding the relationship between a child's coping behaviour and their social network could be crucial for development and evaluation of these programmes. Specifically, this chapter will examine whether social activity or popularity in the network impacts on a child's expected coping behaviours (Research Aim 5)[4]. To address this research aim the following chapter employs a social network analytical

[4] Note that friendship selection and influence similarity effects for coping were not included in the models, despite these effects being commonly included in previous social network studies. The decision behind the exclusion of these effects for coping is that similarity effects assume that children's coping behaviour is similar in nature, and this will affect the friendship network. However, for some children in the network their reporting coping is hypothetical in nature and therefore it is unlikely that their coping is a result of social influence similarity effects, or that they select friends based on coping similarity.

approach known as stochastic actor orientated modelling to examine whether the relationship between a child's social network and their expected peer-victimisation coping behaviour.

Associated with the thesis research aim the following hypotheses were made, whereby like Chapter 6 and 7, a distinction was made for hypotheses regarding expected adaptive coping (peer support, adult support, and problem-solving) and expected maladaptive coping (internalising, retaliation, and avoidance) relating to a child's popularity and the frequency of being named as a friend. The hypotheses for Chapter 8 are as follows:

H8.1a: Children with high levels of expected adaptive peer-victimisation coping behaviour (adult, peer, or problem solving) will receive more friendship nominations than those children with relatively lower levels of expected adaptive peer-victimisation coping behaviour.

H8.1b: Children with high levels of expected maladaptive peer-victimisation coping behaviour (internalising, retaliation, or avoidance) will receive less friendship nominations than those children with relatively lower levels of expected maladaptive peer-victimisation coping behaviour.

H8.2a: Children who receive on average more friendship nominations than their peers will increase their expected adaptive peer-victimisation coping behaviour over time.

H8.2b: Children who receive on average fewer friendship nominations than their peers will increase their expected maladaptive peer-victimisation coping behaviour over time.

Given the unfamiliarity of stochastic actor orientated models in psychology, this chapter will provide a brief overview regarding social networks and stochastic actor orientated models, with a specific focus on the application of co-evolution models within this chapter.

8.2 Social Networks: A Brief Overview

A social network is a social structure consisting of a set of social actors (often referred to as *nodes*) and the dyadic ties between these actors (e.g., friendship). These dyadic ties can be either directed or undirected in nature, whereby a directed tie indicates the sender and receiver of the tie and an undirected tie simply states that a relationship exists (Robins, 2015). The current thesis uses directed networks, whereby a node represents a child in the classroom (the network) and an out-going tie represents a friendship nomination from that child to another child and an in-going tie represent a

friendship nomination received from another child to the child in question (See Figure 8.1 for visual representation of a social network). In addition to the presence of actors and the social ties between these actors, social networks can also contain additional information, often referred to as attributes or behaviour (Snijders et al., 2010). Within the context of this thesis behaviour refers to a child's expected peer-victimisation coping behaviour. Social networks are dynamic in nature, and therefore ties between actors are constantly changing, whether they are forming, dissolving or getting stronger as time goes on (Burk et al., 2007). It is therefore more appropriate to model social networks using longitudinal modelling techniques, in order to acknowledge their dynamic nature (Snijders et al., 2010).

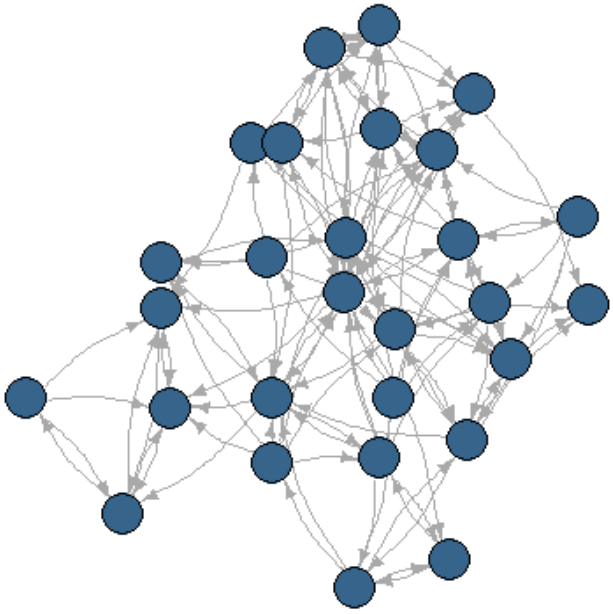

Figure 8.1 Visual Representation of a Complete Time 1 Directed Social Network *(n= 28) (Note:* A circle represents a node (i.e., child) and the arrows indicate social ties, whereby an arrow coming from a child to another child indicates an outgoing friendship tie (outdegree)).

From the statistical modelling perspective that will be employed in this chapter, the network (children's friendships within a classroom) is viewed as the dependent variable whereby the network is an adjacency matrix with a given node set {1,…,*n*}. The existence of a tie from node i to node j can be indicated by the notation Xij, which can take the values 1 or 0, where a 1 indicates that there is a tie from $i \rightarrow j$ and a 0 indicates no tie. Actors cannot form a tie with themselves and therefore $Xii = 0$. Building on the

terminology of i and j, these nodes/actors are also referred to as '*ego*' and *'alter'*, respectively. The ego specifically refers to the sender of ties (i.e., the child who is nominating), whereas the alter refers to the receiver of ties (i.e., the child who has been nominated). A social tie is also referred to as a 'degree', whereby an 'outdegree' refers to a tie sent from the ego to the alter and 'indegree' refers to a tie received by the ego from the alter (Robins, 2015).

For longitudinal networks information about actors and their ties is collected at two or more repeated observations in a panel format, whereby actors can leave and join the network. In longitudinal models, researchers are interested in the creation, maintenance, and termination of social ties over time. One such type of modelling technique developed to analyse longitudinal social network dynamics is known as *stochastic actor oriented models* (Snijder et al., 2010). This statistical technique will be applied in the current chapter to address the research questions and thesis Research Aim 5.

8.3 STOCHASTIC ACTOR ORIENTATED MODELS

Stochastic Actor Orientated Models (SOAMs) permit statistical inferences to be made about network dynamics, on the basis of observed longitudinal data. These models allow the researcher to examine the change in social networks over time, and the influences underlying these changes. Specifically, SOAMs can model network dynamics driven by these three tendencies: structural effects, actor characteristics and dyadic characteristics. For example, these influences could be the result of an actor's structural position in a network (e.g., a reciprocal relationship or transitivity i.e., 'a friend of a friend'), characteristics of the actors themselves (e.g., the actor's gender, or the actor's peer-victimisation experiences) or dyadic characteristics, which are characteristics shared between two actors (e.g., the number of times they played together at lunch time). As such, SOAMs provide estimates that represent the probability that network tie changes will occur given these tendencies (Snijders et al, 2010). In addition, a strength of using SOAMs is that parameters of interest can be modelled, such as the role of friendship influence and friendship selection, whilst controlling for the network structurally effects that are commonly observed in social networks (Burk et al., 2007). More information about these effects is provided later in Section 8.4.

8.3.1 Model Assumptions and Data Requirements

To gain an understanding of how SOAMs work, it is important to consider the model assumptions and data requirements. The following key points outline the basic model assumptions relevant to SOAMs (Snijders et al., 2010).

Basic model assumptions for SOAMs:

1. Social networks are dynamic and therefore changes can occur at any given moment in time. The observation moments ($t_1, t_2, t_{3....}t_M$ etc.) reflect a 'snapshot' of this underlying process.
2. Actors are assumed to have complete information about the social network and, therefore, on the basis of other actor's attributes and their position in the network they can make decisions about their outgoing ties.
3. Associated with the second assumption is the assumption that only one tie can change at any given moment. For example, two actors cannot decide to form a reciprocated tie in the same instance. At any one moment in time one of the actors may extend an out-going tie, which can then be reciprocated in the next moment. The observed change at t_M is the net result of all changes that occurred prior to this moment in time.
4. The dynamic state of a network is interpreted as a product of a Markov process, such that the future of the network depends only the current state of the network and is not influenced by earlier states of the network.

In addition to the model assumptions, it is also important to consider the data requirements for analysing longitudinal social networks using stochastic actor orientated models. Therefore, the data requirements for these statistical models are as follows (as outlined in Snijders et al., 2010).

Data requirements for SOAMs:

1. The number of time waves should at least be two, but less than ten. The data used in this chapter has three time waves, and therefore meets this criterion.
2. The number of actors in a network should be more than 20 but less than 200. A network should not be too large as this would violate the second assumption that actors have complete information about the social network. All networks in the current dataset meet the criterion of being greater than 20 but less than 200.
3. The number of changes between consecutive time-points should be large enough to ensure that there is enough information for estimating parameters. Snijders et al. (2010) recommend that a total of forty changes across all time-points is too

low, however of equal importance is that the number of changes should not be too high. A longitudinal network with too many changes violates the assumption that the observation points represent a gradual change in the network. The Jaccard (1900) index can be used to determine whether the time-points are too far apart. A Jaccard Index of above 0.3 is preferable, but above 0.2 is also acceptable (Snidjers et al., 2010). The Jaccard Index for each period (the time between two observed time-points) will be calculated and presented in the descriptive statistics (see Section 8.8.1).

4. The application of SOAMs require that the network is complete, although a small amount of missing data (less than 20%) is permissible (Huisman & Steglich, 2008). Again, the data used in this chapter meets this assumption. More details regarding missing data is presented in Section 8.6.

8.4 SPECIFYING A STOCHASTIC ACTOR ORIENTATED MODEL: EFFECTS

As mentioned in Section 8.3 dynamic network changes are driven by three broad tendencies: structural, actor characteristics and dyadic characteristics. These tendencies can be modelled as a function of the network, with the choice regarding which tendencies to model driven by both theory and subject related expectations (Snijders et al., 2010). These functions are also referred to as effects, and are modelled from the point of view of the actor *i.* For example, social networks often include an effect that models the tendency that social beings, particularly children and adolescents, tend to reciprocate friendship (Laursen & Hartup, 2002). Therefore, a reciprocity effect would examine the number of ties from *i* that have been reciprocated. The parameter (β_k) for these effects indicates the weight of that function. Using the example of reciprocity, if the parameter β_k is positive then this indicates a tendency towards elevated levels of reciprocation above what is expected to be observed by chance in a randomly generated network of equal size and density. A negative parameter value would suggest lower levels of reciprocation in the network below what is expected to be observed by chance in a randomly generated network of equal size and density.

The stochastic actor oriented models in the current chapter specify both structural effects and effects relating to actor characteristics (exogenous effects). There are no effects relating to dyadic characteristics as the data collected does not contain any dyadic characteristic information (e.g., the number of times two children played together at play-time). The final effects for the network component of the model are presented below. These effects were selected based on both network theory, theory pertaining to

peer-victimisation coping and the hypotheses presented at the beginning of this chapter. Parameters that are specified to address the hypotheses will be indicated by their parameter name followed by the associated hypothesis number.

8.4.1 Structural Effects

8.4.1.1 Outdegree

The outdegree effect is analogous to a constant term in a regression model and represents the tendency to send ties to others. Subsequently, it is also an indicator of network density, and therefore as social networks are often sparse this parameter is often negative (Snijders & Pickup, 2016).

$$\sum X_{ij} \tag{8.1}$$

8.4.1.2 Reciprocity

Reciprocity (mutual ties) is an important feature of almost all directed social networks. This effect indicates the number of ties reciprocated for which actor i is involved i.e., $i \leftrightarrow j$. The value for this parameter is often quite high and positive (between 1 and 2; Snijders et al., 2010).

$$\sum X_{ij} X_{ji} \tag{8.2}$$

8.4.1.3 Transitivity

Transitivity is another important feature of most social networks and represents the notion of a 'friend of a friend' or network clustering (Block, 2015). This is calculated by examining the number of triads formed from i whereby $i \rightarrow j \rightarrow h$ results in a tie between $i \rightarrow h$, thus forming a transitive triplet. Theoretically, triads are viewed as important for social control (Coleman, 1988). A positive transitive triplet would indicate network closure.

$$\sum X_{ij} X_{ih} X_{hj} \tag{8.3}$$

8.4.1.4 Geodesic distance (equal to 2)

Geodesic parameters model the shortest distance between two actors (i.e., how many friendship ties are between actor i and actor h; Robins, 2015). Specifically, the geodesic distance-2 parameter models the tendency to form indirect relationships to others without forming direct ties. The value two refers to the number of paths between actor i and actor j i.e., $i \rightarrow j \rightarrow h$. A positive geodesic distance parameter indicates that individuals are unlikely to nominate a friend of a friend, therefore those relationships are indirect. Contrastingly a negative geodesic distance-2 parameter suggests that there is a tendency for friend of a friends to form direct ties over time (Selfhout et al., 2010). A negative geodesic distance-2 parameter would therefore indicate network closure over time.

$$\{j \mid X_{ij} = 0 \; max_h\left(X_{ih}X_{hj}\right) > 0\} \tag{8.4}$$

8.4.1.5 Jaccard Similarity for Outgoing ties

The Jaccard Similarity for outgoing ties effect also represents network closure. This parameter models the tendency for node *i* to connect to the same nodes as node *j*. This parameter value is often very large, with a large associated standard error (Ripley, Snijders, Boda, Voros, & Preciado, 2017).

$$\sum X_{ij} J_{out}\,(i,j) \tag{8.5}$$

8.4.2 Exogenous Effects

In addition to structural effects, the role of actor's attributes on network formation can also be included within the model i.e., gender, peer-victimisation experiences. These effects distinguish between the sender and receiver of ties, whereby the word '*ego*' is used to indicate the sender of the tie and the word '*alter*' is referred to as the actor, or potential actor, to receive the tie. The following exogenous effects were specified in the statistical models used in this chapter.

8.4.2.1 Alter Effect (H8.1a H8.1b)

The alter effect reflects the impact of the attribute on the propensity to receive ties. For example, do children with a higher level of expected maladaptive coping behaviour receive less friendship ties? Positive values for this parameter indicate that an *ego* with a high value of the attribute has the tendency to receive a high number of friendship ties, whereas a negative parameter value indicates that an *ego* with a high value on the attribute has the tendency to receive a low number of friendship ties. Note that actor covariates in the following formulae are denoted by V_i.

$$\sum X_{ij} V_j \tag{8.6}$$

8.4.2.2 Ego effect

When modelling alter effects, it is advisable to also model the ego effect, to control for the propensity that an actor with more outgoing ties increases the likelihood that they will receive ties (Snijders et al., 2010). The ego effect indicates the effect of the attribute on the propensity to send ties. For example, do children with a higher level of expected maladaptive coping behaviour send less friendship ties?

$$\sum X_{ij} V_i \tag{8.7}$$

8.4.2.3 Similarity Effect

The similarity effects reflects the probability that actors who are similar in an attribute are likely to become and stay friends. For example, it is expected (and it is often found) that children with the same gender are more likely to nominate other children of the same gender (McPherson, Smith-Lovin, & Cook, 2001). This effect was included for gender and peer-victimisation experiences.

$$\sum X_{ij} V_i V_j \tag{8.8}$$

8.5 CO-EVOLUTION MODELS AND EFFECTS

In addition to modelling the changes in social networks over time, SOAMs also permit the modelling of dynamic and evolving behaviour and the crossover between changes in

the social network and changes in the behaviour (Burk et al., 2007). These models are an extension of SOAMs and are referred to as co-evolution models, whereby both the network and the behaviour are modelled as dependent variables. The basic assumptions under which co-evolution models operate are similar to those outlined in Section 8.1.1. The following section outlines effects specific to the specification of the dynamic behaviour dependent variable. The behavioural dependent variable is denoted by *Z* in the formulae.

8.5.1 Behaviour Effects

8.5.2 Basic Shape Effects

As part of the estimation process for the behaviour dependent variable, it is important to model the basic tendency of behaviour change. Two basic shape effects are estimated in a SOAM, linear and quadratic. The linear effect parameter models a drive towards higher values on the behaviour value. Therefore, a zero value indicates that participants behaviour is around the mid-point in the range of the behaviour variable. A negative value would indicate that participants tend to exhibit lower values of the behaviour over time. The quadratic effect (sometimes referred to as squared effect) models the feedback from the behaviour variable, therefore accounting for the likelihood that low and high scores on the behaviour variable will change more rapidly than those scores in the middle. For example, a positive quadratic effect means that the higher a child's coping behaviour score, the stronger the child's tendency to increase that coping behaviour score (escalation). In contrast, a negative quadratic effect means that the higher a child's coping behaviour score, the lower the child's tendency to increase that score over time (self-corrective behaviour; Laninga-Wijnen et al., 2017).

The basic shape effects are estimated without reference to any network position or additional characteristic. Therefore, to capture the effect of the social network on behavioural dynamics, and the role of additional attributes, one must specify additional estimates that can represent social influence. These effects indicate the effect from the alters' behaviour on the ego's behaviour. The following effects were specified in the analyses employed in this chapter.

8.5.2.1 Indegree (H8.2a & H8.2b)

The indegree effect assesses whether actors with higher indegree peer-nominations have a tendency towards higher values on the behaviour variable. For example, are more popular children more likely to have higher values of expected adaptive peer-victimisation coping?

$$Z_i \sum X_{ji} \quad (8.9)$$

8.5.2.2 Outdegree

The outdegree effect is an indicator of activity and represents the likelihood that actors with higher outdegree will have high values on the behaviour variable. For example, are more social active children more likely to have higher values of expected adaptive peer-victimisation coping? This variable was included to control for the likelihood that those children with higher outdegrees effects are more likely to have higher indegree effects (Snijders et al., 2010).

$$Z_i \sum X_{ji} \quad (8.10)$$

8.5.2.3 Effects of other attributes

Co-evolution models can also include main effects from other variables (for example gender or peer-victimisation experience), which indicates the influence of this variable on the change in behaviour. Two main covariate effects are included in the models as control variables, one for gender and one for peer-victimisation.

$$Z_i V_i \quad (8.11)$$

8.6 SAMPLE

The sample consisted of data from ten classrooms collected across all three time-points (October 2015 to July 2016). Seven classes from the total eighteen classes collected in this thesis were excluded from the analyses due to data not being collected at either Time 2 or Time 3 and therefore could not analysed using SOAM. A further class had to be removed because missing network data exceeded the recommended 20%. Specifically, the software package (RSiena 1.2-4) used in the analyses requires there to be less than 20% missing data on any one variable (Ripley, Snijders, Boda, Voros, & Preciado, 2017). The classrooms included in the final analyses were drawn from School 1 (4 classrooms), School 2 (1 classroom), School 3 (1 classroom out of possible 2), School 4 (2 classrooms) and School 8 (2 classrooms). Details regarding the school demographics can be found in Chapter 5 Section 5.2. Subsequently the final dataset contained a sample of n = 272 children, whereby M_{age} = 9.70 years (SD = 0.60 years) and 43% male. The percentage of data missing per exogenous variable ranged from 10.60% to 16.10%. Regarding missing

network data, M_{t1} = 10.5% (SD = 4.94%), M_{t2} = 11.8% (SD = 6.26%) and M_{t3} = 8.87% (SD = 4.08%), for the ten networks.

8.7 Analysis Overview

To examine friendship selection and influence effects in relation to peer-victimisation coping behaviour the analyses applied co-evolution stochastic actor orientated modelling techniques using the RSiena 1.2-4 package in R (Ripley et al., 2017). Specifically, the co-evolution models consists of two models, one model simulates the change of the friendship network (thus allowing exploration of friendship selection effects) and the second model simulates the change of the expected peer-victimisation coping behaviour (thus allowing exploration of friendship influence effects). These two models are simulated concurrently, therefore controlling the processes for each model simultaneously. Each model had three waves for both the friendship and expected peer-victimisation coping behaviour data. RSiena requires dependent variables to be in integer form, therefore the coping behavioural variable was transformed into integers. Specifically, each coping variable score was standardised using z-scores and then these z-scores were used to create four categories whereby ≤ -1 = 1, -1 < 0 = 2, 0 < +1 = 3 and ≥ +1 = 4. Each coping type was modelled separately, therefore resulting in six final co-evolution models. The classroom networks were combined using the multi-group function in RSiena. This function permits each classroom network and associated variables of interest to be modelled as a 'sub-project', which is then combined into a 'project'. The different sub-projects are assumed to be unrelated, although they must have the same model specification (Ripley et al., 2017).

For each model the variables were entered in two steps. Firstly, the network structural effects were entered. In the current analyses five types of structural effects were included, as recommended by Snidjers et al. (2010): (a) *density* (out-going ties), (b) *reciprocity*, (c) *transitivity*, (d) *geodesic distance (equal to 2),* and (e) *Jaccard Out-degree.* More information about these specific effects can be found in Section 8.4. Secondly, the exogenous effects were specified for hypothetical peer-victimisation coping behaviour, peer-victimisation, and gender. Specific parameters in the model address each research question. Hypothesis 8.1a and Hypothesis 8.1b were tested through the specification of *alter* effect for coping behaviour in the friendship component of the model. This modelled the effect of expected peer-victimisation coping behaviour on a child's popularity in the network. Hypothesis 8.2a and Hypothesis 8.2b were tested through the specification of an *indegree* effect for friendship in the behaviour component of the

model. This modelled whether a child's popularity predicted changes in expected peer-victimisation coping behaviour over time.

In addition to the parameters aimed at addressing the research questions, five further effects were specified as controls. In the friendship component of the model an *ego* effect for expected coping behaviour was included. This effect was included due to the inclusion of the *alter* effect for coping behaviour, and controls for the propensity to send ties given high values of the expected coping behaviour. Based on previous literature (Sentse et al., 2013; Sijtsema et al., 2012), *similarity* effects were also included for gender and peer-victimisation. To avoid convergence issues associated with highly correlated variables (Ripley et al., 2017), a general peer-victimisation variable was created by totalling the scores from verbal, social, physical and attack on property peer-victimisation items used in Chapter 6 and Chapter 7. A general peer-victimisation score was created to avoid issues pertaining to statistical power, that could arise if the peer-victimisation variable had been modelled as separate types of peer-victimisation. Therefore, in the behaviour component of the model, two *main covariate* effects were included, one for gender and one for peer-victimisation.

Finally, to ensure parameter estimates and standard errors were reliable, all models were computed until convergence was less than 0.25 for the overall model and less than 0.1 in absolute value for specific parameters (Ripley et al., 2017). All included parameters were tested using *t-ratios,* calculated by dividing the estimate by the standard error, assuming an approximate normal distribution (Snidjers et al., 2010). This provides a *p*-value for each estimate, whereby t-ratios greater than $\pm$ 2.00 indicate $p<.05$. To facilitate interpretation of findings, odds-ratios (OR) were calculated by taking the exponential function of the parameter estimates (Ripley et al., 2017). OR of 1.68, 3.47, and 6.71 are indicative of Cohen's d of 0.2, 0.5 and 0.8, respectively (Chen et al., 2010). To assess goodness of fit for each model the sienaGOF function was used to examine the observed values with simulated values (Lospinoso, 2012). The goodness of fit for indegree, outdegree and behaviour distributions was then examined using violin plots (see Section 8.8.9). A visual representation of the statistical model can be seen in Figure 8.2

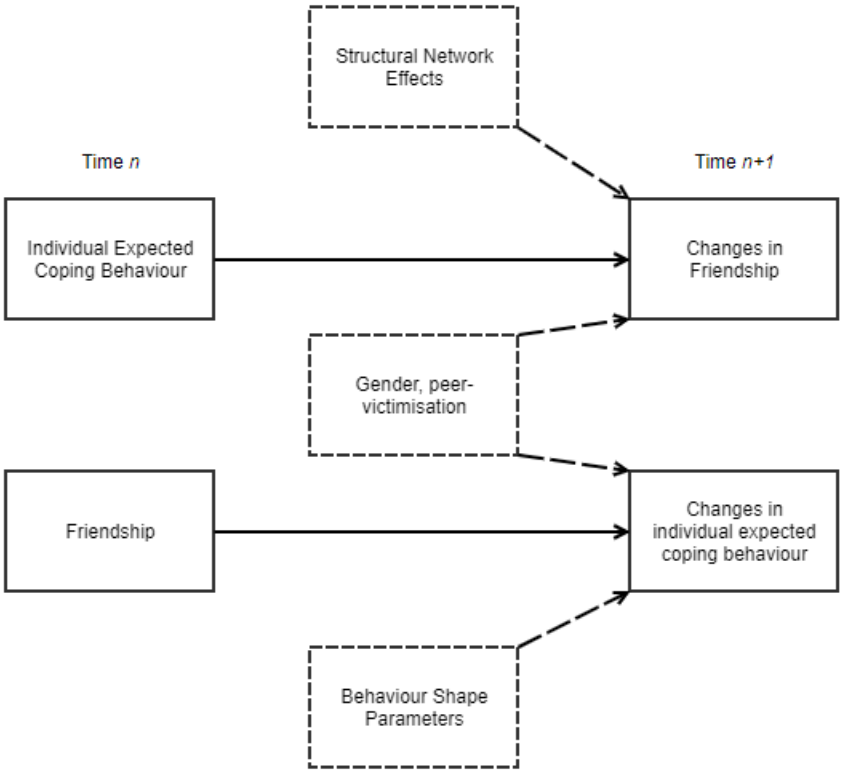

Figure 8.2. Graphical representation of the co-evolution of expected peer-victimisation coping behaviour and friendship. *Note:* The solid lines indicate changes in friendship and expected peer-victimisation coping behaviour between two time points as a function of friendship selection and friendship influence, respectively. The dashed lines indicate effects that are controlled for in the model.

8.8 RESULTS

8.8.1 Descriptive Statistics

Table 8.1 provides the descriptive statistics for both the network structure and individual characteristics used in this chapter's analyses. The average outdegree descriptive indicates the average number of outgoing ties per child at each child point. The descriptive statistics indicate that the average number of outdegree ties was consistent overtime, with the lowest average degree being at Time 2 (M =4.84) and the highest at Time 3 (M = 5.21). The average density statistic indicates the proportion of the ties made compared to total number of possible ties in a network ($n \times (n\text{-}1)$). The average

network density remained at around 17% across all three-time points. The reciprocity index indicates the proportion of ties number of possible ties that were mutual in nature (i.e., both children nominated each other as friends during this period). Similarly, to the outdegree statistic, reciprocity was stable over time with the lowest proportion of mutual ties occurring at Time 2 (9%) and the highest at Time 3 (11%). The average number of friendship changes (0 ⇒ 1 or 1 ⇒ 0) per network for period 1 (Time 1 to Time 2) was 111.30 and for period 2 (Time 2 to Time 3) was 107.70 thus meeting the data criteria outline in Section 8.2.1. The Jaccard Index is a measure of stability across time-points. To analyse the data using SOAM the Jaccard Index must be above 0.20 at a minimum, with 0.30 and above considered good (Snijders et al., 2010). The average Jaccard Index across all networks from Time 1 to Time 2 was 0.41 and 0.45 from Time 2 to Time 3. The lowest Jaccard Index found in any of the networks was 0.21 in Network 8. As the Jaccard Index for all networks was above the recommend 0.20, the stability of the network data was deemed suitable for SOAM analysis.

Following on from the network statistics Table 8.1 also provides the means and standard deviations for the individual characteristic variables used in the analyses, namely peer-victimisation and expected coping behaviour variables. Information regarding these variables and how they were measured can be found in Chapter 4.

Table 8.1 *Descriptive statistics (mean (standard deviation)) for Network Structure and Individual Characteristic Variables*

	Time 1	**Time 2**	**Time 3**
Network Structure			
Average Outdegree	5.11 (0.64)	4.84 (0.59)	5.21 (0.68)
Average Density	0.17 (0.02)	0.17 (0.02)	0.17 (0.03)
Reciprocity Index	0.10 (0.02)	0.09 (0.01)	0.11 (0.03)
Average number of friendship changes	-	*T1>T2* 111.30	*T2>T3* 107.70
Jaccard Index	-	0.41 (0.11)	0.45 (0.03)
Individual Characteristics			
Peer-Victimisation	0.00 (1.00)	0.00 (1.00)	0.00 (1.00)
Expected Adult Coping	9.12 (2.04)	8.94 (2.21)	8.98 (2.14)
Expected Peer Coping	4.67 (1.14)	4.68 (1.21)	4.67 (1.20)
Expected Problem Solving Coping	6.60 (1.59)	6.61 (1.59)	6.52 (1.50)
Expected Internalising Coping	10.77 (2.73)	10.97 (3.07)	10.85 (2.71)
Expected Retaliation Coping	8.29 (2.42)	6.70 (2.39)	6.85 (2.44)
Expected Avoidance Coping	5.17 (1.63)	5.10 (1.50)	5.04 (1.54)

Note: $N_{network}$ = 10, $N_{participants}$ = 272

8.8.2 Results for Effects Consistent Across the Final Models

To avoid repetition, this section will briefly discuss the results from the effects consistent across all six final models, namely the parameters for the network structural effects and the effects for gender and peer-victimisation similarity. Note that there is a small, but marginal difference in the estimates for these common parameters across the six models as a result of the estimation procedures and controlling for effects pertaining to expected coping behaviour.

As expected, the outdegree effect was negative (β=-1.67 – -1.60, p<.05, OR = 0.19–0.20) indicating that children were selective in who they nominated as friends. The effect for reciprocity was positive (β=0.83–0.88, p<.05, OR = 2.29 – 2.41) suggesting that there is a tendency towards reciprocating friendship ties. The negative transitive triplet effect (β=-0.53 – -0.46, p<.05, OR = 0.58-0.63) indicating that children are not likely to form closed triadic formations in the network. The negative geodesic distance effect (β= -0.18

– -0.17, p<.05, OR = 0.69 – 0.84) shows that, over time, children are more likely to form direct ties with those children whom they were initially indirectly tied to. The large positive Jaccard Outdegree effect (β=12.26–13.64, p<.05, OR = 211081.59- 839028.54) indicates that children tend to nominate the same friends as their peers. Regarding similarity effects, the significant and positive similarity effect for gender indicates that children are more likely to nominate friends who have them same gender as themselves (β=0.32–0.36, p<.05, OR = 1.37 – 1.43). There was no significant similarity effect for peer-victimisation in any of the six models, suggesting that children who are victimised are not more likely to nominate other peer-victimised children as friends than children who have not experienced peer-victimisation.

8.8.3 Expected Adult Support Coping Behaviour Model

Table 8.2 presents the results from the SAOM analysis for adult support coping behaviour. The first hypothesis (H8.1a) tests whether a child with higher levels of expected adult support coping behaviour receive more friendship nominations. No significant alter effects (β=-0.08, p>.05) were observed for friendship selection (H8.1a) indicating that children with high levels of expected adult support coping behaviour did not receive more friendship nominations. Furthermore, there were no ego (β=0.02, p>.05) effects indicating that higher levels of expected adult coping did not predict increased levels of social activity in the network. There was however a significant small effect of the number of incoming friendship nominations on adult support coping behaviour (H8.2a; β=0.14, p<.05, OR = 1.15), indicating that those children frequently named as friends were more likely to increase their expected adult support coping behaviour. In addition, there was a significant negative outdegree effect on adult support coping behaviour (β= -0.12, p<.05, OR = 0.89), indicating that those children who nominate more peers as friends reduce their adult support coping behaviour over time. Regarding the control variables, gender and peer-victimisation, there was no significant influence effect found. This indicates that neither a child's gender nor their level of peer-victimisation increases or decreases the likelihood that they will use expected adult support coping behaviour.

Table 8.2 *Parameter Estimates for the Co-Evolution SAO Model of Friendship Selection Influences on* Expected *Adult Support Coping Behaviour*

	β	Standard Error	*t*-ratio
Parameter Estimates for Friendship Selection			
Constant (outdegree density)	-1.60*	0.10	-16.00
Effects of Network Structure			
Reciprocity	0.83*	0.07	11.86
Transitive Triplets	-0.46*	0.07	6.57
Geodesic Distance (equal to 2)	-0.18*	0.03	6.33
Jaccard Outdegree	12.26*	1.37	8.95
Similarity Effects			
Gender (Female = 1)	0.32*	0.06	5.33
Peer-Victimisation	-0.03	0.03	-1.00
Alter/Ego Effects			
Expected Coping (Alter Effects)	-0.08	0.05	-1.60
Expected Coping (Ego Effects)	0.02	0.05	0.40
Parameter Estimates for Influence on Expected Coping Behaviour			
Shape Parameters			
Linear	-0.10	0.24	-0.41
Squared	-0.22*	0.06	-3.67
Friends Attributes			
Effects of number of friends (indegree)	0.14*	0.06	2.33
Effect of number of friends (outdegree)	-0.12*	0.06	2.02
Control Variables			
Gender (Female = 1)	0.12	0.11	1.09
Peer-Victimisation	0.03	0.06	0.50

Note: β = the unstandardized multinomial logit coefficient
*p<.05

8.8.4 Expected Peer Support Coping Behaviour Model

Table 8.2 presents the results from the SAOM analysis for peer support coping behaviour model. Expected peer support coping behaviour was found to be associated with a child's network popularity (H8.1a), whereby children with higher levels of expected peer support coping behaviour were more likely to be nominated or retained as a friend, as indicated by the positive and significant expected peer support coping alter effect (β=0.21, p<.05, OR = 1.22). The positive ego effect (β=0.21, p<.05, OR = 1.22) also indicates that children with high peer support coping behaviour were more likely to retain or add friends over time. The indegree effect for expected peer support coping behaviour (H8.2a) was not significant (β=0.07, p>.05), indicating that being nominated or not being nominated as a friend does not influence expected peer support coping behaviour. Regarding control variables, there was a significant and positive behaviour influence effect for the gender parameter (β=0.26, p<.05, OR = 1.27), indicating that

females are more likely to increase their expected peer support coping behaviour over time. In addition, there was a significant and negative effect of peer-victimisation (β=-0.09, p<.05, OR = 0.91) indicating that those children with higher peer-victimisation scores are more likely to decrease their expected peer support coping behaviour over time.

Table 8.3 *Parameter Estimates for the Co-Evolution SAO Model of Friendship Selection Influences on Expected Peer Support Coping Behaviour*

	β	Standard Error	*t*-ratio
Parameter Estimates for Friendship Selection			
Constant (outdegree density)	-1.67*	0.13	-12.85
Effects of Network Structure			
Reciprocity	0.83*	0.09	9.33
Transitive Triplets	-0.53*	0.09	-5.89
Geodesic Distance (equal 2)	-0.18*	0.04	-4.50
Jaccard Outdegree	13.64*	1.90	7.18
Similarity Effects			
Gender (Female = 1)	0.36*	0.06	6.00
Peer-Victimisation	-0.03	0.03	-1.00
Alter/Ego Effects			
Expected Coping (Alter Effects)	0.21*	0.07	3.00
Expected Coping (Ego Effects)	0.21*	0.07	3.00
Parameter Estimates for Influence on Expected Coping Behaviour			
Shape Parameters			
Linear	0.09	0.17	0.53
Squared	0.08*	0.04	2.00
Friends Attributes			
Effects of number of friends (indegree)	0.07	0.05	1.40
Effect of number of friends (outdegree)	-0.05	0.04	-1.25
Control Variables			
Gender (Female = 1)	0.26*	0.08	3.25
Peer-Victimisation	-0.09*	0.04	-2.25

Note: β = the unstandardized multinomial logit coefficient
*p<.05

8.8.5 Expected Problem Solving Coping Behaviour Model

Table 8.4 presents the results from the SAOM analysis for problem solving coping behaviour. The final model suggests that children's popularity is not predicted by their expected problem solving coping behaviour (H8.1a; β=0.08, p>.05). Furthermore, nor does the number of indegree friendship ties influence expected problem solving coping behaviour (H8.2a; β=0.07, p>.05). Regarding the control variables of gender and peer-

victimisation, neither variable was found to predict the likelihood of using problem solving coping behaviour.

Table 8.4 *Parameter Estimates for the Co-Evolution SAO Model of Friendship Selection Influences on Expected Problem Solving Coping Behaviour*

	β	Standard Error	*t*-ratio
Parameter Estimates for Friendship Selection			
Constant (outdegree density)	-1.60*	0.12	-13.33
Effects of Network Structure			
Reciprocity	0.83*	0.07	11.86
Transitive Triplets	-0.47*	0.07	-6.71
Geodesic Distance (equal to 2)	-0.18*	0.03	-6.00
Jaccard Outdegree	12.33*	1.37	9.00
Similarity Effects			
Gender (Female = 1)	0.33*	0.06	5.50
Peer-Victimisation	-0.03	0.03	-1.00
Alter/Ego Effects			
Expected Coping (Alter Effects)	0.08	0.07	1.14
Expected Coping (Ego Effects)	0.07	0.05	1.40
Parameter Estimates for Influence on Expected Coping Behaviour			
Shape Parameters			
Linear	-0.26	0.21	-1.24
Squared	-0.27*	0.06	-4.50
Friends Attributes			
Effects of number of friends (indegree)	0.07	0.06	1.17
Effect of number of friends (outdegree)	-0.03	0.05	-0.60
Control Variables			
Gender	-0.02	0.10	-0.20
Peer-Victimisation	-0.05	0.05	-1.00

Note: β = the unstandardized multinomial logit coefficient
*p<.05

8.8.6 Expected Internalising Coping Behaviour Model

Table 8.5 provides the final estimates for the SAOM analysis for expected internalising coping behaviour. The final estimates indicate that a child's popularity was not predicted by their expected internalising coping behaviour (H8.1b; β=-0.01, p>.05) and neither does the extent to which a child is nominated affect their expected internalising coping behaviour (H8.2b; β=-0.01, p>.05). However, it was found that both control variables, gender and peer-victimisation, significantly predicted expected internalising coping behaviour. Specifically, females were more likely to significantly increase their expected internalising coping behaviour over time (β=0.43, p<.05, OR = 1.54). Additionally, those

children who experienced higher levels of peer-victimisation were more likely exhibit higher levels of expected internalising coping behaviour over time (β=0.16, *p*<.05, OR = 1.17).

Table 8.5 *Parameter Estimates for the Co-Evolution SAO Model of Friendship Selection Influences on Expected Internalising Coping Behaviour*

	β	Standard Error	*t*-ratio
Parameter Estimates for Friendship Selection			
Constant (outdegree density)	-1.62*	0.09	-17.75
Effects of Network Structure			
Reciprocity	0.83*	0.07	11.86
Transitive Triplets	-0.46*	0.09	-5.11
Geodesic Distance (equal to 2)	-0.17*	0.02	-8.50
Jaccard Outdegree	12.33*	1.66	7.42
Similarity Effects			
Gender (Female = 1)	0.33*	0.06	5.50
Peer-Victimisation	-0.05	0.03	-1.67
Alter/Ego Effects			
Expected Coping (Alter Effects)	-0.01	0.05	-0.20
Expected Coping (Ego Effects)	0.01	0.05	0.20
Parameter Estimates for Influence on Expected Coping Behaviour			
Shape Parameters			
Linear	0.02	0.23	0.09
Squared	-0.16*	0.05	-3.20
Friends Attributes			
Effects of number of friends (indegree)	-0.01	0.05	-0.20
Effect of number of friends (outdegree)	-0.01	0.05	-0.20
Control Variables			
Gender	0.43*	0.11	3.91
Peer-Victimisation	0.16*	0.06	2.67

Note: β = the unstandardized multinomial logit coefficient
*p<.05

8.8.7 Expected Retaliation Coping Behaviour Model

Table 8.6 provides the final estimates for the SOAM analysis for expected retaliation coping behaviour. The analysis indicated a moderate significant negative friendship alter effect (H8.1b; β=-0.36, *p*<.05; OR = 0.48), indicating that those children with higher values of expected retaliation coping behaviour were less likely to retain or receive friendship nominations over time. There were no significant indegree effects for expected retaliation coping behaviour, indicating that the frequency of being named as a friend is not related to change in retaliation coping behaviour (H8.2b; β=-0.03, *p*>.05). Regarding control variables for internalising coping behaviour, gender was found to

negatively predict the likelihood of having expected higher retaliation coping value over time (β=-0.72, p<.05, OR = 0.48). This parameter suggests that females are less likely to increase their expected retaliation coping behaviour over time. There was no significant effect of peer-victimisation on expected retaliation coping behaviour (β=0.05, p>.05).

Table 8.6 *Parameter Estimates for the Co-Evolution SAO Model of Friendship Selection Influences on Expected Retaliation Coping Behaviour*

	β	Standard Error	*t*-ratio
Parameter Estimates for Friendship Selection			
Constant (outdegree density)	-1.64*	0.11	-14.91
Effects of Network Structure			
Reciprocity	0.88*	0.07	12.57
Transitive Triplets	-0.48*	0.07	-6.86
Geodesic Distance (equal to 2)	-0.18*	0.03	-6.00
Jaccard Outdegree	12.46*	1.46	8.53
Similarity Effects			
Gender (Female = 1)	0.33*	0.05	6.60
Peer-Victimisation	-0.03	0.03	-1.00
Alter/Ego Effects			
Expected Coping (Alter Effects)	-0.36*	0.08	-4.50
Expected Coping (Ego Effects)	-0.03	0.03	1.00
Parameter Estimates for Influence on Coping Behaviour			
Shape Parameters			
Linear	-1.25*	0.39	-3.21
Squared	0.94*	0.18	5.22
Friends Attributes			
Effects of number of friends (indegree)	-0.10	0.09	-1.11
Effect of number of friends (outdegree)	-0.03	0.08	-0.38
Control Variables			
Gender (Female = 1)	-0.72*	0.17	-4.24
Peer-Victimisation	0.07	0.08	0.88

Note: β = the unstandardized multinomial logit coefficient
*p<.05

8.8.8 Expected Avoidance Coping Behaviour Model

Table 8.7 presents the results from the SAOM analysis for expected avoidance coping behaviour. The model parameters suggest that children's popularity is not predicted by their expected avoidance coping behaviour (H8.1b; β=-0.09, p>.05). Furthermore, nor does the number of indegree friendship ties influence expected avoidance coping behaviour (H8.2b; β=0.05, p>.05). Regarding the control variables of gender and peer-victimisation, neither variable was found to predict the likelihood of using expected avoidance coping behaviour.

Table 8.7. *Parameter Estimates for the Co-Evolution SAO Model of Friendship Selection Influences on Expected Avoidance Coping Behaviour*

	β	Standard Error	*t*-ratio
Parameter Estimates for Friendship Selection			
Constant (outdegree density)	-1.63*	0.10	-16.30
Effects of Network Structure			
Reciprocity	0.84*	0.07	12.00
Transitive Triplets	-0.47*	0.06	-7.83
Geodesic Distance (equal to 2)	-0.17*	0.03	-5.66
Jaccard Outdegree	12.47*	1.39	5.95
Similarity Effects			
Gender (Female = 1)	0.33*	0.06	5.50
Peer-Victimisation	-0.03	0.04	-0.75
Alter/Ego Effects			
Expected Coping (Alter Effects)	-0.09	0.07	-1.29
Expected Coping (Ego Effects)	0.05	0.05	1.00
Parameter Estimates for Influence on Expected Coping Behaviour			
Shape Parameters			
Linear	-0.22	0.21	-1.05
Squared	-0.20*	0.05	4.00
Friends Attributes			
Effects of number of friends (indegree)	0.05	0.05	1.00
Effect of number of friends (outdegree)	-0.02	0.04	-1.00
Control Variables			
Gender (Female = 1)	-0.14	0.10	-1.40
Peer-Victimisation	-0.02	0.16	-0.13

Note: β = the unstandardized multinomial logit coefficient
*p<.05

8.9 GOODNESS OF FIT FOR THE FINAL SIX MODELS

Figure 8.3, Figure 8.4, Figure 8.5, Figure 8.6, Figure 8.7, and Figure 8.8 contain violin plots that indicate the goodness of fit for all six models for indegree, outdegree, and behaviour distributions.

Ideally, an acceptable model is indicated by $p>.05$; however, it also important to visually examine the plot to check the extent to which distribution of the observed values (red lines on the plots) are within the dashed grey lines (90% relative frequency region). This indicates the extent to which the observed data (red lines) fall within the simulated data distribution. The goodness of fit models indicates an acceptable fit to the data, for almost all observed indices. However, it is worth noting that the models do tend underestimate the number of seven in-degree and out-degree ties, as indicated by the observed estimate falling just below the 90% confidence interval for the simulated networks. Additional parameters were specified for the seven indegree and outdegree effects, but this did not result in an improvement in the model fit and therefore these were excluded. Given the underestimation of the seven indegree and outdegree effects it is important to be cautious regarding the interpretation of findings and further research is needed to validate the current observations.

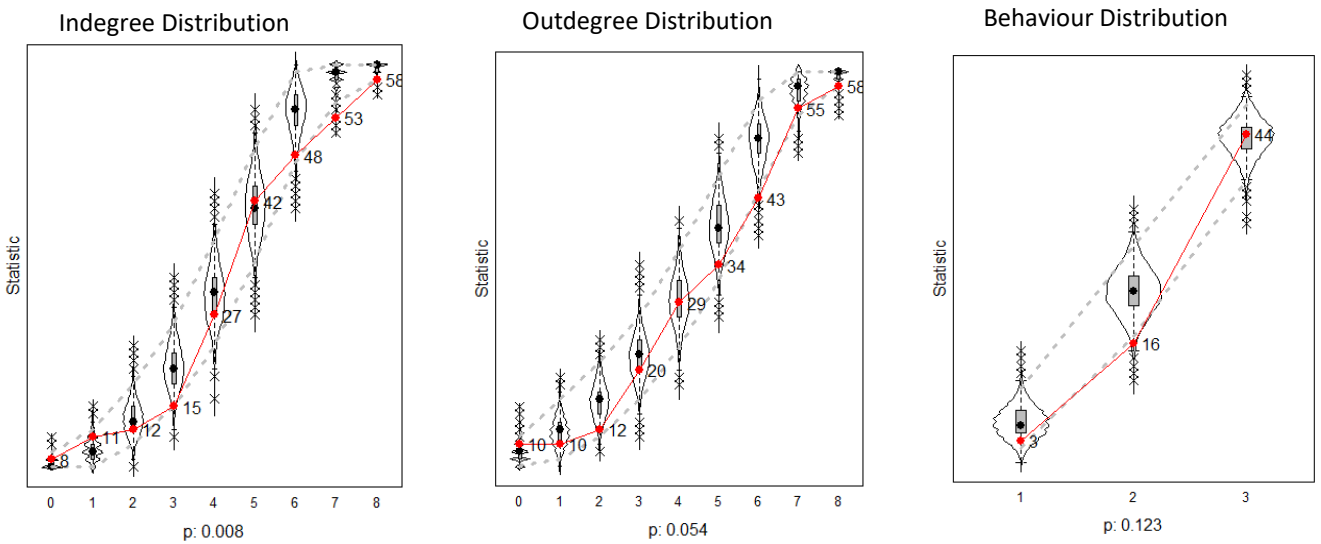

Figure 8.3. Expected adult Coping Goodness of Fit Plots for Indegree, out degree, and behaviour distribution

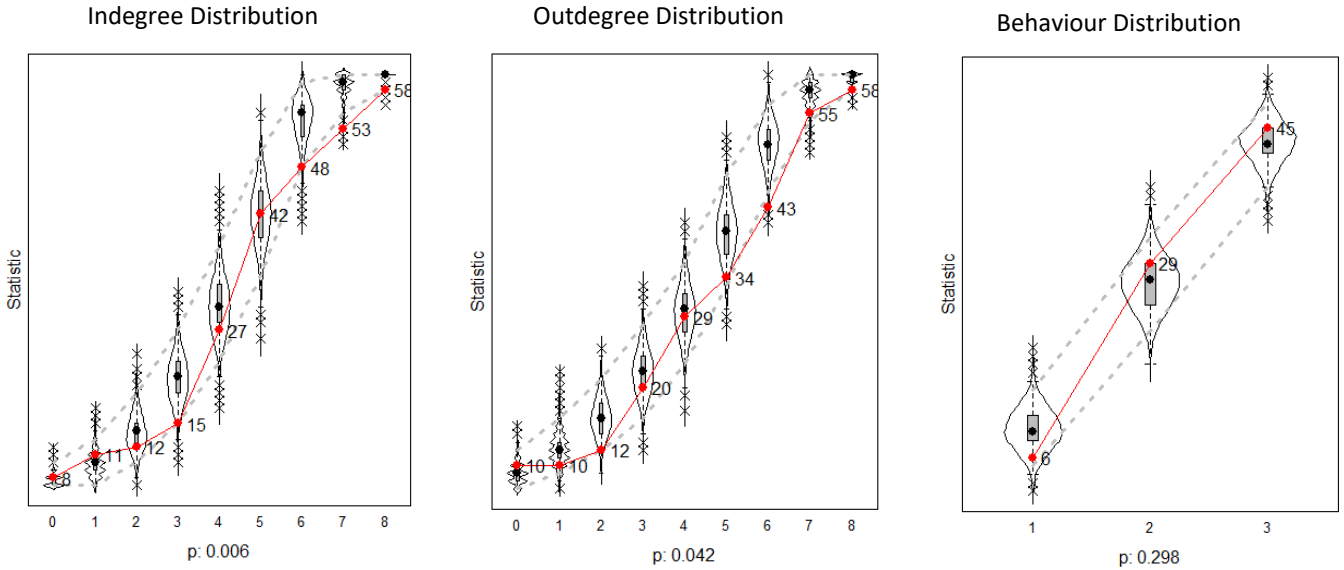

Figure 8.4. Expected peer Coping Goodness of Fit Plots for Indegree, out degree, and behaviour distribution

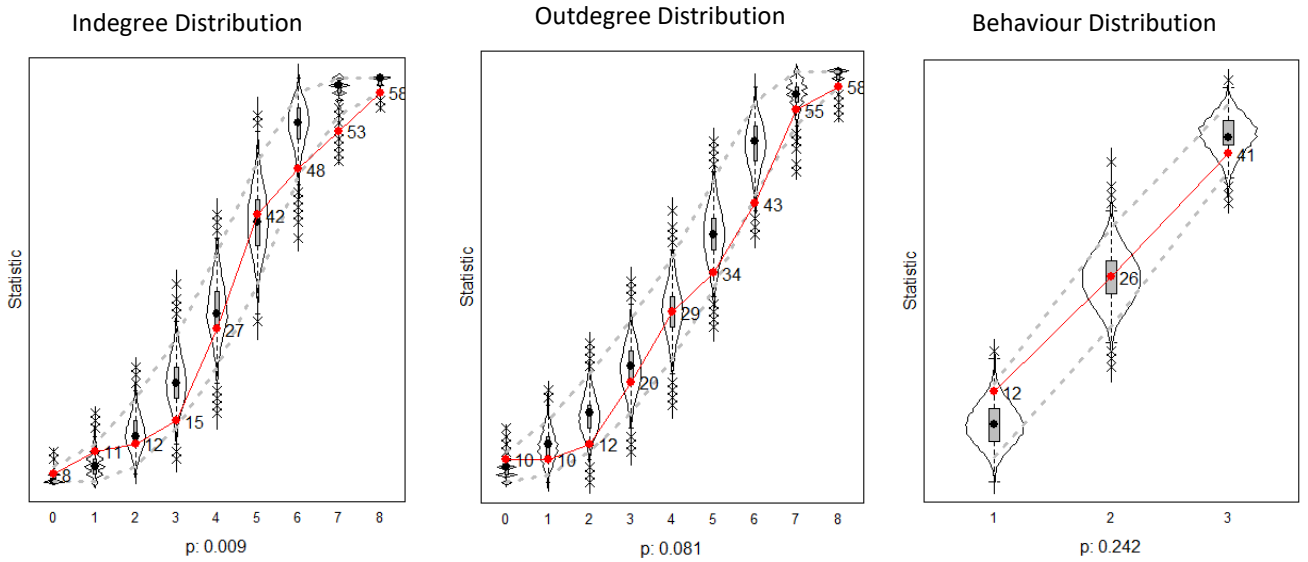

Figure 8.5. Expected problem Solving Coping Goodness of Fit Plots for Indegree, out degree, and behaviour distribution

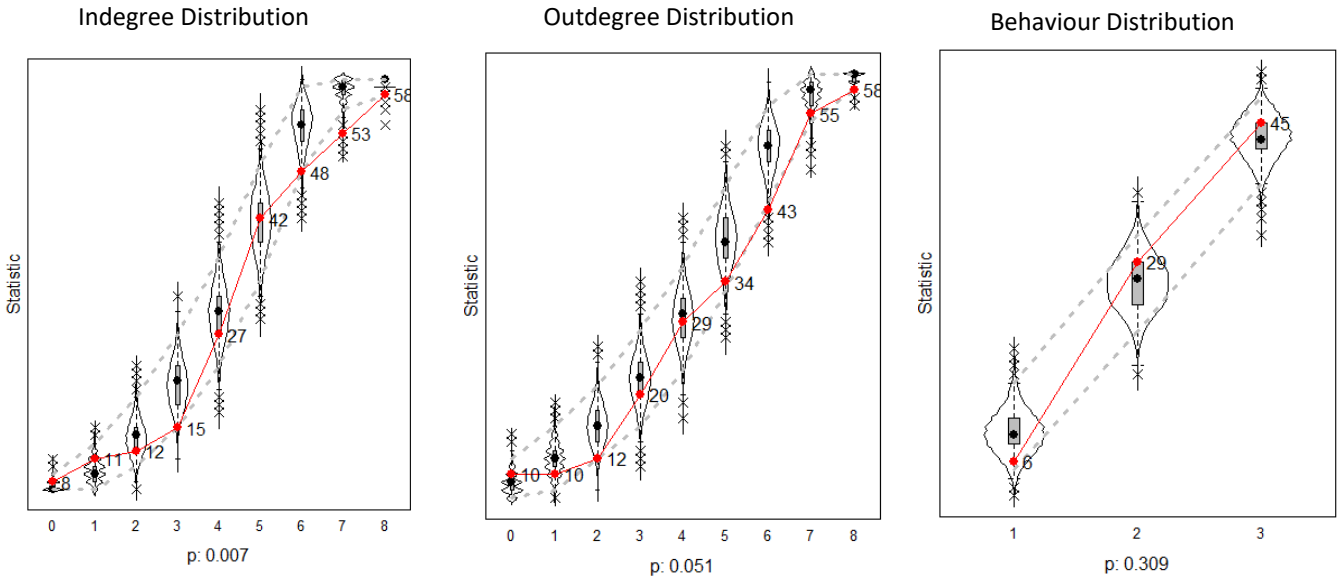

Figure 8.6. Expected internalising Coping Goodness of Fit Plots for Indegree, out degree, and behaviour distribution

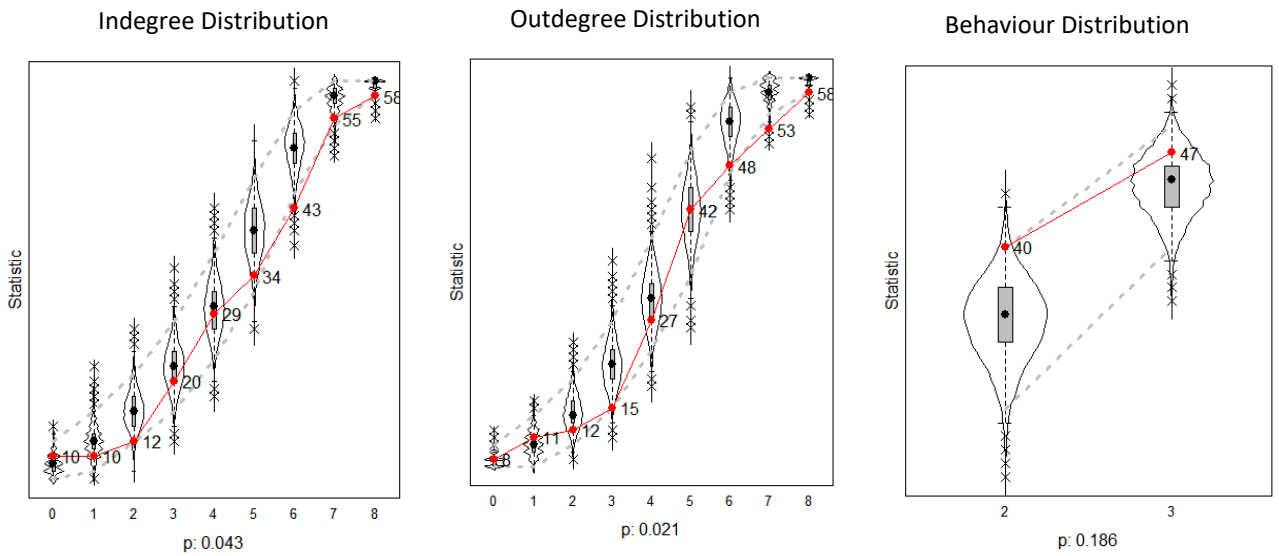

Figure 8.7. Expected retaliation Coping Goodness of Fit Plots for Indegree, out degree, and behaviour distribution

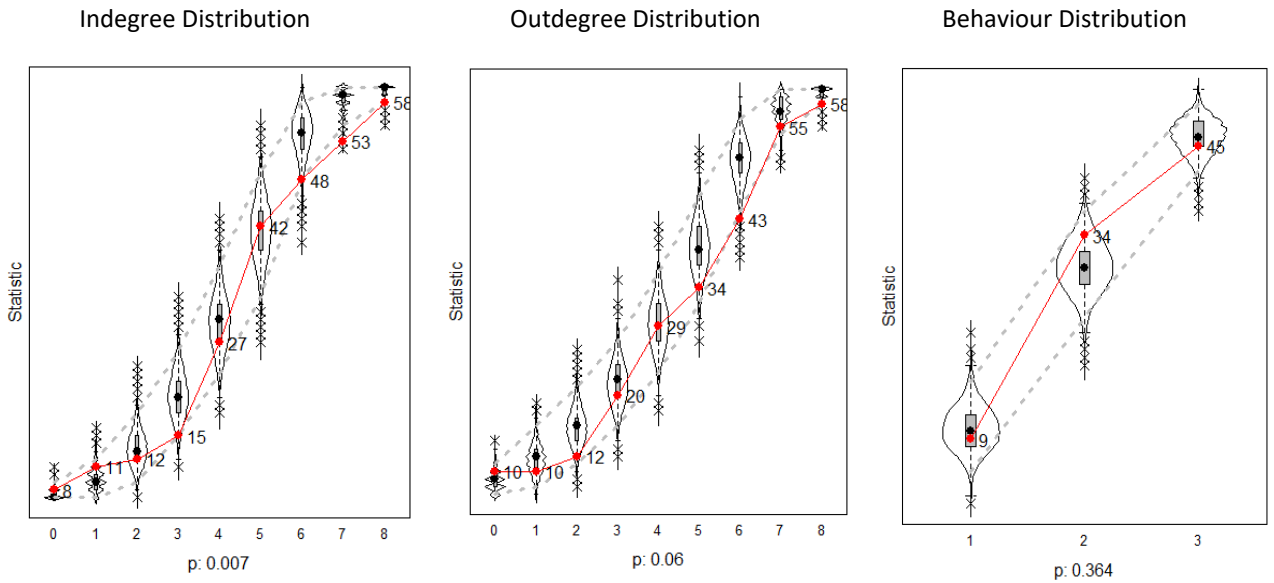

Figure 8.8. Expected avoidance Coping Goodness of Fit Plots for Indegree, out degree, and behaviour distribution

8.10 Summary of Findings According to Chapter Hypotheses

To facilitate interpretation a summary table of findings according to support for the hypotheses tested in the current chapter is presented below (See Table 8.8). Section 8.11 will then discuss these findings in more detail.

Table 8.8 *Chapter 8 Summary of Findings According to Hypotheses*

Hypothesis	**Support (Yes, No or Partial)?**
H8.1a: Children with high levels of expected adaptive peer-victimisation coping behaviour (adult, peer, or problem solving) will receive more friendship nominations than those children with relatively lower levels of expected adaptive peer-victimisation coping behaviour.	**Partial** *(alter effects observed for* expected *peer coping)*
H8.1b: Children with high levels of expected maladaptive peer-victimisation coping behaviour (internalising, retaliation, or avoidance) will receive less friendship nominations than those children with relatively lower levels of expected maladaptive peer-victimisation coping behaviour.	**Partial** *(alter effects observed for* expected *retaliation coping)*
H8.2a: Children who receive on average more friendship nominations than their peers will increase their expected adaptive peer-victimisation coping behaviour over time.	**Partial** *(positive indegree effect observed for* expected *adult support coping)*
H8.2b: Children who receive on average fewer friendship nominations than their peers will increase their expected maladaptive peer-victimisation coping behaviour over time.	**No**

8.11 CHAPTER SUMMARY

The current chapter presented a series of co-evolution stochastic actor orientated models that examined to the interplay between the social network and expected peer-victimisation coping behaviour. Specifically, this empirical chapter addressed Research Aim 5 the thesis. The analyses in this chapter addressed the thesis research aims via testing four main hypotheses. Firstly, the analyses examined whether children's popularity was the result of their expected peer-victimisation coping behaviour (H8.1a/b). Secondly, the analyses explored whether the extent to which being nominated as a friend influenced future expected peer-victimisation coping behaviour (H8.2a/b). These hypotheses were tested within six co-evolution stochastic actor orientated models, one for each expected coping type (adult support, peer support, problem solving, retaliation, avoidance, and internalising). The results from these six models will now be discussed in depth focusing specifically on each hypothesis or hypotheses (as outlined in Section 8.1).

Hypothesis 8.1a and Hypothesis 8.1b tested whether those with high levels of expected peer-victimisation coping behaviour were more popular than their peers with lower levels of expected peer-victimisation coping behaviour. Significant alter effects were identified in the expected peer coping and expected retaliation coping models, providing partial evidence for Hypothesis 8.1a and Hypothesis 8.1b respectively. Specifically, the expected peer coping model revealed a positive alter, indicating that children with higher levels of expected peer coping behaviour were more likely to receive more friendship nominations. This finding suggests that children with high levels of expected peer coping behaviour are more attractive as friends. It is possible that those children with higher levels of expected peer support coping behaviour are also individuals who will reciprocate peer support. Specifically, children who are prosocial are often found to be more popular within their social network (Gest et al., 2001; Warden & MacKinnon, 2003). This finding also coincided with a positive significant ego effect, indicating that as children increased their expected peer coping behaviour, they tended to nominate more peers as friends. These findings are to be expected, as peer-support requires access to the network and as such social ties need to be formed (Ladd, 1990). Interestingly, there were no outdegree effects for expected peer coping behaviour, such that an increase in friendship nominations did not result in an increase use of peer coping. Together these findings suggest that expected peer support coping behaviour precedes the nomination of friends, rather than nominating friends preceding an increase in expected peer support coping behaviour. It is thus plausible that the act of seeking peer support provides a positive social experience, which in turn results in the

formation of friendship ties. These findings also emphasise the importance of a longitudinal social network approach, which, in the context of this study, enabled the cause and effect of friendship and coping behaviour to be identified.

Regarding the other coping models tested, those children who reported expected retaliation coping behaviour were found to be less popular than their peers with lower levels of expected retaliation coping. Retaliation coping behaviour exhibits similar attributes to aggressive behaviour, which has been shown to be associated with lower levels of popularity in social networks (Laninga-Wijnen et al., 2017). Furthermore, the concordance of the current findings with Laninga-Wijnen et al.'s (2017) study suggests that children can make friendship decisions with reference to peers' coping behaviour, even if that reported coping behaviour is hypothetical. The findings from these two models provide partial support for the expectation that children's expected coping behaviour would be linked to popularity. However, there were no significant popularity effects found for the adult, problem-solving, internalising and avoidance coping models. Although previous research has indicated that socially withdrawn children (which could be linked to internalising and avoidance coping behaviour) are often excluded by peers (Oh et al., 2008; Rubin, Coplan, & Bowker, 2009), research has also suggested that not all children who exhibit this behaviour are excluded by peers (Gazelle & Ladd, 2003). This variability in social exclusion by peers may therefore have limited the ability to detect friendship selection effects.

However, although the expected peer support coping and expected retaliation coping models indicated popularity effects, it is important to be cautious when drawing inferences from these effects given the limitations associated with the measurement of coping in the thesis. Specifically, it is possible that other children may not be aware of their peers coping intentions, especially when these reported behaviours are hypothetical in nature. However, it is also possible that children are aware of their peers hypothetical coping behaviour. For example, Bowker (2004) examined peer-hassle coping in children and the stability of their friendships. They found that children's friendship stability was related to children's peer-hassle coping behaviour, wherein friendship stability was related to minimisation and retaliation coping strategies, even those these coping behaviours could also be hypothetical. Furthermore, existing social network research suggests that individuals can make friendship decisions based on non-visible attributes (van de Duijn, Zeggelink, Huisman, Stokman, & Wasseur, 2003; Klepper, Sleebos, van de Bunt, Agneessens, 2010). These studies therefore suggest, in part, that children can make decisions regarding friendship based on peers' actual or hypothetical coping behaviour. However, further research is needed to examine whether children can

accurately report on peers' coping behaviour (both actual or hypothetical) or whether other attributes correlated with coping is being used to make friendship decisions.

Hypothesis 8.2a and Hypothesis 8.2b tested the effect of being nominated as a friend on expected peer-victimisation coping behaviour. This was measured via the inclusion of an indegree effect within the behaviour component model. A significant and positive indegree effect was identified in the expected adult support coping model, providing partial support for Hypothesis 8.2a. This effect indicated that those children frequently named as friends were more likely to increase their expected adult support coping behaviour over time. Interestingly and contrastingly, the expected adult support coping model also identified a significant negative outdegree effect, indicating that children who nominate more peers as friends are likely to decrease their expected adult support coping behaviour overtime. Speculatively, it is possible that children are decreasing their expected adult support coping behaviour as their source of support is coming from their peers instead. It is not clear, however, why higher levels of being nominated as a friend would increase a child's likelihood of reporting expected adult support coping mechanisms as this appears to contradict the findings from the outdegree effect. This will be further discussed in the general discussion chapter (Chapter 9). Regarding the other models of coping, there were no further significant effects for indegree. Therefore, there was no evidence to support Hypothesis 8.2b, that receiving fewer friendship nominations would lead to an increase in expected maladaptive coping behaviour.

Although not the primary focus of this study, the analyses did include an effect to examine whether children select friends based on similarity in levels of peer-victimisation experiences as a control variable. The findings indicated that children did not select friends based on similar levels in peer-victimisation experience. Previous research has predominately focused on similarity effects regarding bullying perpetration or aggressive behaviour (e.g., Laninga-Wijnen et al., 2017; Merrin et al., 2017), rather than focusing on victims. Evidence for friendship selection and friendship influence effects for peer-victimisation based on similarity is very mixed, with some studies identifying effects (e.g., Lodder, Scholte, Cillessen, & Giletta, 2016), others finding similarity effects only for specific types of victimisation (e.g., Sijtsema et al., 2013) and others finding no similarity effects (e.g., Whitley, 2016). However, many of these studies are based on adolescent samples, and thus the findings further extend previous work via examining friendship similarity selection and influence effects in victimised children. Although no similarity effects were found for peer-victimisation experiences, strong effects were observed for gender similarity effects, such that children were more likely

to nominate a child as a friend if they shared the same sex. This finding is consistent with a vast body of literature, observing that children tend to befriend children of the same gender, particularly throughout childhood and into early adolescence (Kovacs, Parker, & Hoffman, 1996; Poulin & Pedersen, 2007).

In summary, the findings in this chapter provide a unique contribution to the research area. Specifically, the present research is the first to co-evolution of expected coping behaviour and friendship networks. Furthermore, the analysis used in the current chapter enabled the modelling of these effects over time whilst also controlling for common network structures and the role of other actor attributes, such as gender and peer-victimisation. This is a major strength of the chapter and provides credibility to the findings. The findings in this chapter suggest that, at least with regards to individual expected coping behaviour, that friends tend not play a role in influencing coping responses. The exception here, however, is for expected adult coping behaviour, whereby findings suggested that children increased their likelihood of reporting expected adult coping behaviour following an increase in being nominated as friend. Telling an adult is often the recommended to children by schools in response to being bullied. However, it is important to note that, as evidenced in this thesis, expected adult coping behaviour has not been found to reduce school loneliness following peer-victimisation. In addition to the evidence for friendship influence in the adult coping model, friendship popularity effects were identified for expected peer coping and expected relation coping. These effects provided partial support the argument that children's expected coping behaviour is linked to their friendship ties, specifically children's levels of popularity. Subsequently, considering all the evidence, the findings in the current chapter further contribute to our understanding regarding the role of friendship on expected coping with school-based peer-victimisation in primary school children. The next chapter will discuss the overall findings from all three empirical chapters, the strengths and limitations of the thesis, implications, and suggestions future research

CHAPTER 9: GENERAL DISCUSSION

9.1 INTRODUCTION TO THE CHAPTER

This chapter will provide an overview and discussion of the preceding eight chapters, focusing on the key findings from the three empirical chapters (Chapters 6 to 8). Firstly, the chapter will first outline the research questions and main aims of the thesis and will then present a discussion of the main findings. Secondly, the chapter will highlight the methodological strengths and limitations of the thesis. Thirdly, the implications of the research and suggestion for future research will be discussed. Finally, the chapter will outline the contributions to literature made by the current thesis.

9.2 AIMS OF THE THESIS

The current thesis addressed the following two research questions:

Research Question 1: What is the role of friendship for coping with school-based peer-victimisation?

Research Question 2: Does friendship buffer against the negative effects of maladaptive peer-victimisation coping?

Specifically, these three research questions were addressed via the following thesis research aims:

Research Aim 1: To examine cross-sectionally the relationship between children's reports of friendship (friendship quality, reciprocated friendship, centrality) and their expected peer-victimisation coping behaviour (Chapter 6).

Research Aim 2: To examine cross-sectionally the relationship between children's expected peer-victimisation coping behaviour and the buffering effect of friendship (friendship quality, reciprocated friendship, centrality) on the experience of school loneliness. (Chapter 6).

Research Aim 3: To examine longitudinally the relationship between children's reports of friendship (friendship quality, reciprocated friendship, centrality) and their future expected peer-victimisation coping behaviour (Chapter 7).

Research Aim 4: To examine longitudinally the relationship between children's expected peer-victimisation coping behaviour and the buffering effect of friendship (friendship quality, reciprocated friendship, centrality) on the experience of school loneliness (Chapter 7).

Research Aim 5: To examine longitudinally the relationship between children's social activity and popularity in the classroom and their expected peer-victimisation coping behaviour (Chapter 8)

9.3 SUMMARY OF FINDINGS

The following section of this chapter outlines and discuss the main empirical findings from the three empirical chapters (Chapter 6, 7, and 8). These will be summarised based on the five research aims. A summary of the main significant findings can also be found in Figure 9.1 and Figure 9.2 for Research Question 1 and Research Question 2, respectively.

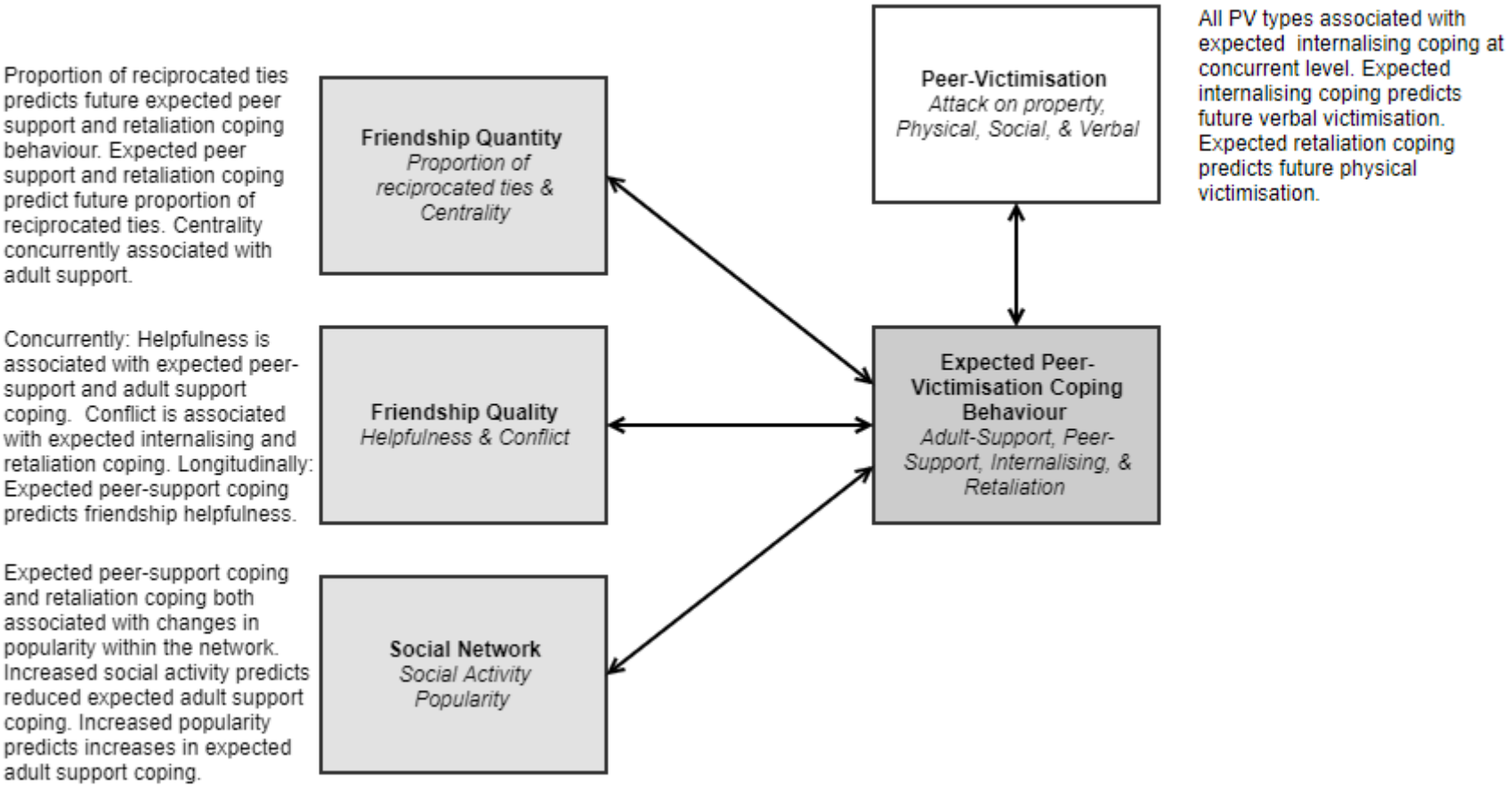

Figure 9.1 Adapted figure from Chapter 4 outlining the main significant findings from the thesis for Research Question 1

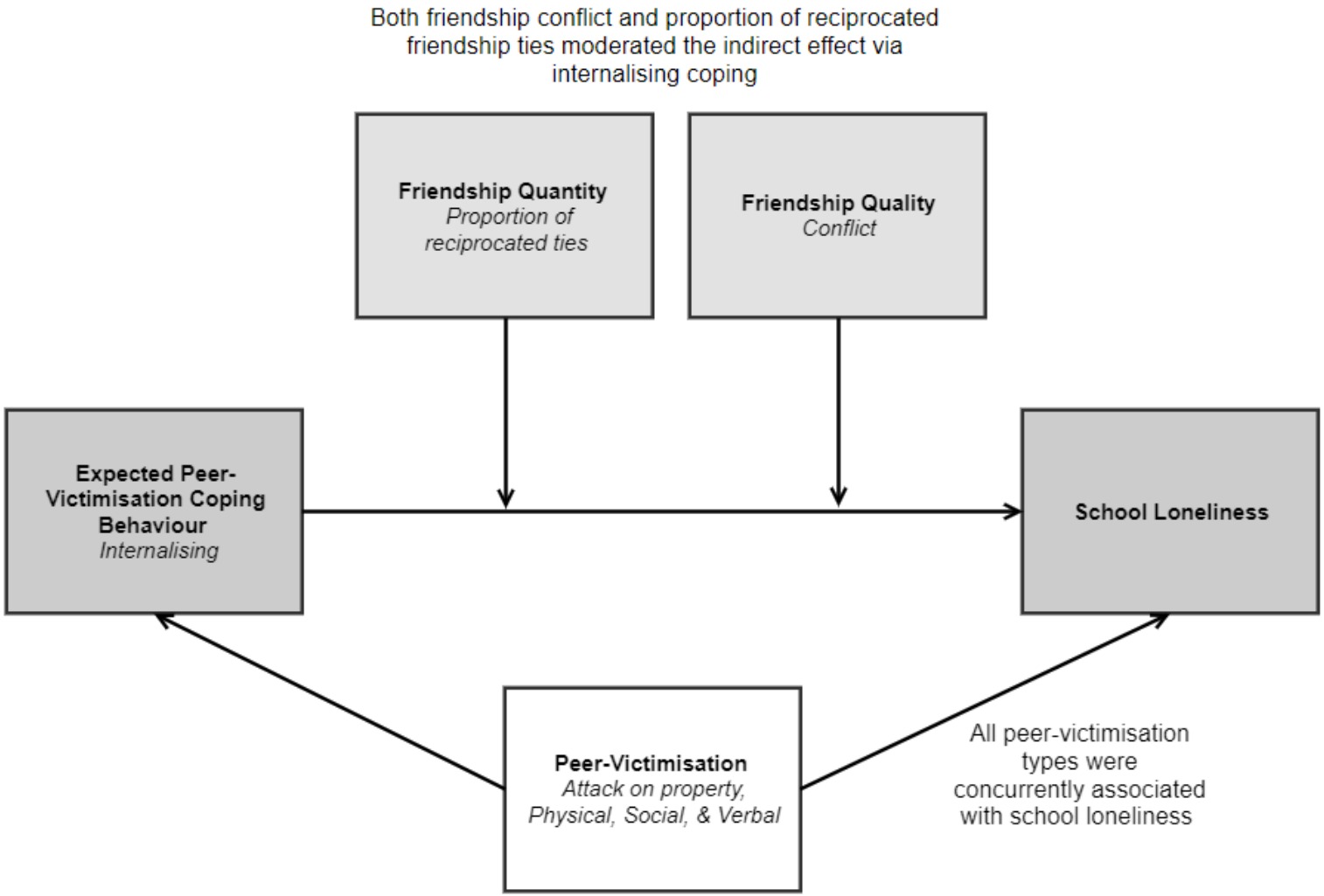

Figure 9.2 Adapted figure from Chapter 4 outlining the main significant findings from the thesis for Research Question 2

9.3.1 Concurrent and longitudinal relationships between friendship and expected peer-victimisation coping (Research Aim 1 and Research Aim 3)

A number of significant concurrent associations emerged between friendship and expected peer-victimisation coping behaviour in Chapter 6. Specifically, friendship helpfulness (a positive component of friendship quality) was found to be associated with both expected adult and peer support coping, indicating that higher ratings of helpfulness within a child's friendship were associated with higher levels of expected social support seeking. The effect sizes of these findings were small (peer-support coping) to medium (adult-support coping) according to Cohen's effect size classification (Cohen, 1988). This suggests that although friendship helpfulness plays an important role in concurrently predicting expected social support behaviour, it is likely that other, more substantial, factors are at play. However, these findings do support Berndt's (2002) argument that positive contact with friends increases a child's access to social resources. Furthermore, a strong connection with friends can positively affect a child's self-perception and the way in which they process incoming social cues, including responding to peer-victimisation (Burgess et al., 2006). Within the context of the current findings, it could be argued that positive friendship quality promotes social competence in a child (Crawford & Manassis, 2011), which in turns facilitates their ability to seek (or their expectation to seek) social support in response to peer-victimisation. However, the relationship between friendship helpfulness and expected social support coping was not found to hold overtime. Instead, it was found that expected peer support coping at Time 2 predicted friendship helpfulness at Time 3, whereby higher levels of expected peer-support coping endorsement were predictive of higher ratings of helpfulness within best friendships over time, although this effect size was small in nature. Subsequently, there is a lack of evidence to suggest that friendship quality is predictive of future expected coping, but rather endorsement of expected peer support coping increases children's perceptions of the quality of their friendships. Considering both the concurrent and longitudinal findings, it could be argued that positive friendship quality is important for 'in the moment' adaptive responses to peer-victimisation, but that over time other factors play a role in predicting adaptive coping behaviour (or expected adaptive coping behaviour). Specifically, if a child is responding to an immediate stressor, they may first check what social resources they have available to help them deal with the stressor (Compas, 1987), using friendship quality as an indicator of availability. The contrasting finding between the concurrent and longitudinal analyses highlights the importance of examining children's social development over time and is a strength of the current

thesis. Specifically, the use of longitudinal approach provided a more detailed picture of the temporal relationships between friendship and expected coping.

Although friendship quality was not found to predict expected peer or adult support coping over time, the analyses in Chapter 7 did identify a small causal effect between the proportion of reciprocated ties a child received at Time 1 and their expected peer-support coping behaviour at Time 2. Specifically, children with a higher proportion of reciprocated ties were found to have higher levels of expected peer-support coping endorsement at Time 2. Reciprocated friendships indicate that both social actors agree that the friendship exists, and in turn it is likely that reciprocity promotes security in a friendship and thus children feel safe in seeking social support from that peer knowing that their request for support is unlikely to be rejected. In contrast, non-reciprocated friendship ties are indicative of social rejection (Block, 2015; Parker & Asher, 1987), and hence socially rejected children are less likely to have access to social resources such as support from their peers (Cleary, Ray, LoBello, & Zachar, 2002; Hartup, 1996). Furthermore, non-reciprocated friendships are indicative of inequality and an imbalance of power (Bot, Engels, Knibbe, & Meeus, 2005; Vaquera & Kao, 2008). Specifically, children who are in relationships whereby there is an imbalance of power are unable to rely on their friend for support (Vaquera & Kao, 2008). This highlights the negative aspects of friendships; whereby non-reciprocated friendship ties can result in children reporting lower levels of expected peer-support coping. It should be noted, however, that this finding was not replicated from Time 2 to Time 3, although this could be the result of the sample attrition. For example, children who participated at Time 3 had significantly higher number of reciprocated friendships than those children who did not participate at Time 3. This indicates that the friendship experiences of those who were present at Time 3 were different from those children who were not, and therefore this may explain the variation in findings across time. Furthermore, the empirical study ran across one academic year and therefore the variation in findings across time may also reflect the changes of the academic year. Children's friendship formation is more likely to undergo more rapid changes earlier in the academic year, especially if children are placed in new classes or have joined the school (Poulin & Chan, 2010). Furthermore, research indicates that that children maintain approximately 75% of their friendships during the year (Berndt & Hoyle, 1985; Poulin & Chan, 2010) and therefore this stability may explain why changes in reciprocated friendship at Time 2 was not found to predict peer support behaviour at Time 3.

Results from the analyses in Chapter 6 also observed a concurrent relationship between friendship conflict (a negative indicator of friendship quality) and both expected internalising and retaliation coping behaviour. Specifically, these findings suggest that children who experience conflicts in their friendship are more likely to endorse higher levels of expected retaliation and internalising coping behaviour. Although friendship conflict is a normative experience in friendships, it has been found to affect the way in which children process social information (Bowker et al., 2007), often confirming any negative attributions children may hold about the social world. Children who feel unsupported in their friendship environments may feel defensive and insecure (Sullivan, 1953). Furthermore, children who experience persistent conflict in their friendships can exhibit weaker interpersonal skills and lack the social competencies needed to maintain friendships (Champion, Vernberg, & Shipman, 2003; Crawford & Manassis, 2011; Parker & Asher, 1993). This may in turn reduce their ability to either seek social support or use adaptive forms of coping, and hence these children are more likely exhibit (or expect to exhibit) maladaptive coping behaviour, such as internalising and retaliation. Again, this finding highlights the consequences of negative friendship experiences. However, these effect sizes were small and friendship experience only explained 7% of the variance in internalising coping behaviour. The association between friendship conflict and expected internalising and retaliation coping is supported by previous empirical literature. Specifically, Bowker et al. (2007) also found that children with high levels conflict in their friendship responded aggressively to hypothetical stressful peer situations. However, this effect was only observed in aggressive children who were friends with another aggressive child. The concurrent relationship between friendship conflict and expected retaliation and expected internalising coping observed in Chapter 6 builds on Bowker at al.'s (2007) work by examining the role of friendship quality within the context of expected peer-victimisation coping. Furthermore, the current thesis also controlled for children's friendship quantity, which was not accounted for in Bowker et al.'s (2007) study.

The relationship between friendship conflict and expected retaliation and internalising coping was not found to be consistent over time (Chapter 7). Furthermore, no other facets of friendship were found to predict future expected internalising coping, and additionally, expected internalising coping behaviour was not found to predict children's future friendship experiences. Together these findings indicate that although friendship conflict is associated with expected internalising coping at a concurrent level, there is no evidence to suggest that friendship is an influencing factor in a child's future

expected internalising coping. This finding supports previous literature, which also failed to find a longitudinal association between internalising coping (in response to peer conflict) and friendship (Bowker, 2004). However, it should be noted that Bowker's (2004) empirical study only examined whether internalising coping predicted reciprocated friendships and did not consider this relationship bi-directionally i.e., Bowker did not consider whether reciprocated friendships predicted internalising coping. The current findings therefore contribute to the current literature base, having examined the bi-directional longitudinal relationship between quantity and quality of children's friendships and their endorsement of expected peer-victimisation internalising coping behaviour.

Although findings from Chapter 7 indicated that the relationship between friendship conflict resolution and expected retaliation coping did not hold over time, the longitudinal analysis did identify a bi-directional prospective relationship between the proportion of reciprocated ties a child received and their expected retaliation coping behaviour. Specifically, receiving a lower proportion of reciprocated ties at Time 1 was predictive of high levels of expected retaliation coping at Time 2 and high expected retaliation coping at Time 1 predicted lower proportion of reciprocated ties at Time 2. However, similar to the relationship between proportion of reciprocated ties and peer-support coping, this bi-directional relationship did not extend to Time 3. Furthermore, the longitudinal bidirectional relationship between conflict and retaliation coping was small in nature, with a beta value between -0.13 and -0.18.

Retaliation coping is an aggressive approach for responding to peer-victimisation, and thus the current findings can be compared with previous literature pertaining to aggression and friendship in children. Specifically, aggressive children and adolescents are more likely to be rejected by their peers (Bowker, Bukowski, Hymel, & Sippola, 2000; Dijkstra & Berger, 2018; Dodge et al., 2003; Laninga-Wijnen et al., 2017). This is supported by the current findings whereby children who endorsed higher levels of expected retaliation coping at Time 1 were found to receive a lower proportion of reciprocated ties at Time 2, indicating either a lack of agreement regarding the presence of friendship or social rejection by the nominated child. However, not all previous literature has found a difference in friendship characteristics between aggressive and non-aggressive children (Bowker, 2004; Deptula & Cohen, 2004). The current findings therefore contribute to the mixed evidence on the relationship between aggression and friendship by identifying a causal link between a child's reciprocated friendship ties and their expected retaliation coping behaviour.

Existing empirical literature identifies a clear relationship between social status and aggression, whereby socially rejected children are more likely to increase their levels of aggression over time (Dodge et al., 2003; Guerra, Asher, & DeRosier, 2004; Lansford, Malone, Dodge, Pettit, & Bates, 2010). This supports the current findings, whereby having a lower proportion of reciprocated friendship ties predicted higher levels of expected retaliation coping in children. Having a lower proportion of friendship ties reciprocated indicates that a child may not be receiving the benefits afforded to them via reciprocated friendship ties (Cleary et al., 2002; Hartup, 1996), which in turn predicts maladaptive coping mechanisms in response to peer-victimisation. Furthermore, socially rejected children have been found to have problems with social information processing, resulting in aggressive behaviour (Bowker et al., 2007; Crick & Dodge, 1994; Lansford et al., 2010). However, these plausible explanations were not empirically tested in the current thesis, and therefore research into the explanatory mechanisms underlying the relationship between the proportion of reciprocated ties received and expected retaliation coping is warranted. Specifically, research should consider whether children who have a low proportion of reciprocated friendship ties have problems with processing social information and whether this affects their response (or expected response) to peer-victimisation. The current findings contribute to limited existing literature on friendship and reactive aggression, by identifying the relationship between non-reciprocated friendship ties and expected retaliation coping behaviour. Furthermore, these findings may have implications for peer-victimisation intervention studies, such that rejection by peers is indicative of social skill deficits, and therefore programmes such as social skills training (Fox & Boulton, 2003) may reduce the adoption of retaliation-style coping patterns in these children.

In summary, the findings discussed in this section indicate that the relationship between friendship and expected peer-victimisation coping behaviour is mixed, particularly when considering the inconsistency between the concurrent and longitudinal findings. Specifically, the findings highlight that the quality of a friendship may be more pertinent at a concurrent level, whereas the extent to which a child's friendship nominations are reciprocated by peers is more important over-time. However, this prospective finding only extends to expected peer-support and retaliation coping. Therefore, with regards to the other forms of coping measured, namely expected adult-support, problem-solving, internalising, and avoidance coping, there is no evidence to suggest that friendship does play a predictive role. The mixed findings highlight the importance of measuring the different facets of friendship and modelling

coping as six separate families of coping, rather than adopting an emotion-focused vs problem-focused or approach vs avoidant coping approach (Lazarus & Folkman, 1984; Roth & Cohen, 1986). Examining the different components of friendship and expected coping allowed for a more fine-grained approach and a deeper understanding of the role of friendship in predicting peer-victimisation coping behaviour. Furthermore, the current findings also contribute towards literature pertaining to the number of friends versus friendship quality argument; whereby research has argued that the quality of a child's friendship is the most critical component in protecting against the negative effects of peer-victimisation (Kendrick et al., 2012; Waldrip et al., 2008). However, the current findings suggest that, with regards to expected peer-support and retaliation coping, the proportion of reciprocated ties is more crucial. Furthermore, the current findings also have implications for the Friendship Protection Hypothesis (Boulton et al., 1999), furthering the understanding the role of friendship within the experience of peer-victimisation by identifying the predictive role of reciprocated ties for future expected peer-support coping and retaliation coping. By examining the role of friendship with regards to peer-victimisation coping, the current thesis extends the Friendship Protection Hypothesis to include expected coping behaviour, thus identifying mechanisms that may explain how friendship can protect against future victimisation and associated negative outcomes. Furthermore, the current findings also highlight that not all friendship experiences are positive, and that negative friendship experience (i.e., friendship conflict and non-reciprocated friendship ties) can also affect how children may respond to peer-victimisation. To the author's knowledge, this thesis is therefore the first to empirically examine the role of multiple facets of friendship in predicting children's future expected peer-victimisation coping behaviour, hence the current findings represent a unique and original contribution the literature. The next section of this chapter will discuss the findings from the concurrent and longitudinal models that examined the role of friendship for expected coping with peer-victimisation, whilst also accounting for peer-victimisation experiences and school loneliness as a psychosocial outcome.

9.3.2 Concurrent and longitudinal associations between peer-victimisation, friendship, expected coping and school loneliness (Aim 2 and Aim 4)

Chapter 6 and 7 also examined the extent to which friendship (quantity and quality) interacted with peer-victimisation to predict expected peer-victimisation coping behaviour and whether friendship interacted with coping to buffer against the experience of loneliness following the endorsement of maladaptive coping strategies. School loneliness represents an individual's deficiency in their social and personal

relationships, and although this is typically a normative state, chronic loneliness is associated with dropping out of school, depression, and somatic symptoms (Asher & Paquette, 2003). Subsequently, it is important to consider the factors that may mitigate or exacerbate school loneliness following peer-victimisation. Previous literature has found that both adaptive and maladaptive coping strategies moderate or mediate the relationship between experiences of peer-victimisation and loneliness (Harper, 2012; Kochenderfer-Ladd, 2004; Kochenderfer-Ladd & Skinner, 2002; Troop-Gordon et al., 2016). Therefore, the current thesis built upon previous literature by examining the role of friendship within this theoretical framework in both Chapters 6 and 7. Drawing from the theoretical propositions asserted by the Friendship Protection Hypothesis (see Section 4.2.1.2; Boulton et al., 1999), the current thesis argued that positive friendship experiences would buffer against the endorsement of maladaptive coping strategies following peer-victimisation or promote the endorsement of adaptive coping strategies. Furthermore, the thesis also argued that positive friendship experiences would protect against the experience of school loneliness, following the endorsement of maladaptive coping strategies. As highlighted previously, these hypotheses provide a theoretical extension to the Friendship Protection Hypothesis by incorporating expected peer-victimisation coping behaviour.

Before exploring the role of friendship, the mediating or moderating roles of coping were examined between peer-victimisation and school loneliness. Based on previous literature (see Section 3.6) expected maladaptive coping strategies (internalising, retaliation, and avoidance) were specified as mediators whereas expected adaptive coping strategies (peer support, adult support, and problem-solving) were specified as moderators. Findings from the cross-sectional analyses in Chapter 6 revealed that only expected internalising peer-victimisation coping mediated the relationship between peer-victimisation and school loneliness. Unexpectedly, no other coping strategies were found to mediate or moderate the relationship between peer-victimisation and school loneliness. Furthermore, expected peer-victimisation coping was also not found to mediate or moderate the longitudinal relationship between peer-victimisation and loneliness in Chapter 7. This lack of support for the role of coping in predicting loneliness following peer-victimisation was unexpected given that previous literature has identified both mediating and moderating effects of coping between peer-victimisation and psychosocial outcomes (e.g., Kochenderfer-Ladd, 2004; Kochenderfer-Ladd & Skinner, 2002; Troop-Gordon et al., 2016).

One plausible explanation for the lack of mediating or moderating effects of expected coping is that gender was not examined as a moderator in any of the models. Previous peer-victimisation coping literature has often observed gender differences pertaining to coping and the relationship between coping and psychosocial outcomes (e.g., Davidson & Demaray, 2007; Elledge et al., 2010; Kochenderfer-Ladd & Skinner, 2002). Whereby, in some instances, effects of coping only persist for either males or females. For example, Davidson and Demaray (2007) found gender differences for the effectiveness of different forms social support, whereby parent support was found to reduce internalising distress only for females, and teacher, classmate and school support was found to reduce distress only for males. Elledge et al. (2010) observed gender differences for retaliation coping, such that males who endorsed retaliation coping techniques were more likely to experience peer-victimisation. This effect was not observed in females. Kochenderfer-Ladd and Skinner (2002) also observed gender effects for retaliation coping, whereby retaliation coping was associated with anxious-depressive tendencies in boys. They also found an effect of distancing on anxious-depressive tendencies in boys only. Together these studies highlight that variations in the effectiveness of expected coping may be dependent upon a child's gender. However, the current thesis was unable to examine whether the models differed across genders, given that the peer-victimisation coping scale was shown to display measurement variance across gender (See Section 5.8.1.). This finding indicated that expected coping was measured differently in males and females, and therefore if gender had been included as a moderator, any findings may have been the result of variance across the measure, rather than true differences pertaining to gender (Gregorich, 2006). Although this is a methodological strength of the thesis, it does limit the extent to which the current findings can be compared to previous literature. Yet, it also raises a question regarding the validity of existing studies which have identified a gender difference in coping, such that measurement variance is rarely tested. Given that the measurement of expected coping was found to be variant across gender in the current thesis, it is important that all future research consider testing for measurement invariance across gender, to ensure that any effects pertaining to gender differences is the result of true gender differences and not measurement error.

Although the findings were unexpected, they are consistent with some longitudinal studies. For example, Terranova et al.'s (2011) study failed to find any prospective relationships between coping behaviour and psychosocial outcomes, whereby similarly to the current findings, children's coping response at Time 1 was the

strongest predictor of coping at Time 2. Other longitudinal studies have found a main effect of peer-victimisation coping on psychosocial outcomes, rather than a mediating or moderating effect, but this effect varies dependent on the psychosocial outcomes. For example, Visconti and Troop-Gordon (2010) observed a main effect of adult support coping on loneliness but did not find any main effects for friendship support, avoidance, or retaliation. However, main effects were identified for friendship support seeking on future levels of anxiety and avoidance coping on future prosocial behaviour, suggesting that the function of coping may vary dependent on the psychosocial outcome. This could, in part, explain the current thesis findings regarding the null effect for expected peer-support, avoidance, and retaliation coping on school loneliness. However, given that Visconti and Troop-Gordon (2010) found a main effect of adult support coping on school loneliness, one would expect to also observe this finding in the current thesis. Possible variations in findings could be due to differences in methodological approaches. Comparably, Visconti and Troop-Gordon's (2010) sample is drawn from a similar age group from the U.S, although they only examine coping behaviour across two time-points, rather than three. The design used in the current thesis was a three-point longitudinal study that sampled data once per each academic term, and thus the findings reflect children's experiences from across the academic year. Furthermore, the current thesis modelled the longitudinal association using a latent variable cross-lagged model approach, whereas Visconti and Troop-Gordon (2010) adopted hierarchical modelling techniques using observed variables. The null findings in the current thesis may therefore be due to the models accounting for autoregressive relationships overtime, cross-lagged effects, and measurement error via the latent variables. Specifically, the variance explained in expected coping and school loneliness may be accounted for by the auto-regressive paths and other cross-lagged effects in the models presented in Chapter 7, rather that the relationship between expected coping and school loneliness.

Another plausible explanation for the lack of mediating or moderating effects of expected coping across time is that although the study was longitudinal, it only captured a relatively short span of time. Although it is important to consider coping and friendship in the short-term, particularly given that friendship can change rapidly (Poulin, 2010), the prospective role of coping (or expected coping) for reducing psychosocial outcomes may occur over a longer developmental period. For example, Troop-Gordon et al. (2016) examined the mediating role of disengagement coping between peer-victimisation and later depressive symptoms across three years. They identified a significant indirect effect, supporting the assertion that coping may be more influential over a longer time

period. Although unlike the current research, their study only considered one form of coping, and thus future research should endeavour to examine other peer-victimisation coping types over a longer span of time.

Building on the finding that expected internalising coping mediates the relationship between peer-victimisation and school loneliness at a concurrent level, friendship was modelled as a potential moderator between peer-victimisation and internalising coping, and between expected internalising coping and school loneliness. This enabled the thesis to examine whether the relationship between expected internalising coping behaviour following peer-victimisation experiences was conditional on friendship, therefore providing a deeper understanding of the influential processes underlying expected maladaptive coping. However, the results indicated that neither friend quantity nor friendship quality moderated the relationship between peer-victimisation and expected internalising coping. Consequently, although peer-victimisation is associated with internalising coping endorsement concurrently, this relationship is not contingent on a child's friendship and the presence of a positive friendship experience is not able to buffer against the endorsement of expected internalising peer-victimisation coping. Understanding the intervening processes that may or may not influence a child's response to peer-victimisation (or their expected response) is important for the development of intervention and prevention programmes that aim to either promote the use of adaptive coping mechanisms or inhibit the use of maladaptive coping. This thesis is the first to consider the moderating role of friendship on the relationship between peer-victimisation and expected internalising coping, and thus the current findings again provide an original contribution to literature. Furthermore, the findings contribute towards the understanding of the role of friendship within the experience of peer-victimisation, particularly for those arguments put forward by the Friendship Protection Hypothesis (Boulton et al., 1999). The Friendship Protection Hypothesis argues that friendship can buffer against the negative effects of peer-victimisation. However, findings from the current thesis do not provide any empirical evidence to suggest that this theoretical proposition extends to endorsement of expected maladaptive peer-victimisation coping.

Although there was no evidence to suggest that friendship buffers the relationship between peer-victimisation and expected internalising coping, two facets of friendship were found to moderate the relationship between expected internalising coping and school loneliness within the mediation models. This relationship was further investigated at different levels of the moderators, which indicated that the relationship

between expected internalising coping and school loneliness was stronger when children experienced high conflict in their friendships and when they received a lower proportion of reciprocated friendship ties. Specifically, the presence of these negative friendship experiences further exacerbated the experience of school loneliness associated with expected internalising coping. This finding indicates that friendship does not buffer against the negative effects of expected internalising coping, but rather a lack of positive friendship experiences increases school loneliness in children who adopt expected internalising coping mechanism following peer-victimisation. The relative strengths of the two friendship moderators were compared, with the findings highlighting that friendship conflict was a stronger moderator of the internalising coping to loneliness pathway. This supports previous research, which has argued that the quality of a child's friendship is a more influential factor in buffering against the negative effects of peer-victimisation and other life stressors (Crawford & Manassis, 2011; Waldrip et al., 2008). These findings were consistent across all four peer-victimisation types tested. Although, the effect size of the moderated indirect effect was small to medium, dependent on the peer-victimisation type. Specifically, the effect size of the indirect moderation effect was larger in the verbal and social victimisation models, than the physical and attack on property victimisation models. This suggests that moderated indirect effect of internalising coping and negative friendship experiences in more important in children who experiences verbal and/or social peer-victimisation. Furthermore, these findings extend the theoretical arguments of the Friendship Protection Hypothesis (Boulton et al., 1999). This theory of friendship argues that friendship can buffer against the effects of peer-victimisation, this is extended by the current thesis via the inclusion of expected maladaptive coping in the theoretical model. Additionally, the findings indicate that friendship may not always 'protect' against the negative effects of peer-victimisation, but instead negative friendship experiences can further exacerbate those negative effects. A visual representation of this extension to the theory can be seen in Figure 9.3.

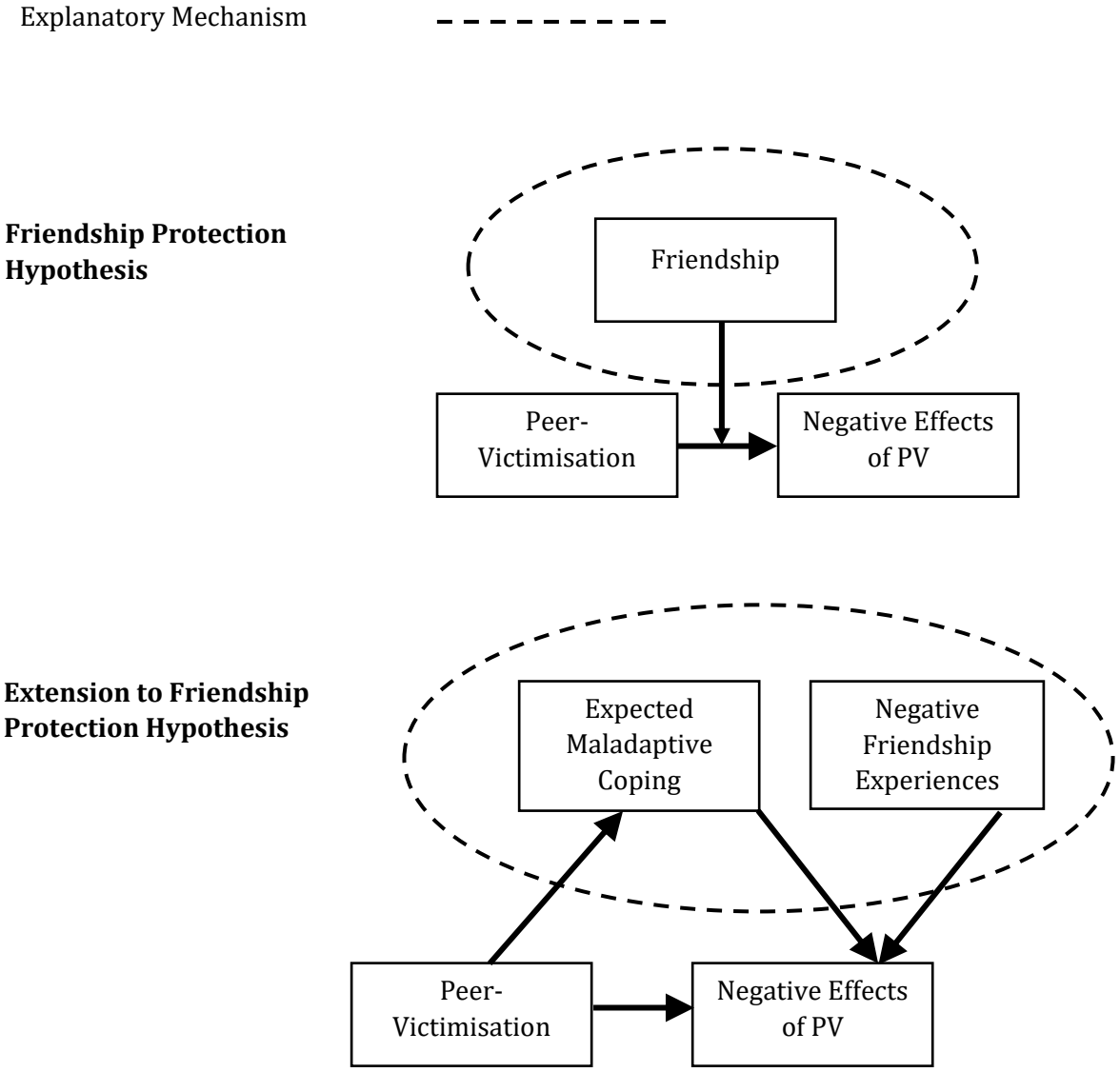

Figure 9.3 *Visual representation of extension to the Friendship Protection Hypothesis (Boulton et al., 1999) supported by the current thesis. PV = Peer-victimisation.*

Findings from Chapter 7 also revealed a longitudinal relationship between Time 1 expected internalising coping and Time 3 verbal victimisation. Specifically, those children whom reported high levels of expected internalising coping at Time 1 were found to have higher experiences of verbal victimisation at Time 3, than those children who reported lower levels of expected internalising at Time 1. This supports existing literature, which indicates that maladaptive coping can be predictive of continued peer-victimisation experiences (Houbre et al., 2010; Shelley & Craig, 2010; Spence et al., 2009). Although none of these studies examined separate types of peer-victimisation, and therefore the thesis' finding builds on this body of literature by identifying that expected internalising coping increases the risk of experiencing future verbal victimisation, rather than other forms of peer-victimisation. Furthermore, this relationship was moderated by children's experiences of conflict within their friendship. Like the Chapter 6 finding, this effect was only found for children whom experienced high levels of conflict, wherein the effect between expected internalising at Time 1 and verbal victimisation at Time 3 only existed for those children with high levels of conflict in their friendship. Again, this finding suggests that friendship experiences may not buffer against the negative effects of expected maladaptive coping, but rather can exacerbate the negative outcomes that follow.

The observation that friendship conflict, and not other forms of friendship quality, moderated the relationship between expected internalising coping and school loneliness, and between expected internalising coping and verbal peer-victimisation, is supported by previous literature examining the role of friendship quality in those who have been victimised by their peers. Victims have been shown to report more conflict problems with their best friend and lack the social skills necessary to manage these conflict (Champion et al., 2004). Furthermore, victims may feel betrayed by their friends and subsequently this could lead to increased levels of conflict within friendships (Woods et al., 2009). One explanation for the lack of significant relationships pertaining to positive friendship quality is that other factors could be at play, which may mask or inhibit the effects of positive friendship quality. For example, co-rumination (as discussed in Section 4.2.3.1) is consistently associated with reports of high friendship quality (Rose, 2002). However, the experience of co-rumination can result in increased psychosocial symptoms in children (Rose et al., 2007). It could be that for some children in the sample, high levels of friendship quality were also coupled with experiences of co-rumination. This would then mask, or counter-balance, the positive experiences of friendship experienced by other children (who were not co-ruminating) and

subsequently this could explain why positive friendship quality did not buffer against the negative effects of expected maladaptive coping behaviour. However, the current research did not examine experiences co-rumination and thus this explanation is only speculative in nature. Future research may therefore wish to consider the role of co-rumination and how this is associated with children's experience of peer-victimisation coping. However, despite this, existing peer-victimisation literature has only examined both the role of coping and the role of friendship separately on psychosocial adjustment but has not considered the interplay between these two intervening psychological factors. The current thesis therefore addressed this limitation in previous literature through examining the extent to which friendship experiences influence expected coping behaviour and the outcomes of coping.

One relationship not explored in the current thesis, however, is the risk factor of loneliness on future peer-victimisation. As discussed in Section 2.3.1, loneliness has been found to predict future peer-victimisation experiences in children (Hawker & Boulton, 2000; Kochenderfer-Ladd & Waldrop, 2001). Although the current thesis focused on operationalising school loneliness as a psychosocial outcome, it could be that argued that children's experience of loneliness increased their risk of peer-victimisation over-time. This is supported by the longitudinal correlation matrix presented in Appendix G, whereby school loneliness is associated with future peer-victimisation experiences. Peer-victimisation and coping literature predominately focuses on how children cope with peer-victimisation experiences, but perhaps researchers need to also focus on how children cope with loneliness when examining coping and peer-victimisation experiences. Existing literature suggests that children use similar coping mechanisms for coping with loneliness as they do for coping with other stressors (Besevegis & Galanaki, 2010; Rokach, 2001), such as avoidance/distraction, social support seeking, and cognitive restructuring. However, it is not clear what the outcome of these coping strategies is on future loneliness, future peer-victimisation experiences or other psychosocial outcomes, and thus further research is needed. The current thesis did not identify any interaction effects between peer-victimisation and friendship on coping, such that children's coping responses following peer-victimisation experiences was not contingent on their friendship experiences. Therefore, friendship experiences may instead play a more crucial role in predicting how lonely children cope with loneliness, especially given that loneliness is inextricably linked with how one perceives their social world (Asher & Paquette, 2003). The focus of the current thesis was to examine the role of friendship for coping with peer-victimisation experiences. However, future research

should build on the current thesis findings by examining the role of friendship for coping with school loneliness, and the role this in turn plays for future peer-victimisation experiences.

In summary, the findings presented in this section build on two areas of research relating to children's peer-victimisation coping behaviour. Firstly, the findings contribute to the limited literature examining peer-victimisation coping over time. Previous findings have been mixed, with some research identifying a causal relationship between coping and levels of psychosocial adjustment (Houbre et al., 2010), whereas others have found no association (Spence et al., 2009; Terranova et al., 2009). The current findings therefore contribute to this small literature base, providing a further understanding of the role of *expected* peer-victimisation coping over time. Secondly, the findings in this section also build on literature pertaining to individual differences in coping endorsement. Although the lack of moderating and mediating effects of coping meant that friendship could only be tested in the *expected* internalising coping model, the results indicate that friendship may not be associated with coping when accounting for peer-victimisation. However, negative friendship experiences were found to exacerbate the relationship between *expected* internalising coping and school loneliness. This finding is important, and highlights the risks associated with negative friendship experiences for school loneliness in victimised children. Furthermore, this extends the Friendship Protection Hypothesis (Boulton et al., 1999) by a) indicating that friendship does not always provide a protective factor, but instead may exacerbate effects of peer-victimisation and b) that the role of friendship may function via maladaptive coping.

9.3.3 Popularity and social activity effects associated with children's peer-victimisation coping behaviour (Research Aim 5)

Previous research has also indicated that children and adolescents' behaviour can influence their social activity and popularity in the network (de la Haye et al., 2013; Laninga-Wijnen et al., 2018), and therefore Chapter 8 of the thesis also examined the extent to which expected peer-victimisation coping behaviour predicted social activity or popularity. As predicted, expected peer support coping was associated with increased levels of popularity and social activity over time. Specifically, those children with relatively higher levels of expected peer support coping behaviour were found to receive and send more friendship ties over the course of the school academic year. Children who are more popular and socially active in the network tend to be individuals with high social status (LaFontana & Cillessen, 2010; Lease, Kennedy, & Axelrod, 2002; Veenstra et al., 2013). Having a high status is desirable as it provides access to valuable resources, such as social support (Dijkstra, Cillessen, & Borch, 2013; Hawley, Little, & Card, 2007).

van Rijsewijk, Dijkstra, Pattiselanno, Steglich, and Veenstra (2016) argue that asking for help from peers may be crucial in forming interpersonal contact with others and thus increasing the likelihood that they will attain status and affection from peers. The current study's findings supported this assumption, although the effect sizes for the popularity and social activity effects were small. Furthermore, caution should be taken when interpreting these findings, as in some instances, children's reported peer-support coping behaviour was hypothetical in nature. Subsequently, the relationship between peer-support coping and friendship, may instead be reflecting other phenomena observed by peers, for example personality traits (Carver & Connor-Smith, 2010). Interestingly, an increase in in-coming or out-going ties was not found to be associated with change in expected peer coping behaviour, suggesting that expected peer coping behaviour is a driver for network change rather than network change being a driver for changes in expected peer coping behaviour. In the context of this thesis, this indicates that children who seek (or anticipate they would seek) peer-support in response to peer-victimisation are likely to increase their social network size via both out-going and in-coming friendship nominations. However, increases in a child's social network size was not found to predict changes in expected peer support coping behaviour. This could have implications for school prevention and intervention programmes, which promote friendship formation via 'buddy systems', with the view that this in turn will promote social support (Cartwright, 2005). However, the findings from Chapter 8 suggests that increases in friendship is not associated with increases in expected peer support coping behaviour. Therefore, promoting friendship in school as a way of supporting victimised children may not be an effective approach.

Popularity effects were also identified for expected retaliation coping, whereby children who stated they would respond aggressively to peer-victimisation experiences received fewer friendship nominations over time. This finding therefore suggests that children who endorse retaliation coping are rejected by other children in the network and thus are more likely to have a lower social status. The effect size for this relationship was moderate, with the children who increased their retaliation coping over-time by 1 standard deviation having a 52% decreased likelihood of receiving a friendship nomination. Socially rejected children and adolescents are at increased risk of experienced peer-victimisation (Sijtsema et al., 2013), and consequently the finding that children who endorse retaliation coping behaviours are more unpopular further highlights the maladaptive nature of retaliation coping. Retaliation coping behaviour is not dissimilar from aggressive behaviour in nature; hence the current findings support

previous studies indicating that aggressive behaviour is predictive of low popularity and social status (Sentse et al., 2014). The current study adds to this literature base by identifying this effect in late childhood, whereby previous research had predominately focused on adolescent samples (e.g., Dijkstra & Berger, 2018; Laninga-Wijnen et al., 2017; Sentse et al., 2014). The current findings also support previous findings from Chapter 7, which found that expected retaliation coping at Time 1 predicted lower proportion of reciprocated ties at Time 2 via cross-lagged model analysis. However, the finding that lower proportion of reciprocated ties predicts higher expected retaliation coping at Time 2 was not support by the social network analysis. Although it should be noted that the goals and processes underlying these two analytical approaches is different. Regression based models estimate the relationships between two variables (Baguley, 2012) whereas stochastic actor orientated models estimate whether the change in behaviour or the network, predicts change in the network or behaviour, respectively (Snijders et al., 2010). Given this, it is therefore not unexpected to find differing results across these two analytical techniques. This highlights a strength of the current thesis, whereby both the predictive nature of friendship and the role of friendship changes were examined through the application of different statistical approaches. In turn, this provided a more complex understanding of the role of friendship for *expected* coping with peer-victimisation.

Chapter 8 also examined whether popularity and social activity was associated with *expected* adult support, *expected* problem solving, *expected* internalising, and *expected* avoidance coping. However, none of these coping behaviours predicted changes in children's popularity or social activity. Given the novelty of the current study, there is little previous research in which to compare these findings too. However, previous work has examined social anxiety and depression in relation to popularity and social activity in the network (Mercer & Derosier, 2010; Van Zalk et al., 2010). Given that depression and social anxiety are internalising behaviours, it was hypothesised that *expected* internalising peer-victimisation coping would too be associated with popularity and social activity. Van Zalk and colleagues (2010) found that adolescents' depressive symptomology was associated with decreases in popularity and social activity, although this finding was not replicated in Mercer and Derosier's (2010) study with children aged 9 years. However, they did observe that social anxiety predicted decreases in popularity over time (Mercer & Derosier, 2010). The lack of popularity or social activity effects pertaining to *expected* internalising coping in the current thesis was therefore unexpected and does not support previous research on internalising behaviour in social

networks (Van Zalk et al., 2010). However, it does support Mercer and Derosier's (2010) finding that depression is not associated with network popularity. Furthermore, children with internalising behaviours are not always socially excluded by peers (Gazelle & Ladd, 2003), and therefore this variance may reduce the ability to detect effects pertaining to popularity in the network. Specifically, if some children with internalising coping behaviour were socially rejected, but others were not this could affect the ability of the analyses to identity an effect. Alternatively, it could also be that some children were reporting on hypothetical coping, rather than actual coping. Therefore, they may not be exhibiting traits associated with internalising coping (or lack of internalising coping).

The frequency of friendship nominations as a predictor of future expected peer-victimisation coping was included in the social network models in order to control for these effects on expected peer-victimisation coping. Only significant small in-degree and out-degree effects pertaining to expected adult support coping were found. Specifically, increases in in-coming friendship ties increased a child's expected adult support coping behaviour over time, whereas an increase in outgoing ties decreased a child's expected adult support coping over time. The latter finding is expected, given that social activity could be associated with increased support-seeking from peers, rather than adults. Although this was not empirically supported in the current thesis. It could be that the current study captured a period of time whereby children increased the size of their social network (via out-going ties), and thus reduced their reliance on expected adult support coping mechanisms given the benefits afforded to them via the peer network (Gifford-Smith & Brownell, 2003). Specifically, out-going nominations may indicate that a child has increased levels of social exchange within the classroom (Lauren & Hartup, 2002). It is less clear, however, why an increase in receiving friendship nominations would increase a child's propensity to seek adult support (or believe they would seek adult support). Arguably, it could be that children who receive higher peer-nominations tend to be more popular, which in turn is associated with being more socially skilled than less popular peers (Dodge & Price, 1994; Gifford-Smith & Brownell, 2003) . This higher level of social competence may increase the likelihood of using or endorsing adult-support coping, especially if it is considered an adaptive form of coping by the child.

Overall, Chapter 8 mixed findings provide evidence to support the argument that expected peer-victimisation coping behaviour and friendship networks co-evolve, specifically in regard to expected peer support, expected adult support, and expected retaliation coping. Specifically, the findings indicated that expected peer-victimisation

coping behaviour can have an effect on a child's network popularity, which given the importance of social status in childhood could in turn be associated with adaptive or maladaptive outcomes. Subsequently, the findings from Chapter 8 provide a unique contribution to the literature regarding children's friendship networks and expected peer-victimisation coping behaviour.

9.4 POTENTIAL IMPLICATIONS OF FINDINGS

The next section of this chapter will outline the potential implications of the findings presented throughout this thesis, considering implications for school's approaches to peer-victimisation and implications for literature and theory.

9.4.1 *Coping as a protective and risk factor: Implications for school approaches to peer-victimisation*

The current thesis did not find any evidence to suggest that *expected* coping mediates or moderates the relationship between peer-victimisation and school loneliness over-time. Although it is important to be cautious when interpreting non-significant findings, as *p*-values above the threshold could indicate an effect does not exist, but could also be present due to insufficient power (Aczel, Palfi, & Szaszi, 2017; Dienes, 2016). However, coupled with similar findings from other longitudinal studies in the field (Terranova et al., 2011; Visconti & Troop-Gordon, 2010), the current findings suggest that in the relative short term, *expected* coping behaviour may not play a central role in children's experience of school loneliness following peer-victimisation. Thus, the lack of support for the mediation/moderation roles of *expected* coping in the longitudinal models has implications for intervention studies aimed at promoting adaptive coping mechanisms. For example, primary schools in England frequently report that they are a 'telling school' (BullyingUK, n.d.), encouraging children to seek support from adults. Evidence from the current thesis suggests that this approach may not be effective in reducing school loneliness associated with peer-victimisation. This assertion is also supported by previous literature, which indicates that children either do not feel able to seek support from a teacher (Oliver & Candappa, 2007) or do not believe it is an effective approach (Mishna, Pepler, & Wiener, 2006; Smith & Shu, 2000).

The thesis did, however, observe a concurrent mediation effect for *expected* internalising coping. Furthermore, this indirect effect was moderated by a child's self-reported friendship conflict resolution and the proportion of reciprocated friendship ties they received. These findings add to the growing literature on internalising coping (Harper, 2012; Skrzypiec et al., 2011; Smith et al., 2004; Visconti et al., 2013), demonstrating the risk of maladaptive coping mechanisms on the experience of school

loneliness, particularly when children have negative friendship experiences that may further exacerbate the negative effects of *expected* internalising coping on school loneliness. Although this effect did not persist over time, schools should still consider the determinantal effects of internalising peer-victimisation coping on school loneliness, in addition to efforts focused on preventing peer-victimisation. However, the thesis identified a longitudinal association between *expected* internalising coping and future verbal victimisation, indicating that *expected* internalising coping can have long-term detrimental effects. Cognitive behavioural type programs have been used effectively in children at risk of maladaptive coping responses, including internalising coping (Barrett, Sonderegger, & Sonderegger, 2001). Specifically, these types of programs promote positive thinking and try to support children in identifying and challenging unhelpful thoughts. On the basis of the current thesis findings, it is therefore suggested that schools should also consider promoting children's positive thinking behaviours and reduce maladaptive thinking patterns in response to stressors.

9.4.2 Role of friendship for coping: Implications for literature and theory

The study also demonstrated both concurrent and long-term associations between friendship and *expected* peer-victimisation coping behaviour. These findings varied according to coping and type of friendship and thus the findings contribute to existing literature on the complexity of friendship (Gifford-Smith & Brownell, 2003), highlighting that different facets of friendship play distinct roles in predicting *expected* peer-victimisation coping behaviour. The findings also highlight the importance of acknowledging the role of friendship in *expected* peer-victimisation coping, particularly in children who are socially rejected by peers whom they thought were friends. Children who were more 'successful' in receiving reciprocated friendship ties were more likely to use or endorse adaptive forms of coping, such as peer-coping, whereas those children who were less 'successful' in receiving reciprocated friendship ties, were more likely to use or endorse maladaptive coping techniques, such as retaliation. In turn, both these forms of coping predicted increased or decreased success rates in friendship tie reciprocation. These findings add to the growing literature on the importance of reciprocated friendship ties for social development (Cleary et al., 2002; Hartup, 1996; Parker & Asher, 1987; Vaquera & Kao, 2008), highlighting that the presence or absence reciprocated friendship ties also impacts *expected* peer-victimisation coping behaviour. Furthermore, findings from the social network analysis also found that children's *expected* coping behaviour has implications for their friendship formations.

The current findings also extend work by previous research that have examined the role of friendship for coping with peer-victimisation (e.g., Bowker et al., 2007; Burgess et al., 2006; Jones et al., 2012; Jones et al., 2009). These studies primarily adopted an experimental design to investigating children's coping responses to peer-victimisation, focusing on one aspect of friendship or the peer group. Subsequently, this thesis builds on this body of research through acknowledging the true nature of children's friendships and measuring multiple facets of friendship. This in turns has provided an in-depth understanding of the role of friendship for *expected* coping with peer-victimisation in late childhood. Furthermore, the aforementioned studies were cross-sectional and therefore were unable to ascertain the temporal cause and effect of *expected* coping and friendship that was achieved in the present thesis.

9.4.3 Role of friendship for coping: Implications for school approaches

Based on the current thesis findings, prevention and intervention programmes should continue to focus their efforts on programmes pertaining to developing positive social skills in children (e.g., DeRosier & Marcus, 2005). Rejected children are more likely to have social cognitive biases, such as poor social information processes (Dodge et al., 2003), that increases the likelihood of aggressive and maladaptive coping behaviour. Social skills programs have been shown to have moderate success rates for peer-rejected children, including increasing social acceptance, self-esteem and rates of aggression (DeRosier & Marcus, 2005; Durlak, Weissberg, & Pachan, 2010). Evidence from the current thesis indicates that children with positive friendship experiences are more likely to seek or endorse peer-support coping, which in turn also increases their popularity in the classroom. Therefore, social skills training may not only reduce the likelihood that children will adopt maladaptive coping behaviours, but also promote more adaptive coping instead.

9.5 METHODOLOGICAL STRENGTHS AND LIMITATIONS

9.5.1 Strengths

The current thesis has four main strengths pertaining to methodology including: (1) the analytical approach, (2) the measurement of friendship, (3) the use of a longitudinal design and, (4) the age-group of the sample. These will each be discussed in turn.

9.5.1.1 Analytical approaches

The main strength of the current thesis was the rigorous analytical techniques used to address the research questions and aims. These robust techniques provide an important contribution to the thesis and literature, enabling the current thesis to answer questions

that have previously not been investigated. Specifically, the current thesis applied full structural equation modelling (SEM) throughout Chapters 5, 6, and 7 and stochastic actor orientated modelling in Chapter 8. SEM was selected given that it promotes analytical rigour and increases the reliability of statistical estimates. Specifically, the ability to model latent constructs allows for the assessment of psychometric properties and accounts for any measurement error within variables (Bryne, 2012). Alternative methods, such as general linear models, are unable to account for this error, specifically in independent variables, and thus are at risk of inaccurate estimations (Byrne, 2012). The underlying structure and psychometric properties of all measures derived from psychometric scales was assessed in Chapter 5 (see Section 5.6). Consequently, this approach ensured that all subsequent structural equation models utilised latent structures that were found to be psychometrically sound, eliminating estimates biases associated with poor psychometric properties (Byrne, 2012). Furthermore, the use of SEM allowed for the examination of metric invariance across gender and time. Establishing whether factor loadings, intercepts and residual variances are equivalent across gender and time is crucial to ensure that any comparisons across groups is valid (Milfont & Fischer, 2010). The current thesis identified variance across gender for the scale measuring peer-victimisation coping, and therefore any subsequent analyses did not examine gender differences. Although this meant that gender differences were not examined in the current thesis, the test of measurement invariance across gender ensured that biases associated with the measurement variance were not introduced into the subsequent empirical chapters. A further strength associated with SEM is the capacity to specify robust model estimators. Specifically, the models in Chapters 6 and 7 were quantified using a robust maximum likelihood estimator, which accounted for any non-normality in the data and ensured the reliability of model estimates and standard errors (Enders, 2001; Li, 2016). Finally, all models were specified using a FIML algorithm, thus ensuring that unbiased estimates associated with missing data were reduced (Enders & Bandalos, 2001). Together the application of SEM and associated decisions ensured that the analyses conducted throughout Chapters 5, 6, and 7 was rigorous.

The second main analytical approach used in the current thesis was the stochastic actor orientated modelling (SAOMs) used in Chapter 8. This modelling technique addresses many of the limitations associated with modelling social networks using multivariate regression-based modelling techniques. Firstly, social ties are dependent in nature and therefore this format of data violates the independent data

assumptions underlying multivariate regression models. SAOMs can account for this dependency among social ties (Burk et al., 2007). Secondly, social networks are dynamic and changes are assumed to occur at any given moment (Snidjers et al., 2010). Furthermore, it is assumed that only one change can occur in any given moment and these changes are the product of a Markov process (Snijders et al., 2010). The complexity of these assumptions underlying change in the network can also be reliably modelled using SAOMs. Thirdly, SAOMs afford flexibility and account for complexity in social networks via the simultaneous modelling of effects of interest whilst also controlling for other mechanisms driving the formation of the network (Burk et al., 2007; Snijders et al., 2010). Therefore, the application of SAOMs for examining the role of friendship in peer-victimisation coping behaviour ensured that all estimates were reliable and accounted for the presence of common social network structures, such as reciprocity and transitivity (Snijders et al., 2010). This afforded benefits far beyond modelling social networks using multivariate regression-based techniques and enabled the thesis to examine the co-evolution between friendship and expected peer-victimisation coping behaviour.

9.5.1.2 Facets of Friendship

Friendship is a complex social phenomenon, providing children with continuous dyadic interactions, companionship, intimacy, and affection (Buhrmester, 1996; Sullivan, 1953). Research has shown that children are affected independently by different facets of their friendships, including the presence of a reciprocated friendship (Cleary et al., 2002; Hartup, 1996), the quality of these friendships (Bollmer, et al., 2005; Erath et al., 2008; Gini, 2007), and the position a child occupies in their social network (Dijkstra et al., 2011; Farmer & Farmer, 1996; Laninga-Wijnen et al., 2017). Therefore, another merit of the current thesis is that the investigation into the role of friendship accounted for the different facets of friendship. Previous research tends to focus on either the quantity of friends a child has, or the quality of those friendships, but rarely does research consider both these facets alongside the rigorous methodology employed in the current thesis. Specifically, the thesis measured the number of mutual friends a child has, the proportion of friendship ties reciprocated, a child's centrality in the network, the perceived friendship quality of a child's best friendship, and the child's classroom social network. This multi-faceted approach ensured that the current thesis accounted for the potential differential roles that these components of friendship play within peer-victimisation coping behaviour and the experience of school loneliness. Furthermore, by measuring both the structural components of friendship and the quality of a child's friendship, the current thesis contributes towards existing findings on the importance of

number of friends a child has versus perceived friendship quality, as a protective factor against the negative effects of peer-victimisation.

9.5.1.3 Longitudinal Design

Across much of social developmental psychology there is a dearth of longitudinal studies investigating the temporal trajectories and predictive natures of social developmental behaviour. This is particularly true in peer-victimisation and coping literature, whereby many empirical studies rely on a cross-sectional approach (Reijntjes, Kamphuis, Prinzie, & Telch, 2010). Therefore, the longitudinal nature of the design used in the current thesis represents a further methodological strength. Specifically, the thesis examined children's friendship, *expected* peer-victimisation coping behaviour, experiences peer-victimisation, and school loneliness across three time-points affording additional benefits above the commonly used two time-point approach. The inclusion of three-time points provides greater information regarding the pattern of change over time (Reijntjes et al., 2010). Furthermore, having at least three time-points in the dataset is recommended to test the true effects of the mediator over-time, given that mediation assumes a causal relationship between the independent variable, mediator and dependent variable. (Cole & Maxwell, 2003; Collins, Graham, & Flaherty, 1998). Subsequently, the three time-point design used in the current thesis meant that the causal indirect effect of *expected* maladaptive coping could be tested in Chapter 7. Stochastic actor orientated models also benefit from more than two time-points (Ripley et al., 2017), whereby the presence of more time points affords more information on the formation, maintenance and dissolving of ties over-time (Snijders et al., 2010).

9.5.1.4 Age-Group

A further strength of the current thesis is the sampling of participants during the late childhood time span. Late childhood is an important developmental period for social development, whereby the intensity and importance of friendship increases and begins to play a more central role in a child's everyday life (Newcomb & Bagwell, 1995; Poulin & Chan, 2010; Sullivan, 1953). Consequently, capturing this period of social development is crucial in order to understand the associated causes and effects. Moreover, coping behaviour is said to develop rapidly during late childhood and early adolescence (Skinner & Zimmer-Gembeck, 2007), further highlighting the importance of sampling this particular age group for the current thesis. Although, as highlighted early in this chapter, it is not clear how rapid this change is and thus further research in this area is needed. Social network research, particularly studies pertaining to social network

dynamics, have predominately drawn data from adolescent samples. Therefore, an additional strength of the current thesis is the application of dynamic social network analysis in a late childhood sample. This provides further information regarding the structure and dynamics of friendship in this specific sample. Subsequently, the findings reported in this thesis have added to the peer-victimisation, coping, friendship, and school loneliness literature for this age group.

9.5.2 Limitations

The current thesis also had three methodological limitations associated with: (1) sampling, (2) measurement of coping in the thesis, and (3) friendships outside the classroom. These will each be discussed in turn.

9.5.2.1 Sample recruitment and attrition

It is important to acknowledge that schools' participating in the research were self-selecting. Therefore, it could be argued that the schools who agreed to participate in the study were more proactive in their efforts to intervene and prevent peer-victimisation than those schools who chose not to participate in the research. Additionally, it is less likely that schools with ongoing issues relating to peer-victimisation would want a researcher asking children about the experiences of peer-victimisation in schools. British schools who are found to have serious issues pertaining to peer-victimisation can be subject to emergency Ofsted inspections if there are concerns over pupil welfare (Ofsted, 2016). The presence of a researcher in a school can be a burden on school resources and time, and therefore it less likely that those schools with ongoing issues will agree to participate in research studies. Additionally, a number of children were withdrawn from the study by their parents or guardians. Again, it is likely that this resulted in a self-selecting sample, whereby children were perhaps withdrawn by parents or guardians due to past or current issues pertaining to peer-victimisation.

Chapter 7 and Chapter 8 of the thesis were also affected by sample attrition. This was predominately the result of two schools dropping out of the study, which led to a drop of 111 children. Additionally, another school dropped out at Time 2 but returned at Time 3 (n= 61). Efforts were made to keep in contact with the schools and to ease the process, thus limiting attrition. However, it is possible that the longitudinal nature of the study was too much commitment for some schools, particularly considering the effect of Year 6 SATs on a school's time and resources (Putwain, Connors, Woods, & Nicholson, 2012). The drop-out of schools had the biggest effect in Chapter 8, whereby SAOMs are unable to account for a substantial amount of missing data (Ripley et al., 2017) and

therefore the analyses could only include schools that were present throughout Time 1, Time 2, and Time 3.

9.5.2.2 Measurement of peer-victimisation coping

A further limitation of the thesis is the measurement of coping and the inclusion of non-victimised children in the analyses. One risk associated with asking non-victimised children to self-report on their coping behaviour is this may reflect hypothetical or expected coping behaviour, rather than actual coping behaviour. As a result, inferences drawn from the analyses needed to be cautious as it is plausible that children's expected coping behaviour may not reflect their true peer-victimisation coping behaviour. This is pertinent for Chapter 8, wherein the SAOM analyses assumes that children will have knowledge of other children's coping behaviours, particularly with regards to in-degree effects (i.e., children making friendship nominations based on another child's coping behaviour). However, previous research does suggest that children are aware of other children's coping intentions, even if these are hypothetical. For example, Bowker et al. (2004) observed the effect of peer-hassle coping behaviour in children and its effect on friendship stability over-time. They found that children made decisions about their friendships based on their friends' coping behaviour, even though the report of coping behaviour may have been hypothetical for some children. Furthermore, it possible that non-victimised children's self-reported peer-victimisation coping strategies do reflect their true coping behaviour (if they were victimised), given that there is a concordance rate in coping strategies across domains (e.g. peer stressors and academic stressors, Compas et al., 1988). This suggests that individuals use similar coping behaviours to deal with different stressors, and therefore children may be aware of how their peers cope with stressors, including hypothetical stressors. However, research into the degree of consistency in coping strategies across domains is extremely limited and requires further research. The limitation of measuring expected coping rather than actual coping is not constrained to the current thesis, with existing peer-victimisation coping research regularly including children in their sample who are reporting on expected coping behaviours (e.g. Dirks et al., 2017; Harper et al., 2012; Kochenderfer-Ladd, 2004; Visconti & Troop-Gordon, 2010). Considering this limitation, future research should (1) examine the concordance rate between coping with other stressors and coping with peer-victimisation and (2) examine the accuracy with which children can infer their peers' coping behaviours (actual coping and hypothetical coping).

A further limitation associated with the measurement of coping in the current thesis is the implementation of a self-report measure. The use of self-report for

measuring coping gives rise to several methodological and conceptual issues. Firstly, it is difficult to ascertain whether children report their true coping behaviour (or true expected coping behaviour, for non-victimised children). This concern is a major limitation of many self-report measures, whereby social desirability can influence participant responses (Furnham, 1986). This may be especially true for children reporting on actual or expected peer-victimisation coping behaviour. Many UK schools provide children with guidance on how to respond to peer-victimisation, predominately promoting a 'tell an adult' approach, and discouraging retaliation type behaviour (BullyingUK, n.d). Thus, it is plausible that this education in coping behaviour could influence children's responses to a coping questionnaire, especially in instances whereby children are reporting on 'expected coping'. To address this concern, future research should consider implementing a multiple informant approach or include a social desirability bias questionnaire (Furnham, 1986). A second concern of self-report coping measures is that they are unable to capture the dynamic process of coping. Coping is a fluid process; such that coping behaviours can change over the duration of an incident (Lazarus & Launier, 1978). Subsequently, it is difficult to determine whether children's reports of coping behaviour reflect a) coping behaviour during a specific moment, b) all types of coping during that experience, c) or the modal coping response. One way to address this could be to specify the stage of incident when collecting data e.g., during the bullying event or after the bullying event. However, further research would need to be considered to determine different stages of a bullying experiences and whether coping does vary across these stages.

An additional limitation with the measure of coping was that the factor analysis of the expected coping self-report scale revealed a factor structure that was inconsistent with previous literature (e.g., Kochenderfer-Ladd & Pelletier, 2008). Previous literature has used a five-factor model for the scale measuring adult support, avoidance, problem-solving, retaliation, and internalising coping. However, the current thesis identified a six-factor model, whereby two items from the problem-solving factor were identified as measuring an additional construct, peer-support coping. Although conducting the EFA and CFA ensured that all subsequent analyses utilised a latent structure that psychometrically sound, this resulted in a two-item factor for expected peer-support coping. The peer-support coping factor contained only two items. This is not ideal, given that psychometric scales should consist of a minimum of three items so as to provide minimum coverage of the theoretical area (Furr, 2011). However, low item factors can be retained if they represent a meaningful construct and have sufficient psychometric

properties (Worthington & Whittaker, 2006). This was the case with the six-factor solution for the 'What would I do' coping scale. Future research using the 'What would I do' scale (Kochenderfer-Ladd & Pelletier, 2008) should consider including additional peer-support items in order to ensure psychometric stability of the peer-support construct.

9.5.2.3 Friendships outside the classroom

Another limitation of the current thesis is the restriction of friendship nominations to within the classroom only. This method was adopted given that primary school children spend most of their school-time in one classroom with the same children and to facilitate the social network analysis, which relied on a whole network approach (Burk et al., 2007; Snijders et al., 2010). Furthermore, previous literature suggests that when given the opportunity to nominate friends outside the classroom, children will nominate only one additional friend (Asher & Parker, 1989). However, unpopular children are more likely to have more friends outside of school than popular children (George & Hartmann, 1996), and therefore asking only about within-class friendships could lead to under-representation of unpopular children's friendship group. Friendships that are formed and maintained outside the classroom or school may be particularly important for coping with school-based peer-victimisation, especially in situations whereby a child may be unable to form friendship with another child in their class. Future research building on the current thesis findings may therefore want to also consider friendships outside the classroom. However, the SAOM technique requires there to be a whole network, with clear boundaries. Allowing children to nominate friends outside the classroom would violate this assumption and thus this is the reason as to why children were not given the opportunity to nominate friends from outside the classroom in the empirical work presented in this thesis.

9.6 FUTURE RESEARCH

Following the literature reviewed throughout the thesis and the empirical findings, four suggestions for future research are made that will build on the current thesis findings and continue to extend the field of peer-victimisation coping research. These will each be discussed in turn.

9.6.1 Continued extensions to the Friendship Protection Hypothesis

The current thesis extended the Friendship Protection Hypothesis through the identification of an interplay between expected internalising coping and, friendship on school loneliness and continued peer-victimisation. Specifically, friendship conflict and the proportion of reciprocated friendship ties received were found to play important

roles in moderating the effect between internalising coping and school loneliness. Furthermore, a number of concurrent and longitudinal associations were observed between friendship and expected coping across all three empirical chapters. Future research should consider building on these findings via three avenues: (1) Gender differences, (2) outside classroom friendships and, (3) other friendship factors. As highlighted in Sections 5.9.1 and 9.3.2, the current thesis was unable to examine gender differences given that the coping measure was found to be measurement variant across gender. Therefore, firstly, future research should identify a suitable coping scale, which is measurement invariant across gender, therefore enabling the gender differences to be examined in the models identified within the current thesis. This will provide additional information regarding under what circumstances friendship moderates the relationship between coping and negative outcomes. Furthermore, this will contribute to existing literature on individual differences in responding to peer-victimisation. Secondly, future research should also consider the role of friendships outside the classroom on peer-victimisation coping behaviour. The current thesis focused solely on within-classroom friendships due to the methodological constraints of the SAOM and given that the thesis was interested in predicting school loneliness. However, previous literature has indicated that outside-school friendships provide children with a differing learning experiences from friendships formed in school (Kiesner, Poulin, & Nicotra, 2003). Thus, one extension to the empirical findings presented in this thesis is to examine whether outside-friendship experiences too provide a unique contribution in predicting coping behaviour. This may be particular important for unpopular children, who have more friendships outside the classroom (George & Hartmann, 1996). Thirdly, the current thesis consistently found that those children who received a lower proportion of reciprocated ties were at more risk of endorsing maladaptive coping or experiencing school loneliness following expected maladaptive coping behaviour. However, it not clear why these children were not successful in receiving a reciprocated friendship tie. Future research should therefore examine the underlying mechanisms predicting friendship asymmetry and the extent to which these mechanisms predict coping. In turn, this may have implications for intervention studies promoting positive relations amongst children to address peer-victimisation in schools.

9.6.2 Investigation into the long-term development of peer-victimisation coping behaviour and friendship

The empirical findings of the current thesis did not find any evidence to suggest that expected coping mediates or moderates the long-term effects of peer-victimisation on school loneliness or future peer-victimisation. Combined with evidence from existing

literature (e.g., Troop-Gordon et al., 2016), it is argued that coping may play a more significant role over a longer time period. The constraints of the current thesis meant that long-term longitudinal study was not feasible, however future research should capture children's peer-victimisation coping behaviour and friendship over a longer-time frame. Specifically, coping is said to develop rapidly between ages of 8 to 12 years (Skinner & Zimmer-Gembeck, 2007). However, there is a lack of research investigating this rate of change over these four years. Changes in friendship also occur during this developmental stage (Meeus et al., 2002) , and therefore examining both peer-victimisation coping and friendship during this period of childhood development will provide a detailed picture regarding the interplay between coping and friendship in late childhood.

9.6.3 Investigation of friendship and coping during periods of rapid social change

One plausible explanation for the lack of support for popularity and social activity effects pertaining to expected coping behaviour is that children in the current sample had already formed many of their friendship ties, given that they may have already been in primary school together for several years. It is therefore argued that future research should also examine whether these popularity and social activity effects pertaining to expected peer-victimisation coping behaviour occur at the early stages of friendship formation, such as during the beginning of Year 7 (start of high school in the UK). Previous research indicates that following transition to high school, children's friendships expand and contract, indicating rapid network changes (Weller, 2007). Future research should therefore consider whether the current thesis findings can be replicated in a sample whereby children's social networks are undergoing rapid change due to the formation and development of new friendship ties. The experience of friendship is not consistent over the developmental lifespan (LaFontana & Cillessen, 2010; Sullivan, 1953), and thus it is also important the future research aims to capture the role of friendship for coping with school-based peer-victimisation during these different developmental periods.

9.6.4 Replication

In addition, given that reproducibility is a defining feature of all science (Nosek et al., 2015), it also imperative that future research considers replicating the studies presented in this thesis, in addition to extending the current findings. There are huge implications of empirical research for the development of anti-bullying interventions and prevention programs, and thus ensuring the validity of findings, which can be achieved via replication, is of utmost importance. Therefore, future research should endeavour to

examine whether the observed patterns of behaviour in the current thesis are replicated across different samples.

9.7 ORIGINAL CONTRIBUTIONS TO LITERATURE

The following section outlines the three key original contributions to the literature:

1) To the author's knowledge, the research presented in the current thesis is the first to empirically test whether children's friendship (quantity and quality) predicts future expected peer-victimisation coping behaviour. Previous literature examining the role of friendships for coping with peer-victimisation or peer-aggression has used either experimental or concurrent research designs, often with hypothetical friendship scenarios (Bowker et al., 2007; Burgess et al., 2006; Jones et al., 2012; Jones et al., 2009). The current thesis extends this work and provides an original contribution of knowledge by measuring children's true friendship experiences and examining the interplay between friendship and expected coping over-time. Specifically, the thesis adopted a three-wave longitudinal approach, contributing to dearth of longitudinal peer-victimisation coping studies. Furthermore, the current thesis accounted for different facets of friendship measuring the number of mutual friends, proportion of reciprocated friendship ties, centrality, and friendship quality. Together these measures provide a comprehensive picture of a child's friendship experiences and contribute to existing literature on the distinct roles that facets of friendship play. This is important, as the components of friendships are often conceptually dissimilar, providing distinct contributions to a child's experience of friendship (Erwin, 1993; Parker & Asher, 1993). This was demonstrated in the current thesis and highlights the importance of acknowledged multiple facets of friendship.

2) The research presented in Chapter 8 of the thesis is the first to empirically test the co-evolution of peer-victimisation coping behaviour and friendship networks using a longitudinal social network analytical approach. The application of stochastic actor orientated models within the current thesis provides a rigorous approach to examining the interplay between friendship formation and expected peer-victimisation coping. By employing this statistical technique, the current thesis controlled for structural network features (e.g., reciprocity and transitivity) in addition to modelling the main effects. Using this statistical approach in addition to examining facets of friendship with structural equation models allowed for the research to examine friendship at both an individual and whole-network level. Furthermore, SAOMs provide information about the co-evolution of change in behaviour and networks, whereas longitudinal regression-based techniques focus on whether scores in the independent variable predict scores in

the dependent variable (Selig & Little, 2012). These different statistical techniques enabled different questions to be asked of the data and provide a more in-depth understanding of the relationship between friendship and coping. Previous research has examined the co-evolution of children's friendship and range of behaviours using SAOMs including peer-victimisation, bullying, and disruptive classroom behaviour (Dijkstra et al., 2011; Logis et al., 2013; Shin et al., 2017). Subsequently, the current research contributes to this growing body of literature on the co-evolution between children's friendship and behaviours through examining expected peer-victimisation coping behaviour within this framework.

3) The thesis extended the proposition asserted by the Friendship Protection Hypothesis (Boulton et al., 1999) through the inclusion of expected peer-victimisation coping behaviour within the theoretical model. Previous literature has identified that friendship can buffer against the negative effects of peer-victimisation (e.g., Beran & Violato, 2004; Kendrick et al., 2012), however the role of coping within this model was not acknowledged. Subsequently, the current thesis identified mechanisms under which friendship and expected coping interact to predict school loneliness and future peer-victimisation. This provides an important theoretical extension to the Friendship Protection Hypothesis by recognising that, maladaptive peer-victimisation outcomes can as a function of expected coping *and* friendship experiences (see Figure 9.3). Furthermore, empirical findings indicated that friendship does not always provide a buffer, but rather, can further exacerbate the effects of peer-victimisation and expected maladaptive coping. This is especially true when a child lacks positive friendship experiences. Children's experiences and decisions cannot be isolated from the social context in which they are made (Berndt & Ladd, 1989). Thus, it is imperative that important decisions, such as coping with stressors, are considered with the social context. This is in turn has implications for the anti-bullying intervention and prevention programmes developed in response to empirical findings. Subsequently, this thesis provides an important contribution to knowledge, furthering our understanding of the role that peers play in coping with peer-victimisation, and bringing together two, often discrete but important, areas of social development.

9.8 CONCLUSION

In conclusion, the findings from this thesis highlight that children's friendship experiences can influence expected peer-victimisation coping behaviours. Additionally, the findings also highlight the risk of negative friendship experiences in further exacerbating the negative effects of expected maladaptive coping behaviour. These

findings demonstrate the importance of children's friendship for expected coping with school-based peer-victimisation. The rigorous methodological approaches used throughout the thesis ensured that all the main aims of the present research were met, and subsequently the findings of the present research provide an important contribution to the growing body of literature on children's peer-victimisation coping behaviour and friendship experiences.

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APPENDICES

APPENDIX A: EXAMPLE LETTER TO SCHOOLS

‘Myself, my friends and my school’ Research Programme Information Sheet

Thank you for taking an interest in the ‘Myself, my friends and my school’ research programme. The following document outlines the project in more detail and sets out what will be involved for the school.

Research Team: Sarah Gardner (Psychology researcher at Nottingham Trent University).

Supervisor: Dr Betts

Dr Betts’ research specialities lie within social developmental psychology, specifically focusing on peer relationships in children.

What is the purpose of the study?

Not all bullied children are negatively affected by their experience, with some children adopting more ‘effective’ coping strategies. We wish to explore why some children are able to use better coping strategies during and after being bullied, whilst other children are not. Specifically, it has been found that children who use peer support have much more positive outcomes. The research programme is going to explore under which circumstances children use peer support, in the hope that we can then provide guidance to educational professionals to improve outcomes for all children.

In addition, the research will use some unique and specialised methods to explore peer-groups and friendships. By asking children who they are friends with in the class, the research will be able to map out a network of friendship groups and explore how the formation of these friendship groups influence coping. These findings can then influence the development of support intervention programme for children.

What sort of children are needed?

As part of this research I am looking for children in Years 5 and/or Years 6 to take part. Any child can participate in the research.

Who will give consent for a child to take part?

I will need consent from the parent or carer and the child taking part; this can either be done through an opt-in or an opt-out process (I can provide the template for the parental consent letters). It will be made clear that the study is entirely voluntary and even having given consent the parent/carer is free to withdraw their child at any time without giving a reason. Your consent will also be needed, and similarly, you can withdraw from the project at any time without reason.

What will be involved?

Every care will be taken to ensure that the research provides minimal disruption to the daily school routine.

I will need the pupils to complete a survey asking them a number of questions regarding their experiences. An example question may be - 'How often have you been left out of things or been ignored in the last 3 months?'. The child would then circle the most appropriate answer from a list (e.g. 'it happened to me several times a week', 'it happened to me once a week', 'it happened to me 2 to 3 times a month', 'it happened to me only once or twice in the last 2 months', 'it hasn't happened to me in the last 2 months').

Pupils will also complete an activity that involves indicating who they are friends with in the class. The questionnaire used within the classroom will need to include pupils' first names and surname initials in order to enable the pupils to identify their peers. Once the questionnaires have been collected, the names will be converted to anonymous identification code (chosen by the pupil) in order to allow the participant to remain anonymous. The paper format of the questionnaire will be kept in a locked safe, with access only being given to the researcher and supervisor.

Completion of the survey will be conducted in silence so the pupils will not have a chance to discuss their answer with anyone else during the process. Before the survey is completed the children will be told exactly why the research is being conducted, what they will have to do during the research and that they can withdraw from the research at any point.

Every effort will be made to ensure that the research sessions are as enjoyable and relaxed as possible for the children. The total testing time should not exceed 45 minutes.

Who will run the research sessions?

As a researcher, I have DBS clearance for working with children. I will meet the students taking part and run the sessions. I can also stay around after the session to answer any questions the students may have.

Is there any risk that the research could cause distress to the students?

Prior to the research being conducted, the research will have gone under extremely strict scrutiny by the Nottingham Trent University School of Social Sciences Ethics Committee to ensure that all ethical procedures are followed, and most importantly that no participants are harmed or distressed by the research. The questions that will be asked within the research survey will be from widely-used questionnaires that have previously been used within adolescent populations. These questions will also go to the ethics committee to ensure that all aspects of the research are ethically sound. A copy of the ethical approval certificate can be provided to the school.

After the pupils have completed the survey I will carry out a research debrief. This will involve providing the children with an information debrief sheet detailing further information about the study, mine and my supervisors contact details and information regarding how they can access further support should they feel they wish to discuss any issues (this may include support the school currently provides, and external support services). I can also provide a copy of this debrief sheet for the parents.

Will all the children's details and the assessment results be kept confidential?

Yes. All the information about participants in this study will be kept confidential and data will be anonymous and stored securely. I can also provide a presentation after

the data has been analysed regarding the findings of the research to anyone interested within the school.

How will you use the data collected?

The data collected will be analysed as a group to the relationship between bullying experiences, friendship and coping strategies. These will be written up as part of a research thesis but may also be submitted for publication. The name of your school will never be associated with the data or included in any write-up.

You can withdraw your participation as a school at any point during the research process and you can ask for any data that has been collected through the school to be deleted up until August 15th 2016. You will not need to provide any reason for withdrawal from the study.

Contact:

If you require any further information or have any questions about this study, please do not hesitate to contact me at: sarah.gardner@.ntu.ac.uk.

Thank you very much for taking the time to read the research information sheet.

Kind Regards,

Sarah Gardner

Head Teacher Consent Form

I have been informed about the aims and procedures involved in the research project described above.

I understand that I reserve the right to withdraw any child at any stage during the research and to terminate the research project if I think necessary. I am aware that I do not need to provide any reason for withdrawal from the project.

I understand that the information gained will be anonymous and that children's names and the school's name will be removed from any write-up of the project.

Name:

Signed:

School:

Date:

APPENDIX B: EXAMPLE LETTER TO PARENTS/GUARDIANS

Dear Parent/Guardian,

My name is Sarah Gardner and I am a Psychology researcher at Nottingham Trent University. I am conducting research into how children cope with bullying situations at school, particularly focusing on friendship and peer-support. It is hoped this research will contribute towards the understanding of peer relationships at school and the impact these relationships may have on a child. In addition, it also intended that the research may aid in the development of educational and well-being support systems for pupils.

[Insert Name of School] has kindly offered to help with this research. If you agree, this will involve your child being asked to complete a short questionnaire at three time-points during the year (anticipated: October 2015, February 2016 and June 2016). The questionnaire will involve asking your child about experiences at school (including bullying), how they may respond to these situations and whom they seek social support from. Your child will be told that there are no right or wrong answers, and that the questionnaire is not a test. Every care will be taken to ensure that the research provides minimal disruption to the daily school routine and that the sessions are as enjoyable and relaxing as possible for your child. Your child does not have to take part if they do not want to. I would like to assure you that this research has been reviewed and has received full ethical clearance from the Nottingham Trent University College of Business, Law and Social Science Ethics Research Committee.

The information provided from the questionnaires will be kept completely confidential and the data will only be summarised as a group, with no focus on any individual. The answers that your child provides will remain confidential and will only be accessed by the research team, with paper documents locked away in safety cabinet and digital files password protected. In instances whereby your child's answers may be presented to others as part of a write-up or presentation, it will be ensured that your child or the school is not identifiable. The information provided will also not become a part of your child's school record or impact on any future relationship with the school. In instances whereby the child reports any information that could be deemed as a significant risk to the child or another person, this information will be disclosed with the school as part of the safe guarding policy used by your child's school.

Please note that your child's participation in this research is completely voluntary. If you **do not** wish for your child to complete the questionnaire, please complete and return the enclosed form by the **[insert date]**. If this form is not received I will assume you are happy for your child to take part in the question session. If you change your mind at a later date, you can ask for your child's data to be removed before the 15th of August 2016. No reason for removal of data will need to be given.

If you would like any further information you can contact me at: sarah.gardner@ntu.ac.uk.

With many thanks,

Sarah Gardner

Further contact Information:

Researcher: **Supervisor**

Sarah Gardner
PhD Researcher
Nottingham Trent University
Graduate School
Burton Street
NG1 4BU
Sarah.gardner@ntu.ac.uk

Dr Lucy Betts
Reader in Social Developmental Psychology
Nottingham Trent University
Division of Psychology
Burton Street
NG1 4BU
lucy.betts@ntu.ac.uk
0115 848 5558

Research Opt-Out Slip

Please complete this form if you **do not** want your child to take part in the project.

Your child's Name:

_____

Your name (Please print):

_____

Signature:

_____

Date: ___/____/2015

Please return this slip to [Insert teacher name] by [Insert Date]

APPENDIX C: CHILDREN'S CONSENT FORM

Information Sheet

Hello, my name is Sarah and I work at Nottingham Trent University. I am interested in learning more about you, who is important to you and how you would respond to bullying that can happen at school.

If I take part in the 'Myself, my friends and my school' research project I understand that:

- The questions asked will be about me, bullying and how I might cope with bullying
- This is not a test and there are no right or wrong answers
- I can stop answering questions at any time, without having to say why
- My answers may be used to help others understand what I have said. But my name will not be used with my answers and so nobody will know who said them.
- My answers will not be shared with anybody else apart from the researcher (unless you tell the researcher some information that could cause a lot of harm to yourself or somebody else).

If you understand the above sentences, you now need to decide whether you would like to take part in the project.

If you are happy to take part in the project tick the box and write your name:

☐ Name: _____

APPENDIX D: DEBRIEF SHEET

What have we done today?

Thank you for taking part again today!

The questions you answered today were asked in order to understand more about children's experiences of school and how they cope with difficult situations, such as bullying. The answers you provided will help us better understand children's experiences of school and friendship.

Remember that I may choose to write about the answers you gave today to help other people understand what you have said. However, if I do, I will not tell them who said it. I will also not use your real name in anything that I write.

If you wish to know more about the study you took part in today, you can either contact the researcher (Sarah Gardner) by asking your teacher or parent to email/call her.

You are allowed to remove your answers before August 15th 2016 if you do not want them to be included in the research. You can do this by asking your teacher or parent/guardian to email the researcher with your special unique code. You do not need to remember your special unique code yourself.

It is hoped that you found answering the questions interesting and fun, however if you want to know more information about anything that was asked about today, then either speak to your teacher or ask an adult to help you look at the following websites:

Support websites and phone-lines:

www.youngminds.org.uk

www.beatbullying.org.uk

At school:

[insert available school support mechanisms here]

Researcher Details:

Researcher: Sarah Gardner (sarah.gardner@ntu.ac.uk)
Nottingham Trent University, Graduate School, Burton Street, Nottingham, NG1 4BU

Supervisor: Dr Lucy Betts (Lucy.Betts@ntu.ac.uk)
Nottingham Trent University, Division of Psychology, Burton Street, Nottingham, NG1 4BU
(0115) 848 5558

Thank you again for taking part ☺

APPENDIX E: PUBLISHED MEASURES USED IN STUDY

E.1: Multidimensional Peer-Victimization Scale (Mynard & Joseph, 2000)

"How often during this term has somebody done the following to you?"

	Never ▼	Once or Twice ▼	A few times ▼	Once a week ▼	A few times a week ▼
1. Punched me					
2. Tried to get me into trouble with my friends					
3. Called me names					
4. Took something of mine without permission					
5. Kicked me					
6. Tried to make my friends turn against me					
7. Stole something from me					
8. Made fun of me because of my appearance					
9. Tried to break something of mine					
10. Hurt me physically in some way					
11. Refused to talk to me					
12. Beat me up					
13. Made other people not talk to me					
14. Swore at me					
15. Deliberately damaged something that belonged to me					
16. Made fun of me for some reason					

E.2: 'What Would I Do' Coping Scale (Kochenderfer-Ladd & Pelletier, 2008)

If another child was mean to me (i.e. hurt me, called me names or made me upset) I would….	Never ▼	Sometimes ▼	Most of the time ▼
1. Tell my mum or dad what happened			
2. Tell the mean child that I do not care			
3. Try to think of ways to stop it			
4. Shout at the child who is being mean			
5. Feel like crying			
6. Ask the teacher what to do			
7. Forget the whole thing			
8. Try to find out why it happened			
9. Tell the teacher what happened			
10. Act like nothing happened			
11. Change things to keep it from happening again			
12. Hurt the mean child back			
13. Become so upset that I cannot talk to anyone			
14. Ask a friend what I should do			
15. Worry that other children may not like me			
16. Hurt the child who was mean to me			
17. Think about it for a long time			
18. Ask mum or dad what to do			
19. Go off by myself			
20. Throw or hit something because I get angry			
21. Tell a friend what happened			
22. Do something mean back to the person			
23. Tell myself it doesn't matter			
24. Blame myself for doing something wrong			

E.3: Friendship Qualities Scale (Bukowski et al., 1994)

Think about who is your best friend, and then answer the following questions whilst thinking of this best friend.

	Not true ▼	Rarely True ▼	Half and Half ▼	Sometimes True ▼	Really True ▼
1. I feel happy when I am with my friend					
2. My friend would help me if I needed it					
3. My friend and I disagree about many things					
4. If I have a problem at home or school, I can talk to my friend about it					
5. My friend and I spend all our free time together					
6. When I do a good job at something my friend is happy for me					
7. My friend thinks of fun things for us to do together					
8. My friend can bug me or annoy me even when I ask him/her not to					
9. If other kids were bothering me, my friend would help me					
10. If I said I was sorry after I had a fight with my friend, s/he would still stay mad at me.					
11. I think about my friend even when my friend is not around					

12. If I forgot something I needed for school (e.g. pen, ruler), my friend would let me borrow one of his/hers					
13. My friend and I go to each other's houses after school and on weekends.					
14. My friend and I can argue a lot.					
15. My friend helps me when I am having trouble with something.					
16. If my friend or I do something that bother the other one of us, we can make up easily.					
17. If my friend had to move away, I would miss him/her					
18. Sometimes my friend and I just sit around and talk about thinks like school, sports and things we like					
19. I can get into fights with my friends.					
20. My friends would stick up for me if another person was causing me trouble.					
21. If my friend and I have a fight or argument, we can say 'I'm sorry' and everything will be alright.					
22. Sometimes my friend does things for me, or makes me feel special.					
23. If there is something bothering me, I can tell my friend about it even if it is something I cannot tell other people.					

Note: Companionship = Items 5, 7, 13, 18; Conflict = Items 3, 8, 14, 19; Help = 2, 9, 12, 15, 20; Security = 4, 10, 16, 21, 23; Closeness: 1, 6, 11, 17, 22.

E.4 Loneliness and Social Dissatisfaction Questionnaire (Asher et al., 1984)

	Not always true ▼	Rarely True ▼	Half and Half ▼	Sometimes True ▼	Always True ▼
1. I feel alone at school					
2. I feel left out of things at school					
3. I am lonely at school					
4. I feel that I have nobody to talk to at school					

APPENDIX F: AUTHORSHIP DECLARATION FORM

The following people and institutions contributed to the publication of work undertaken as part of this thesis (See Table F.1).

Table F.1 *Details of authors contribution to publications within the thesis.*

	Position	**Name and Institution**
PhD Candidate	PhD Candidate	Sarah E. Gardner, Department of Psychology, Nottingham Trent University
Author 1	Director of Studies	Dr Lucy R Betts, Department of Psychology, Nottingham Trent University
Author 2	Second Supervisor	Dr James Stiller, Department of Psychology, Nottingham Trent University
Author 3	Third Supervisor	Dr Janine Coates, School of Sport, Exercise and Health Sciences, Loughborough University

F.1 Author details and their roles:

Publication 1: Gardner, S.E. (2016). Assessment of school-based bullying and victimisation: A brief overview of methods. *The Quarterly, 99,* 18-23.

PhD Candidate contribution: reviewed literature, wrote the manuscript, proof reading.

Publication 2: Gardner, S.E. & Betts, L.R. (2015). Protecting against school-based peer-victimisation: the role of children's friendships. In T.F Colby (Ed.), *Victims and victimization: risk factors, intervention strategies and socioemotional outcomes.* New York: Nova Science Publishers.

PhD Candidate contribution: reviewed the literature, wrote the manuscript, proof reading.

Author 1 contribution: Provided comments on manuscript drafts, proof reading.

Publication 3: Gardner, S.E., Betts, L.R., Stiller, J. & Coates, J. (2017). The role of emotion regulation for coping with school-based peer-victimisation in late childhood. *Personality and Individual Differences, 107,* 108-113.

PhD Candidate Contribution: developed research model, carried out empirical study, analysed data and wrote manuscript.

Authors 1, 2 and 3 Contribution: Supported research development, provided comments on drafts and proof reading.

Publication 4: Gardner, S.E., Betts, L.R., Stiller, J., & Coates, J. (2017). Coping with school-based peer-victimisation the conditional role of friendship. Paper presented at *World Anti-Bullying Forum 2017,* Stockholm: Sweden.

PhD Candidate Contribution: developed research model, carried out empirical study, analysed data, wrote up study and put together poster presentation.

Authors 1, 2 and 3 Contribution: Supported research development, provided comments on drafts and proof reading.

Publication 5: Gardner, S.E. (2017). Social networks in psychology research: considerations for data collection and analysis. *The Quarterly, 105,* 18-23.

PhD Candidate contribution: reviewed literature, wrote the manuscript, proof reading.

Publication 6: Gardner, S.E., Betts, L.R., Stiller, J., & Coates, J. (2017). Class-based peer-harassment experiences in children's friendship networks. Paper presented at *Biennial Society for Research in Child Development Conference,* Austin, Texas, USA.

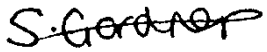
PhD Candidate Contribution: developed research model, carried out empirical study, analysed data, wrote up study and put together presentation.

Authors 1, 2 and 3 Contribution: Supported research development, provided comments on drafts and proof reading.

We the undersigned agree with the above statements regarding the contribution of work for each of the above publications contributing to the thesis:

Signed

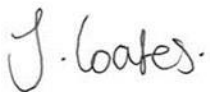
PhD Candidate:



Author 1:

Author 2:

Author 3:



APPENDIX G: TIME 1, 2 AND 3 BIVARIATE ASSOCIATION MATRIX

Table G.1 *Bivariate Correlations between all peer-victimisation types, expected coping behaviour, friendship variables, and school loneliness at Time 1, Time 2 and Time*

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Time 1 Variables	1. Verbal PV	_																																																	
	2. Physical PV	.56**	_																																																
	3. Social PV	.65**	.50**	_																																														
	4. Attack on Property PV	.61**	.61**	.60**	_																																												
	5. Adult Support Coping	.00	.01	-.08	-.02	_																																											
	6. Retalation Coping	.17**	.26**	.26**	.31**	-.24**	_																																										
	7. Peer Support Coping	-.04	-.01	.00	.00	.38**	-.18**	_																																									
	8. Internalising Coping	.38**	.25**	.35**	.26*	.01	.11*	.03	_																																								
	9. Avoidance Coping	.02	.02	.06	.08	-.11*	.08	.05	.07	_																																							
	10. Problem Solving Coping	.02	.03	-.02	.02	.40**	-.01	.36**	.13**	.09	_																																						
	11. Friendship Helpfulness	-.11*	-.12*	-.12*	-.14**	.21**	-.16**	.50**	-.07	.05	.24**	_																																					
	12. Friendship Security	-.19**	-.20**	-.28**	-.22**	.11*	-.17**	.30**	-.11*	-.02	.11*	.46**	_																																				
	13. Friendship Conflict	.17**	.20**	.24**	.24**	-.12*	.29**	-.13**	.17**	.09	.04	-.22**	-.37**	_																																			
	14. School Loneliness	.43**	.32**	.40**	.36**	-.05	.17**	-.17**	.47**	.01	-.08	-.29**	-.23**	.21**	_																																		
	15. Reciprocity (Mutual)	-.23**	-.13**	-.18**	-.23**	-.02	-.13**	.07	-.09	-.06	.01	.15**	.15**	-.07	-.29**	_																																	
	16. Reciprocity (Total)	-.21**	-.13**	-.16**	-.19**	.02	-.18**	.11*	-.06	.03	.09	.30**	.20**	-.12*	-.31**	.62**	_																																
	17. Centrality	.07	.08	.03	.04	.16**	-.01	-.01	.04	.11*	.02	.05	.03	-.01	-.01	.00	.12**	_																															
	18. Physical PV	.32**	.42**	.26**	.40**	-.01	.20**	.02	.21**	.09	.07	.05	-.08	.10	.18**	-.22**	-.14*	.01	_																														
	19. Social PV	.40**	.31**	.51**	.40**	-.04	.16**	.10	.28**	.12*	.04	.03	-.15**	.20**	.24**	-.25**	-.19**	.05	.50**	_																													
	20. Verbal PV	.47**	.41**	.39**	.48**	.03	.21**	.09	.23**	.07	.08	.03	-.10	.12*	.24**	-.25**	-.18**	.06	.69**	.69**	_																												
	21. Attack on Property PV	.34**	.34**	.37**	.52**	.02	.18**	.08	.19**	.16**	.10	-.01	-.10	.14*	.28**	-.26**	-.24**	-.10	.67**	.67**	.70**	_																											
	22. Internalising Coping	.22**	.07	.23**	.16**	.06	.01	.10	.55**	-.03	.10	-.02	-.04	.09	.26**	-.08	-.07	.00	.26**	.38**	.32**	.33**	_																									
	23. Adult Support Coping	-.05	-.04	-.04	.00	.53**	-.17**	.14*	-.13*	-.20**	.06	.07	-.02	.01	-.07	-.01	-.05	.01	-.09	-.10	-.15**	-.03	-.05	_																							
	24. Avoidance Coping	-.02	.02	.06	.00	-.22**	.09	-.03	.11	.43**	.06	.02	-.02	.01	.04	.05	.04	.03	.09	.00	.05	.01	.07	-.26**	_																					
	25. Retaliation Coping	.15*	.18**	.19**	.22**	-.09	.67**	-.14*	.06	.12*	-.05	-.14*	-.15**	.19**	.12*	-.21**	-.12*	-.04	.27**	.19**	.31**	.31**	.13*	-.18**	.05	_																				
	26. Problem Solving Coping	-.02	-.02	-.07	.01	.28**	-.12*	.25**	-.06	.06	.44**	.23**	.11	-.03	-.14*	.09	.08	-.06	.05	.05	.02	.15**	-.02	.31**	.10	-.05	_																		
	27. Peer Support Coping	-.13*	-.12*	-.06	-.04	.23**	-.13*	.26**	-.11	.02	.11	.24**	.19**	.00	-.24**	.11	.14*	.08	-.05	-.03	-.03	.03	-.06	.40**	-.03	-.06	.34**	_																	
	28. Friendship Helpfulness	-.16**	-.18**	-.17**	-.12*	.17**	-.20**	.34**	-.19**	.01	.12*	.58**	.36**	-.18**	-.26**	.13*	.26**	.11	-.09	-.13*	-.12*	-.09	-.19**	.21**	-.06	-.15**	.24**	.46**	_																
	29. Friendship Conflict	.23**	.25**	.21**	.29**	-.07	.23**	-.02	.10	.11	.02	-.07	-.22**	.51**	.25**	-.19**	-.21**	.04	.21**	.33**	.26**	.32**	.20**	-.14*	.00	.27**	-.03	-.15**	-.37**	_															
	30. Friendship Security	-.18**	-.14*	-.17**	-.22**	.08	-.21**	.09	-.13*	-.03	.05	.19**	.42**	-.32**	-.19**	.07	.17**	.14*	-.17**	-.27**	-.23**	-.20**	-.18**	.11	.00	-.14*	.12*	.21**	.51**	-.52**	_													
	31. School Loneliness	.35**	.17**	.33**	.30**	-.03	.15**	-.05	.35**	-.01	.00	-.12*	-.19**	.11*	.55**	-.28**	-.33**	.03	.37**	.45**	.43**	.39**	.47**	-.11*	.06	.17**	-.14*	-.16**	-.31**	.30**	-.34**	_											
	32. Reciprocity (Total)	-.09	-.04	-.09	-.13*	-.09	-.17**	.05	-.04	-.01	-.01	.12*	.13*	-.07	-.18**	.22**	.45**	.02	-.18**	-.14*	-.14**	-.17**	-.07	-.06	.00	-.15**	.05	.08	.24**	-.15**	.14*	-.24**	_									
	33. Reciprocity (Mutual)	-.12*	-.07	-.11	-.17**	-.06	-.14*	.05	-.06	-.04	-.02	.09	.15*	-.03	-.15**	.39**	.33**	.03	-.16**	-.21**	-.18**	-.22**	-.09	-.03	-.03	-.12*	.03	.10	.20**	-.17**	.12*	-.19**	.67**	_								
	34. Centrality	-.01	.00	-.07	-.08	.08	-.11	.05	.05	-.06	.05	.07	.08	.05	-.02	-.03	.23**	.16**	.01	-.04	.03	-.07	.02	.03	-.02	-.07	.05	.09	.15**	-.10	.10	-.05	.34**	.11*	_							
Time 2 Variables	35. Physical PV	.34**	.48**	.20**	.36**	-.09	.29**	-.02	.16**	.11	-.03	-.05	-.03	.06	.19**	-.15**	-.20**	.08	.44**	.33**	.42**	.38**	.15*	-.17**	.08	.22**	.00	-.08	-.10	.20**	-.15*	.24**	-.11	-.09	-.03	_							
	36. Social PV	.46**	.30**	.47**	.37**	-.11	.21**	-.03	.29**	.00	-.09	-.03	-.10	.05	.25**	-.12*	-.11	.06	.26**	.57**	.41**	.40**	.28**	-.17**	.07	.13*	-.08	-.07	-.12	.20**	-.23**	.35**	-.12*	-.18**	-.07	.56**	_						
	37. Verbal PV	.51**	.34**	.30**	.34**	-.05	.21**	-.08	.33**	.01	-.06	-.04	-.02	.04	.24**	-.22**	-.19**	.12*	.30**	.45**	.57**	.34**	.28**	-.16**	-.03	.13*	-.03	-.09	-.15*	.18**	-.20**	.33**	-.11	-.17**	-.03	.65**	.70**	_					
	38. Attack on Property PV	.33**	.30**	.20**	.38**	-.08	.07	-.06	.23**	.05	-.06	-.06	-.08	.01	.25**	-.06	-.14*	.01	.26**	.29**	.34**	.45**	.23**	-.11	.05	-.01	.02	-.09	-.18**	.10	-.19**	.27**	-.15*	-.12*	-.08	.57**	.59**	.56**	_				
	39. Internalising Coping	.28**	.13*	.25**	.15*	-.05	.08	-.02	.59**	-.01	.00	-.04	-.09	.12*	.32**	-.11	-.10	.04	.14*	.25**	.23**	.23**	.52**	-.08	.10	.03	-.11	-.03	-.10	.10	-.18**	.37**	-.10	-.12	.04	.23**	.38**	.35**	.30**	_			
	40. Adult Support Coping	-.13*	-.01	-.09	-.08	.55**	-.25**	.19**	-.09	-.13*	.15*	.16**	.05*	-.03	-.11	.06	.01	.09	-.02	-.12	-.05	-.04	-.04	.63**	-.32**	-.19**	.17**	.22**	.21**	-.10	.07	-.08	-.02	-.01	.09	-.11*	-.14*	-.13*	-.13*	-.01	_		
	41. Avoidance Coping	.00	.05	.02	-.06	-.22**	.02	-.09	.03	.29**	-.02	.05	.05	.03	-.02	.06	-.02	.09	.02	-.03	-.01	-.06	.01	-.23**	.49**	.05	.00	-.02	-.07	-.02	.00	.03	.05	.02	.03	.05	-.04	.00	.05	.08	.22**	_		
	42. Retaliation Coping	.14*	.18**	.11	.20**	-.22**	.63**	-.16**	.05	.05	-.08	-.12*	-.12*	.15*	.17*	-.14*	-.19**	.02	.24**	.11	.23**	.22**	.02	-.23**	-.01	.73**	-.12	-.14*	-.11	.18**	-.16**	.14*	-.21**	-.17**	-.13*	.35**	.22**	.19**	.20**	.10	-.29**	.03	_	
	43. Problem Solving Coping	-.09	-.05	-.11	-.08	.31**	-.15*	.23**	-.07	.03	.31**	.14*	.09	-.07	-.15*	.06	.01	.02	-.02	-.12	-.09	-.01	.05	.32**	.02	-.15*	.43**	.29**	.20**	-.08	.11	-.16**	.02	.04	.05	-.11	-.20**	-.16**	-.12*	.07	.39**	.12*	-.21**	_				
	44. Peer Support Coping	-.12*	-.06	-.02	-.01	.21**	-.21**	.31**	-.05	.04	.18**	.16**	.12*	-.01	-.18**	.10	.08	.03	-.18**	-.10	-.11	-.03	.01	.22**	-.03	-.18**	.20**	.42**	.23**	-.19**	.18**	-.13*	.05	.05	-.01	-.10	-.12*	-.13*	-.11	.02	.44**	-.07	-.21**	.38**	_			
	45. Friendship Helpfulness	-.14*	-.03	-.10	-.06	.15*	-.16**	.24**	-.08	-.06	.09	.40**	.27**	-.12	-.18**	.12*	.19**	-.03	.03	-.18**	-.08	-.13*	-.09	.21**	-.08	-.07	.24**	.31**	.53**	-.17**	.31**	-.22**	.19**	-.15*	-.16*	-.10	.21**	.23**	.18**	.19**	.16**	-.14**	-.05	.24**	-.12*	-.22**	-.37**	_		
	46. Friendship Conflict	.17**	.17**	.14*	.17**	-.03	.26**	.10	.15*	.13*	.00	-.08	-.20**	.40**	.26**	-.19**	-.16**	.09	.16*	.21**	.21**	.29**	.16*	.13*	.02	.21**	-.07	-.14*	-.24**	.61**	-.38**	.19**	-.15*	-.16*	-.10	.21**	.23**	.18**	.19**	.16**	-.14**	-.05	.24**	-.12*	-.22**	-.37**	.49**	_		
	47. Friendship Security	-.17*	-.10	-.13*	-.14*	.09	-.26**	.24**	-.05	-.05	.06	.26**	.35**	-.14*	-.23**	.17**	.14*	.01	-.04	-.14*	-.09	-.14*	-.07	.13*	.01	-.11	.17**	.17**	.34**	-.26**	.42**	-.21**	.16**	.18**	.10	-.09	-.13*	-.09	-.03	-.07	.18**	.02	-.16**	.21**	.28**	.61**	-.49**	_		
	48. School Loneliness	.32**	.15**	.27**	.24**	-.12*	.26**	-.16**	.31**	.02	-.06	-.21**	-.21**	.12*	.52**	-.21**	-.26**	.02	.22**	.36**	.36**	.36**	.27**	-.15*	.01	.14*	-.25**	-.19**	-.32**	.18**	-.27**	.64**	-.25**	-.23**	-.09	.27**	.34**	.30**	.33**	.35**	-.16**	-.04	.22**	-.20**	-.22**	-.38**	.25**	-.36**	_		
	49. Reciprocity (Total)	-.17**	-.09	-.06	-.09	-.01	-.26**	.20**	.00	-.04	.07	.22**	.13*	-.06	-.27**	.26**	.44**	-.01	-.12	-.08	-.14*	-.11	-.04	.01	.01	-.20**	.20**	.23**	.23**	-.18**	.18**	-.29**	.52**	.30**	.17**	-.16**	-.19**	-.12*	-.14*	-.01	.03	.04	-.17**	.06	.21**	.28**	-.18**	.18**	-.28**	_	
	50. Reciprocity (Proportion)	-.11	-.06	-.09	-.05	-.04	-.10	.11*	.03	-.08	.02	.06	.08	-.07	-.22**	.32**	.33**	-.03	-.11	-.11	-.08	-.15*	-.05	-.05	-.02	-.09	.10	.08	.09	-.13*	.09	-.26**	.25**	.32**	.07	-.05	-.03	-.01	-.02	.02	-.05	.05	-.05	-.01	.08	.15**	-.10	.08	-.20**	.68**	_
	51. Centrality	-.07	-.06	-.09	-.06	.03	-.08	.06	-.10	-.06	-.05	.06	.03	-.04	-.03	-.03	.12*	-.14*	-.07	-.07	-.08	-.09	-.05	.07	-.06	-.03	.08	.09	.10	-.07	.13*	-.15*	.29**	.12*	.24**	-.02	-.06	-.05	-.03	-.02	.05	-.04	-.03	-.05	.07	.18**	-.05	.11*	-.12*	.37**	.15**