Growing Up in Ireland
National Longitudinal Study of Children

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CHILD COHORT

Review of the literature pertaining to the second wave of data collection with the Child Cohort at age 13

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REVIEW OF THE LITERATURE PERTAINING TO THE SECOND WAVE OF DATA COLLECTION WITH THE CHILD COHORT AT AGE 13

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Table of Contents

ABOUT THIS REVIEW

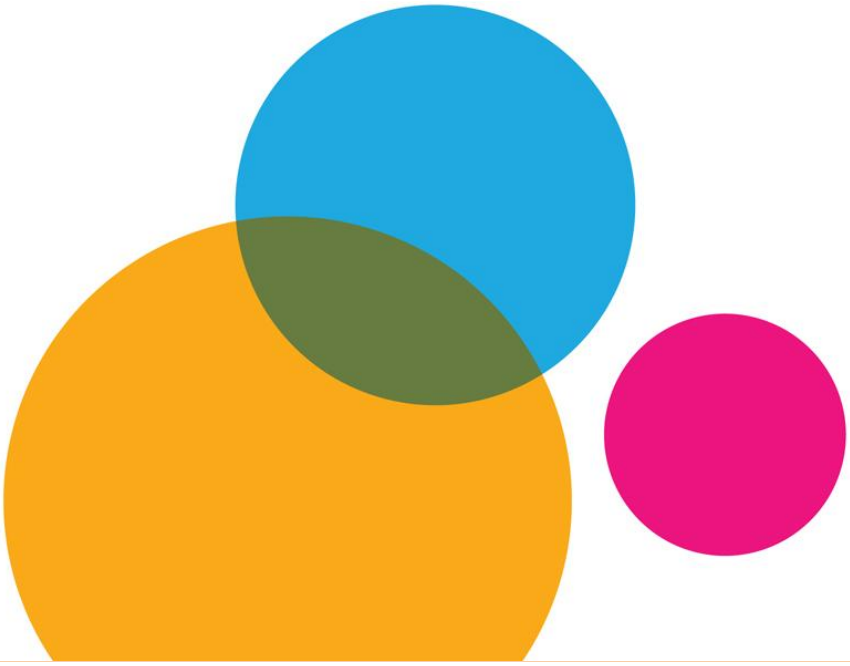
The first chapter below sets out the background, objectives and main features of the ***Growing Up in Ireland*** study as well as its conceptual basis, and also considers the rationale for data collection at age 13 years. This chapter also examines some of the main common themes emerging from research on young people of this age group.

The next three chapters review the current literature on influences on development at age 13, under the main categories of child outcome that are a focus of ***Growing Up in Ireland:*** physical health and development; social, emotional and behavioural development; and cognitive and educational outcomes. Within each chapter, the discussion is organised according to the major research questions considered by the Study Team to be of particular significance. These research questions are illustrative of some of the many questions that can be examined using the quantitative data being collected by ***Growing Up in Ireland***. The final chapter summarises the main conclusions.

This document is one of a series of related publications. Extended coverage of the background and conceptual framework of ***Growing Up in Ireland*** can be found in a separate document (***Growing Up in Ireland*** Research Paper No. 1). There are also separate reviews of the literature relevant to the Child Cohort at age nine (Greene et al, 2009); the Infant Cohort at nine months (Greene et al, 2010) and age three years (Greene et al, 2014), as well as qualitative research with children (Green & Harris, 2009). These add to the main reports on the findings to date for both cohorts (Williams et al, 2009; Williams et al, 2010; Harris et al, 2010); reports on the design of the surveys and the instrumentation employed in the project (Williams et al, 2008a; Williams et al, 2009b); and a series of brief reports on the quantitative and qualitative results, titled 'Key Findings' (***Growing Up in Ireland*** Study Team, 2009, 2010, 2011). All reports can be found on the website www.growingup.ie. The introductory material below is similar to the introductory chapter for the literature review for the three-year-olds (Greene et al, 2014).

Chapter 1

INTRODUCTION AND THEMES IN DEVELOPMENT AT AGE 13 YEARS



CHAPTER 1: INTRODUCTION AND THEMES IN DEVELOPMENT AT AGE 13 YEARS

1.1 BACKGROUND AND OBJECTIVES OF *GROWING UP IN IRELAND*

One of the principal objectives of ***Growing Up in Ireland***, the national longitudinal study of children, is to describe the lives of children in Ireland, and to ***establish*** what is typical and normal as well as what is atypical and problematic. The study focuses on a broad range of child outcomes with a view to documenting how well children in Ireland are developing along a number of internationally recognised dimensions. In so doing, it facilitates comparison with findings from similar international studies of children, as well as establishing norms for Ireland. Being longitudinal in nature, the study also describes developmental trajectories over time and can explore the factors which most impact on those trajectories and on the life chances of children as they develop. The value of a longitudinal study can be strengthened immeasurably by continuing data collection beyond two waves. The study as currently designed will provide a valuable evidence-base of research and insights into children and childhood, which will inform and contribute to the development of responsive policies and the design of better services for children and their families

The first phase of the project extends over seven years and involves two sweeps of data collection from a nationally representative sample of children in both cohorts. ***Growing Up in Ireland*** focuses, therefore, on two cohorts of children: a nine-month cohort of approximately 11,100 infants (Infant Cohort) and a nine-year cohort of approximately 8,500 children (Child Cohort). The nine-month cohort was surveyed for the second time at age three, while the nine-year cohort was surveyed for a second time at age 13 years. More detail on the study of 13-year-olds is provided in later chapters.

Growing Up in Ireland can be set within the National Children's Strategy (2000). The primary objective of the strategy is to "… enhance the status and further improve the quality of life of Ireland's children' (p.4). It affirms Ireland's commitment to respecting children as fully participating members of society in their own right. The three main goals of the National Children's Strategy are: to give children an appropriate voice in matters which affect them; to improve children's lives through improved understanding, and to promote child development through the provision of supports and services.

The principles espoused by the National Children's Strategy are an integral part of ***Growing Up in Ireland*** and very much ensure that, in both its conception and planning, it is a study of children, with children and for children. The study encompasses all children in Ireland – in all their multifaceted variation and diversity.

Growing Up in Ireland has nine stated objectives:

1. To describe the lives of children in Ireland, to establish what is typical and normal as well as what is atypical and problematic
2. to chart the development of children over time, to examine the progress and wellbeing of children at critical periods from birth to adulthood
3. To identify the key factors that, independently of others, most help or hinder children's development
4. To establish the effects of early childhood experiences on later life
5. To map dimensions of variation in children's lives

6. To identify the persistent adverse effects that lead to social disadvantage and exclusion, educational difficulties, ill-health and deprivation

7. To obtain children's views and opinions on their lives

8. To provide a bank of data on the whole child

9. To provide evidence for the creation of effective and responsive policies and services for children and families

1.2 CONCEPTUAL FRAMEWORK

1.2.1 INTRODUCTION[1]

A broad spectrum of cross-disciplinary research has identified a range of influences on children's developmental outcomes. These include individual and family characteristics and the economic, social and physical environments in which children are raised. Deriving an understanding of how this multitude of factors is interconnected and how they contribute to wellbeing requires an integrated conceptual framework that is informed by the insights of a variety of disciplines. There are, in fact, remarkable parallels in theorising about development across a range of disciplines. This facilitates the construction of a holistic conceptual framework within which the many factors influencing children's development can be understood.

The first of these parallel insights is the understanding that individual outcomes can only be understood within a larger 'ecological' context. From this perspective, a child's growth and development are intimately tied up with both the proximate and distal context in which they live. Immediate family and friends are seen to be important, but so too are the child's local community and the wider socio-cultural environment (Bronfenbrenner & Morris, 2006).

The second insight could be referred to as 'dynamic connectedness', meaning that processes in the different layers of this ecological context may well affect changes in all other levels. Layers are interconnected such that the developmental path that any one individual will take is determined by the interaction of factors at a number of levels. This perspective also assumes that the individual child is an active agent influencing their own outcomes through their interaction with their environment.

The third insight is that of probabilism (Lerner, Dowling & Chaudhuri, 2005): indicating that, because of the evolving reciprocal nature of systems of change, relations among variables may change over time, and to a certain extent cannot be repeated. The implication of this perspective is that we should not look for static, universal laws, but instead attempt to understand the 'trajectory' or 'developmental pathway' along which the person has travelled. This perspective also suggests that causation is multifactorial and, although cross-sectional research using correlations between predictors often points to 'vicious circle' processes where poor outcomes are predetermined, longitudinal research shows that multiple and cumulative disadvantages are a good deal less common than some research suggests. In other words, the relationships between variables can only be understood probabilistically, and understanding possible developmental pathways and crucial points of transition is more important than understanding the correlation between dependent and independent variables.

[1] For a full description of the conceptual framework for ***Growing Up In Ireland***, please see Research Paper No. 1.

The fourth insight, derived from the third, concerns the period of events. The developmental pathways along which people travel occur in a specific historical time, and this leads to differential outcomes and specific 'period' effects. This means that almost identical processes occurring in different historical periods can have very different outcomes.

The fifth insight is the role of agency and, in particular, the active role of the child in the developmental process. Across a number of disciplines there has been a move toward seeing individual agency and predisposition as important; this has been marked in research on the active role of the child. The child is an active player in the moulding and development of his or her environment. S/he is not a passive recipient of influences, but is an active and interactive contributor to all the people and environments that he or she encounters. Furthermore, as children get older, they tend to select their environmental context, which adds to their agency role in development.

These five insights can be found across a range of disciplines, from developmental psychology, educational development, sociology to public health and epidemiology. They form the conceptual backbone of what has come to be known as 'developmental science' (Lerner et al, 2005). They underlie the conceptual framework for ***Growing Up in Ireland*** and clearly circumscribe its development and design. They are discussed more fully in ***Growing Up in Ireland*** Research Paper No. 1.

1.2.2 THE IMPORTANCE OF ECOLOGICAL CONTEXT

Up to the mid-1970s, developmental psychology focused on the individual and the tight circle of family around him or her, with little regard to the wider world. About this time, however, psychologists started to consider ideas from other disciplines such as sociology and demography, and broadened their perspective. The paradigm shift in developmental psychology, which occurred in the late 1970s, can be traced to a number of researchers, but its most effective formulation has been in the work of Urie Bronfenbrenner, (1979; 1993). This work offered a reconceptualisation of the child's ecology as a multilayered set of nested and interconnecting environmental systems, all of which influence the developing child, but with varying degrees of directness (Greene, 1994). The perspective has evolved since its inception and today acknowledges the role of biology in the overall development of the person; hence the model is now referred to as the bioecological model (Bronfenbrenner & Morris, 2006)

1.2.3 OVERVIEW OF THE BIOECOLOGICAL MODEL

There are four defining properties of the bioecological model: Process, Person, Context and Time. Human development is hypothesised to take place primarily through proximal processes: interactions between the developing person and his/her environment, including other people in that environment. These interactions become increasingly complex, and to be influential must occur on a reasonably regular basis over extended periods of time. The form, power, content and direction of the proximal processes are influenced by the characteristics of the individual person and the environment in which they are taking place.

The model identifies three characteristics of the person that impact on proximal processes: Dispositions, Resources and Demands. Dispositions or Forces influence what processes are put in motion and how they are sustained. Resources are the biopsychological characteristics that affect a person's ability to make the most of proximal processes. Demands are the characteristics of a person that can invite or discourage reactions from others that can in turn promote or disrupt developmental processes. Characteristics of age, gender and ethnicity are highly influential, as these characteristics often determine an individual's status and role in a particular environment.

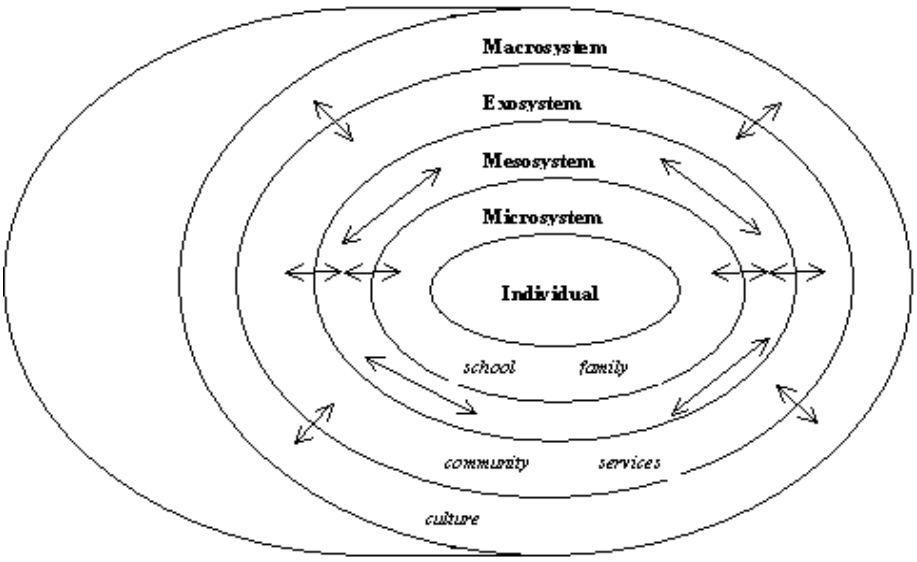
The property of Context acknowledges that the developing person is influenced by their interactions with objects and places as well as people, and that the environmental context can influence proximal processes.

The influence of Time has been accorded increasing weight as the bioecological model has evolved (Bronfenbrenner & Morris, 2006). Time affects development in a number of ways: it is important as an historical context for a person's development, and the timing of key events in a person's life can affect their impact. Adding time to the model serves to emphasise the dynamic nature of development. In terms of personal time, nothing remains static; life is lived between the past and the future.

In the bioecological approach, the relationship between parent and child is part of a larger set of interactive systems that compose the ecology of human life (Bronfenbrenner, 1979). These systems are layered in terms of their influence on child development. In Figure 1.1, these systems or layers are represented as concentric circles, extending outwards from the individual child and his or her personal characteristics. Parents and family (in the vast majority of cases) are the most influential system in a child's development, and have the most direct contact with the child; hence they are represented in the circle or layer immediately surrounding the individual: the microsystem.

The parent and child dyad is enmeshed in other relationships within the household, but parents and children also have relationships outside the household, with peers or in school for example, or in the workplace, and these relationships fuse the household to the wider community. To Bronfenbrenner this illustrates the intimate relationship between the microsystem, the face-to-face interactions which the child/adolescent experiences, and the mesosystem, which encompasses the links between the different actors in the microsystem; that is, the relationship between parents, between home and school or between close family and extended kin. Among 13-year-olds, while the child's parent or parents remain of critical importance, the peer group and the wider neighbourhood community gradually have an increasing influence, as do broader societal factors. For example, whether the parent or parents are employed and whether they are fulfilled in their employment will indirectly impinge on the child's quality of life, through the parents' income and resources and their psychological wellbeing. At the same time each child brings his or her qualities, behaviours and demands to bear on the parents.

Figure 1.1: Bronfenbrenner's ecological perspective on child development



Outside the mesosystem in Bronfenbrenner's model sits the exosystem: this comprises the structures, institutions and settings that, while not in direct contact with the child, exert nonetheless an

important influence on their quality of life and outcomes. Examples of determinants within the exosystem are the parent's workplace, which, although not directly in contact with the child, has an important impact on their well-being through its impact on the parent's well-being, work-life balance, availability to the child, etc.

The last ring of Bronfenbrenner's schema is the macrosystem: the culture-specific ideologies, attitudes and beliefs that shape the society's structures and practices. The model draws attention to the way in which state institutions and state policies indirectly affect the quality of life and life chances of children living in Ireland. Attitudes to children and childhood are an intrinsic part of the nation's culture; they are often distinctive to that nation and influential in shaping policies and practices, including parents' behaviour.

Together these three levels provide a range of factors that may influence the experiences and well-being of a child as s/he develops from birth to adulthood. The passing of time during this development, and time as a context for development, is represented as the three-dimensional aspect in Figure 1.1.

In summary, the conceptual framework adopted by Growing Up in Ireland emphasises children's and adolescents' connectedness to the world within which they live. It also highlights the importance of considering the multifaceted nature of development over the life-course and the child's active role in shaping his or her environment from birth onwards. By taking account of the multiple, interacting and bidirectional influences on child outcomes, Growing Up in Ireland has adopted a comprehensive and powerful model of development that will increase the power of the data and the capacity of this study to address issues that are important to those who wish to promote the healthy and happy development of young people. The issues that can be addressed within this framework include: How do influences change from age nine to age 13 years? Is there a difference in the balance between proximal versus distal factors between these ages?

1.3 DEVELOPMENTAL SIGNIFICANCE OF AGE 13 YEARS

The age 13 years is the start of the period of adolescence which has been regarded as a time of 'storm and stress' and characterised by conflict and mood swings as well as by risky behaviour. However, as will be evident from the research reviewed below, most 13-year-olds pass through this period without too much difficulty and experience a strengthening of their social and emotional skills as well as major enhancement of their cognitive capacity.

Early adolescence is marked by puberty and the initial development of identity. While puberty is orchestrated by biological factors, social and environmental influences interact with biological effects in complex ways. As will be evident from the literature reviewed below, the timing of puberty for girls is influenced by a complex set of influences related to the family environment. These factors include relationships between family members, conflict in the home and the kind of control/discipline style of parents. There are indications that in the case of girls, puberty is delayed (and childhood lengthened) when the family environment is high in quality and conversely is shortened when the environment is of poor quality

There are major psychological and emotional changes arising from puberty. Adolescents are faced with issues of creating an identity separate from their parents. At the same time, rates of risky behaviour, including substance use and delinquency, increase markedly (Crosnoe & Johnson, 2011). A major issue arises from the fact that maturation can occur at different rates in the various domains of development, so that adolescents can look and feel grown up in some respects but not in others. An example is found in the case of the perceptions of early maturers as adults. Because they are adult-like physically, they may engage in behaviours or put themselves in situations that are inappropriate for their emotional or cognitive capacities (Cavanagh et al, 2007)

While biological maturation has received relatively more attention, the change in self and social definition during adolescence is equally important. While children develop a sense of self from infancy, at adolescence 'Who am I?' becomes a pressing question. Identity refers to the systematic organisation of the individual's beliefs, attitudes, ability and life history into an image of the self. The choices and decisions around ideas, values, commitments and relationships and how these are integrated have a crucial bearing on the journey into adulthood. While it is acknowledged that identity is especially important at all stages of development, the emphasis in Erikson's framework (1963) of a crisis of identity versus role confusion is especially pertinent during adolescence.

Another reason for the importance of age 13 (very early adolescence) is that relationships and social contacts differ from those of childhood. While family relationships still remain salient, the proportion of time that adolescents spend with people outside the family increases, and extra-familial factors serve many of the functions that were previously the exclusive domain of the family (Collins & Laursen, 2004). Related to this is the development of a sense of independence, which includes a degree of autonomy (both behavioural and emotional), from parents. Parallel with independence is the development of interdependence, which involves mutual support and influence of peers and friends. In the next section, we consider some major themes in the research on young adolescents, giving particular attention to ideas that have been especially influential and are likely to continue to be prominent in the next decade.

1.4 THEMES IN RESEARCH ON DEVELOPMENT AT AGE 13

While the focus of the review below is on the development of 13-year-olds, a number of broad issues emerge from recent research on adolescence. This review is organised to cover the main developmental outcomes focused on in ***Growing Up in Ireland***: physical health and development; social, emotional and behavioural development, and cognitive development and educational outcomes. One of the most interesting findings in research on 13-year-olds centres on the interaction of one area of functioning with other aspects of development; e.g. the impact of social-emotional development on cognitive functioning and health. As in all longitudinal studies, a second important issue arises from the need to look backward (especially to early childhood) and forward (to adulthood) in order to get a comprehensive overview of the significance of this age. Thirdly, there are important cultural differences in the relative importance of various influences at adolescence in the social-emotional, health and school-achievement domains. Fourthly, while attention has always been given to the impact of adverse events on development, recent work has seen a major interest in resilience. Finally, changing patterns over the decades, especially with regard to gender differences, are an especially important theme in research on adolescence.

1.4.1 INTERACTIONS IN DEVELOPMENT

The importance of the interactions between different outcomes of development remains paramount. For example, cognitive functioning does not occur in isolation from personal and social development. Several aspects of school achievement are influenced by a combination of factors, including not only cognitive influences but also motivation, attitudes, beliefs, school environment, peer influences and family factors. In support of this line of argument, there is strong evidence that social and emotional programmes can enhance students' academic performance (Durlak et al, 2011). Part of the reason may be that young people who are more self-aware and confident about their learning try harder and persist in the face of challenges. In other words, the self-discipline deriving from social/emotional learning helps young people to manage obstacles so that those who are experiencing setbacks are more likely to persist. In considering the relation between 'ability' and achievement below, it will be shown that motivational factors have a crucial role in mediating the extent of this association.

In the health area, there is evidence that the effects of obesity extend not only to health but also to the social and emotional domain. Layte and McCrory (2011) have reviewed the international work on the association between child obesity and levels of child emotional and behavioural problems. In their study of nine-year-olds (***Growing Up in Ireland*** data) they found that the perception of being

overweight was associated with greater emotional and behavioural problems as measured using the Strengths and Difficulties Questionnaire (SDQ). Furthermore, most of this association was mediated by their lowered self-esteem. Numerous other examples of the impact of health issues on other aspects of development can be found in research on substance-use problems as well as on mood disorders (Huston & Bentley, 2010).

There is also relatively recent evidence linking intelligence scores (IQ) with health and indeed longevity. Studies reviewed by Deary (2012) have shown that adolescent intelligence is associated with a range of health outcomes, including cardiovascular problems. That review showed that a one standard deviation advantage in intelligence at adolescence was associated with a 24 per cent lower risk of death over a follow-up period of over 50 years. Interestingly, the link has not been adequately explained; it has been suggested that adult social class mediates some of the association but there is also evidence that childhood intelligence is associated with many health behaviours during the life-course, including smoking, alcohol intake, physical activity and diet (Deary, 2012).

As will be evident below, socio-economic factors have major influences on social and behaviour outcomes, school achievement and health outcomes. The family stress model (Conger & Conger, 2002) suggests that economic stresses can lead to emotional distress among parents; this in turn impinges on parenting, which in turn can result in children's behaviour problems, falling behind in school and poorer health outcomes. Similarly, it has been argued that family structure has an impact across several domains of development. Family structure and socio-economic influences are two of the many contextual influences that have a major influence across a variety of domains of development (Case & Paxson, 2002).

1.4.2 AGE 13 YEARS: BEFORE AND AFTER

The achievement patterns of 13-year-olds link with childhood and with young adulthood. This is also true with regard to behaviour, social relationships and emotional development. An interesting illustration with regard to school achievement is found in the work of Alexander et al (2007), based on the Baltimore Beginning School Study. The specific target of this work was the 'summer learning gap' identified in the 1970s, which showed that achievement gaps by family SES and race/ethnicity widen more during the summer months than during the school year. Their study decomposed achievement scores at the start of high school into their developmental precursors, back to the time of school entry in first grade, and found that cumulative achievement gains over the first nine years of children's schooling mainly reflect school-year learning, whereas the high SES-low SES achievement gap at ninth grade mainly traces to differential summer learning over the elementary years. These early out-of-school summer learning differences, in turn, substantially accounted for achievement-related differences by family SES in high-school track placements (college preparatory or not), which in turn impact on high school non-completion and college attendance.

As might be expected, there are difficulties in pinpointing the precise impact of any particular length of time in gauging the consequences of life events and experiences. As will become clear below, there is evidence that spending several years in a one-parent or divorced family gives rise to more detrimental outcomes for children than a relatively short time, possibly because of the prolonged lack of relational or financial supports. Furthermore, it may take a relatively long time following parental divorce for children to adjust, but after this period they may show adjustment that is as good as children whose parents did not divorce.

Examples in the research show that early life experiences may have important consequences for later childhood and adolescence. In one of the ***Growing Up in Ireland*** studies, it has been shown that experiences as an infant may have important consequences. The study by McCrory and Layte (2011) examined the relationship between early breastfeeding and children's academic test scores at age nine years, in the first wave of the ***Growing Up in Ireland*** study. It is striking that the advantage of being breastfed remained (but was lowered) when adjustments were made for a range of child,

maternal and socio-environmental conditions. It was especially interesting that, while the advantage of breastfeeding applied to all social groups, it was largest among the most socially disadvantaged.

There is evidence in school achievement of what might be called an 'upward spiral of causality'; that is, success in one learning domain leads to further success, which in turn increases the association between positive influences and school achievement. An interesting example of this phenomenon is found in the effects of print exposure on reading achievement from infancy to adolescence. A recent review (Mol & Bus, 2001) found that children who were more proficient in reading skills read more, and consequently their reading and spelling skills improved with each year of education. As a result print exposure explained 12 per cent of the variance in oral language skills in primary school but this had increased to 19 per cent by age 14 years and to 30 per cent at the end of high school.

Related to these changes, it has been argued, is an increase in the extent and range of individual variability (Kuhn, 2005). In the second decade of life (and particularly after age 13 years) individual variation becomes more pronounced in relation to specific abilities and aptitudes. Partly because of concentrated engagement in the activities they choose, adolescents get even better at what they are good at, thus increasing the range and diversity of individual pathways. Indeed, it has been argued that what happens in middle childhood may be a second critical period and may be as important as the first years of life (Feinstein & Bynner, 2004).

1.4.3 CULTURAL DIFFERENCES

There is increasing recognition that cultural differences play an important role in moderating the influence of various influences in development. In considering cultural differences, though illustrated here in relation to mental-health matters, arguments might be made for other aspects of development. A recent meta-analysis identifying studies of mental health among young people aged 12-14 (Patel, Flisher, Hetrick & McGorry, 2007) showed that summarising data across different countries or across different cultures was rather difficult, given that many studies often include figures for children, older adults or both. The authors found that rates of mental disorders ranged from 8 per cent (in the Netherlands) to 57 per cent (data from five sectors of care, in San Diego). The Australian National Survey of Mental Health and Well Being reported that at least 14 per cent of adolescents younger than 18 years were diagnosable with a mental or substance-use disorder, while the UK recorded a rate of 12 per cent among 13-15 year-olds, and South Africa 15 per cent among 6-16 year-olds (Patel et al, 2007).

While little information was available on developing countries, cross-cultural variations were evident in extant work – although until recently much of the research in the area of adolescent mental health was insensitive to possible differences in risk factors related to ethnicity (Kazdin & Kagan, 1994), and to the considerable heterogeneity within specific ethnic and racial groups (Murry, Bynum, Brody, Willert & Stephens, 2001). Consequently, a critical gap existed in many areas of normal and abnormal adolescent development for minority youth (Ohye & Daniel, 1999). However, with ethnic minority populations in the US growing at such a rate that they will soon be the numerical majority (Hernandez, 2004), along with increased globalisation and migration in other developed nations, the need to understand cultural variations in children's developmental and mental-health outcomes has become very apparent; with this has come an increase in the attention given to the influence of ethnic and cultural factors and the part they play in the mental-health outcomes of young people.

An example of this kind of research includes findings from the UK indicating that rates of mental disorder in young people of English origin are four times greater than among those of Indian origin (Green, McGinnity, Meltzer et al, 2004). Some cultural factors might be protective – for example, parental involvement in young people's decision-making and the tendency to form friendships within one's cultural group (Bhui, Stansfeld & Head, 2005) – whereas others might have the opposite effect, such as restricted autonomy for women.

In the US, research suggests that youth in some cultural communities, such as Asian/Pacific Islanders, may have a greater tendency towards internalising mental-health symptoms (such as depression or withdrawal) rather than externalising behaviours (such as aggression). These differences may lead to greater numbers of youth from minority backgrounds not being identified as having mental-health conditions, or receiving interventions (such as imprisonment) that do not address the underlying concerns (US Public Health Service, 2000). Furthermore, while many studies have used adolescents as informants, several researchers have suggested that parents may use different thresholds for labelling youth behaviour or symptoms as potential mental-health problems, leading to an under-identification of mental-health problems for certain cultural groups (Yeh et al, 2004). Moreover, adolescents from different ethnic groups may also have different understandings and thresholds in relation to mental-health issues.

More of a concern is that studies of youth therapists in the US have found that African-American adolescents are more likely to be viewed as having delinquent/criminal leanings, compared to white adolescents who are more likely to be seen as having potential mental-health concerns (Adler & Stewart, 2010). This not only had implications for accurately identifying incidence of particular disorders, but also carried implications for the type and appropriateness of potential treatments offered.

While the examples cited above relate particularly to cultural influences on mental-health issues, the findings are of particular importance to Ireland, for two reasons. First, there is a substantial body of evidence to be considered later that shows a strong association between mental-health challenges and a variety of other outcomes, including school achievement (e.g. Durlak et al, 2011). Secondly, as Ireland continues to become a multi-ethnic society, variations of the kind considered here are likely to become more relevant.

1.4.4 CHANGES OVER GENERATIONS

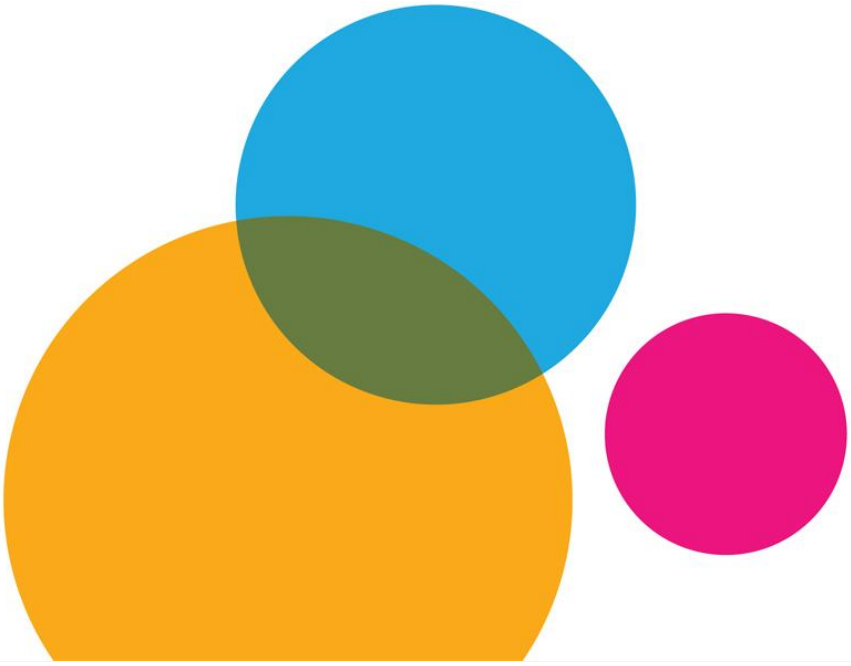
While many of the influences (home, family and community) are shown to have relatively similar influences across generations, it is particularly interesting to examine instances where this is not the case. An important exception concerns gender differences in mathematical ability and performance. In Ireland, this is an especially important topic, given the high proportion of children and adolescents in single-sex schools. It is also noteworthy that the topic has been the subject of substantial media commentary (in particular, in April-May 2014). The current picture emanating from international research is therefore of particular relevance.

Traditionally, there was some disagreement over the exact nature of the advantage of boys over girls in mathematics. Twenty years ago, the consensus was that boys fared better in tests involving spatial relationships and that male scores were more variable than female scores (Hyde et al, 1990). However, it is clear that this is no longer the case. A recent meta-analysis of 242 studies representing the testing of over 1.25 million people, including a large proportion of adolescents, indicates no mean difference and no significant difference in variance on a variety of measures (Lindberg et al, 2010). The authors of that meta-analysis conclude that males and females perform similarly in ability tests in every aspect of mathematics. It is also worth noting that the Effective Pre-School, Primary and Secondary Education project (EPPSE), which investigated the academic development of children in the UK from age 3+ years to age 14, found no significant differences in mathematics or science performance at age 14 years (Sammons et al, 2012).

An important question is why these changes have occurred over a generation. Some explanations focus on self-fulfilling prophecies; that is, the beliefs regarding differences have changed over the years, resulting in the disappearance of differences that were once thought to be biologically determined. Even if this is a factor, there is a need to specify at other levels what mediated the change, since a collective belief is likely to mediate other factors that change opportunities and expectations. As noted above, collective beliefs are an important feature of the ***Growing Up in Ireland*** conceptual framework.

Chapter 2

HEALTH AND PHYSICAL DEVELOPMENT OF 13-YEAR-OLDS

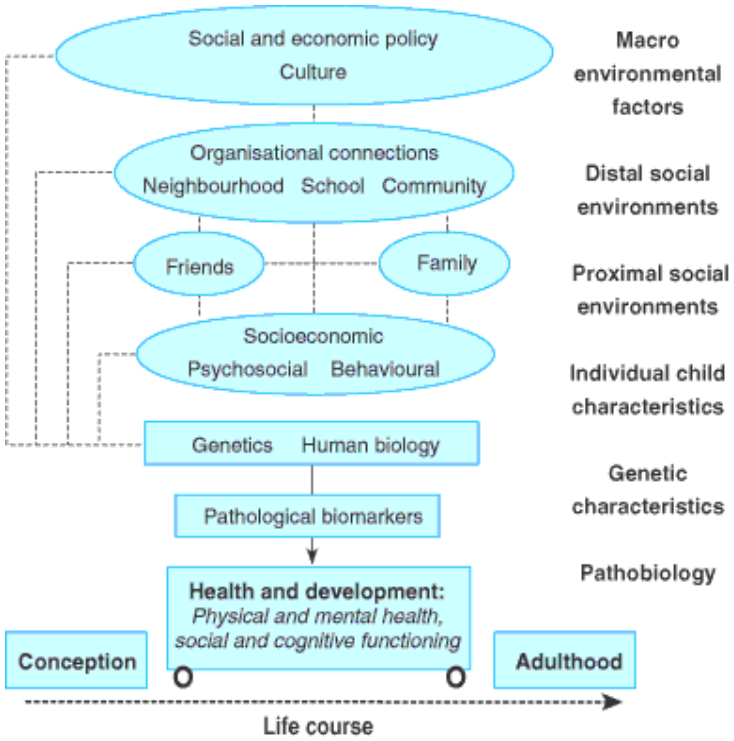


CHAPTER 2: HEALTH AND PHYSICAL DEVELOPMENT OF 13-YEAR-OLDS

2.1 INTRODUCTION

Within the holistic child framework in Growing Up in Ireland, health and physical development is not merely a static descriptor of physiological function, but a dynamic factor that shapes how a child experiences, relates to and interacts with his or her environment. It is recognised that genetic, personal, environmental and social influences on health and physical development are synergistic and transactional in nature, and reflect the bidirectional effects of child and context interacting over time (Masten & Gewirtz, 2006). This is particularly the case for 13-year-olds, where the onset of puberty, growth spurts and brain development are largely biological phenomena but are influenced by environmental factors. This is illustrative of the ecological model which recognises that a child's health and physical development is shaped by genetic composition, as well as the proximate and distal context in which they live (see Figure 2.1), and that the influence of these factors will vary across the life-course as the individual moves from childhood into adolescence, and on into adulthood.

Figure 2.1: Ecological model of health and physical development across the life-course (from Nicholson & Sanson, 2003)



Although early adolescence can be considered as a discrete developmental period in its own right, within the life-course perspective adolescence, starting around age 13, is a dynamic developmental stage contiguous between childhood and early adulthood (Johnson et al, 2011). It is a time of major developmental change, characterised most markedly by the changes in physical development that accompany sexual maturation and reproductive competence. As well as major neurological and cognitive changes, it also signifies a period of social transition in the lives of children, characterised by increasing independence from parents and the rising influence of the peer group. The centrality of child agency in Bronfenbrenner's ecological model is reflected in their decisions on whether to engage in health-promoting or health-compromising behaviours, and these decisions are clearly influenced by the wider social context in which they live, including family, peer, school, community and wider environmental influences on health and physical development.

The life-course approach attempts to understand how health and physical development unfolds over time; how it is affected by physical and social exposures that occur during gestation, childhood, adolescence and adulthood

(Ben-Shlomo & Kuh, 2002); how variations in health are related to longer-term outcomes, such as educational attainment and socio-economic position, and how these may in turn come to affect adult health outcomes. The life-course perspective differentiates between 'critical periods' and 'sensitive periods'. A critical period is defined as a limited time-window during which an exposure can have partially or wholly irreversible effects on development, whereas a sensitive period is one in which an exposure has a stronger effect than it would have at other times (Ben-Shlomo & Kuh, 2002). The results of a series of studies exploring the effects of prenatal malnutrition during the Dutch Winter Hunger (1944-45) on a range of adult health outcomes provides support for the existence of critical periods in human development that may modify disease risk across the life-course. Studies from other countries, especially the United States, support these earlier findings. For example, malnutrition that occurs early in prenatal life has been associated with increased risk for schizophrenia (see Factor-Litvak & Sussar, 2004) and coronary heart disease in adulthood (Roseboom et al, 2000), while malnutrition occurring in the final trimester of prenatal life has been associated with insulin resistance in later life (Ravelli et al, 1998). Evidence for sensitive periods comes from research which shows that the social gradient in health, which is apparent in early childhood and is well-established by adulthood, is less pronounced during adolescence. This has prompted some investigators to conclude that the dampening of the effect may be a consequence of ecological factors operating at the school or neighbourhood level that exert stronger influences during adolescence than at other stages of the life-cycle (Starfield et al, 2002). If this is indeed the case, then studying how these influences modify health during adolescence may provide insights into how health can be improved.

Nevertheless, it is possible to be vulnerable to a disorder or problem and never manifest any difficulties in development because the provoking agent or environmental hazard never occurs (Masten & Gewirtz, 2006a) or because other factors operating at different levels of the child's ecological context insulate them against the potentially adverse consequences of exposure to the risk factor. Indeed, the past four decades have witnessed burgeoning interest in research on resilience in childhood; in understanding the processes, factors and dynamics involved in the development of resilience, and addressing the extent to which it can be fostered. As described by Masten and Gewirtz (2006b), improved understanding of the processes that foster resilience requires a life-course approach to this problem that is cognizant of influences operating at different levels of the child's ecological context:

"… many processes at multiple levels of analysis are likely to be involved in human resilience. To understand resilience, one must understand the complex adaptation and development of living systems in context over time, from "neurons to neighbourhoods" (p.2).

Emerging theories of childhood development and behaviour emphasise the importance of 'biological sensitivity to context' (e.g. Boyce & Ellis, 2005) or 'differential susceptibility' (e.g. Belsky, 2005) in attempting to account for individual differences in children's responses to environmental circumstances and how this affects developmental outcomes. These models suggest that individuals who display high neurobiological susceptibility to the environment are those who are most disadvantaged by adverse environmental exposures, and also those who benefit most when exposed to a nurturing environment (Ellis & Boyce, 2011). In a recent paper synthesising the evidence that emerged across genetic, epigenetic, neural, neuroendocrine and behavioural studies, Ellis and collaborators (2011a) provided a compelling argument that neurobiological susceptibility may moderate the effects of environmental effects in a 'for better or for worse' manner. Of most relevance for the current review are the results of studies at the behavioural level, where phenotypic markers of neurobiological susceptibility usually involved some index of negative emotionality such as difficult temperament. Pluess and Belsky (2009) reported that the effect of childcare quality on behavioural problems at 4-5 years varied as a function of infant temperament. Children who were characterised as having a difficult temperament had higher levels of behavioural problems where childcare quality was low, and fewer problems when it was high. Interestingly, no effect of childcare quality was observed among children who were characterised as having an easy temperament. These effects were still apparent when the same cohort of children was revisited at 11-12 years of age, using teacher reports of behaviour (Pluess & Belsky, 2010). The results of other studies that have adduced support for the differential susceptibility hypothesis are described in the review article by Ellis et al (2011a). The implications of this type of research for improving understanding of why the rearing environment affects some children more than others may provide valuable insights into how resilience can be fostered in genetically sensitive children. Ellis and collaborators (2011a) speculated that there may be domain-specific neurobiological susceptibilities, and that

intra-individual susceptibility may vary or remain invariant over time; longitudinal studies would thus be required to further clarify these relationships.

Growing Up in Ireland provides empirical data for this emerging developmental science of human development which attempts to clarify the multiple, interacting and reciprocal influences on developmental outcomes, and how the insights provided by longitudinal studies can be leveraged to improve individual and population-based health. For example, Blane (2006), in an excellent review article, contended that understanding of the relationship between SES and health has grown with the maturing of the British cohort studies; several recent reviews described how longitudinal child cohort studies have contributed to a fuller explication of how biological and social factors affect children's health and development over the life-course (Elliot & Shepherd, 2006; Golding, 2010; National Academy of Sciences, 2006; Power & Elliot, 2005). The UK's National Child Development Study (NCDS), for example, has generated over 900 research publications, mostly in the area of health. Prominent findings include the deleterious consequences of prenatal tobacco smoke exposure on birth-weight and childhood asthma, and tracking of obesity risk from childhood into adulthood indicating that overweight children were more likely to become overweight adults; Power & Elliott (2005) contend that this cohort was among the first to demonstrate the link between early patterns of infant growth and longer-term adult health outcomes. While acknowledging the limitation of data from two waves, it is clear therefore that longitudinal studies such as Growing Up in Ireland have the potential to increase understanding of the factors that influence health and development over time in a salutogenic or pathogenic manner, and can contribute to the development of evidence-based policy initiatives designed to increase the health of children and adolescents in Ireland at this time and into the future.

2.2 WHAT IS THE EVIDENCE ON THE EFFECTS OF ENVIRONMENTAL FACTORS ON THE TIMING AND ONSET OF THE PUBERTAL GROWTH PERIOD, WITH REFERENCE TO AGE 13, AND WHAT ARE THE IMPLICATIONS OF THIS RESEARCH?

Height and weight serve as key indicators of children's growth and development. The teenage years are characterised by rapid changes in body size, shape and composition as children enter the pubertal growth period. Girls average a peak height velocity of 9cm per year at 12 years of age and a total gain in height of 25cm during the pubertal growth period. Boys obtain a peak height velocity of 10.2cm at about 14 years and gain an average of 28cm in height during the pubertal period. Puberty is also a time of weight gain: 50 per cent of adult weight is obtained during adolescence. Peak weight gain in girls occurs about six months after peak height and reaches 8.5kg per year at 12.5 years of age, while peak weight velocity in boys occurs at about the same time as peak height velocity and averages 9kg per year (see Rogol et al, 2000 for a detailed review).

Pubertal development signals the beginning of adolescence and occurs somewhat earlier in girls (11 years) compared with boys (13 years). This in turn has implications for data from ***Growing Up in Ireland*** since most boys will have just started puberty while most girls will be through this development. Sisk and Zehr (2005) provided a comprehensive description of the neuro-endocrine changes that occur in the adolescent during puberty, which leads to the development of secondary sexual characteristics and eventual reproductive competence. Of course, these normative patterns disguise considerable heterogeneity in the velocity of children's growth trajectories and in both the timing and tempo of puberty. The timing of puberty has been shown to be strongly regulated by genetic factors; about 50 per cent of the variance in timing of menarche is attributable to genetic influences (Towne et al, 2005), although twin studies indicate that it may account for considerably more (Wehkalampi et al, 2008). Nevertheless, studies documenting secular shifts in the age of onset of puberty, particularly among girls, supported the proposition that the timing of puberty is responsive to environmental influences (Euling et al, 2008). Indeed, it has been claimed that the shift to the right of the Body Mass Index (BMI) distribution that has occurred among children in recent years – reflected in rapid increases in the prevalence of paediatric overweight and obesity – may be promoting earlier onset of puberty. Consistent with such a proposition, epidemiological studies documented earlier onset of puberty among those populations which have registered the greatest increases in BMI (Ogden et al, 2000) and among those who have migrated from developing to developed countries (Parent et al, 2003). This seems to indicate that environmental factors are important.

Understanding the reasons for this secular shift in the timing of the onset of puberty among girls is an emerging area of research. Much of the evidence is summarized in the excellent review article by Kaplowitz (2008), which showed that the preponderance of cross-sectional and the few prospective studies that have examined the relationship between BMI and puberty onset seem to support the proposition that fat mass can trigger early onset. Interestingly, the effect seems to be confined to earlier onset; there is little evidence to suggest that either the tempo or rate of progression of puberty has accelerated (Golub et al, 2008). Nevertheless, the possibility cannot be ruled out that higher body mass may be a consequence of early puberty; further longitudinal studies are required to further disambiguate this correlational relationship (Ness, 2006). Walvoord (2010) provided a more nuanced assessment of the weight that can be attached to these findings, noting the methodological limitations that complicate the interpretation of the evidence, including differences in sample sizes, ages of the children included, and methods of pubertal assessment (breast development, pubic hair development, age at menarche). She accepted that, while the evidence appeared to support a downward trend in age of breast development, this does not hold for all indicators, with the age of onset of menarche remaining fairly stable over the last 50 years. Common to both reviews is the acknowledgement that information concerning the extent to which temporal shifts in puberty onset are evident among boys is limited, possibly because of the difficulty in indexing pubertal development among boys (Ness, 2006).

Further evidence that the age of onset of puberty may be modified by the environment comes from familial studies which show that family adversity – indexed using a variety of measures, including father-absent homes, higher levels of parent-child conflict, and parental coercion – can bring forward the timing of menarche (Belsky et al, 2007). Similarly, there is evidence accruing from prospective studies that parent-child interaction patterns characterized by warmth and reciprocity are associated with later onset.

However, as Walvoord (2010) rightly acknowledged, temporal shifts in the age of onset of puberty need only be of concern if the factors causing this change are of concern, or if they are associated with adverse outcomes. This is a view echoed by Golub et al (2008) who contend that, if there has been a secular decrease in the age of pubertal maturation, it is essential to study the impact of these changes for health and development at the individual and population level. In the literature surveyed, there is evidence that earlier onset of puberty is associated with higher rates of internalizing problems such as depression (Kaltiala-Heino et al, 2003) and anxiety disorders in girls (Reardon et al, 2009), but evidence for an association among boys is more equivocal. Researchers continue to dispute the age at which major differences between the sexes in rates of depression first become apparent, but the onset of puberty has been identified as a crucial developmental juncture in the etiology of female depression (Wade, Cairney & Pevalin, 2002). It has been suggested that the mismatch produced when sexual maturation outpaces psychosocial maturation may leave those who enter puberty early less capable of operating in an environment with changed expectations regarding their competencies, and this may leave them more vulnerable to developing maladaptive coping strategies (Gluckman & Hanson, 2006). However, this remains an under-researched phenomenon.

Other prospective studies have linked early puberty with earlier initiation of smoking (van Jaarsveld et al, 2007), and with delinquent behaviour and earlier sexual experiences (Johansson et al, 2005). The study by Johansson et al (2005) is relevant as they found that the effects of early puberty on psychosocial health were limited to adolescence, and no longer evident in adulthood. With regard to physical health, the evidence is inconsistent, but some studies have shown an increased risk of testicular cancer among early-maturing boys, and precocious puberty has been linked with breast cancer in girls (Golub et al, 2008; Walvoord, 2010). There is also some indication that delayed onset of puberty may carry increased risk for attention deficit disorder (Sedlmeyer & Palmert, 2002), though the evidence is far from conclusive and a mechanism remains elusive.

There are indications in the literature of a number of unresolved issues in this field. For example, Kaplowitz (2008) contends that at present it is unclear whether higher BMI precipitates, or is a consequence of, earlier puberty, while Golub and collaborators (2008) have questioned how far from the normative course of onset age at puberty has to deviate before it carries increased risk for adverse physical and psychological outcomes. Finally, Euler et al (2008) have emphasised the necessity for additional longitudinal studies to identify critical windows of exposure in humans. This is an area where ***Growing Up in Ireland*** is likely to be able to make a contribution to the literature, given that it has collected prospective measures of children's height and weight at nine and 13 years of

age. The study also collected information from girls at age 13 about whether they had started to menstruate and the timing of their first period. This will allow for an examination of whether higher BMI is a cause or consequence of earlier maturation. Measurement of the timing of puberty in boys is more complicated in the absence of direct assessment, so the stage of pubertal development among boys will be indexed using a vocal measure assessing the extent to which their voice has changed. This has been shown to be correlated with testis volume (Harries et al, 1997), and other studies have shown that it is related to the timing of the pubertal growth spurt (Hagg & Taranger, 1980). ***Growing Up in Ireland*** also obtained information on a range of sociodemographic and environmental factors such as family structure and the quality of the parent-child relationship, so one can examine whether adverse home circumstances can trigger early onset. Finally, ***Growing Up in Ireland*** also sought an extensive array of information on physical, psychological and educational outcomes; this may allow for an investigation of how these vary and in turn whether they are associated with the timing of puberty.

2.3 HOW DO SOCIAL CIRCUMSTANCES INFLUENCE HEALTH?

The association between wealth and health has been acknowledged for centuries (Adler & Stewart, 2010; Phelan et al, 2010). One of the most consistently documented findings in epidemiological research is that child health is socially patterned and that children at the lower end of the social spectrum are disproportionately more likely to suffer the burden of ill-health (Boyce & Keating, 2004). These patterns have been observed across a wide variety of health outcomes, including low birth-weight (Kramer et al, 2000), general health status (Case & Paxson, 2002), chronic illness (Hysing et al, 2009), oral health (Nunn, 2006), accidents and injury (Roberts & Power, 1996), obesity (Stamatakis et al, 2010) and socio-emotional health (Bradley & Corwyn, 2002; Propper & Rigg, 2007). The gradient is apparent in early infancy and extends through childhood and adolescence into adulthood (Chen, 2004), though there is some suggestion that the strength of the association may vary across childhood and adolescence (Chen et al, 2006). Gradients are found irrespective of whether education, income, social class or a large number of other SES indicators are used, and even in countries with universal healthcare coverage (Currie & Wanchuan, 2007). Indeed, it has been estimated that, if all children had the same outcome as the most socially advantaged, this would lead to a 24 per cent reduction in the incidence of low birth-weight, a 41 per cent reduction in longstanding illness or disability, a 27 per cent reduction in asthma prevalence, and a 54 per cent reduction in conduct disorders (Spencer, 2010).

Recent years have witnessed a shift in emphasis away from documenting the pervasiveness and magnitude of the association towards a better understanding of the pathways through which social circumstances, including SES, impacts upon health, both in childhood and over the life-course (Adler & Stewart, 2010; Case et al, 2002; Conroy et al, 2010). The relationships are difficult to disentangle both theoretically and empirically. At present, it is unclear whether health and mortality differentials across different socio-economic groups are a function of the positions themselves and the conditions they beget; a result of earlier health conditions that influence both socio-economic status and the risk of poor health, or the outcome of reverse causality, where poor health status in adulthood leads to 'drift' down the socio-economic scale (Ben-Shlomo & Kuh, 2002; Conroy et al, 2010). Understanding how social differences 'get under the skin' (Taylor et al, 1997) to influence health and development over the life-course is a research agenda that is truly multidisciplinary in scope; it requires an awareness of factors operating at the level of the gene and the environment, and should be embedded within a developmental framework that can take account of multiple and transactional influences on outcome, and has the temporal resolution to discern associations into antecedents and pathways.

An obvious advantage of child cohort studies such as ***Growing Up in Ireland*** is that they can improve our understanding of when SES gradients in health and physical development first emerge. For example, research with the ***Growing Up in Ireland*** Infant Cohort revealed the presence of a socio-economic gradient in weight at birth; children of mothers with a degree-level background weighed 140 grams more on average compared with those whose mothers had a secondary-level qualification or equivalent (Williams et al, 2010). The results of the US National Health Interview Survey (n = 231,131) revealed marked differences between social groups; 90 per cent of parents in the wealthiest quintile reported that their children (age 0-9) were in excellent or very good health compared to 66 per cent of respondents in the lowest quintile. Moreover, analysis of the data at the second sweep (age 10-17) revealed a widening of the social gulf; only 63 per cent of children in the lowest band were in very good health compared to 90 per cent in the highest band (Case & Paxson, 2002).

A question that has concerned investigators in recent years (Case et al, 2002; Chen et al, 2006; Starfield et al, 2002) and one which ***Growing Up in Ireland*** is well placed to address, given that the middle childhood cohort extends across the age range from nine to 13 years of age, is the extent to which the social gradient in health, which has been observed early in childhood and is well established in adulthood (Power et al, 2007), is apparent during adolescence. Although some commentators have adduced evidence to support the contention that the social gradient in health widens across the life-course (Case et al, 2002; Currie & Stabile, 2003), others have argued that the social gradient becomes less pronounced during adolescence (West & Sweeting, 2004). West and Sweeting (2004) examined this issue using data from the West of Scotland 11-16 study, which followed children from late childhood (11yrs) through early (13yrs) and mid-adolescence (15yrs) across a wide array of health indicators. They found evidence for a reduction in health inequalities during adolescence across several health measures, including physical and malaise symptoms, longstanding illness and limiting illness; however, there was still differentiation in ratings of self-rated health and adolescent height by SES. But what factors explain the dampening of the socio-economic gradient in health that has been observed during adolescence? West (1997) speculates that the gradient is eroded during adolescence because other influences, such as the peer group or the school environment, exert increasing influence on health and health-related behaviours

"… when one or more influences associated with age (the school, peer group or youth culture) cut across those associated with class (the family, home background, and neighbourhood) the net effect of which is to reduce, remove or even reverse social class differences in a characteristic present in the earlier period of childhood" (West, 1987; p.836).

As Chen and colleagues (2006) rightly acknowledged, this is an important theoretical and empirical issue as it raises questions concerning the critical chronological and developmental periods during the life-course when the effects of SES on health may be particularly salient. This is an area where longitudinal studies could provide greater clarity as they allow for tracking of the health status of the same individuals over time. Other studies have shown that the nature, timing and extent of economic deprivation may be an important factor in determining health trajectories. Nikiema et al (2010) reported the results of a cross-national study which examined the relationship between living in poverty and a number of indices of health functioning in early childhood, using data from the first two waves of the UK's Millennium Cohort Study (MCS) and the Quebec Longitudinal Study of Child Development (QLSCD). These investigations found evidence that the experience of living in poverty may have differential effects on children's health depending on the period during which it occurs, and the national context.

Cohort studies can also show whether an improvement in health concurs with an improvement in socio-economic circumstances. For example, a longitudinal study using the NLSCY data (n = 6306) found that historic income was a stronger predictor of child health outcomes at 10-11 years of age than was current income (Chen et al, 2007). Analyses revealed that lower family income between the ages 0-5 years was associated with increased risk of having a condition that limited activity and of having a condition that required physician treatment at 10-11 years of age, net of current family income.

Minimising health inequalities between different socio-economic groups is an important national health objective under the National Anti-Poverty Strategy (Department of Social, Community and Family Affairs, 1997). It has been argued that unravelling the reasons for the existence of the social gradient requires a longitudinal approach. The majority of studies examining the relationship between SES and health have been cross-sectional in nature; Adler and Stewart (2010) note the limitations inherent in cross-sectional designs:

"These designs cannot rule out alternative explanations ... including potential endogeneity and reverse causation ... Increasingly studies are using longitudinal data and applying statistical techniques to explore causal direction" (Adler & Stewart, 2010 p.18).

Power and Elliot (2005) argued that research with the National Child Development Study (NCDS) cohort suggests that social inequalities in health result from the accumulation of adverse exposures across the life-course rather than through its effects on the acquisition of social capital leading to socio-economic drift downward (i.e. the process of health selection). Growing Up in Ireland involves strong operationalisation of socio-economic position, including household social class, household income, parental education, household deprivation, and parental

employment status, and is set within an investigative framework that recognizes proximal and distal influences on development that is sensitive to change over time. The study, therefore, is well placed to examine how health varies across childhood and adolescence as a function of social circumstances, and the mechanism linking SES and health. However, the limitations deriving from having two data points is especially relevant. While such data (at two times) can give a valuable profile of development, there are limits as to the conclusions that can be drawn about causal relationships. Only with three or more data points can convincing arguments be made about the critical causal influences.

2.4 HOW DOES THE EXPERIENCE OF CHILDHOOD CHRONIC ILLNESS AFFECT HEALTH AND DEVELOPMENT, DURING CHILDHOOD AND ADOLESCENCE?

Chronic illness is common in childhood, affecting a sizeable minority of the childhood population. While the prevalence varies depending on the operational definition employed, it has been estimated that chronic illness affects anywhere between 10 and 31 per cent of the childhood population (Newacheck & Taylor, 2001; Northam, 1997; Geist et al, 2003). Although the majority of children and families with a chronic illness adapt to it, as a group they are at increased risk of a number of adverse outcomes, including reduced schooling and academic attainment (Eide et al, 2009; Maslow et al, 2011) and higher levels of psychological maladjustment (Hysing et al, 2009). Longitudinal studies have also shown that the experience of childhood chronic illness may impact negatively on educational attainment at adolescence and beyond, as well as on socio-economic position in adulthood (Maslow et al, 2011; Kokkonen, 1995). For example, the study by Maslow and collaborators (2011) using data from the (US) National Longitudinal Study of Adolescent Health found that children classified as having a non-asthmatic chronic illness at 12-19 years of age were less likely to have graduated from high school, and were more likely to be unemployed and claiming disability supports in young adulthood. Understanding the mechanisms involved in this additional risk of poorer outcomes among children with a chronic illness as well as the protective factors that buffer children against adversity is an important prerequisite for developing programmes that may improve the well-being of children and families living with a chronic illness.

An important common theme in research on chronic illness is that poor psychological adjustment is frequently found across illness types (Le Blanc et al, 2003). Indeed, numerous studies have found that children with a chronic illness or disability are at increased risk of poor psychosocial outcomes (Cadman et al, 1997; Gortmaker et al, 1990), as are their parents (Breslau et al, 1982) and siblings (Sharpe & Rossiter, 2002). A number of possible explanations for increased psychosocial risk in children with chronic illness have been mooted. Disease parameters such as the specificity, duration and severity of the illness have been investigated in a number of studies (e.g. Daltroy et al, 1992; McClelland & Cohen, 2007; Midence et al, 1996) but have been found to be less important than parent and family functioning variables in predicting psychosocial outcomes for sick children (Cadam et al, 1997). The experience of childhood chronic illness or disability can impose significant strains on the child and the family unit. The transactional stress and coping model of childhood illness conceptualises chronic disease as a stressor to which children and families must adapt (Thompson et al, 1993). In addition to the burden of additional caretaking demands, the family of the chronically ill child may need to cope with repeated hospitalisations and bouts of ill health (Swanston et al, 2000), uncertainty about the outcome of the illness (Kieckhefer and Ratcliffe, 2000), and reduced social and labour-market participation (Westborn, 1992), with the attendant psychological and financial pressures that accompany such events (Dobbie & Mellor, 2008). For the child, these pressures may include learning to cope with functional limitations imposed by the illness, and reduced schooling and social participation, which may in turn disrupt the development of peer relations and academic attainment.

As might be expected, the stresses associated with caring for or living with childhood chronic illness may lead to tensions in the parent-child relationship and, consequently, higher rates of conflictual interactions. For example, a study by Hermanns et al (1989) found that parent-child conflict was higher among asthmatic children compared to matched controls. It has also been suggested that childhood chronic illness may promote parental over-protectiveness (Chesler & Barbarin, 1987), which is characterised by increased supervision and restriction of activities (see Power, Dahlquist, Thompson & Warren, 2006), though to date there has been limited research exploring the effect of parental over-protectiveness. It would appear, therefore, that the experience of childhood chronic illness has the potential to stress the parent-child dynamic, and it is known that impaired parent-child

relationship quality is itself a risk factor for poor psychological adjustment (O'Connor et al, 2001; El-Sheikh & Elmore-Staton, 2004).

A second prominent theme in the literature and a research question with important policy implications is the extent to which childhood chronic illness impinges upon academic development and educational attainment (Suris et al, 2004). Eide et al (2009) used the Child Development Supplement of the Panel Study of Income Dynamics (PSID) to examine the relationship between chronic illness and children's academic achievement for a sample of 2,908 children aged 5-18 years. Parents were asked whether the child had a doctor-diagnosed medical condition and children's academic performance was measured using a standardised mathematics and reading test. Their analyses revealed some interesting patterns in the data that would seem to caution against treating chronic illness as a uniform condition. They found that speech problems were associated with the greatest performance decrements on the standardised tests, and this relationship held for both boys and girls. ADHD had large negative effects on performance; the effect was larger for girls and statistically significant across mathematics and reading (only with mathematics for boys). Contrary to the researchers' expectations, having a doctor diagnosis of asthma or being overweight was positively associated with test scores, prompting them to speculate (but without firm evidence) that being overweight or asthmatic may reduce recreation time and increase study time.

Layte and McCrory (2013) adopted a path analytic approach using cross-sectional data for the ***Growing Up in Ireland*** cohort at age nine, in an attempt to elucidate the causal processes underlying the association between childhood chronic illness and educational performance. They found that chronic illness was associated with significantly lower test scores on standardised tests of mathematics and reading, and with significantly increased risk of scoring in the problematic range (>90th percentile) on the Strengths and Difficulties Questionnaire. They subsequently estimated separate path models to assess the direct and indirect effects of childhood chronic illness on academic test performance. Their analyses revealed that each missed day of schooling was associated with a significant 0.12 percentage point decrease on the mathematics test. While there was no statistically significant direct effect of chronic illness on academic performance for those without a mental/behavioural condition, there was a statistically significant indirect effect, mediated entirely via its effects on emotional and behavioural problems, controlling for school absence. Given that most studies exploring the relationship between chronic illness and educational outcomes have been cross-sectional in nature (Maslow et al, 2011), longitudinal data from the second wave of ***Growing Up in Ireland*** (age 13) will allow for analysis of the extent to which these differences persist, widen, or are eroded over time. Furthermore, such data will allow for the examination of specific conditions rather than merely identifying the overall effects of chronic illness.

It has been noted that treating and managing chronic illness in adolescence is considered more challenging than for other age groups (Sawyer et al, 2007). As some investigators have pointed out, the shift in chronic illness to earlier in the lifespan, including increasing rates of childhood obesity and adolescent mental health problems, indicates a need to shift the investment in the healthcare system to earlier in the life-cycle (Duderstadt, 2007). However, it has also been argued that good epidemiological data on the prevalence of chronic illness in adolescence is lacking (Sawyer et al, 2007; Suris et al, 2004). Other problems in the literature include the over-reliance on parental report of illness, the differences between chronic illnesses and a lack of information on whether or not children return to health. ***Growing Up in Ireland*** may be able to fill some of the information deficit as it has collected information at age nine and age 13 concerning whether the child has ever had a chronic physical, or mental health problem, illness or disability, the nature of the condition, whether it was doctor-diagnosed, and includes other supplementary questions addressing age at onset and the extent of functional limitations imposed by the illness. This will allow for an examination of how child health and well-being varies as a function of the nature and severity of the illness, and the extent to which chronic illness impacts upon the lives of adolescents across physical, psychosocial and educational domains. It has been suggested that the way in which an adolescent copes with their illness may be responsible for a substantial portion of the variance in their health-related quality of life; thus further research examining the development of resilience in children with a chronic illness would be welcome at this time. In line with research considered here, it might be expected that, as a result, there would be major interactions across the domains of development.

2.5 WHAT ARE THE FACTORS ASSOCIATED WITH ADOLESCENT SMOKING INITIATION?

The teenage years are the peak years for initiation to and development of cigarette smoking (Gilman et al, 2009). According to figures provided by the Health Behaviour in School-aged Children (HBSC) (2001/2002), about one-third of Irish 13-year-olds in their sample reported having ever tried a cigarette, increasing to 57.5 per cent by 15 years of age. An interesting trend to emerge from the Irish data was that, while girls and boys were equally likely to have ever smoked, girls were about twice as likely to smoke weekly (8.5 per cent vs. 4.9 per cent) or daily (5.7 per cent vs. 2.5 per cent) compared with boys at 13 years of age (Godeau, Rahav & Hublet, 2006). This is important from a public health perspective given the well-established deleterious consequences of tobacco smoke for many aspects of physical health and development (Centres for Disease Control, 2011) and because prospective studies tend to show a progression from occasional smoking to daily smoking (Patton et al, 1998). Moreover, it has been estimated that about half of all new male adolescent smokers will smoke for at least 16 years and this figure rises to 20 years for new female adolescent smokers (Pierce & Gilpin, 1996). Therefore prevention of initiation, particularly among teenagers, has become an important national health objective and the subject of targeted anti-smoking campaigns (e.g. NICO advertisements). Furthermore, from the life-course perspective, cigarette smoking is considered an important pathway through which health inequalities and social inequities may arise (Kestila et al, 2006).

O'Loughlin et al (2009) assert that a large number of longitudinal studies (>200) have examined the relationship between adolescent smoking initiation and a wide range of predictor variables. A number of risk factors for adolescent smoking have been identified, including sociodemographic factors such as age and education, psychosocial factors such as depression and self-esteem, genetic factors such as the influence of dopaminic receptor genes, and societal factors such as the influence of television and media. What is less clear is the relative importance of these various risk factors. Summarising results across studies, O'Loughlin et al (2009) argue that most studies consider only a limited range of predictor variables, that there is in fact little longitudinal evidence for most predictors, and that attempts to study the factors associated with smoking onset need to be situated within a systems perspective which takes account of the interaction between individual-level (child agency) and contextual factors (influence of parents and peers, societal factors) over time. The ecological model of ***Growing Up in Ireland*** will improve our understanding of the proximal and distal factors influencing the smoking behaviour of 13-year-olds.

Socialisation processes are believed to play an important role in the development of adolescent smoking initiation. Social learning theory (Bandura, 1996) contends that children develop a range of behaviours that reflect the influence of significant others; consistent with such a proposition, studies have shown that parental, sibling and friend smoking is associated with adolescent smoking initiation (Oh et al, 2010). For example, a prospective study by Bricker et al (2006) of 5,520 families, which assessed children's smoking status when they were 8-9 years of age and again when they were 18 years of age, found that parental smoking at 8-9 years predicted smoking at age 18. In households where at least one parent smoked when the child was in third grade, the probability that a child would try a cigarette by 18 years of age was 32 per cent (OR = -1.67), and the probability that they would make the transition to monthly and then daily smoking was 15 per cent (OR = 1.31) and 29 per cent (OR = 1.58) respectively. Similarly, the estimated probability that an older sibling influences the child to try a cigarette was 29 per cent (OR =1.55) and the probability that they would become a daily smoker was 20 per cent (OR = 1.33). Their analyses also revealed that the number of parents or elder siblings who smoked was positively associated with adolescent smoking. This type of 'dose-response' relationship has also been observed in other studies (e.g. Gilman et al, 2009) and meta-analyses (Leonardi-Bee et al, 2011); one longitudinal study showed that the probability that a child will become a smoker at age 25 increases with the number of years they are exposed to parental smoking (Fergusson et al, 2007). However, the extent to which this represents a direct causal relationship of parental modelling on adolescent smoking remains a matter of conjecture; some analysts have suggested that parental smoking and nicotine dependence may be genetically influenced (e.g. Batra et al, 2000). Some studies have also shown that some young people dislike smoking, especially if both parents are heavy smokers (Grube & Morgan, 1986). This latter study, carried out in Dublin, showed that many young people became aware of the negative consequences of smoking through observing the outcomes for their parents.

It is especially interesting that the probability that a child will smoke is reduced if both parents quit smoking (Bricker et al, 2003; Gilman et al, 2009). While ***Growing Up in Ireland*** does not have information on children's smoking behaviour, when they were nine years of age, it will allow for an examination of the impact of parental smoking status at that time on the probability that the child will be a smoker when they are 13 years of age.

Other studies have shown that positive parenting practices such as expectation-setting and parental monitoring have a protective effect against the development of adolescent smoking. The study by Simons-Morton (2004), involving 1,002 adolescents surveyed at the beginning and end of sixth grade and again when they were in seventh grade, found that parental expectations at the beginning of sixth grade – indexed using six items in which the adolescent indicated how upset their parents would be if they found out the teen had smoked a cigarette or engaged in other problem behaviour – was inversely associated with smoking initiation in seventh grade. Avenevoli and Merikangas (2003), by contrast, summarise evidence which shows that inconsistent monitoring and lack of parental warmth may be important moderators of the relation between parent and adolescent smoking. A twin study by Dick et al (2007) implicated both genes and environment in the onset of adolescent smoking, showing that, at high levels of parental monitoring, environmental factors were predominant, but at low levels of parental monitoring genetic influences were more important.

The extent to which adolescents' decision to smoke is influenced by the peer group is an issue that has generated a large body of empirical research in recent years (Kobus, 2003). The available evidence seems to indicate that peers exert a stronger influence on adolescent smoking than parents (Hoffman et al, 2007). While numerous studies have documented a positive association between peer and adolescent smoking (see Simons-Morton & Farhat, 2010 for a review), the precise mediating basis of the relationship remains problematic; researchers continue to debate whether this reflects socialisation or selection (e.g. Mercken et al, 2009). In terms of the socialising influences of peers, Kobus (2003) describes four theoretical frameworks which have been used to account for the influence of social processes on an adolescent's decision to smoke: social learning theory (described above), social identity theory, primary socialisation theory, and network theory. In addition to social learning theory, social identity theory has received the most attention in the literature. It holds that a homogenisation of behaviour occurs within groups, with individuals realigning their attitudes and behaviours to fit the central identity of the peer group. The selection hypothesis, by contrast, holds that adolescents actively seek out peers who hold similar values, attitudes and behaviours (Grube & Morgan, 1991; Simons-Morton & Farhat, 2010). This is an important theoretical and empirical issue as it identifies areas where intervention may be best targeted to prevent initiation, and it has had a substantial influence on the development of such programmes.

Some longitudinal studies have decomposed the effects of socialisation as opposed to selection using a variety of analytical models, such as latent growth modelling and cross-lagged panel studies, to see whether the evidence supports peer smoking at time one predicting an increase in adolescent smoking at time two (socialisation), or whether adolescent smoking at time one predicts peer smoking at time two (selection). Simons-Morton & Farhat (2010) summarise the results of 13 studies which have compared the relative importance that can be attached to each; they concluded that both socialisation and selection are important, but that selection seems to exert the heavier influence. ***Growing Up in Ireland*** did not ask about friends' smoking behaviour so it will not be able to shed light on these processes, but at age 13 it does ask about the number of friends the child has, the age composition of their friend network, and whether their parents have met their friends. It also includes a standardised measure of the extent to which the child is embedded within the peer group, using the trust and alienation sub-scales of the Inventory of Parent and Peer Attachment (IPPA: Armsden & Greenberg, 1987). This will permit analysis of how these vary by self-reported adolescent smoking, and, if the study continues beyond Wave 2, how these processes influence smoking initiation over time. Since ***Growing Up in Ireland*** uses a multivariate framework, the influence of various factors can be assessed simultaneously. Given the findings of the recent ESPAD studies (e.g. Morgan, 2012), indicating a major fall in smoking uptake by adolescents, it will be of interest to see whether the relative importance of various influences will change in the next decade.

2.6 CHILDREN'S DIET, DIETARY BEHAVIOURS, AND THE INFLUENCE OF PARENTS AND PEERS ON CHILDREN'S WEIGHT AT AGE 13

Obesity and disordered eating are the second and third most common chronic disease types among youth after asthma and respiratory-related diseases (Croll et al, 2002). Cross-sectional analysis of the ***Growing Up in Ireland*** data at age nine revealed that 26 per cent of the cohort were either overweight or obese (Layte & McCrory, 2011). This is worrying from a public health perspective because of the adverse health consequences associated with overweight, which include increased risk for non-insulin-dependent diabetes (type 2), cardiovascular risk, respiratory disorders and a wide spectrum of other chronic diseases (e.g. Sabin et al, 2004). It is especially important that longitudinal studies have shown that obese children have a higher risk of becoming obese adults (Gunnell et al, 1998).

The adverse effects of overweight are not confined to the health domain. Numerous studies show that children who are overweight have more problematic relationships with peers (Foster et al, 2004), lower levels of self-esteem, and lower levels of educational attainment (Gortmaker et al, 1993). The need to study these issues prospectively was highlighted by Dietz (1994), who contends that there are three critical periods for the development of childhood obesity: (1) prenatal life, (2) early childhood around the time when the adipose rebound occurs, and (3) in early adolescence coinciding with the pubertal growth spurt (see also Section 2.2 above). As the Infant and Child Cohorts extend across these reference periods, ***Growing Up in Ireland*** is well positioned to increase understanding of how influences at different levels of the child's ecological context can affect weight status over time. Research also shows that the adolescent period is the peak age for the development of eating disorders. Figures from the HBSC study show that 39.2 per cent of 13-year-old girls and 23.1 per cent of 13-year-old boys are dissatisfied with their body shape (Mulvihill et al, 2006). This finding is important from a developmental perspective because youth who are dissatisfied with their body shape tend to score lower on measures of self-esteem and self-concept, and are more likely to engage in unhealthy weight-control practices, with longitudinal studies indicating a progression from less to more severe disturbances (Polivy & Herman, 2002).

At its most simple, obesity results from a mismatch between energy intake and energy expenditure (Livingstone, 2001), and has multiple causes (Dehghan et al, 2005). While it has long been recognized that there is a genetic component in obesity (Stunkard et al, 1990), genetic factors cannot account for the rapid increases in obesity observed among children and adolescents in recent years (Ness, 2006). Instead, consideration must be given to lifestyle changes and environmental factors as determinants of the current increase (Report of the National Task Force on Obesity, 2006).

A host of factors have been identified at the individual level, including declining rates of physical activity participation (covered in the following sections), increased sedentary behaviour, and changing lifestyle and dietary habits. Parents are clearly an important influence on children's dietary behaviour, being those most proximal to them within the ecological framework developed by Bronfenbrenner. Consistent with this interpretation, a number of prospective studies have shown that parental overweight is one of the strongest predictors of childhood overweight (Danielzik et al, 2002), reflecting the shared contribution of genes and environment. The importance of family socialisation practices, including routines such as the family sitting down to eat a meal together, is underscored by research which shows that children (Skinner et al, 1998) and adolescents (Burgess-Champoux et al, 2009; Neumark-Sztainer et al, 2003) who eat meals with their family tend to have superior nutritional profiles than those who do not. A series of papers from a dedicated longitudinal study of adolescent eating habits (Project EAT: Eating Among Teenagers) shows the value of prospective studies in measuring the influence of the home environment on adolescents' dietary behaviours, weight-control practices and weight status.

Burgess-Champoux et al (2009) explored the relationship between family meal patterns at baseline when the children were 12 years of age and children's eating behaviours five years later. The results revealed that those who participated in regular family meals at 12 and 17 years of age had healthier nutrient intakes at age 17, and that regular family meals were associated with increased frequency of breakfast, lunch and dinner consumption among boys, and with frequency of breakfast and dinner consumption among girls. The results also showed that being involved in family meals was also inversely associated with junk-food consumption in boys. A separate study

based on the same dataset, which looked at the relationship between the frequency of family meals and overweight status over the same five-year span, found that, while family meal frequency was associated with reduced risk of overweight in the cross-sectional models, this relationship no longer held in the longitudinal models after controlling for baseline overweight status (Fulkerson et al, 2008). A consistent finding across several longitudinal studies is that dieting is associated with increased risk of overweight (e.g. Neumark-Sztainer et al, 2006), although it remains unclear whether dieting is a cause of, or a response to, higher BMI. The study by Neumark-Sztainer et al (2006) suggests support for the former hypothesis as they found that those who engaged in unhealthy weight-control practices at baseline such as fasting, eating very little food, meal-skipping and smoking, exhibited a greater rate of weight gain over time and were significantly more likely to be subsequently overweight.

It has been argued that one of the reasons for the increase in rates of overweight is that parents fail to recognise that their child's weight status is problematic (e.g. Huang et al, 2007). Previous research provides some support for this position; studies frequently indicate poor correspondence between measured and parental perceptions of child weight status for those at the higher end of the BMI distribution (e.g. Maynard et al, 2003). In line with this interpretation, Layte and McCrory (2011) found rather poor recognition of overweight among the parents of children at nine years of age in the ***Growing Up in Ireland*** study. A total of 54 per cent of parents whose child was overweight and 20 per cent of parents whose child was obese reported that their child was a healthy weight. Unfortunately, little is known about the factors influencing parental misclassification of children's weight status. However, the longitudinal study by Mamun et al (2008), involving 2,650 adolescents at 14 years of age, found that maternal misclassification of children's overweight status was associated with male gender, child's dissatisfaction with appearance, child dieting to lose weight, and higher maternal BMI. In discussing the results, they acknowledged that parents may be reluctant to classify their child as overweight because of the potentially stigmatizing effects of being labelled as overweight. Alternatively, it could be that parents may be poorly equipped to recognize overweight because their children may not look markedly larger than their peers. Given that the health-promotion literature suggests that behaviour change can only occur once the individual recognizes the need for change, parental misclassification may provide an unfavourable context for initiating change and promoting healthy weight status (Mathieu et al, 2010). ***Growing Up in Ireland*** has captured information on parental perception of the child's weight status at age nine and age 13; this will allow for an examination of the factors affecting this over time, particularly the association between parental misperception at age nine and actual weight at age 13 years.

Parents may also express excessive concerns about weight, shape and diet, which girls may attempt to imitate (Vander Wal & Thelen, 2000). A cross-sectional study involving 356 adolescent girls at risk of overweight found that maternal dieting was associated with increased prevalence of unhealthy and extreme weight-control practices among girls and with higher BMI (Neumark-Sztainer et al, 2010). Interestingly, this effect did not hold for fathers. This supports the view that mothers have a stronger socializing influence on girls' weight-related behaviour than fathers (e.g. Hill & Franklin, 1998). An obvious limitation of this study, however, is that the sample included only children at risk of overweight, so the external validity of the findings for an adolescent population is questionable. Given that ***Growing Up in Ireland*** has measured the frequency with which the mother dieted at age nine and age 13, it should be possible to explore the extent to which parental concerns about their own weight status is predictive of their adolescent's weight-control practices such as dieting and the frequency with which they weigh themselves, and of objectively measured weight status.

Children who are overweight/obese are also significantly more likely to experience bullying compared with their non-overweight peers (Foster et al, 2004). Weight status has been shown to influence patterns of social interaction and behavioural intentions among the peer group; adolescents indicate greater willingness to engage in social, academic and recreational activities with thin as opposed to overweight peers (Bell & Morgan, 2000; Greenleaf et al, 2006; Strauss & Pollack, 2003). Strauss and Pollock (2003) found that adolescents who were overweight or obese received fewer friendship nominations than their normal-weight peers. The authors speculated that the increased social marginalization from friendship networks might contribute to lower ratings of self-esteem and higher rates of depressive symptoms that have been observed among overweight children (e.g. Needham & Crosnoe, 2005). It could well be the case that this relationship only becomes established in adolescence, as Philips and Hill (1998) did not find any differences in the popularity of children by weight status

between the ages of nine and 12 even though they used a similar peer nomination methodology. Societal prejudices may provide part of the context for understanding body dissatisfaction and dietary behaviours among adolescents. Indeed, longitudinal studies have shown that teasing frequency is associated with the development of body image dissatisfaction among middle-school girls (Cattarin & Thompson, 1994; Thompson et al, 1995). In a review of the literature published in 2001, Ricciardelli and McCabe concluded that there are consistent findings of a relationship between BMI and body dissatisfaction in children, particularly in girls. Again, ***Growing Up in Ireland*** provides a context for understanding the relationship between weight status and a range of potential influences including children's self-image and the experience of being teased or bullied about body shape, and how these experiences affect other weight-related behaviours such as dieting.

Socio-economic factors are also implicated in the etiology of obesity. The available evidence seems to indicate that there has been an inversion of the social gradient in weight status over time. While an early review by Sobol and Stunkard (1993) suggested that the relationship between social class and obesity in childhood and adolescence was positive, more recent reviews have established that the prevalence of overweight and obesity is more heavily concentrated among youth from lower socio-economic backgrounds. A series of large population-based studies in Scotland (Sweeting et al, 2008), the UK (Ness et al, 2006; Stamatakis et al, 2010), Germany (Apfelbacher et al, 2007), and Australia (Wake et al, 2007) have established that BMI is inversely related to a wide variety of socio-economic markers, including parental education, household income, social class, employment status, family type, and ethnicity. That the disease burden of chronic illness is most heavily concentrated among those in the lower socio-economic groups is a worrying trend that has implications for the planning, delivery and cost of healthcare. What is more, although there is some evidence to suggest that rates of overweight and obesity have stabilized in recent years among children, the rate has not been equal across all social class groups. The UK study by Stamatakis et al (2010) revealed that, compared to baseline (1997-1998), the 2006-2007 sex- and age-adjusted odds ratio for overweight was 1.88 (1.52 to 2.33) among children from lower socio-economic positions (SEP), falling through 1.25 (1.04 to 1.50) for those in the middle SEP group, and 1.13 (0.86 to 1.48) in high-SEP children. This finding would seem to suggest that government health-promotion strategies are not equally effective across all social groups and that these early social inequalities in weight may serve to increase socio-economic differentials in health and disease risk over the life-course. ***Growing Up in Ireland*** will afford us the opportunity to examine whether these patterns hold for Ireland, and also the extent to which differences in diet, exercise and a host of other factors can explain the social inequalities in weight status.

Like most countries in the Western world, Ireland has witnessed an increase in the rate of overweight and obesity in the past few decades. As the foregoing review has established, it is associated with adverse outcomes for children and adolescents, and if left unaddressed will represent a considerable challenge for healthcare systems in future years. Given the relative intransigence of adulthood obesity, childhood would seem like an apposite time to intervene to challenge and change these behaviours (Livingstone & Robinson, 2000). ***Growing Up in Ireland*** will allow for an exploration of the prevalence rates for overweight and obesity among the adolescent population, how these have changed over time, whether the risk factors for overweight and obesity change during adolescence, and whether the strength and magnitude of peer influences increase over time. The data will permit an examination of how weight status varies across a wide range of sociodemographic and socio-economic predictors, and the extent to which weight status (gains and losses in weight relative to height) is associated with other developmental outcomes over time. In particular, it will be possible to examine predictors of overweight at age 13, regaining normal weight at that age, maintaining or increasing overweight, and decreased overweight.

2.7 HOW DO LEVELS OF PHYSICAL ACTIVITY VARY ACROSS CHILDHOOD AND ADOLESCENCE, WHAT ARE THE CORRELATES OF PHYSICAL ACTIVITY PARTICIPATION, AND WHAT FACTORS ACCOUNT FOR THE GENDER DIFFERENTIAL IN RATES OF PHYSICAL ACTIVITY?

Physical fitness in childhood and adolescence serves as an important marker of health (Ortega et al, 2008). A number of systematic reviews of the literature attest to the beneficial effects of a physically active lifestyle for a wide range of health-related outcomes, including cardiovascular health, muscular strength, weight maintenance, bone density, mental health, and general well-being (e.g. Hallal et al, 2006). What is more, there is evidence that

these benefits extend into other domains, including the development of self-efficacy, social skills enhancement, and improved academic performance (Strong et al, 2005). The available evidence indicates that even small amounts of physical activity can benefit health (Boreham & Riddoch, 2001), so it is unsurprising that an increase in rates of physical activity has become an important public health objective, as much for its role in promoting well-being as for its role in disease prevention. A large body of research has explored the predictors of young people's physical activity participation, including sociodemographic factors such as age and gender, social factors such as the influence of parents and peers, and individual-level factors such as personal competence and self-efficacy (Gustafson & Rhodes, 2006; Sallis et al, 2000; Van der Horst, 2007). More recently, research has grown to encompass other aspects of the environment that may serve to promote or discourage participation (Committee on Environmental Health, 2009).

The extent to which physical activity persists over time has been the subject of a number of papers. The available evidence shows that there are low to moderate levels of consistency from early to middle childhood (Sallis et al, 1995), moderate consistency from adolescence into adulthood (Hallal et al, 2006), and low levels from childhood into adulthood (Malina, 2001). Evidence is more limited concerning the extent of consistency from childhood into adolescence (Malina, 2001), but, as the ***Growing Up in Ireland*** Child Cohort spans this time horizon, it will lead to improved understanding of how the two are related. This time horizon is also important in relation to investigating changing patterns of participation because of the well-documented decline in physical activity that occurs during adolescence (Van der Horst et al, 2007; Nader et al, 2008). This finding implies that processes occurring during the adolescent years cause a displacement of physical activity, and this can have adverse consequences for other aspects of children's health and development. Consistent with this view, a longitudinal study of 345 Estonian adolescents, which followed children over a 22-month period, found that physical activity declined over this time while the amount of time spent engaged in sedentary behaviours (television viewing, computer game playing, doing homework) increased (Raudsepp et al, 2008). Other studies have shown that decreasing the amount of time spent engaged in sedentary activities can lead to increases in levels of physical activity among youth, even in the absence of any targeted intervention to promote activity (Epstein et al, 2001). Understanding the reasons for these changes in children's levels of physical activity during adolescence may lead to the identification of factors that are amenable to intervention. Among the many factors that may be important are mental health, liking for school and parent-child relationship.

A robust finding in the literature is the gender differential in rates of physical activity; girls are significantly less likely than boys to be meeting the recommended guidelines on physical activity (Whitt-Glover et al, 2009). The gender gap emerges early in life (Lunn & Layte, 2009), persists across the life-course (Caspersen et al, 2000) and can be observed across multiple indices of activity (Sallis et al, 1996). According to HBSC figures, the percentage of girls meeting the recommended guideline of 60 minutes per day of moderate to vigorous physical activity (MVPA) declines from 51.1 per cent at 11 years of age through 42.6 per cent at 13 years to 26.2 per cent at 15 years. The corresponding figures among boys are 61 per cent at 11 and 13 years of age, declining to 45.2 per cent at 15 years (Roberts et al, 2004). A number of explanations for the gender differential in rates of physical activity have been advanced, including differing levels of parental support and engagement (Trost & Loprinzi, 2011), different gender-role attitudes and expectations regarding sporting participation (Gustafson & Rhodes, 2006), and perceived barriers to participation (Tergerson & King, 2002).

Other investigators have suggested that differences in self-efficacy (Dishman et al, 2005; Motl et al, 2001) or the experience of being teased about body shape (Slater & Tiggeman, 2011) may account for lower levels of involvement among girls. However, from surveying the literature, it would seem that gender-mediated differences in reinforcement and socialisation have rather limited traction in accounting for the gender gap (Gustafson & Rhodes, 2006; Whitt-Glover et al, 2009). By contrast, Vilhjalmsson and Kristjansdottir (2003) found that girls' lower enrolment in organised sport accounted for a sizeable proportion of the gender differences in physical activity in a large cohort study of Icelandic adolescents. However, replication is clearly necessary, as is a more elaborated understanding of why girls are less likely to enrol. ***Growing Up in Ireland*** includes a number of different measures of physical activity participation, including the frequency with which participants engage in light and heavy exercise, and the extent of involvement in individual and team-based sports. These measures will allow for an examination of variation across a number of demographic variables, including gender and SES, as well as the impact of school and family factors.

A number of parental influences on children's physical activity patterns have been identified, including direct parental modelling of behaviour, parental support and encouragement, and parental facilitation. However, it should be acknowledged that studies have been heterogeneous in their findings and a number of issues remain unresolved (Gustafson & Rhodes, 2006; Trost & Loprinzi, 2011). One of the most researched and keenly debated issues in the literature is the extent to which parents' and children's levels of physical activity are related (Sallis et al, 2000). Although some studies have reported modest associations between parents' and children's activity levels, a systematic review of the literature concluded that the evidence was equivocal: six studies reported a positive association, seven no association, and one study found an inverse association (Gustafson & Rhodes, 2006). More robust is the finding that parental involvement is positively correlated with children's activity levels; the review by Trost and Loprinzi (2011) involving some 71 studies provides tentative evidence that the strength of the association may vary by age, with a higher proportion of studies showing positive associations in adolescence than in childhood.

In an interesting example of the type of insight afforded by longitudinal studies, Ornelas and collaborators, using data on some 13,426 adolescents participating in the National Longitudinal Survey of Children and Youth in Canada, found that family cohesion, parent-child communication and parental engagement in childhood were significant predictors of self-reported physical activity at adolescence, and that adolescent self-esteem mediated the effect of these parental factors on children's physical activity participation (Ornelas et al, 2007). This result has since been confirmed in a separate study (Shields et al, 2008). Self-efficacy has been shown to be an important correlate of young people's physical activity participation (Van der Horst et al, 2007), although cross-sectional studies cannot determine whether it is a determinant or a consequence of participation in physical activity. A cross-sectional study by Hagger and collaborators (2001) provides support for the former hypothesis; they found that higher self-efficacy was positively associated with intention to be physically active among a sample of 1,552 adolescents, and that this relationship held even when they accounted for historic physical activity behaviour. However, longitudinal studies are required to further clarify these relationships.

A separate body of research has examined the role of instrumental supports as a facilitator or barrier to participation (Beets et al, 2010). A cross-sectional Australian study found that the cost of activities (34.3 per cent) and lack of opportunity (20.1 per cent) were the most common parent-reported barriers to youth participation, and that these relationships were most pronounced among the most socially disadvantaged (Smith et al, 2010). Despite the obvious implications of these findings for public policy, there is a notable paucity of research examining the relationship between socio-economic factors and children's activity levels (Gustafson & Rhodes, 2006), which is all the more surprising given that some studies have shown that SES may account for as much as 6.8 per cent of the variance in children's activity levels (Epstein & Goldfield, 1999). ***Growing Up in Ireland*** enquires about barriers to participation, including lack of opportunity and cost of activities, which will allow for an examination of how participation is influenced by these factors. This understanding will in turn allow for an examination of the importance of sociodemographic and socio-economic dimensions.

Less researched but increasingly important are the more distal influences on children's physical activity patterns, such as features of the built environment, that may facilitate or inhibit opportunities for participation (Sallis & Glanz, 2006). Neighbourhoods can modify children's physical activity participation through structural characteristics such as the provision of parks and green spaces, and design features such as neighbourhood walkability and cycle lanes, which may increase opportunities to be active; and through compositional characteristics, including social cohesion and the prevailing social climate, which may influence perceptions of the safety of the neighbourhood environment (Macintyre, MacDonald & Ellaway, 2008). According to a recent position paper by the US Committee on Environmental Health (2009), the proximity of houses to local amenities such as shops and schools has been shown to increase the proportion of trips made on foot or bicycle, while increasing distance is associated with less physical activity. A cross-sectional Canadian study involving 8,535 students participating in the HBSC found that the extent to which streets were interconnected was inversely associated with physical activity among youth between the ages of 12 and 18 years of age. Their analysis indicated that 15.8 per cent of the variance in children's physical activity patterns was explained by street connectivity (Mecredy et al, 2011). ***Growing Up in Ireland*** geocodes every household participating in the study; thus, with the potential to link to other sources of administrative data about the neighbourhood environs, it may prove possible to examine variation in physical activity by the distance to local shops, schools and parks in the same way that

Layte and McCrory (2011) used the geographic data to examine the relationship between the distance to local food outlets and childhood dietary quality.

Studies have examined aspects of the neighbourhood social climate and the extent to which these impact upon children's and adolescents' physical activity participation. A review by Davison and Lawson (2006) concluded that there was poor correlation between subjective assessments of the safety of the local environment and activity levels, but more recent findings dispute this. In a small-scale study comparing levels of physical activity among children from inner-city (n = 204) and suburban settings (n = 103), Weir et al (2006) reported higher levels of parental anxiety among the parents of inner-city youth, and also that higher levels of anxiety were inversely associated with physical activity levels. Similarly, Carson et al (2010) found that children living in neighbourhoods with high levels of parental satisfaction and good footpaths/parks were more likely to be physically active. However, in that study parental ratings of neighbourhood safety were not related to children's physical activity. Nevertheless, the ecological validity of these findings for the Irish context remains contentious given that most of this research has been conducted in the US. This reinforces the need for nationally relevant research that attempts to understand how the neighbourhood social climate – indexed using subjective parental assessments of the quality and safety of the local environment – influences Irish adolescents' activity levels.

The foregoing review has established that many factors contribute to an adolescent's decision to be physically active. Given that a large proportion of adolescents are not meeting the minimum recommended guidelines on physical activity (Roberts et al, 2004; Troiano et al, 2008), a research programme which examines correlates of physical activity among children and adolescents, and how their influence varies over time, may lead to the identification of factors that are modifiable and amenable to change, and in turn to the development of strategies that can encourage participation. It may be especially important to look at children whose physical activity increases or decreases between ages nine and 13.

2.8 SUMMARY AND CONCLUSIONS

Based on the ecological model guiding ***Growing Up in Ireland***, the health and physical development of children and adolescents is conceptualised as being shaped by genetic influences as well as proximal and distal environmental influences. Because age 13 marks an early stage of adolescence, it is a time of rapid change, particularly changes in physical development accompanying sexual maturation. This age is also marked by important social transitions, greater independence of parents and greater influence of the peer group, although family, school and community remain important influences.

There is considerable evidence that the onset of puberty is happening at an earlier age than some decades ago, especially among girls. The indications are that this change is at least partly due to environmental influences, particularly the effect of increased BMI. Other evidence indicating that the onset of puberty may be influenced by environmental factors comes from studies showing that adverse family events can bring forward the timing of the menarche. A more important question concerns the extent to which the earlier onset of puberty is associated with negative social or health outcomes. While the case has been made that the mismatch between psychosocial and sexual maturation may lead to vulnerability in coping, the evidence on this point is weak.

One of the most consistent findings regarding influences on child and adolescent health is that young people at the lower end of the socio-economic dimension are more likely to experience ill-health. This finding extends to a range of outcomes, including chronic illness, injuries and obesity as well as social-emotional challenges. Furthermore, the differentials emerge regardless of which SES indicators are used, including education, income and parental occupation. The current literature is less clear on two important points. First, it is not clear how precisely the effects of social background are mediated, given that the number of possible factors cover a wider range of variables. Second, the extent to which there are linkages between childhood and adolescent differences in health status has not been established. It is not clear whether experiences at adolescence reinforce or augment the social background differences that first emerged in childhood.

The experience of chronic illness during childhood and adolescence has effects beyond the health domain, including lower educational attainment and greater likelihood of non-completion of school. In addition, there are socio-emotional consequences, which can have important effects on relationships with peers. Furthermore,

chronic illness is a stressor in a family and may affect the parent-child relationship, which in turn may result in over-protectiveness. A number of unresolved issues remain, including the process by which illness impacts on educational performance. Furthermore, the part played by different forms of coping is not clear; there is only modest information on the kind of protective factors that enable children and adolescents to be resilient despite the experience of chronic illness.

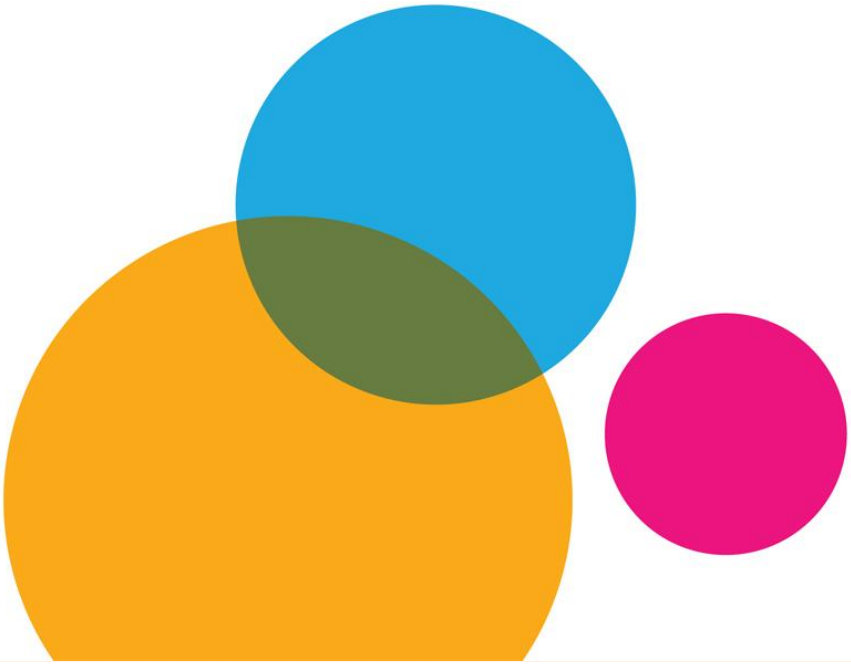
Age 13 and later adolescence is an important time for initiation to cigarette smoking. While evidence of recent years shows a fall-off in uptake, a significant number still begin to smoke at this time. The research in this area has identified a number of important proximal and distal factors that predict the start of smoking. These include parental and peer influences, beliefs about consequences of smoking, monitoring by authority figures, and a range of contextual factors including perceived availability of cigarettes. However, establishing a causal relationship with smoking initiation for any of these variables remains a problem. While peer smoking has always emerged as a strong predictor of smoking, there is considerable doubt as to whether this is a direct influence of peers or a selective effect in that beginning smokers tend to have friends who are similar to themselves in this respect.

A substantial body of evidence indicates that there are many negative consequences of obesity in childhood and adolescence. These include not only health-related matters, but also bullying and less involvement in social activities. A range of factors have been identified at individual and family level as contributing to obesity, including sedentary behaviour, dietary habits and parental overweight. It is particularly striking that there is frequently a mismatch between a child's weight and parental perception, with most parents not recognising the weight increase. Rather less is known about the kind of intervention that might make a contribution to enhancing parents' and children's sense of efficacy with regard to weight control and reduction.

Physical fitness and physical activity have been shown to have important effects on a range of health outcomes including weight maintenance, cardiovascular health and general well-being. It is particularly interesting that positive effects of physical activity extend to social skills development as well as academic performance. There is some evidence that physical activity declines during the adolescent years and that girls are less likely to meet the recommended guidelines than boys. Parental influences have been shown to be of major importance in encouraging physical activity, particularly through support and encouragement as well as modelling. There is also evidence that both the cost of activities and lack of opportunity play an important part, as do the structural characteristics of the environment, particularly the availability of parks and cycle lanes. While the major predictors of physical activity are well understood, rather less is known about interventions that might be likely to increase involvement in relevant activities.

Chapter 3

SOCIAL, EMOTIONAL AND BEHAVIOURAL DEVELOPMENT AT AGE 13



CHAPTER 3: SOCIAL, EMOTIONAL AND BEHAVIOURAL DEVELOPMENT AT AGE 13

3.1 INTRODUCTION

Looking at the broad picture pertaining to research on early adolescence and specifically on 13-year-olds, two features are especially prominent. One concerns the traditional debate on whether adolescence should be considered a particular time of 'storm and stress' or whether the challenges encountered are conducive to positive influences, thus marking early adolescence as a time of opportunity. A second major theme in the literature is the interplay between social and emotional development and other aspects of development, particularly school achievement, self-regulation and growth to independence. Each of these is considered briefly.

Arnett (1999) summarised the 'storm and stress' concept in its historical context and its consequences for modern-day understanding of adolescence. Among the suppositions underlying this perspective was the belief that conflict, risky behaviour and mood disruption were inevitable and universal and that these patterns of behaviour were driven by biological changes. Furthermore, there was an assumption that individual differences in the adolescent experiences of 'storm and stress' were relatively minor compared to what was shared and inescapable.

Recent lines of evidence converge in suggesting that traditional views on adolescence may have been unduly restrictive. Hollenstein and Lougheed (2013) challenge the view that 'storm and stress' is either ubiquitous or inevitable during adolescence. Their argument is that existing research relies too much on problem behaviours that emerge during this period, without an understanding of what is typical. In other words, they argue that research should de-emphasise a pathological approach "in lieu of discovering what is truly adolescent typical" (2013, p. 451). They also synthesise evidence to the effect that, while hormones have some direct effects on adolescent behaviour, these are small and account for only about 6% of the variance. Furthermore, the effects of hormones interact with environmental factors. For example, the effects of testosterone on aggressive behaviour are strongest in conditions of perceived social threat (Rowe et al, 2004). In other words, it seems that the adolescent peer-group context may provide a context for the behaviours, such as aggression; the effects of testosterone on behaviour are due at least partly to aspects of the adolescent social environment.

A particularly interesting feature in current research concerns risk-taking. Although risky decision-making during adolescence has traditionally been regarded as maladaptive, it remains the case that such decisions can be necessary for development. A recent publication by Ellis et al (2012) puts forward an evolutionary model of risky behaviour at adolescence and contrasts this view with what they call the 'psychopathological' model. They argue that the benefits of risky behaviour are seldom analysed. In particular they note that taking a risk can be beneficial or costly and, in certain circumstances, given the alternatives available, a high risk can be the best choice for the person in question. The Ellis et al work articulates evolutionary insights, including the notion that risky adolescent behaviour "calibrates adaptively over development to match both hard and unpredictable environmental conditions" (p. 598). They suggest that their evolutionary model has important implications for designing interventions for high-risk youth.

Along similar lines of argument, Blakemore and Mills (2014) conclude that heightened self-consciousness, mood variability, novelty-seeking and risk-taking are not problematic per se, but are fundamental to the successful transition into a stable adult role. For example, risk-taking in an educational context is a crucial skill that can facilitate intellectual advances, including creativity. They note that "… many adolescents are worried about taking risks in the context of learning. The heightened risk taking should be harnessed for learning and creativity" (ibid). While it is not uncommon for young people to experience some difficulties as they grow up, for most it is unlikely that these will develop into a significant psychological or medical problem. Because the adolescent brain is still developing, the young person is particularly receptive to the positive influences of youth development strategies, social and emotional learning, and behavioural modelling (National Research Council and Institute of Medicine, 2002; Steinberg et al, 2004).

Chapter 2 drew attention to evidence indicating that there is a major reciprocal interaction between indicators of health and other aspects of development, including academic achievement. One of the research areas that has

received most attention in the last decade is the effect of features of social and emotional development on other domains of development.

Zins et al (2004) proposed that social emotional competencies increase during adolescence and are not only important for social and emotional development but are linked to improved academic performance. These competencies include self-awareness, including identifying and recognizing emotions, and social awareness, especially perspective-taking, empathy and respect for others. There is evidence that the development of these skills can help young people to feel motivated to succeed, to believe in their success, to communicate well with teachers, to set academic goals, to organize themselves to achieve these goals and to overcome obstacles (Greenberg et al, 2003; Zins et al, 2004). In the UK, the National Institute for Clinical Excellence (NICE, 2008) has issued formal guidance on ways of promoting the social and emotional well-being of adolescents, since well-being is of crucial importance in terms of its effects on physical health (both as a child and as an adult) and educational outcomes. In support of this guidance they reference a systematic review on the effectiveness of interventions to promote mental well-being in children in primary education by Adi et al (2007); it concluded that interventions that enhance social, emotional and psychological health promote resilience against violence and crime, teenage pregnancy and the misuse of drugs and alcohol.

The sections below will explore the major research questions guiding Wave 2 data collection of the ***Growing Up in Ireland*** study. For each one, relevant research literature is examined, and an overview of how ***Growing Up in Ireland*** will add to this body of knowledge is provided. Particular attention will be given to positive aspects of development as well as to challenging features.

3.2 WHAT ARE THE MAIN INFLUENCES ON SELF-CONCEPT AT AGE 13?

Young people's sense of themselves becomes more differentiated as they approach adolescence. According to Harter (2006), children describe themselves in terms of a relatively small number of domains, whereas adolescents differentiate their scholastic achievements to a relatively greater degree, as well as their benchmarks for social competence. Because of this increasingly differentiated view, 13-year-olds have the capacity to think of themselves in conflicting ways, depending on the context and circumstances. According to Harter, there is a desire to bring the attributes of the self into harmony with each other.

the impact of age on self-concept; the results have not been entirely consistent. As Crain (1996) points out, the results depend on which sub-domains are examined and whether longitudinal or cross-sectional analyses are used. For example, some studies have found that young people are less positive about physical appearance in late childhood but more positive in middle adolescence (e.g. Cole et al, 2001). In contrast, following two cohorts from nine to 17 years, Cole et al found that there was an increase in how popular young people saw themselves in pre-adolescence, but a levelling-off in late adolescence.

The differences in self-concept associated with gender received substantial attention in the literature over the last 30 years. A number of cross-sectional and longitudinal studies in several countries found that adolescent males score higher on global self-concept than females (e.g. Cole et al, 2001). In other words, they had a more positive sense of themselves in a general sense than was the case with girls. It is particularly interesting that a study of adolescents in Northern Ireland (Cairns et al, 1990) found that females scored significantly lower than males on global self-concept. As might be expected when specific domains were taken into account, gender emerged as an important moderating factor. In a number of studies it has been found that boys have higher self-perceptions relating to physical appearance, while girls have higher opinions of themselves in socially related domains (e.g. Shapka & King, 2005).

In the ***Growing Up in Ireland*** data collection for 13 years, self-concept was measured by means of the Pier Harris II scales. This instrument assesses the self-concept of children between seven and 18 years and consists of statement about how they feel about themselves. The test targets seven domains: behavioural adjustment, intellectual and school status, physical appearance and attributes, freedom from anxiety, popularity and happiness and satisfaction with life.

3.3 WHAT IS THE IMPORTANCE OF SOCIO-ECONOMIC FACTORS FOR CHILD SOCIAL, EMOTIONAL AND BEHAVIOURAL OUTCOMES, AT AGE 13?

Socio-economic status (SES) has long been associated with a wide array of outcomes in children, pervading all areas, including health and cognitive and socio-emotional development. These effects begin prior to birth and persist throughout the life-cycle. Most of the mediating factors that link SES to child well-being involve, among other features, access to material and social resources, and reactions to stressful situations (such as unemployment) by both children and their parents. For adolescents, low SES is often associated with poor adaptive functioning, an increased likelihood of depression, and delinquent behaviour (McLoyd, 1997). Research in the UK shows a strong relationship with family SES and income (e.g. Green et al, 2004), with adolescents from poorer families more likely to experience higher rates of emotional difficulties than their more affluent peers. Ecological systems theory (Bronfenbrenner, 1986) describes a number of levels and pathways through which the environment can change parent and adolescent behaviours. However, it is important to point out that not all children from low SES backgrounds experience problems. The capacity to help understand why some SES children and adolescents do well is a key strength of ***Growing Up in Ireland***.

Figures from the National Health Interview Survey in the US indicate that in 2009 8 per cent of children living below the poverty level and 7 per cent of children in families with incomes at 100–199 per cent of the poverty level had serious difficulties, compared with 4 per cent of children with family incomes 200 per cent or more of the poverty level. Although many children do well despite living in poverty, the fact remains that the experience of poverty tends to be associated with multiple risks and a higher level of negative outcomes for children in their current functioning and in the longer term (Evans, 2004; Nolan, Layte, Whelan & Maitre, 2006). Research using data from the NLSCY concluded that children from low-income families generally experience worse outcomes at adolescence. On the other hand, Conger and colleagues (1997) did not find a relation between poverty and adolescent problems. Part of the difference in findings may stem from who reports on social and emotional well-being. Most often parents and teachers are the reporters, but in the Conger et al study adolescents reported on their own well-being (Bradley & Corwyn, 2002).

A review of the literature by the Canadian Council on Learning (2006) found that low-income children tended to live with a higher risk of emotional difficulties, although many of the studies also showed that positive family characteristics could attenuate the negative effects of low income/socio-economic status. Along the same lines, the review by Lerner (2007) shows that stable family opportunities for mutual problem-solving and a positive environment for learning helped adolescents to buffer the negative effects of low income. Other studies found SES to be negatively associated with incidence of physical aggression, and weakly but positively associated with prosocial behaviour (Romano et al, 2005); family income has been found to be weakly negatively associated with hyperactivity, conduct disorder and property offences (Hou & Ram, 2003; Kerr, 2004), although this relationship was found to be age-related, proving stronger for children aged 6-11 than those aged 12-16 (Lipman et al, 1996).

The LSAC study by Sanson, Smart et al (2009) is especially important since it identified several family and broader environmental factors that were related to children's school readiness. However, when this set of variables was included together with family financial disadvantage, the latter was not an important predictor. In other words, children from poor families were more likely to show low school readiness, due to the other risk factors evident among this group.

The family stress model is especially relevant to development at adolescence and particularly pertinent to how SES impacts on social-emotional outcomes at adolescence (Conger & Conger, 2002). The model is easily integrated within the broad ideas of ecological systems theory, which is the basis of the conceptual framework for Growing Up in Ireland. The family stress model focuses especially on how economic difficulties can influence adolescent outcomes. For example, emotional distress in the parent(s) (e.g. depression) due to economic pressures can create friction between parents (arguments, marital distress), which in turn results in less effective parenting – i.e. insufficient monitoring, lack of control over the child's behaviour, lack of warmth and support, and conflict (Conger et al, 1994; Conger et al, 1997; McLeod and Shanahan, 1993). In these studies parenting is a mediating variable explaining the impact of poverty on child development, while also highlighting how different styles of parenting operate in different ways. This is particularly important in the current phase of Growing Up in

Ireland since, when the families were interviewed previously (at nine years), Ireland was at the end of an economic boom, while, at 13 years, the country was in the middle of a deep recession.

Some recent research literature indicates that parental income has a modest effect on children's outcomes and that the difference between children from poor families and those from rich families (Mayer, 2010) is relatively small, compared to what might be expected. In fact, Luthar and Ansary (2005) showed that older youth at the socio-economic extremes were more similar to each other than different, both constituting a distinct sub-group of teens who manifested multiple behaviour problems, such as substance use, delinquency, poor interest in school, and school grades that were significantly lower than the average. Of the affluent teens, one of every 10 teenagers exhibited high levels of behaviour disturbances across multiple domains. Using data from two different samples, Luthar and Becker (2002) also indicated that these problems began emerging at around seventh grade, when the children were 12-13-years-old, even though wealthier children were likely to do better than their poorer counterparts in terms of their future outcomes, indicating that other processes were operating. Research on the factors affecting poor social and emotional outcomes for all children, and especially those in families with low and high income, will be valuable in developing strategies of prevention.

Because socio-economic data has been collected in Growing Up in Ireland, including income and level of education of parents, it will be possible to examine the effect of changes in income between age nine and 13 years. The effects of these changes on social-emotional development and school achievement will be examined, as well as their interactions with parenting and friendship patterns. Attention will also be given to gender differences and interaction with family structure. More especially, an important focus will be on the factors mediating the effects associated with SES changes.

3.4 WHAT IS THE IMPACT OF FAMILY STRUCTURE ON SOCIAL-EMOTIONAL DEVELOPMENT? HOW DOES CHANGE IN FAMILY STRUCTURE FROM AGE NINE TO 13 YEARS INFLUENCE SUCH CHILD OUTCOMES?

Recent decades have seen major changes in the family form and its stability in many Western societies (OECD, 2009). In Ireland, although the traditional family unit headed by a husband and wife is still a common family structure, 18 per cent are now one-parent families (Census, 2006), while recent years have seen a decrease in the overall marriage rate. Divorce became possible in Ireland in 1997. Since its introduction, the numbers availing of it have grown steadily. Given this late introduction, remarriage was not an Irish phenomenon on any scale until very recently, although some children have been living in informally constituted blended families. From the perspective of the child, however, contemporary family structure often includes spells of parental marriage, divorce, lone parenthood, cohabitation, remarriage or one or more of the above (Teachman, 2003; Bumpass & Lu, 2000; Raley & Wildsmith, 2004), making this a particularly complex issue, since the timing of each phase, as well as interactions with other important factors, might be expected to give rise to different outcomes for different children.

Although some researchers have maintained that household composition has relatively little predictive utility with regard to behaviour and well-being at adolescence and specifically at age 13, (e.g. Ford-Gilboe, 2000; Robins & Przybeck, 1987), their observations conflict sharply with findings from many studies, which indicate that children who live with one parent only are more prone to emotional distress, negative behaviour, delinquency and drug use (e.g. Amato, 2005; Cairney, Boyle, Offord & Racine, 2003; Cummings, Keller & Davies, 2005; Demo and Acock, 1988; Wells & Rankin, 1991). The research reviewed below indicates that, while family structure is associated with a range of outcomes, it is not clear that these effects are a direct result of household composition.

Children living in stepfamilies are often similar to those in lone-parent families in a range of emotional and behavioural outcomes (Coleman, Ganong & Fine, 2000), despite the fact that the economic situation in a reconstituted family is likely to be much better than that of a lone-parent family (Kerr & Michalski, 2004). In the latter study, it was also found that living in an intact family was advantageous while living in a stepfamily was associated with greater risks in terms of hyperactivity in children. Amato (2005) concluded that children growing up with two continuously married parents were less likely to experience a wide range of cognitive, emotional and social problems, both during childhood and also into adulthood. While he maintains that this is a true effect of

family structure, he also highlights that the effect sizes on child outcomes from different family structures are fairly small. The precise mediating factors of family structure are hard to pin down. It has been found that, relative to intact families, children of lone-parent families are generally more likely to be resource-deprived (Amato & Keith, 1991), especially in female-headed households (Amato, 2000). It may be that non-traditional family forms are not problematic for children per se, but that these particular family types tend to co-occur with other risk factors, such as lower income, parental depression or parental conflict (which often occurs around separation or divorce), that might influence important child outcomes. The consequences may include higher risks of internalising and externalising disorders, substance abuse and alcohol consumption in adolescence (Lansford et al, 2006; Barrett & Turner, 2006).

Longer spells in a lone-parent or divorced family have been found to give rise to more detrimental outcomes for children, possibly because of the prolonged lack of financial supports (Cavanagh, 2008; Heard, 2007). On the other hand, the amount of time spent living in a lone-parent home has been found in other studies to have no influence on child outcomes (Albrecht & Teachman, 2003). However, it should be noted that much of the research in this area is cross-sectional and often confounds the stresses associated with family change, such as those associated with family functioning and the socio-economic environment, with the effects of family structure itself (Davies, Cummings & Winter, 2003).

Some research indicates that, although relationships normally stabilise over time, disruptions in individual adjustment and family processes are likely to occur during the first few years after a change, but can take as long as five to seven years after the formation of a stepfamily (Hetherington & Stanley-Hagan, 2002). Longitudinal work has also shown that adolescents from families that subsequently split have more psychological and behavioural problems before the disruption than peers whose parents remain married (Cavanagh, 2008). Families on the verge of breakup are characterised by poorer parental and parent-child relationships and fewer economic resources, but the temporal aspects of relationship conflict and subsequent child outcomes can be difficult to measure. A longitudinal design can help answer some of the important questions.

While much of the literature dealing with family structure and child social, emotional and behavioural outcomes takes a negative perspective, family change following a high-conflict or volatile relationship is likely to lead to lower levels of stress and conflict and result in more positive outcomes for the young person (e.g. Collishaw, 2011; Jekielek, 1998; Kelley, 2003). It is possible that the resulting lone-parent dynamic may be a preferable environment for a child's well-being, thereby posing less risk of developing emotional or other problems. A number of researchers suggest that some children may show less obvious effects, and often escape disturbance (Amato, 2001; Kelly & Emery, 2003), and that others are actually very similar to children in stable or low-conflict families (Hetherington 1999). A substantial body of evidence indicates circumstances in which children are resilient to the seemingly negative event of separation, while others experience varying levels of stress (Hetherington, 2003).

The ***Growing Up in Ireland*** data wave at age 13 years will elucidate the issue of family structure and, in particular, changes from age nine to 13 years. Data is being collected on family structure, as well as dates of separation and repartnering, where relevant. Because information on prior separation/divorce was also collected at nine years, a good picture of family structure and transition is available. Since information on household income is collected, it will also be possible to explore the extent of income change across the two time-points, and whether the drop for separated families is as dramatic as has been found in previous research. In addition, the interaction of family structure with other relevant variables will be examined, including parenting, school achievement and adverse events that may flow from or be independent of changes in family structure. Many important questions can be explored with this data. For example, what happens to the nine-year-old with a single parent if that parent repartners before age 13?

3.5 WHAT PARENTING STYLES DO PARENTS USE AND HOW DO THEY RELATE TO SOCIAL AND EMOTIONAL DEVELOPMENT? DOES THE QUALITY OF THE PARENT-CHILD RELATIONSHIP INFLUENCE SUCH OUTCOMES?

In this section, different aspects of parenting, such as parenting style, the parent-child relationship and the quality of this relationship, will be discussed in order to encompass a broader picture of parenting as a dynamic, interactive process, and not simply a top-down process from parent to child. There is no strong indication that optimal parent-child relationships take a different form for mothers and fathers; it seems that the core processes linking parent-child relationships to child outcomes are broadly similar for parents of both sexes. Nor is there any strong indication that the relative influence of mothers and fathers varies with age. For these reasons, only major differences in roles and functions between mothers and fathers will be highlighted. A gap remains in our general understanding of the styles of parenting that parents in Ireland adopt, as most of the available information comes from studies carried out internationally. ***Growing Up in Ireland*** is in a unique position to bridge this gap.

The dominant model in research on parent-child relationships is that of Baumrind, who described important dimensions and styles of parenting (Baumrind, 1991). These styles are normally described as authoritative, authoritarian, permissive and neglectful/disengaged, with authoritative being most strongly associated with positive child outcomes, including emotional self-control (e.g. Maughan, 2011). Children and adolescents of authoritative parents are consistently described as most prosocial as well as most academically and socially competent. Children whose parents are described as authoritarian, permissive or disengaged show significantly worse outcomes. Children of authoritarian parents show the most disturbed adjustment of the four parenting types (O'Connor & Scott, 2007).

An important question is how parenting and especially styles of parents are linked with child outcomes. In many cases it has been observed that several different dimensions of the parenting style are independently associated with outcomes (Kerr & Stattin, 2000; Fletcher et al, 2004). There is an implicit assumption, supported in most of the research, of a 'dose-response' connection between a poor parenting environment and -related outcomes: the more extreme (in negative terms) the parenting environment, the worse the child outcome and/or the likelihood of clinical disturbance (O'Connor & Scott, 2007).

When parenting is compromised, the mental health of the child is put at risk (Davies, Sturge-Apple, Woitach & Cummings, 2009). Recent studies have shown that, on average, parents in higher-quality relationships tend to have better-adjusted children (Gerard, Krishnakumar & Buehler, 2006; Hair, Moore, Hadley et al, 2009) with more positive attitudes towards marriage, who themselves are more likely to have higher-quality relationships and marriages in the future (Amato & Booth, 2001). Some of the more common effects of compromised parenting include hostile parent-child relationships (Harold, Osborne, & Conger, 1997); harsh or inconsistent discipline, and ineffective monitoring and supervision, which is especially important as young people transition from childhood into adolescence. These associations are often explained by arguing that negative effect from one family sub-system spills over into other family sub-systems (Margolin et al, 2001). Disruptions in the marital relationship may also lead to poorer parenting because parents are inclined to expend more emotional energy on the spousal relationship and less on the parent-child relationship.

While the research suggests that parents who systematically monitor their children's behaviour have adolescents who are less likely to engage in delinquency (Pettit, Laird, Dodge, Bates & Criss, 2001), and participate less in substance use (Dishion, Capaldi, Spracklen & Li, 1995), other evidence suggests that adolescent disclosure (readiness to talk about issues that matter to them) may be a stronger predictor of both parental knowledge and adolescent adjustment than parents' active efforts at monitoring their children (Kerr & Stattin, 2000; Stattin & Kerr, 2000). This precedence of adolescent disclosure over parental monitoring holds for internalising problems such as low self-esteem and depressed mood, as well as externalising problems including delinquency.

Research on this topic indicates that better-supervised children are less likely to skip school, or become involved in anti-social or risky behaviour (Aizer, 2004). A study of low-income urban adolescents showed that the most disadvantaged teenagers were more likely to be in out-of-home care and unsupervised than those from higher-income families. Over a period of 16 months, adolescents in various types of in-home care showed less increase in problem behaviour than their counterparts in out-of-home care. Monitoring was shown to predict decreases in

problem behaviour more strongly than trust and communication, and therefore may be particularly protective for young high-risk urban adolescents who are left frequently unsupervised (Roche, Ellen & Astone, 2005). This social contextual influence was also reported by Pettit et al (1999) who found that parental monitoring played a particularly important role in preventing delinquency in adolescents living in violent and high-risk neighbourhoods. The effect of similar levels of monitoring in low-risk environments was less pronounced – presumably because of the lower level of ambient risk, exposure to delinquent peers and reduced opportunities for delinquency. However, while parental monitoring of children is important for the prevention of behavioural problems (Dishion, Nelson & Bullock, 2004), as has been noted above, parents may actually decrease monitoring of children and adolescents at a time when they are most in need of supervision.

The recent emphasis in research on resilient systems, where resilience is seen to be mediated by risk/protective factors and resources at multiple levels (e.g. social, cultural, molecular neurobiological) (Masten & Obradovic, 2008). In analyses of resilience to trauma and stress, one of the most consistent findings is that close emotional relationships and supportive formal and informal social networks foster resilience (Dolan, 2008) – for example, those that are most likely fostered in an authoritative parenting context. There is also evidence of some interplay between family, school and other social contexts in terms of influencing adolescent risk behaviours (Kumar et al, 2002; Swaim, 2003). Such cross-level interactions have been described as having a protective-enhancing effect, where the influence of protective factors increases as risk increases (Luthar, Cicchetti & Becker, 2000).

Contemporary research also points to a large number of proximal and distal risk factors in a child's environment, such as marital discord, lack of money and a less than optimal school environment. The suggestion is that studies that fail to account for different co-varying environmental risks are liable to misrepresent the nature of the link between parent-child relationship quality and child outcomes, by promoting the notion of a simple causal mechanism between parenting and child outcomes. Furthermore, O'Connor and Scott (2007) point to the mounting evidence suggesting that the way in which parents relate to others may be related to genetically influenced personality and individual traits. There are, therefore, many challenges for researchers to address when carrying out research in this area.

By exploring the relationship between the parent-child relationship and child outcomes in behavioural and social development, ***Growing Up in Ireland*** will contribute to intervention research on parenting by highlighting parenting practices in Ireland and current needs among vulnerable populations. Families, particularly those contending with a significant number of problems (for example, parental depression, low income), may benefit from accessible and non-stigmatising support in establishing and maintaining good relationships. The evidence is that parenting programmes aimed at adolescent anti-social behaviour as their proximal target tend to be reasonably successful. Findings from evaluations in the US indicate that Family Functioning therapy and Multisystemic Therapy are quite successful (Woolfenden, Williams & Peat, 2001; Littell, 2005). However, evaluations from outside the US are lacking.

Growing Up in Ireland has collected information on many aspects of parenting and family relationships (parental and parent-child). A measure of parenting style is collected from the child's perspective, and information on the parental and parent-child relationship is collected from the parent's or parents' perspective. Research indicates that parenting practices as perceived by the child are stronger predictors of future development as compared to parent self-report (Kuppens, Grietens, Onghena & Michiels, 2009; Latendresse et al, 2009), in that parents' reports may be more biased on the grounds that they are likely to present a more positive impression of their own parenting practices compared to the child's report (Bogels & van Melick, 2004).

Children's reports on their parents are susceptible to various influences, including emotional states, while parental report can also be influenced by a range of factors. For this reason, information on parental monitoring is being collected from both parents and children to ascertain if they have different perceptions of their interactions with the Study Child, while parental control is measured from the child's perspective. From this information a comprehensive picture of the parent-child relationship (as a bidirectional process) can be built, and other important contextual factors can be explored; for example, using information on family structure, income and child personality, among others. The information collected in the study will also help to explore the ways in which

Irish parents gain knowledge of their child's activities. The fact that information has been collected at age nine will help understanding how parenting influences at that age predict child outcomes at age 13 years.

3.6 HOW ARE PARENTAL MENTAL HEALTH AND PARENTAL STRESS RELATED TO CHILD OUTCOMES AT AGE 13?

Decades of research on parenting suggest that two dimensions of parenting are especially important for the development of social competence (Baumrind, 1991). Parental warmth refers to how responsive parents are to their children and the extent to which they prioritize their needs. There is substantial evidence that children whose parents are warm and responsive to their needs develop better social skills than those whose parents are cold and rejecting, and are also more likely to develop secure attachments and have stronger peer relationships (Pettit et al, 1999; Parke & Buriel, 2006). Parental control refers to the extent to which parents manage and monitor children's activities and pursuits. Important aspects of control are setting limits and the enforcement of rules. As in the case of warmth, parental control is best thought of as a continuum rather than a dichotomous influence (O'Connor & Scott, 2007).

There is evidence that parental mental health influences these critical aspects of parenting (Woolfolk & Perry, 2012). In turn, up to one-third of children born to parents with a mental illness are likely to suffer persistent emotional and behavioural disturbance (Rutter & Quinton, 1984). Other studies have noted much higher rates of child psychiatric diagnosis among offspring of a parent with mental illness compared to those in the general population (Oyserman et al, 2000). However, it is important to note that genetic predispositions may play a role in these outcomes.

Since depression is an especially common mental health challenge, its effects on offspring are particularly important. Whether taking a biological, psychological or psychosocial perspective, depression in mothers raises risks for the development of psychopathology in children (Goodman, 2007). Depression is believed to affect one in five women over the course of a lifetime, and children of depressed mothers are at increased risk of anxiety, conduct disorders and substance-abuse disorders (Weissman et al, 2006). Depression can be a particularly debilitating condition, and is often linked to problems throughout the life-course (Miech & Shanahan, 2000; Teitler & Reichman, 2008). Depressed people often have problems maintaining healthy interpersonal relationships and are more prone to being withdrawn and having negative interactions with others. Because depression often manifests itself through the family system, children may be particularly vulnerable to maternal depression, especially if it persists over time. This condition is widely reported as one of the most important negative influences on child outcomes (Martins & Gaffan, 2000). It is associated with early developmental outcomes and identified as a risk factor for poorer socio-emotional and cognitive development (Cummings & Davies, 1994; McLeod & Kaiser, 2004).

Co-occurrence of depression and marital discord is a better predictor of child psychopathology than either of these factors on their own (Rutter & Quinton, 1984; Emery, Weintraub & Neale, 1982). This may be because parental depression is seen as affecting children by influencing marital functioning (e.g. higher levels of conflict and lower levels of marital satisfaction), and marital functioning may in turn affect parent-child interaction (Cummings & Davies, 1994), indicating the complexity of interactions and their repercussions in the child's bioecological context. Maternal depression has also been one of the most commonly reported forms of psychopathology co-occurring with, or following, the onset of marital problems (Dehle & Weiss, 1998).

A meta-analysis by Goodman et al (2011) of longitudinal and cross-sectional studies showed that maternal depression was associated with internalising and externalising problems, and that the relation between maternal depression and internalising problems was not significantly stronger than that for externalising problems. However, while this finding may at first seem contradictory, it is not inconsistent with the notion of specificity in the mechanisms whereby maternal depression is related to either internalising or externalising behaviours (Goodman et al, 2011). Theoretical models (e.g. Goodman & Gotlib, 1999) posit that symptoms of depression may affect parents' ability to create and maintain a positive relationship, manage children's behaviour effectively, and meet the demands of day-to-day family life. For example, withdrawn, harsh or inconsistent parenting have all been linked to maternal depression. This type of parenting (especially harsh or inconsistent) has also been linked to externalising behaviours in adolescents, suggesting that it may be the depressed mother's parenting style –

exposing their children to negative cognitions, behaviours and affect – that specifies the outcome for particular children (Granic & Patterson, 2006; Marmorstein et al, 2004).

Despite substantial gender differences being found in terms of youth outcomes, most research on the impact of maternal depression on youth adjustment has not considered the role of gender, or else results have been contradictory (Sheeber et al, 2002). It has therefore been difficult to ascertain whether there are differences between males and females in response to depressive illness. Some studies have found a greater risk to girls than boys for maternal depression in middle childhood (Fergusson et al, 1995; Davies and Windle, 1997). Both of these studies found family discord to be a mediator of the outcomes for girls. However, other research supports the notion of 'differential vulnerability', whereby boys are more likely to exhibit externalising problems and girls are more likely to internalise (e.g. Essex et al, 2003). Another aspect of the gender differences is the almost exclusive focus on maternal as opposed to paternal depression, with virtually no evidence on the effects of the latter (Woolfolk & Perry, 2012).

Recent research documents the ways in which interpersonal stressors can lead to depressive symptoms (Hammen, 2000; Rudolph et al, 2000). Some evidence suggests that parent-child conflict during childhood is associated with maternal depressive symptoms, at least cross-sectionally (Webster-Stratton & Hammond, 1988). Much of the research points to the fact that maternal depression predicts adolescent behavioural outcomes (Youngstrom et al, 2000), while the child effects are not analysed with a view to understanding the link between maternal depression and child behaviour.

Recent longitudinal work has shed light on the way in which depression influences children. Studies have shown that a child's externalising behaviour can be directed towards a mother experiencing depressive symptoms, in part because children may find interactions with her to be highly frustrating, and these mothers in turn may be least able to deal effectively with behavioural challenges (Allen, Manning & Meyer, 2010). However, from a resilience perspective, analysis of 6,552 mother-child dyads in the National Longitudinal Study of Youth (NLSY) (Chang, Halpern & Kaufman, 2007) found that positive paternal involvement was negatively associated with trajectories of child problem behaviours, and also attenuated the adverse effects of maternal depressive symptoms on trajectories of child behaviours. When one parent is depressed, the other parent may attempt to compensate for the impaired functioning of that parent, which may give rise to better parenting practices in the home environment (Tannenbaum & Forehand, 1994).

The data collected in ***Growing Up in Ireland*** at age 13 provides an opportunity to explore the ways in which depression may influence social and emotional development, as it collects information on depression from the Primary Caregivers (using the short form of the Center for Epidemiologic Studies depression measure). In addition, there are questions specifically about the other parent's relationship with and amount of time spent with the child. This will elicit information not only on parents' relationship with their child, but also on whether a better relationship or increased time spent with the child can impact on the effects of having one depressed parent. There is also information on previous depression among parents in the ***Growing Up in Ireland*** sample, specifically depression that had been diagnosed and treated prior to the child being nine years old. This will allow for a longitudinal analysis of the impact of parental depression.

3.7 HOW DOES THE QUALITY OF PEER RELATIONSHIPS/FRIENDSHIPS INFLUENCE SOCIAL AND EMOTIONAL OUTCOMES AT AGE 13?

Experiences with peers constitute an important developmental context for adolescents and have an impact on a wide range of behaviours, attitudes and skills. Research has consistently supported the idea that peer relationships play an important part in adolescent's social and personality development and psychopathology (for a review see Ladd, 2003). Social support from peers is important for maintaining self-esteem (Franco & Levitt, 1998). Children who are overly withdrawn or aggressive may end up being rejected by their peers. Much of the research concludes that peer-group rejection is a cause of children's adjustment difficulties (e.g. MacDougall et al, 2001). Longitudinal studies have also found that childhood peer-group rejection not only precedes emerging adjustment problems (Boivin, Hymel & Bukowski, 1995; Ladd, 1999) but also predicts these problems independently of other potential risk factors, such as behavioural dispositions (Ladd & Burgess, 2001). The combination of aggression and peer rejection at school has been consistently linked to later delinquency (Coie,

Terry, Lenox, Lochman & Hyman, 1995). Furthermore, adolescents who have not shown signs of anti-social behaviour or aggression in earlier childhood may do so as a result of mixing with anti-social peers (Rodkin, Farmer, Pearl & Van Acker, 2006).

Typically, the peer groups of school-age children are segregated by sex, although socially unskilled children who are rejected by their peers may be more likely to seek opposite-sex friends. Girls usually place a priority on interpersonal connections (i.e. communal needs), whereas boys place a higher priority on status concerns (i.e. agentic needs) (Maccoby, 1990, 1998). For example, in one study of friendship quality, girls reported more frequent intimate and supportive interactions with female friends than boys did with male friends (Buhrmester, 1996). These differences may be due to differential gender socialisation experiences in family, school and community contexts (Maccoby, 1998). Girls' friendship networks tend to be smaller (i.e. more intensive) than boys' networks (i.e. more extensive). Longitudinal research, however, has shown that boys' friendship networks are more likely to become interconnected over time compared to girls' (Ladd, 1999).

According to Newcomb et al (1993), children and adolescents with atypical relationships with their peers tend to differ in a number of ways. For example, popular children exhibit higher levels of positive social behaviour and cognitive ability and lower levels of aggression and withdrawal than children who are average in popularity. Rejected children, on the other hand, are more likely to exhibit the opposite pattern: more aggressive and withdrawn, and less sociable and cognitively skilled than children who are average in popularity.

External support systems (such as peers) may be particularly important for children experiencing adverse life circumstances or problematic family relationships. Reciprocal, positive friendships may provide emotional support for children whose families are less engaged with them. A supportive relationship even with a single friend may act as a protective factor from the negative effects of both peer rejection and other adverse circumstances (Bolger & Patterson, 2003). This relationship also acts as a source for emotional well-being. Furthermore, it appears that boys are more likely to experience positive changes in their social well-being, and girls more positive changes in their school well-being from mid-childhood onwards when they have supportive friendships (Newcomb et al, 2003).

The actual features of a friendship can be either positive (e.g. intimacy, companionship) or negative (e.g. rivalry, conflict); together, these features define friendship quality. While friendship quality may moderate the impact of friends' behaviours, it may also have a main effect of its own. Research findings indicate that high-quality friendships create a context characterised by intimacy and affection and provides emotional security, which is likely to increase a child's well-being and interpersonal competence, irrespective of the child's characteristics (Parker, Rubin, Erath, Wojslawowicz & Buskirk, 2006).

In ***Growing Up in Ireland***, an array of information is obtained from the young person on the number of friends they have, how many of these are close friends, whether they are older, younger or the same age, and how many of their friends their parents had met. The 13-year-olds are also asked about the quality of the relationship (in terms of trust and alienation) with respect to close friends, the extent to which they can talk over problems with their friends, how well their friends understand them, and how often they feel angry with their friends. They also completed a self-concept scale, which includes a popularity sub-scale, while parents are asked about the child's prosocial behaviour as part of the Strengths and Difficulties Questionnaire. The information obtained will enable greater understanding of the role of friends and the domains of their life (particularly social and emotional development) in which friends are most influential. The longitudinal nature of the study will allow for an examination of influences over the years from age nine to 13.

3.8 HOW DOES THE CHILD'S EXPERIENCE OF BEING BULLIED IN AND OUTSIDE SCHOOL AFFECT SOCIAL AND EMOTIONAL OUTCOMES, AT AGE 13? WHAT FACTORS INFLUENCE BECOMING A BULLY?

Bullying is repeated and intentional aggression against someone who cannot easily defend themselves (Olweus, 1999). It can take various forms – usually physical, verbal or relational (e.g. threatening, taunting, spreading rumours and excluding) – and, more recently, cyber-bullying (bullying via mobile phones and the internet) (Smith et al, 2008). Bullying can be divided into direct and indirect bullying. Direct bullying refers to verbal and physical

behaviours conducted within the context of face-to-face interactions (hitting or threatening), while indirect bullying comprises actions that are not face-to-face, such as spreading rumours, excluding, and manipulating friendship groups (Olweus, 1993, 1994). The research suggests that boys tend to engage more in direct bullying and girls in indirect bullying (Björkqvist et al, 1992; Rivers & Smith, 1994). Reports of bullying tend to decrease with age up to the end of secondary school (Sourander et al, 2000; Rigby, 2002). Thus, the ages between nine and 13 years are especially salient for such behaviours. Key reasons for attempting to prevent and counteract bully/victim problems include the short-term effects on the victims; the long-term effects on the victims, and the long-term effects on the bullies. Where bullying takes place in schools, the long-term effect on the school climate is also an issue.

Although scientific interest in the issue of childhood bullying began around 20 years ago (e.g. Olweus, 1991, 1993), until recently it was considered by many to be a relatively normal if unpleasant behaviour experienced by children, and not a particularly stressful experience that could jeopardise children's well-being or, for that matter, their mental health (Tolan, 2004). However, both cross-sectional and longitudinal studies have indicated that children who are bullied show signs of distress such as depression and anxiety (Hawker & Boulton, 2000).

A recent review of the literature indicates that being the victim of bullying is not a random event and can be predicted by both individual and family characteristics (Arseneault et al, 2010). Some of these factors include child maltreatment (Shields & Cicchetti, 2001), domestic violence in the home (Baldry, 2003), parental depression (Beran & Violato, 2004) and low socio-economic status (Wolke et al, 2001). Other factors associated with victimisation include school characteristics, such as overcrowding and the number of children receiving free school meals (Barnes et al, 2006).

In a study of bullying among 11 to 16-year-olds across 25 countries, Nansel et al (2004) reported that 10 per cent of children admitted bullying others, 11 per cent admitted to being bullied, and about 6 per cent reported being both bullies and victims. A number of population-based studies have examined the effect of bullying prospectively. In one such study, Kim et al (2006) observed seventh and eighth grade students for 10 months and showed that problem behaviour was a consequence rather than a cause of bullying experiences. Other research has shown that the effects of being a bully or of being bullied are generally negative. Bullying behaviours that manifest in childhood can escalate in adolescence and adulthood, affecting not only the individual but also their future social relations (Ttofi & Farrington, 2008, 2010) and contribution to society (Ttofi et al, 2011).

The outcomes for victims of bullying include social isolation, depression and anxiety (Hawker & Boulton, 2000; Nansel et al, 2001; Wolke et al, 2001), low self-esteem and poor social skills (Egan & Perry, 1998). Accounting for early symptoms of conduct problems and depression, being bullied in childhood has been found to predict suicide attempts up to the age of 25 years among females (Klomek et al, 2009). Being bullied is also associated with externalising problems such as violent behaviours and carrying a weapon (Nansel et al, 2003; Arseneault et al, 2006; Kim et al, 2006), while adolescents who are chronic victims of bullying often show increased risk of bullying others (Barker et al, 2008). In addition, research indicates that children who are victims of bullying show increased signs of psychotic symptoms (Campbell & Morrison, 2007). These findings suggest that the detrimental effects of bullying upon individuals' mental health may extend to delusions, as well as auditory and visual hallucinations (Scheier et al, 2009).

The results of a systematic review carried out by Ttofi et al (2011) support the finding that bullying influences longer-term psychosocial development. The detailed process by which being bullied causes later depression, or whether an individual's depressive characteristics enhance the risk of being bullied is not yet clear (Arseneault et al, 2010; Ttofi and Farrington, 2010). However, the findings from research show that being the victim of school bullying is a unique childhood risk factor for later depression, even after controlling for a large number of pre-existing risk factors (Ttofi et al, 2011). It may be that anxious and depressed children send signals that they are easy targets and will not retaliate if other children are unpleasant to them.

Being the victim of bullying and being a bully are found to be relatively stable over time. For example, longitudinal work carried out by Scholte et al (2007) with a sample of 517 children who were followed into adolescence (aged 11.1 years to 14.1 years) explored some of the characteristics of bullies and victims. They found that the bullying

behaviour of 46 per cent of childhood bullies in the sample persisted into adolescence (i.e. stable bullies), whereas the others had either stopped being involved (i.e. childhood bullies, 45 per cent) or had become victims (9 per cent). A total of 43 per cent of children who had been victims in childhood were still victims in adolescence (i.e. stable victims), 51 per cent of the childhood victims were not involved in bullying in adolescence (i.e. childhood-only victims), while 6 per cent had turned into bullies. Of all the children not involved in bullying in childhood, 15 per cent started bullying in adolescence (i.e. adolescence-only bullies), and 7 per cent became victims (i.e. adolescence-only victims). Gender differences in bullying and victimisation continuity indicated that male and female childhood victims were equally likely to become a stable victim, but that the continuity of bullying other children was relatively low in girls compared to boys. The findings also showed that the probability of remaining involved in bullying tended to be higher for children from low SES households (Kumpulainen et al, 1999).

Different trajectories of bullying victimisation tend to be associated with distinct outcomes, with chronically bullied children being most at risk of developing harmful outcomes. Boys who are chronic bully victims (following high/increasing trajectories in both bullying victimisation and bullying behaviour) tend to have the highest delinquency scores in mid-adolescence, and girls on the same trajectory have the highest levels of self-harm in mid-adolescence. Chronic victims by early adolescence also have an elevated risk of becoming bully victims (Barker et al, 2008). Although there is a lower level of anti-social behaviour among girls, findings from clinically referred samples indicate that when girls bully, they tend to develop more problems than boys (Silverthorn & Frick, 1999), a pattern known as the Gender Paradox (Tiet et al, 2001). One explanation for this is that girls are traditionally expected to control their behaviour as opposed to boys, in whom this type of behaviour is relatively more acceptable (Sourander et al, 2009). The research on bullying by Scholte et al (2007) indicates that victimisation is not only associated with psychological adjustment (e.g. Smith et al, 2004) but also with social adjustment. It confirms a link between chronicity and outcomes, where children who were bullied in childhood but not in adolescence may become normally adjusted during late adolescence.

Developing a better understanding of bullying and its impact on children's well-being is clearly needed in the Irish context, along with the need to clarify the circumstances in which bullied can cause psychopathology in children. In the light of findings that school intervention policies have actually shown limited success (e.g. Smith et al, 2003; Bauer et al, 2007; Vreeman & Carroll, 2007), identifying appropriate intervention and prevention programmes for reducing bullying behaviour and dealing with subsequent distress is crucial. The need to prevent child mental health problems translating into adult mental health problems (Rutter, Kim-Cohen & Maughan, 2006) also merits attention.

The ***Growing Up in Ireland*** young person's questionnaire at age 13 inquires about frequency of being bullied in the last three months, the form of bullying, the perceived reason for the bullying and the feelings associated with the experience. Respondents are also asked if they have bullied someone, the form of that bullying and what caused them to behave in that way. It will be possible to relate the pattern of outcomes to the experiences of being bullied/bullying at age nine, as well as to parenting influences, school experiences and social-emotional factors.

3.9 WHAT IS THE PREVALENCE OF ANTI-SOCIAL BEHAVIOUR AMONG 13-YEAR-OLDS AND WHAT FACTORS ARE ASSOCIATED WITH SUCH BEHAVIOUR?

Anti-social behaviour in adolescence is important not only in its own right but because it is an important predictor of future behaviour in adulthood (Murray & Farrington, 2010). Some rebelliousness may be seen as experimentation and is relatively common during adolescence. However, some young people consistently participate in problematic behaviours that negatively affect their family, academic, social and personal functioning. Data from the National Youth Survey (NYS) of 1,725 youths (Elliot & Huizinga, 1983) indicate that violent offending almost always begins in the adolescent years. Since the majority of those involved in anti-social behaviour during adolescence do not go on to become adult offenders, a distinction has been drawn between adolescence-limited and persistent anti-social behaviour. Various studies support this distinction (Stattin & Magnusson, 1991; Fergusson *et al,* 2000; Eklund & af Klinteberg, 2006). It has also been argued that there is a need to distinguish between aggressive and non-aggressive anti-social behaviour (Loeber & Stouthamer-Loeber,

1998). For example, adolescents displaying both aggressive and non-aggressive behaviours tend to have a more severe pattern of anti-social behaviour compared to adolescents showing only non-aggressive anti-social behaviour (Loeber & Schmaling, 1985). Furthermore, research has shown that violent offenders often show more frequent and persistent anti-social behaviour (Farrington & Loeber, 2000).

Gender is an important factor in anti-social behaviour. Studies from Europe, Canada, the US and New Zealand have all found that girls exhibit lower levels of aggression than boys. For example, Stanger, Achenbach and Verhulst (1997) found boys to be more aggressive than girls at every age from four to 18, using the aggression sub-scale from the Child Behaviour Checklist. These findings also hold for anti-social behaviour (as opposed to specifically aggressive behaviour). Two major studies (the Dunedin and Christchurch studies) both found higher scores for males for anti-social behaviour from ages five to 21 (Moffitt, Caspi, Rutter & Silva, 2001), and offending trajectories for girls to be half that of boys from ages 8 to 20 (Fergusson & Horwood, 2002). It is well established that males engage in more delinquent and criminal acts than females (see review by Dodge, Coie & Lynam 2006), but some believe that the gender gap may be decreasing, with females becoming more frequent and possibly more aggressive in their offences (Snyder, 2004). However, the etiology of delinquency for girls is still unclear. One possibility is that the causes of delinquency may be more relationship-oriented for girls than for boys (Odgers & Moretti, 2002); research has found that female delinquency is often associated with hostile relationships with parents and romantic partners (National Mental Health Association, 2005).

One type of anti-social behaviour for which there is very little difference in rates among boys and girls, or where girls are actually found to score higher than boys (Crick & Zahn-Waxler, 2003), is 'social aggression' (Underwood, 2003) or 'relational aggression' (Eagly & Steffen, 1986; Moffitt, 2001). This form of aggression, which is more subtle than physical aggression, involves social manipulation. This is discussed in more detail in Section 3.8 in the context of bullying.

Significant risk factors for Anti-social behaviour and conduct problems are poverty, low education, single-parent households, high residential mobility, and living in low-income neighbourhoods (Beyers, Bates, Pettit & Dodge, 2003). However, there is evidence that social deprivation itself has only a modest direct influence on criminal/delinquent behaviour – contrary to what is assumed by most commentators. Deprivation and environmental decay are important parts of the social setting of families since parenting is difficult if time, energy, money, living space, books, shops and stimulating play facilities are lacking. Hence, social deprivation may have an indirect and long-term influence on criminal or delinquent behaviour by making it difficult for families to function effectively (Smith, 2004).

Finally, co-occurrence of problems is a major issue in adolescence; researchers consistently find a strong link between substance use (both legal and illegal substances) and serious delinquency (Johnston, O'Malley & Bachman, 2006; Ford, 2005). Researchers studying adolescent offenders over time have found that early onset of use of illegal substances is one of the most consistent indicators of continued serious offending at a later age (e.g. Dembo, Wareham & Schmeidler, 2007; D'Amico et al, 2008). The issue of when and how individuals develop these co-occurring patterns of substance use and illegal activity is less clear, although some of the same factors that put an individual at risk for involvement in criminality also put that individual at risk for substance abuse problems (Hawkins, Catalano & Miller, 1992; Iacono, Malone & McGue, 2008; Mamorstein, Iacono & McGue, 2009). Parental substance-use disorders, poor parenting, conflictual family environments, and dispositional factors, such as sensation-seeking and behavioural disinhibition, place an adolescent at higher risk of using various substances and/or engaging in illegal acts (Hawkins, Catalano & Miller, 1992). Whether the relationship between substance use and delinquency is sequential or reciprocal can be debated, but it is clear that they do go hand in hand in adolescence.

Growing Up in Ireland asks a detailed set of questions about delinquent behaviour from the 13-year-old's perspective and also about conduct disorder from the parent's perspective, so it should be possible to ascertain prevalence of these behaviours among 13-year-olds. The parent questions asked about behaviour that was in conflict with parental authority ('has stayed out at night despite parental prohibitions', stealing ('has stolen items of value'), cruelty and aggression ('often starts fights or bullies, threatens or intimidates others'). The 15 items in the young person's questions enquired about relatively minor anti-social behaviours ('not paid the correct fare on

a bus') to moderating serious forms ('behaved badly in public so that people complained') to serious forms ('broken into a car to steal something'). They were also asked about use of cannabis, inhalants and other legal and illegal drugs. In addition, the data will shed light on the family, peer, school and individual characteristics at age nine and 13 years, which predict the onset and continuance of anti-social behaviour, as well as the stability of these influences over the time-span under consideration.

3.10 SUMMARY AND CONCLUSIONS

Two contradictory views of adolescence are evident in the research literature on social and emotional development at adolescence. In one view, adolescence (specifically around age 13 years) is inevitably a time of turmoil or 'storm and stress', while another regards this view as unduly restrictive and underlines the importance of self-regulation and growth to independence that can characterise this period. Among the important findings relevant to these conflicting views is that hormones have a relatively modest impact on behaviour at adolescence and tend to interact with environmental factors. There is also evidence that increased risk-taking may not necessarily be harmful but can have positive outcomes, including intellectual advances.

With regard to self-concept at adolescence, the evidence strongly suggests that a more differentiated view emerges during this period, with the result that young people have the capacity to think of themselves in conflicting ways, depending on the context and the circumstances. While the indications are that boys have more positive self-concept than girls, a significant moderating factor is the specific domain of self-esteem under consideration. There is consistent evidence that socio-economic factors have an important influence on social and emotional development, although it is also true that the majority of children reared in poverty emerge relatively unscathed. An interesting recent finding is that children of rich parents often experience challenges that are similar to those of young people in low-income families. A critical issue is how financial circumstances impinge on families. One suggestion is that economic difficulties result in emotional distress for parents, which in turn can lead to less effective parenting.

Family structure and household composition have often been found to be associated with emotional distress and anti-social behaviour. However, the question arises as to how these effects (when they emerge) are mediated. Socio-economic influences are important since single-parent families are often found to have a substantially lower income than traditional families. It may be that non-traditional family types are not problematic for children per se, but are associated with other factors such as lower income, parental depression and lack of parental support. One important outcome is that persistent parental conflict can result in internalising and externalising behaviours by children and that the ending of this conflict (by divorce or separation) can have positive outcomes for adolescents.

In describing parenting styles, an important distinction can be made between authoritative, authoritarian, permissive and neglectful approaches. The consistent finding is that children of authoritative parents tend to more prosocial, socially competent and academically successful, in comparison to adolescents whose parenting is described as authoritarian, permissive or neglectful. There is evidence that adolescents whose behaviour is consistently monitored by their parents are less likely to engage in anti-social behaviour. Furthermore, the readiness of young people to disclose relevant information to their parents is also a major protective factor. One of the problems in interpreting the implications of the research in this area is that parenting frequently co-varies with other influences, including poverty, marital conflict, parental stress and school context. Parental stress is an extremely important factor in the social and emotional development of children and adolescents. In particular, children of depressed mothers are at an increased risk of anxiety and conduct problems as well as of substance-abuse disorders. Because parental depression may persist over time, its occurrence is thought to be one of the most important influences on negative child outcomes.

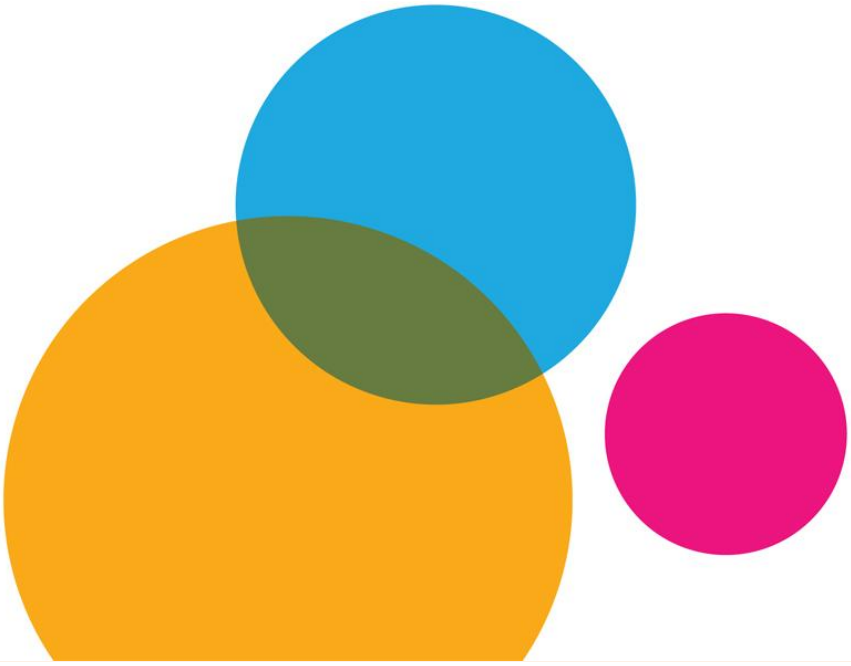
Peer relationships have an especially important role in adolescence; peer-group rejection predicts adolescents' adjustment difficulties independently of other risk factors. Peer support systems are especially important for individuals who are experiencing adverse life events; positive peer friendships may be an important protective factor for those whose families are less engaged with them. As is the case with peer rejection, being bullied has a range of negative outcomes, including social isolation, depression and anxiety as well as subsequent violent behaviours. There is also evidence that being bullied at an early age predicts being bullied later on and,

furthermore, chronically bullied children and adolescents have more negative outcomes, including fewer friends and being disliked by peers.

Anti-social behaviour at adolescence affects family and community as well as social and personal development. Its importance arises not only because of its immediate importance but also because of its significance as predictor of behaviour in adulthood. Overall, girls tend to manifest less anti-social behaviour than boys, and especially aggression; however, there is some indication of a decrease in the gender difference, and girls tend to show higher levels of subtle forms of aggression, such as relational aggression. While social deprivation does not seem to have direct effects on anti-social behaviour, there may well be effects that are mediated indirectly through the impact on families and parenting. There is a tendency for substance use (legal and illegal drugs) to go hand in hand with anti-social and problem behaviour. Part of the reason may be that the factors that predispose adolescents to engage in anti-social behaviour are similar to the risk factors for substance use and misuse.

Chapter 4

COGNITIVE AND EDUCATIONAL OUTCOMES AT AGE 13



CHAPTER 4: COGNITIVE AND EDUCATIONAL OUTCOMES AT AGE 13

4.1 INTRODUCTION

Before examining the specific research questions listed below, the cross-cutting themes running through much of the research on school achievement and cognitive development are worth examining. The efforts to address educational disadvantage are of considerable interest not only from a policy perspective but also from a conceptual viewpoint. Linked with the concern for disadvantage is a broader conceptualisation of how schools influence children in a myriad ways. Finally, the outcomes of research involving international comparisons have had important bearing on policy and some examples are worth considering. These general themes are examined briefly.

A substantial body of research in Ireland has been concerned with the interventions that are effective in dealing with educational disadvantage. In a literature review with a particular focus on the Irish context, Archer and Weir (2004) concluded that considerable progress had been made in the direction of implementing a multifaceted, evidence-based approach to disadvantage. This is particularly true in relation to class-size reductions and the allocation of extra financial resources, as well as attempts to forge links between schools and the wider community, and to situate educational provision in an integrated, area-based approach to dealing with poverty and social exclusion. However, they noted that, despite these interventions, evaluations of schemes found little evidence of gains in measured achievement. The fact that the performance of pupils in designated schools continued to fall so far below the performance of other pupils was disappointing. However, more recently the same authors (Archer & Weir, 2012) compared the achievements of pupils and schools who were targeted with the main programme to address educational disadvantage (DEIS) and which compared the children in 2007 with their counterparts in 2010. It emerged that the latter group had significantly higher test scores in reading and mathematics at each grade level tested.

Recent research on the affective dimensions of teaching and learning is especially relevant to educational disadvantage and the decision to quit or remain in school. This work has shown the impact of teacher-student interaction on relationships with teachers and on student achievement. Since 2007, four reviews have been published in the journal Review of Educational Research focusing on the effects of the teacher-student relationship on achievement (Cornelius-White, 2007; Jennings & Greenberg, 2009; Martin & Dowson, 2009; Roorda et al, 2011). What is striking about the meta-analyses in these reviews is the consistently strong effect sizes that emerge for the impact of the interaction of teachers and students and the affective dimension of the educational process on achievement.

It is especially interesting that the work of Byrne and Smyth (2010) in the context of postprimary schools in Ireland found strong evidence for the importance of affective factors in the decision to quit school. They found that feelings of not getting adequate support and feeling that school was ‘not for them’ was an important influence in this decision, as well as dislike of school and sometimes of other students.

In recent years the Programme for the International Students Assessment (PISA), which has focused on international attainment levels in a range of curricular areas, principally mathematics, science and reading, has been influential in judgements of standards of success and educational policy in Ireland. Reading literacy was the main focus of the 2009 PISA. Ireland was one of 65 participating countries, which included all OECD member states. What received most attention, however, was a comparison of the Irish performance in 2009 with that in 2000; Ireland dropped from 5th to 17th place. This finding attracted considerable attention. The possible explanations for the outcomes included demographic changes, an increase in the number of children who spoke a language other than English in their home, and the greater participation in the 2009 survey of students with special educational needs (Perkins et al, 2010). Nevertheless, a major policy change came about as a result of this study. Instead of the traditional focus on child-centred education, the new focus (formalised in 2011) is on literacy and numeracy. It is especially interesting that the major evidence-base for this change of direction comes from the PISA study. However, Smyth and McCoy (2011) argue that the PISA results give a very partial view of the quality of Irish education and “taken in isolation give no indication as to what the appropriate policy response might be” (p. 6). They draw attention to the persistent inequality of educational outcomes associated with social

background, the issues of transition from primary to second-level schools, the evidence of lack of engagement in mathematics resulting in the high failure rate in public examinations, and the exam-focused nature of the system. These issues will be considered below.

4.2 HOW DO CHARACTERISTICS OF THE HOME SUCH AS INCOME, FAMILY TYPE AND MATERNAL EDUCATION RELATE TO EDUCATIONAL OUTCOMES?

Below we set out examples of studies that examined the impact of social background on educational achievement, particularly at adolescence, and the related question of the impact of neighbourhood on achievement, as covered in the international literature, followed by two studies based on Irish data. We then consider evidence on the impact of family structure and family support on cognitive outcomes.

While the effects of factors such as income and social background on school achievement have been well documented, particularly with regard to preschool and early years, fewer studies have examined the impact of such factors during middle childhood and adolescence. A study by Feinstein and Bynner (2004) was based on over 9,000 children in the 1970 British Cohort Study. As might be expected, SES had a major impact on cognitive performance at age five, and in turn these scores were related to performance in middle childhood. It was also noteworthy that SES had a moderating impact on changes in test performance over the years. Specifically, the probability of being a low scorer in middle childhood, if the child had earlier been a low scorer at age five, was much greater for low-SES children. In other words, the study indicates that not only does SES influence the overall cognitive performance of the group, but it also has a major impact on continuities from one phase of childhood and adolescence to another.

More recently, the Effective Pre-school, Primary and Secondary Education (EPPSE) study (Sammons et al, 2012) found that the differences that predicted achievement at age three years tended to remain stable up to age 14; both mothers' and fathers' educational level predicted achievement as measured by teacher assessment as well as standardised tests. This study also found that other predictors of achievement in core subjects were family income and free school meal status.

A study by Byrnes (2003) sought to examine the factors accounting for the differences in mathematics achievement of White, Black and Hispanic students in the US, at adolescence. The study showed that, while ethnicity accounted for less than 5 per cent of the variance in mathematics performance, factors associated with SES, exposure to learning and opportunities accounted for nearly 50 per cent. This study is especially valuable in demonstrating the links between social background and learning opportunities as well as teacher expectations and effective classroom management by teachers.

Not only do individual families differ in terms of social background; so do neighbourhoods and schools. There is substantial evidence that variations in neighbourhood settings can influence children's adjustment as well as school achievement. During the 1990s, researchers from a variety of disciplines found evidence linking neighbourhood structural features and child outcomes, including educational performance (Brooks-Gunn et al, 1997). In addition, various dimensions have been identified through which community and neighbourhoods could influence adolescents' outcomes in educational achievement. These include neighbourhood safety, aspects of the economic opportunity structure, supports such as childcare, and symbolic processes such as common values concerning the development of children and youth. While many studies link features of neighbourhood and academic achievement (reviewed by Nettles et al, 2008), the criticism of these studies is that they are correlational in nature. However, a major exception to this is the Moving to Opportunity programme in the US, in which families living in public housing were randomly assigned to be relocated to neighbourhoods of similarly high poverty levels or to low-poverty neighbourhoods. An evaluation of this programme by Leventhal and Brooks-Gunn (2004) found that moving from high-poverty to low-poverty neighbourhoods was associated with significant improvements in academic achievement for adolescent boys between the ages of 11 and 18 years.

The EPPSE study (Sammons et al, 2012) examined the relative effect of neighbourhood versus individual and family indices. It found that, while students who lived in disadvantaged neighbourhoods had lower scores above and beyond what might be predicted on the basis of child and family characteristics, these effects were relatively

small compared to those of individual student and family measures. The reason for the difference between the outcomes of this study and the American work is not apparent on the basis of current work.

From an Irish perspective, PISA 2009 is of particular relevance since an index of economic, social and cultural status (ESCS) was calculated for each student. This composite measure is made up of six related measures of students' socio-economic background: parental occupation, educational level of parents, number of books in the home, material possessions, home educational resources, and cultural possessions. In the case of Ireland, student ESCS was positively related to reading achievement, with a major difference between the highest and lowest categories on the ESCS scale (Perkins et al, 2011). Some of the variables contributing to the ESCS were much more strongly related to reading achievement than others; parental occupation correlated .31 with reading achievement while the correlation of material possessions was only .06.

Over the years, national assessments of reading and mathematics have been carried out in Ireland; the results relating to senior classes in primary school are especially relevant in the present context. A 2004 study of English reading throws light on some important factors associated with achievement (Eivers et al, 2005). This study examined not only structural factors such as employment status, number of siblings and family structure but also some aspects of parent-child interaction. There was evidence of persisting effects dating from long before the time of data collection. For example, parents were asked how frequently anyone read to their children on a daily basis prior to entering school. It emerged that, seven years later, there were substantial differences favouring those who were read to daily over those who were read to less frequently. The rules for leisure activities that parents set (or did not set) for their children also had important consequences. Such rules might pertain to playing of computer games and TV/video viewing; at each grade level, pupils whose parents had rules about these activities scored significantly higher than those whose parents did not have such rules. The number of books in the home was strongly related to reading achievement. Furthermore, the gap in achievement between pupils with few books and those with many books was substantially larger in fifth class than in first class.

In the international literature, the contribution of family literacy programmes has been a particular focus of attention in recent years. These programmes are of particular importance in demonstrating the effects of family processes. Family literacy programmes include a broad array of activities and fall broadly into one of two categories: home-school partnerships and intergenerational programmes. The former are concerned with involving parents in literacy activities that support school-based goals, whereas the latter have the broader goals of improving the literacy skills of both parents and children by means of systematic instruction. A recent meta-analysis by van Steensel et al (2011) examined the effects of family literacy programmes on children's literacy development, based on 30 recent studies (mainly in the US and UK). The results showed a significant but modest average effect size (.18), but the positive effects were found for virtually all kinds of programme and for all the samples studied. The authors concluded that family literacy programmes have an important contribution to make but at the same time there is not enough evidence to justify the very high expectations that are associated with them.

With regard to family type, a large literature has examined the effects associated with different kinds of families since an initial study of family structure by McLanahan and Sandefur (1994). These authors found that children who grow up in single-parent families, as well as children with step-parents, have lower educational attainment than those who grow up with both biological parents. However, subsequent work (e.g. Biblarz & Raftery, 1999) has found that the correlation between family structure and child academic outcomes diminishes or disappears as more controls for family background are added. Parental death has substantially less negative outcomes than does divorce. The importance of controlling for other factors is underlined in the work of Ginther and Pollak (2004) who compared traditional nuclear families with single-parent as well as restructured families. Their work showed that, on average, children reared in traditional nuclear families have substantially better outcomes than children in single-parent families and also than children in stable restructured families. However, with appropriate controls these differences disappeared, particularly if controls were applied for income and mothers' education. A study by Raley et al (2005) was concerned with children in cohabiting families. Based on a US study (the National Survey of Families and Households), this showed that children who lived with cohabiting mothers did significantly less well in terms of academic achievement than children who lived with divorced or remarried mothers. While

the authors make a case for the importance of family instability as a factor in these findings, it is not clear that all the relevant controls were applied, particularly with regard to resources and income.

Growing Up in Ireland opens up several possibilities at age 13 years regarding the effects of social background, income, family structure and related influences. It has two major advantages over previous work carried out in Ireland. One is that comprehensive information will be available on a range of factors relating to social background, including income, parental education and other SES indicators, as well as family structure. Furthermore, relevant data will be available on home processes, including supports such as family literacy involvement. Secondly, corresponding information has been collected at age nine years, so that causal effects will be more easily established.

4.3 HOW IS THE CHILD'S COGNITIVE ABILITY RELATED TO EDUCATIONAL OUTCOMES?

The association of cognitive ability with educational outcomes has been pursued within different frameworks, which are examined below. The developmental psychology tradition, the psychometric paradigm (concerned with measures such as IQ) and the specific ability/expertise perspective (concerned with ideas such as multiple intelligences) have been especially important in providing tentative answers to this question. Below, the evidence on the interaction of motivational and self-regulation influences on educational outcomes is examined, and the potential contribution of the study of the Child Cohort to the issues under consideration is reviewed.

Piaget's ideas on cognitive development had a major impact on the theory and practice of education, particularly his notion that adolescence is the stage of formal operations that allow for the development of inductive and deductive reasoning. However, major criticisms of Piaget's theory include his neglect of the importance of culture and social guidance. For that reason Vygotsky's views became more influential, since a central premise of his work is that development and educational achievement are strongly associated with input from the social environment. In particular, he argued that learning takes place when children and adolescents are working within the zone of proximal development. For that reason, the most influential concepts in cognitive development and educational outcomes centre on Vygotsky's concepts, including scaffolding, cognitive apprenticeship and cooperative learning (Rogoff, 2003).

One strand of developmental psychology is concerned with standardised testing and is focused on how children differ from each other with respect to aptitude or achievement. Standardised tests are uniform in terms of content, administration and scoring, and allow for comparisons across classrooms and schools; they also allow for gauging individual performance in terms of norms for other students for which the test was designed. 'Cognitive ability' is measured by general intelligence (IQ) tests or multifactor tests. On the other hand, 'educational outcomes' are measured by means of achievement tests that assess learning in various subject areas. If individual ability influences the capacity to learn, then the relationship between an ability test and achievement in a domain of learning will be positive and substantial. However, the extent of this relationship depends on several factors, including the nature of the ability test (e.g. general vs. specific aptitude), the reliability and validity of the tests, and factors pertaining to motivation and personal makeup.

The report 'Intelligence: Knowns and Unknowns' presented by the American Psychological Association (APA) in 1995 came to a number of conclusions on the association between IQ and school performance (Neisser et al, 1996). First, it stated that IQ scores measure important skills as they correlate quite well (0.5) with school grades. Secondly, children with high scores on tests of intelligence tend to learn more of what is taught in school than their lower-scoring peers. There may be styles of teaching and methods of instruction that decrease or increase this correlation, but none that consistently eliminates it has yet been found. Thirdly, IQ scores also correlate with school achievement tests designed to measure knowledge of the curriculum. Fourthly, other personal characteristics affecting this relationship may include persistence, interest in school, and willingness to study, but test scores are the best single predictor of an individual's achievement in education. Fifthly, IQ scores are somewhat more important than social class, as measured by occupation/education of parents, in predicting school achievement.

Some more recent work suggests that the correlation between IQ and school achievement may be higher than the APA working group suggested. Deary (2012) suggests that, with sample size weighting and corrections for

dichotomisation added, the correlation between IQ and achievement may be .8 or greater. Based on examination results of the General Certificate of Secondary Education (GCSE) at age 16 and with a sample of over 13,000, the correlation between the Cognitive Abilities Test at age 11 and the GCSE score results was .81. This finding has to be considered in the context of results discussed below where it has been shown that personality and motivational factors can have stronger correlations with academic achievement than is the case with IQ.

The connection between ability and achievement can be fostered by learning and problem-solving strategies. In one approach, the focus is teaching skills in a specific area such as problem-solving, while another approach attempts to teach more general thinking skills. For example, students can learn that it may be of benefit to suspend judgement and to consider all possibilities before trying out a solution. A practical application of this approach is referred to as 'brainstorming', involving one or more individuals suggesting as many solutions as possible to a problem before one is evaluated. There is also evidence that giving feedback on the process by which the solution was arrived at, as well as the correctness of the solution, is a particularly effective way of helping students learn to solve problems (Hattie & Timperley, 2007). Efforts to teach critical thinking represent a broader attempt to link cognitive capacities with achievement. Critical thinking is important in a variety of situations, including those that call for weighing competing evidence and identifying assumptions in opposing arguments. The studies of problem-solving and critical thinking are particularly relevant to the process whereby cognitive capacity influences learning, rather than giving any indication of the size of this relationship (Diamond, 2013). The issue is of importance to ***Growing Up in Ireland*** since problem-solving is a crucial feature of the cognitive tests that were administered to students at age 13 years.

New research is concerned not with intelligence as capacity or potential but with how intelligence is 'used'. One important area centres on the perception of competence-related beliefs, including a sense of self-efficacy (Bandura, 1997). Another is around motivational matters; that is, wanting to do a particular task and readiness to invest the effort required, since otherwise the learner may not engage in the task. A third area is around the self-regulation skills required for various tasks. Competence-related beliefs – that is, the individual's belief about their efficacy to perform a particular task – are important, and result in greater effort, longer persistence and the selection of more challenging tasks. Of the various theoretical positions advocating this view, Bandura's concept of self-efficacy is especially influential. Bandura distinguished between two kinds of expectancy beliefs: (i) outcome expectations; that is, beliefs that certain kinds of behaviours such as practice will lead to certain outcomes such as improved performance; and (ii) efficacy expectations; that is, beliefs about whether one can perform the behaviour necessary to produce the outcome. Bandura's central thesis is that efficacy expectations rather than outcome expectations are the major determinant of goal-setting and willingness to expend effort and persistence. Bandura (1997) has summarised a body of research in support of the importance of efficacy expectations in enhancing achievement in school.

Because perception of competence is a major feature of self-concept and self-worth, the relationship between self-concept and achievement is critical. For several years, researchers debated the difficult issue of the causal direction. Some argued that increases in feelings of self-worth produced better achievement, while others suggested that the causal direction was the opposite. More recently, the use of longitudinal designs suggested that the relationship between self-concept and achievement is reciprocal (Guay et al, 2003).

As well as the question of perceived competence/efficacy, there are important considerations relating to the motivation to engage in a task. The work of Brophy (1999) is especially noteworthy, especially his proposal of a zone of motivational proximal development (ZPD) along with a cognitive ZPD in considering plans to enhance children's learning and motivation. If a learning activity is too far above a student's motivational ZPD, they will be less likely to engage in the activity or appreciate its importance. There is also evidence that students' future-time perspective is extremely important for their engagement in learning. The work of Kaufman and Husman (2004) has shown that, when students see the value of educational activities to their future success, they are more positively self-regulated and achieve higher grades.

Recent research on self-regulation described three phases: (i) forethought, (ii) performance and volitional control, and (iii) self-reflection (Pintrich, 2003). Forethought involves analysing the task or activity that needs to be done and motivating oneself to undertake the activity. Performance refers to self-regulation as the individual actually is

doing the activity, including focusing on the activity and monitoring what one is doing. There is evidence that a sense of efficacy is important at both the forethought and performance stages. Finally, in the third phase (reflection and reaction), individuals interpret their activities by making attributions for their success and failure, as well as evaluating whether they have achieved their goals.

One aspect of self-regulation that may be of particular importance for adolescents is knowing when help is needed in an academic setting. In particular, a valuable distinction was made between appropriate and inappropriate help-seeking (Wigfield et al, 2006). Adaptive help-seeking involves deciding that one does not understand a problem, after having tried to solve it on one's own, and figuring out what and whom to ask. Adaptive help-seeking can foster motivation by keeping children engaged in an activity when they are experiencing problems. A problem arises when children who need help are unwilling to seek it because they fear being perceived as lacking in competence.

Growing Up in Ireland includes measures of ability (Drumcondra Verbal Reasoning and the British Ability Scales) as well as various measures of achievement in school, including self-rating and test results. Furthermore, the Strengths and Difficulties questionnaire will provide information on conduct and behaviour problems. The combination of these measures at both age nine and 13 years will allow for a direct examination of the central research question: What is the relationship between cognitive ability and educational outcomes? How does achievement at age 13 relate to achievement at age nine? How do cognitive and non-cognitive influences, including self-regulation, interact in their effects on achievement?

4.4 HOW DO THE CHARACTERISTICS OF THE CHILD'S CURRENT SCHOOL AFFECT EDUCATIONAL OUTCOMES AND MOTIVATION TO ACHIEVE?

While there is agreement that experiences in school influence every aspect of development, and educational outcomes in particular, there is less agreement on how school influences should be conceptualised. One approach (used in ***Growing Up in Ireland***) considers school influences in terms of a proximal-distal dimension (Eccles & Roeser, 2011). These authors examine the micro or immediate level of influence in the first place, including teachers and classroom environments, and the broader schoolwide characteristics (particularly school culture and school family links) at the second level, while at the third level they propose the importance of state-wide or national policies. In the overview here, both Irish and international research is considered within this framework.

Among the factors that are important at the immediate level of influence are teacher qualifications, the way academic work is structured in sustaining students' engagement, classroom emotional climate, expectations and differential treatment. For example, there is evidence that teacher expectations can have important influences not only on individual students but also on groups of students if negative expectations are operating, as in the case of gender and race/ethnicity. Implicit stereotypes about gender predict differential expectations of mathematics performance of boys and girls (Van den Bergh et al, 2010), which in turn has an impact on achievement. Part of the reason may derive from differential treatment; adolescents who perceive themselves to be treated differently than their peers experience a decline in their academic self-concept, which in turn seems to be a crucial factor mediating a decline in school achievement (Eccles & Roeser, 2011). There is also evidence that teacher-student relationships may be especially important in cultivating a sense of belonging, a feeling that is especially important for students who have to negotiate a pathway through the cultural norms of school that may at times be alien to them. Thus, longitudinal studies of adolescent populations have shown that perception of caring by teachers was an important predictor of later feelings of belongingness, which in turn had an important impact on self-esteem and achievement (Hattie, 2009).

While the concept of 'teacher-student relationship' has had a long history in teacher education, it is only relatively recently that its importance for school achievement has been demonstrated. A meta-analysis by Cornelius-White (2007) showed a substantial association between teacher affective factors such as warmth, empathy and encouragement and student outcomes, including grades and test scores. A more recent meta-analysis following up on this general finding (Roorda et al, 2011) found moderate to strong relationships between teacher-student relationships and achievement; this effect was relatively greater in the case of boys. It was also found that children/adolescents who were at risk (either low SES or learning difficulties) were more strongly influenced by the teacher-student relationship than were others.

The broader characteristics of school culture were shown to be important for perceptions of school safety and for academic engagement. With regard to school safety, the traditional view has been to regard this domain as relevant only at the level of individual students. However, it is now known that particular features, such as bonding to teachers, are critical for rates of bullying and violence at the school level (Gregory et al, 2010). Specifically, it has been demonstrated that rates of bullying and reported victimisation are lower in those schools in which teachers and students rate the discipline as authoritative and school support as high.

Peer cultures in school have a major impact on students' motivation and achievement. Particularly relevant is the work of Frank et al (2008) who identified a student's local peer position in the network of students with whom they take the same classes. Based on the argument that peer norms and 'cultures' at this structural level are most likely to be influential during secondary-school years, they demonstrated that being a member of a group taking college preparatory examinations in mathematics had a profound impact on the likelihood of taking courses leading to college entry. This and other related studies have shown that interacting with peers who are achievement-oriented not only enhances examination performance but also reduces the likelihood of being involved in risky behaviours (Eccles & Roeser, 2011).

At the distal level of influence a number of factors are important for students' school performance, including various school-wide policies and practices such as streaming, school size and availability of extra-curricular activities. In a review of the extant research on the impact of school size on achievement, Leithwood and Jantzi (2009) propose that relatively smaller postprimary schools afford opportunities for engagement that foster achievement, in comparison to very large schools. These factors include closer relationships between teachers and students and better monitoring of student progress. However, there is also evidence that the impact of school size on achievement depends on the quality of instruction; in schools where there is a major focus on social factors and limited emphasis on learning, the association between school size and achievement is not found (Wang & Finn, 2000).

The effects of streaming are much harder to pin down. One of the most consistent findings is that students placed in higher streams achieve relatively better than those placed in lower streams or tracks. There is substantial evidence that students placed in high-ability or college tracks perform relatively better than if such systems were not in operation (Frank et al, 2008). On the other hand, students in lower streams perform relatively worse than in unstreamed schools. The suggestion has been made that this is a result of lower levels of support and less satisfactory educational experiences (Hattie, 2009). In addition, it has been argued that aggregating students with poor achievement histories may impact on teachers and undermine the quality of instruction that these students receive (Oakes, 2005). It has been argued that ability grouping narrows the range of possible comparisons with peers so that high-ability students might therefore have a lower academic self-concept, while with low-ability students in lower streams the opposite effect might occur. Evidence for this effect has led Marsh et al (2008) to conclude that academic streaming results in a loss of confidence among academically very able students.

The issue of time of instruction is a major consideration not only at the system level (number of days and hours of instruction) but also in relation to the way in which the allocated time is used for instruction (Slavin, 2009). The study of Karweit and Slavin (1981) was concerned with how scheduled time for mathematics instruction got whittled away through other activities. The study concluded that, even in very good schools, the average student spent only 60 per cent of the time actually learning the subject. The loss was due to: (i) other activities, including absences of teachers, and school events, (ii) non-instructional activities, including announcements and passing out materials, and (iii) students not being engaged in learning activities (pencil-sharpening, assignments finished early, daydreaming). However, recent research has demonstrated that an over-emphasis on time on task can sometimes be detrimental to learning. For example, complex tasks involving creative processes require some diversion that may result in a decline in on-task activities. However, it would hardly be appropriate to eliminate higher-order learning tasks from the curriculum simply to increase time on task (Weinstein & Mignano, 2003).

The research on school effects in Ireland can be conceptualised within the proximal-distal framework set out above. Much of the research is confined to the identification of the factors that have been shown to be important, without necessarily pinpointing the precise contribution of these factors to school achievement. The National Assessment of Mathematics and English Reading (Eivers et al, 2011) asked teachers how confident they were

engaging in various kinds of teaching activities – akin to measures of teacher-efficacy. The majority of children in the study were taught by teachers who felt very confident teaching high achievers in reading, whereas in contrast less than half of the teachers were very confident teaching low-achieving students and only a quarter were very confident using computers to teach English. It is a reasonable assumption that these levels of confidence reflected teachers' ability to teach the areas in question and therefore had consequences for achievement.

The studies summarised by Smyth and McCoy (2011) show that, while streaming is now less common in Irish secondary schools than in the 1980s, it is relatively more concentrated in schools serving disadvantaged children. They collate a substantial body of evidence showing that there is significant underperformance among students allocated to lower streams but without a corresponding advantage for those in higher streams (in contrast to some international work considered above). They also conclude that streaming is partly accountable for the relatively poor performance of young people from disadvantaged backgrounds, because such children are more likely to attend a school where streaming is the normal practice, and in turn they are more likely to be allocated to a lower stream.

The study by Eivers et al showed that schools with a high percentage of employed parents tended to do relatively better in terms of achievement, while average school attendance showed a modest correlation with achievement, as was the case with average SES. There was no correlation between school size (based on enrolment) or library books and school achievement. There were small differences in achievement associated with whether the school was coeducational or single-sex; pupils in all-boys schools performed significantly worse than pupils in mixed-sex schools. There was a weak positive correlation with class size; pupils in large classes tended to do better in the tests. Obviously this finding (and indeed some other outcomes) is a reflection that smaller classes are more likely to be found in areas of educational disadvantage (based on national policy to have smaller classes in areas of disadvantage). Analysis of PISA 2009 (Perkins et al, 2010) examined school factors and found that students who perceived themselves to have poor relationships with their teachers had significantly lower scores than students with average or good relationships with teachers.

DEIS (Delivering Equality of Opportunity in Schools) is a major intervention aimed at addressing the educational needs of children from disadvantaged communities. The core elements of the programme comprise a standardised system for identifying and reviewing levels of disadvantage, and an integrated School Support programme intended to bring together existing interventions for schools with concentrated areas of educational disadvantage. A recently published study by the Educational Research Centre (Weir et al, 2012) compared the achievements of pupils in 2007 (before the intervention) with their counterparts in 2010 (following implementation of the intervention) and found that the latter group had significantly higher test scores in reading and mathematics at each grade level tested. Furthermore, at school level, the average scores more often increased than decreased. The authors make the point that these improvements took place despite the presence of several factors that might have been expected to affect achievement negatively. These include fewer exemptions of weak pupils from testing in 2010 and a greater percentage in 2010 of pupils whose home language was not English.

The data collected on 13-year-olds can be used to examine several of the issues relating to the impact of school and the interactions between influences and factors outside the school context. The school influences can be categorised in terms of the proximal-distal influences considered above. The immediate influences of teachers are targeted in the questionnaire which focuses experiences of learning, including the kind of interactions that occur in the classroom, as well as affective dimensions that are central to the relationship with teachers. There are also items relating directly to difficulties experienced in key curricular areas, as well as interest in those areas. At the organisational level, the information in the school questionnaire concerns type of school, whether single-sex or mixed, and how students are allocated to particular classes in any given year. These questions (and related matters such as time on homework) will allow for a more comprehensive understanding of school influences than has been possible in previous studies in Ireland. Furthermore, the study will allow for a richer understanding of the influence of school factors alongside family and peer influences, as these were assessed at age nine as well as age 13 years.

4.5 HOW DOES THE CHILD'S EXPERIENCE OF THE TRANSITION TO SECOND-LEVEL INFLUENCE EDUCATIONAL OUTCOMES AND HAPPINESS AT SCHOOL?

Because the transition from primary to postprimary school has often been identified as critical in school success and indeed school completion, a substantial research literature has examined the reasons for difficulties at transition. Below, the evidence on a lack of engagement in postprimary education following transition is examined, as well as evidence of socio-emotional difficulties for some students. The provisions that various schools make for transition as well as the evidence on whether minority-group children have relatively more difficulties are also reviewed. Finally, a recent study is described which has attempted a comparison of the various factors thought to be important at transition. It should be noted at the outset that the age group of 13 years coincides with the transition to postprimary school.

Benner (2011) reviewed the evidence on the impact of transition experiences on academic performance. She concluded that, with very few exceptions, the studies on high-school transition showed deterioration in achievement, especially in core-content areas of the curriculum. Part of the reason for this decline may be the weakening in student engagement. Benner's review showed that a decline in involvement in extracurricular activities, more unexcused absences, report of greater academic hassles and more frequent teacher reports of disruption frequently occur at transition. The reports by students themselves support this picture, and indicate some of the reasons for this disengagement. For example, a retrospective study of transition by Newman et al (2000) found that students identified homework difficulties, the need for more intense studying and the need to accept greater responsibility as central to the challenges that they encountered.

While there is less research on socio-emotional well-being, some trends are evident in the available evidence. There are indications that many adolescents experience greater anxiety and loneliness during the transition, as well as some increases in levels of depression (Newman et al, 2007). While some explanations focus on puberty per se, the most plausible explanation for these outcomes is that transitions involved a shift from predictable and familiar contexts to unpredictable and unfamiliar ones, and that the adolescent's individual coping capacity is taxed to capacity. School transitions also disrupt relationships with peers and with school personnel, which may in turn result in different expectations of students. In general, the findings suggest that 13-year-olds experience lower support and caring from their high-school teachers as compared with primary/middle-school educators (Barber & Olsen, 2004).

A Scottish study by West et al (2010) examined the effects of primary-secondary transitions for later well-being and achievement. The research was based on a longitudinal, school-based study of over 2,000 Scottish pupils, first surveyed in 135 primary schools (age 11) in 1994, and followed up in 43 secondary schools (age 13 and 15) and again after leaving school (age 18/19) in 2002/3. After a year in secondary school (age 13), the majority recalled having had difficulties of adjustment to both school and peer social systems at the beginning of secondary education. Students of lower ability and lower self-esteem experienced poorer school transitions; as did those who were anxious and had experienced victimisation. At age 15, a poorer school transition predicted higher levels of depression and lower achievement, as well as lower self-esteem. Although reduced in size, similar results extended to outcomes at age 18/19.

A recent study by Gorard and See (2011) in the UK examined enjoyment of formal education in the early years of secondary school among students aged 12 to 16, largely from their own perspective, and based on the view of around 3,000 participants. The data included documentary analysis, official statistics, interviews and surveys with staff and students. Enjoyment of school was enhanced by factors such as successful social relationships, small classes, variation in learning, and students having some control of their learning. On the other hand, enjoyment tended to be inhibited by perceived lack of respect or concern by teaching staff and passive pedagogy. For some disengaged students, a work or college environment with more adult relationships appeared to restore enjoyment and enthusiasm. This study found that, unlike achievement, enjoyment was not particularly affected by the standard student background variables. It concluded that enjoyment should be easy to enhance more widely, positively affecting the learner identities of all young people, including the more reluctant learners.

Some recent international work has given particular attention to motivational questions in the transition to secondary/high school. Declines in academic motivation and interest in school as well as perceptions of

competence in different areas have been summarised by Wigfield et al (2006), who noted that these changes are likely to be especially problematic for students from low-SES communities and who therefore find the school climate particularly unsupportive. In explaining these changes, these authors proposed two possible explanations. First, they noted that secondary school instruction is organised and taught departmentally, which in turn results in teachers teaching several groups and being unlikely to teach any particular student for more than a year. Furthermore, the curriculum is often not integrated across different subjects and there is little opportunity to interact with a teacher except on academic content or disciplinary matters.

The second explanation relating to motivation advanced by Wigfield et al is that grading systems in secondary school are more likely to be based on comparative performance, with teachers more likely see ability differences as fixed rather than subject to change. These features in turn are likely to lead to an increase in performance goals (judgement of self relative to others in the class) rather than a mastery goal focus (judgement on what has been learned). They argue that the coincidence of declining support and increased social comparison and competition is likely to contribute to decisions to leave school as early as possible.

In the first major study of its kind in Ireland, Smyth et al (2004) examined the views and experiences of the key people involved in the transition process, including school principals, teachers, parents and students themselves. They found that most students settled into postprimary school relatively quickly but some were at greater risk of difficulties, including children with less self-confidence and a poor self-image, as well as students from Traveller and non-national backgrounds. They also found that students in streamed schools took longer to settle into the new school and as a result tended to make less progress academically.

Smyth et al also noted that schools varied in the provision of support structures for first-year students. They suggested that having an induction day, specific personnel who take responsibility for first-year students, and student mentors who act as a 'buddy' for younger students can help students to settle into the new school and progress academically. Moving to postprimary school means that students take many new subjects and are taught some of their familiar subjects differently. As a result, the need to develop greater links between the primary and postprimary sectors through teacher training, transfer of information on the curriculum covered, and the transfer of best practice relating to teaching methods, should be a major priority.

The EPPSE study (Salmon et al, 2012) is one of the few major studies that have sought to compare the relative importance of various factors associated with transition from primary to postprimary school. It identified five salient factors: developing friendship, self-esteem and confidence, settling into school life, showing interest in school and in schoolwork, getting used to new routines, and experiencing curriculum continuity. EPPSE examined the importance of the transition experience on subsequent achievement and found that those students who settled quickly into school routines and who experienced continuity in the curriculum from primary to secondary school made better progress in mathematics and science, and also had higher attainment in all three core subjects at age 14 years. Although statistically significant, these effects were relatively small. Other transition factors were less predictive of school success, suggesting that familiarity with the school buildings and routines, along with familiar curriculum materials in lessons were more important during transition than the psychological dimensions of self-esteem and confidence or the social dimension of settling into school (social) life.

The study of 13-year-olds (second wave of ***Growing Up in Ireland***) is collecting a range of data from parent and child on the transition to postprimary. This includes subjects taken in first year, the number of friends from primary school that are now in their secondary school, liking for school, and experiences of learning. In addition, a range of other relevant factors will be measured, including engagement with school, involvement in homework and supports for schoolwork. These data will facilitate a longitudinal analysis of the relationship between outcomes at 13 years of age and characteristics at age nine years. In particular they will allow for a comparison of transition experiences at 13 years with experiences at nine years in primary school, and their impact on academic progress.

4.6 HOW DOES THE CHILD'S ENJOYMENT OF AND ENGAGEMENT WITH SCHOOL PREDICT EDUCATIONAL OUTCOMES?

The substantial literature on school engagement calls for a precise conceptual basis for the various components of engagement. Below, relevant literature in this area is examined, followed by an exploration of some of the consequences of disengagement. The factors associated with lack of engagement are also examined, including school, home and community factors, and finally the potential contribution of the current study is outlined.

Engagement has received substantial research attention in the last decade, especially the two major components of engagement, the behavioural aspect and the cognitive component (Fredericks, Blumenfeld & Paris, 2004). One of the central indicators of behavioural engagement is that a student gives attention to the task and is prepared to expend effort. The effort that a student makes on a task determines above all how persistent they will be, and whether they will continue in the face of adversity or failure. Another feature of effort is whether a student is using all the resources available to them and prepared to give the time and endurance that this may require (Fredericks et al, 2004). The second component is cognitive engagement, going beyond merely listening to the teacher to getting involved in sophisticated learning strategies and linking what they know to what they are learning, and thinking about the gaps in their knowledge and how their learning can contribute to various aspects of their lives (Diamond, 2013).

Engagement makes a great difference to students' school experiences. In the short-term, engagement helps with learning and ensures that the task of classroom management is feasible for teachers. Learning important skills cannot happen without effort and attention. In addition, engagement is important for persistence not only in school tasks but also for staying in school; poor engagement is one of the strongest predictors of early school-leaving. The recent work of Byrne and Smyth (2010) involved interviews with students around the time when the decision to leave school was made. Based on their results, they sketched a typology of reasons for leaving school: (i) Rejection by the school: This involved not only experiences of suspension but also of feelings of not getting adequate support and of feeling that school was not for them; (ii) Rejection of school: This had some components that were similar to the first pattern but also included a dislike of school and sometimes of other students. The results of this study demonstrate the significance of school-level effects on engagement. A recent meta-analysis by Roorda et al (2011) was concerned with the association between engagement with school and achievement. The overall effect size was .29, which indicates a significant impact of engagement on achievement. Furthermore, the association was found in several studies and seemed to be relatively similar at various stages of growing up, including age 13.

Some of the strongest evidence for the importance of engagement is found in relation to achievement in reading. In PISA 2009, four aspects of engagement with reading were examined (Perkins et al, 2010). Frequency of reading for enjoyment was found to have a significant relationship with achievement; this association was quite substantial and especially relevant in the case of students who did not read for leisure at all. Associated with this outcome, students who reported that they enjoyed reading as a leisure activity were more likely to achieve better in reading. Two other measures of engagement pertained to diversity of print materials read and diversity of online materials read. While the correlation of these measures with achievement was positive, the relationship was quite weak ($r = .12$). A cross-sectional study by Stephan et al (2011) examined the process by which disengagement comes about. Their study of 120 students in eighth grade showed that negative feedback for academic performance can result in a devaluation of the domain to which the feedback was relevant. Thus, there is a major link between feedback and motivation, which in turn affects engagement with school.

The study by Byrne and Smyth (2010) showed that most forms of misbehaviour are predictive of disengagement and subsequently of early school-leaving, including being late for school and being absent from school on a regular basis. More serious forms of misbehaviour were stronger predictors of disengagement; thus, getting detention on a regular basis and being suspended were important negative influences. This was compounded by a feeling that teachers did not listen to disengaged students and were not really interested in them. While this study is important in demonstrating school-level effects, it is relevant that the causal direction is unclear; misbehaviour may have led to school-leaving, or the intention to leave school may have preceded such episodes.

For obvious reasons, involvement in anti-social behaviour is likely to increase the probability of disengagement with school. The evidence is that there is a reciprocal relationship between such behaviour and early school-leaving; as noted above, the minority of young people who later have a serious involvement in crime are likely to be alienated from school even at primary level. International evidence suggests that a similar process may operate at second level (Battin-Pearson et al, 2000). Young people's experiences in their families also have a profound influence. There is evidence that parental optimism and having high expectations for children are important factors in engagement with school (Rumberger, 1995). There are also indications that parental support influences engagement in other ways, particularly through setting limits on behaviour, helping with homework and monitoring school progress; and that such behaviour by parents can promote the resilience of children of low-income parents (Byrne & Smyth, 2010).

One aspect of school engagement is homework. The evidence on whether homework improves academic achievement has been reviewed by Cooper et al (2006). These authors found a complex relationship between time spent on homework and achievement. There was evidence of a positive relationship between homework and achievement in secondary/high schools but less so at primary level. It also emerged that the relationship was stronger if students rather than parents reported on the time spent. However, there are complicating factors. There is evidence in the 2009 national assessments of mathematics and English (Education Research Centre, 2009a and 2009b) that children who receive help with homework do rather less well on achievement tests than children who do their homework independently. Furthermore, it would seem that children who are having difficulties with homework sometimes spend rather more time on their assignments. This may account for the moderate negative correlation between the time that parents reported their child spent on English or mathematics homework and how well the child performed on the test. Thus, it is not entirely appropriate to assume that time spent on homework is a critical indicator of engagement.

Growing Up in Ireland's second wave of 13-year-olds will examine a number of indicators of engagement with school, including liking for school, time spent on homework, and indicators of lack of engagement, including being late for school and skipping classes. It will be possible to examine the effects of engagement on academic performance and also to establish changes in engagement related to transition to secondary school. Establishing causal effects will require that engagement and academic performance at age nine be taken into account.

4.7 WHAT KIND OF AFTER-SCHOOL CARE DO CHILDREN EXPERIENCE AND HOW DOES IT INFLUENCE EDUCATIONAL OUTCOMES?

A particular focus in the research on after-school care is the number of children and adolescents who are left to 'care for themselves' and the consequences of this arrangement for their educational and social outcomes. The relevant literature on the impact of self-care vs. other forms of care on anti-social behaviour as well as school performance is examined, followed by a brief indication of how Growing Up in Ireland may add to the research.

One of the early studies that examined this issue with respect to 13-year-olds is that by Dwyer et al (1990) who studied nearly 5,000 US children with a view to establishing whether adolescents who cared for themselves were at increased risk of truancy, aggression, family conflict and substance misuse. A relatively high proportion (two-thirds) cared for themselves at some time during the week without adult supervision, while more than a quarter of the sample were doing so for 11 hours or more a week. Furthermore, those in this latter category were more likely to report anti-social behaviour and risk-taking and to see their friends as the most important source of influence; they did not, however, differ from the others in the sample in term of self-reported grades in school.

A study by Richardson et al (1993) showed that adolescents aged 13 years and older, who were not supervised after school, were involved in more problem behaviour but in addition they obtained poorer grades in school. Two other important points emerged in this study. First, a major factor mediating these effects was whether parents knew or did not know where they were; if parents kept in contact with their children, the negative effects were dramatically reduced or disappeared. Furthermore, the setting in which the adolescents spent their time after school was an important influence; a neighbour's house or hanging round with friends seemed to predispose adolescents to problem behaviour more than was the case for those who spent the time in their own homes. Other issues relevant to parental monitoring have been considered in Chapter 3.

Not all theorists are in agreement that self-care has damaging consequences. While the perspective that self-care has deleterious consequences has been put forward in the context of some of the research (especially of Richardson et al), others have argued that self-care may be beneficial with respect to learning responsibility and independence. In line with this latter perspective, the influential study of Galambos and Maggs (1991) compared sixth-grade students in contrasting out-of-school care situations. Results indicate that there were no differences across a range of measures, including achievement, between those in self-care in the home and those in adult care. However, the point of comparison is crucial; in this study the comparison was between care by an adult and self-care in their own home.

The study by Vandell and Ramanan (1991) contains important controls for possible confounding factors. As part of the National Longitudinal Study of Youth in the US, they compared 'latchkey' students (including those aged 13) with those in the care of an adult. They found that children in the care of adults performed better in school and showed fewer forms of anti-social behaviour than those who cared for themselves. However, they also found that these differences disappeared when family income and emotional support were controlled, suggesting that the type of after-school care per se may be less important than the quality of children's experiences in their families. The results of the study by Aizer (2004), also based on a longitudinal study in the US, are more mixed; they indicate stronger effects on anti-social behaviour than on achievement. Her results showed that adolescents with adult supervision were more likely to be involved in substance misuse and stealing than were those who cared for themselves. It was also of interest that these effects persisted when controls were applied for household factors and mothers' educational profile. However, the observed impact on school (including truancy) was modest or non-existent.

In the study wave of 13-year-olds in Growing Up in Ireland , one question posed concerns who, if anyone, minds the young person between the time they finish school and 6pm in the evening. In the likely event that more than one arrangement obtains, the respondent is asked to say which is most frequently used. The eight options include taking care of themselves, being cared for by an older sibling, being minded by an older adult (not a relative), attending an after-school programme or club, and hanging about with friends. These alternatives will extend what is known about after-school care, since some options are included that are not often found in the literature – e.g. after-school programme. Because the study includes information on important factors associated with school achievement (background and home process factors), it will be possible to gauge the impact of the after-school care while controlling for these other factors, including developmental influences, and especially taking into account the data gathered at age nine years.

4.8 HOW DO PARENTAL ASPIRATIONS AND PARENTAL ENGAGEMENT WITH SCHOOL AND WITH LEARNING INFLUENCE CHILD OUTCOMES?

The associations between parental aspirations, expectations and engagement with children's school achievement are examined here. First, these different concepts and the issues surrounding their causal relationship with achievement are scrutinised. The specific forms of parental engagement that are most important and the issues relating to the socio-cultural context that prescribe these forms of engagement are then identified.

High aspirations and expectations are regarded as central to children's achievement. The idea that such beliefs become self-fulfilling prophecies is a guiding idea behind many interventions. The classic idea is that parental aspirations (the educational level that parents hope their child will attain) and their expectations (the level that the child is realistically expected to attain) may create circumstances that lead to the verifications of these beliefs. There is some supporting evidence for this cycle of events; students who report that their parents expect them to obtain college degrees are more likely to perform better on tests than those whose parents expect them to complete secondary school only. Furthermore, students whose parents do not expect them to go to college are twice as likely to drop out of secondary school as those whose parents expect them to attend college (Coleman, 1988). Such results have sometimes been taken to imply that the increasing of the aspirations and expectations of parents for their children might be expected to result in an improvement in school performance.

However, the self-fulfilling prophecy designs are limited by the cross-sectional/correlational nature of most of the data. Do parents' aspirations/expectations influence school performance, or does school performance influence parental aspirations and expectations? Another limitation is that many studies have been carried out relatively

late in students' careers in school, by which time they had established a pattern of achievement which might affect the adolescents' own beliefs and performance as well as their parents' views on future educational outcomes. For this reason, longitudinal studies are more appropriate for establishing the precise nature of the influences involved.

An example of a precise examination of these factors based on longitudinal data is found in the work of Goldenberg et al (2001) who followed immigrant Latino children in the US from kindergarten to age 13 years, as well as their parents. This research is especially worthwhile in that it gives an indication of levels of aspiration/expectation as well as of the different ways in which these processes function. First, virtually all the parents had high aspirations for their children in the sense that they saw formal education as important for life-chances and therefore aspired to college education for their children. Secondly, while aspirations remained high throughout the child's years in school, the parents' actual expectations were heavily influenced by how well their children did in school. In other words, for many parents a discrepancy developed between what they hoped for their children and what they expected realistically to happen. Thirdly, while cultural factors and structural barriers influenced expectations, children's interest in and motivation for schoolwork were major factors influencing parental perceptions of the likelihood that their children would go to college. Finally, this study demonstrated that children's achievement was not constrained by low parental expectations. Thus, while expectations may seem to be important in the sense that such beliefs are often associated with achievement, the direction of the effect may be different from what is often assumed; expectations may have an impact but it is modest compared to other influences in students' school and cultural environment.

A study by Lee and Bowen (2006) was concerned with the type of involvement and engagement with school that was most strongly associated with children's achievement. Their results showed that direct involvement with school (as in visiting school) was important, as were educational discussions with children about what happened in school. Furthermore, homework help contributed to achievement, as did advice to children on time management. It should be noted that this study, while employing a sophisticated multiple regression model, is based on data gathered at one point in time.

What constitutes successful parental engagement? With the advent of 'No Child Left Behind', many US programmes integrated family literacy programmes, early childhood education and interactive parent-child activities. In this context, the Parent Education Profile (PEP) is widely used in the US to classify parenting practices on a scale of 1-5, from 'least supportive' to 'most supportive'. The argument has been made that its use was in response to accountability policies and is a mechanism by which non-formal education programmes are made subject to public scrutiny (Graham & Neu, 2004).

In the second wave of ***Growing Up in Ireland*** on 13-year-olds, information is being obtained on parents' involvement with school, on assisting their child in various ways, and on their expectations. With regard to involvement with school, items in the Primary Caregiver questionnaire focus on attendance at parent-teacher meetings, attendance at school events (concert, play or sports day), and talking to the school principal or another teacher on the phone or in person. There was also a question on how often or whether the caregiver or their partner provided help with the child's homework. To examine expectations, a question focused on how far they expected the child to go in his/her education (Junior Certificate to postgraduate degree). In addition, information was sought on the number of books in the home as well as about access to the Internet. The analysis of these questions will allow for the identification of the contribution that involvement and expectations of parents (separately and together) make to a child's achievement in school, as well as how this might be mediated. Other possible effects of parental school involvement (for example on social and emotional development) will also be examined. The fact that relevant data will be available from age nine will give particular force to the analysis.

4.9 WHAT FACTORS PREDICT TRUANCY AND OTHER FORMS OF DISENGAGEMENT FROM SCHOOL?

Conceptual understanding of truancy and other forms of disengagement is important for examining their influence on school performance. This is discussed below, followed by an overview of research on the factors (school, family and community) that affect such behaviour. Ways of preventing truancy are examined and the potential contribution of the current study is set out.

Truancy is a focus of interest not only because it impinges on school achievement but also because it is associated with risky behaviour, including crime and substance misuse. For these reasons, governments have attempted to develop practices to reduce truancy, including initiatives taken in Ireland. While a main focus of the National Education Welfare Board has been on school attendance rather than on truancy, the concern is with the high level of unwarranted absences from school and the associated behaviours that may follow. As pointed out by Darmody et al (2008), regular absence from school is a risk factor for early school-leaving and for economic disadvantage in later life. Furthermore, because persistent absences can lead to unemployment and even criminal behaviour there are societal as well as individual costs.

While the terms 'truancy' and 'absence from school' are sometimes used interchangeably, there is often an oversimplification around the cause of absence and precisely what it means to be 'absent from school'. For example, a study by Atkinson et al (2000) noted the differences in extent of absences that make up truancy, from 'cutting' a single class to being absent for several weeks. They also make the point that truancy is caused by a variety of factors, with the result that categorising all truants as one group is inappropriate.

As might be expected, the factors that predict truancy are multi-faceted. At the individual level, there are indications that young people (aged 11 to 14 years) who engage in truanting are likely to be faring poorly academically and have lower academic self-esteem (Claes et al, 2009); as with many forms of disengagement, truancy is more frequently found among boys than girls. With regard to family factors, there are indications that a lack of involvement of parents is a contributory factor, as well as frequent family relocations (Baker et al, 2001). At the school level, the international literature suggests that truancy is most likely to be found in schools that have an antagonistic relationship between students and teachers, as well as those that make limited efforts to maintain records of students' attendance at classes. There are indications that the best approaches by schools to truancy are through an authoritative approach that imposes clear demands on pupils but which is combined with a caring and warm school environment. In the study by Claes et al (2009) of 93,000 students in 28 countries, school characteristics make a major difference. In particular, schools that encourage participation and have a supportive environment tend to have lower truancy levels. These authors also found that strong involvement of parents also contributes to lower truancy rates. They take the view, based on their results, that truancy should not be seen as an individual 'law and order' issue but rather an educational matter that is influenced by the broad organisational factors that influence other educational outcomes.

The study by Darmody et al (2008) was concerned with the major factors associated with truancy in Irish secondary schools. That research is based on the annual school-leavers' survey in which students were asked about the extent to which they had skipped school lessons in the last year of school; truancy was defined as skipping a 'day here and there', 'several days at a time' and 'weeks at a time'. Just over one-fifth of the sample could be described as truanting by this definition. Male students in Ireland were significantly more likely to truant than female students; the authors note, however, that female truancy is on the increase. Furthermore, and again in line with international findings, they found that the lowest rates of truancy were among students with a professional or farming background while the highest rates were among unskilled manual groups and from non-employed households. It was especially striking that young people from the Travelling community were more than three times more likely than those in the settled community to truant in their last year in school.

The study by Darmody et al also showed that school factors had an important impact on truancy. It was noteworthy that students attending small schools were less likely to play truant than those attending larger schools – an outcome attributed by the authors to the greater social cohesion in small schools, or the greater monitoring of attendance, making it less easy for truancy to go unnoticed. The same explanation may account for the lower level of truancy in rural as opposed to urban schools. However, of the various school factors that were identified as important, one emerged as particularly significant: the extent to which students perceived the school as supportive (agreement with items such as: 'Teachers listened to my ideas and views'). Not only was the effect of a supportive school climate found in all types of schools, but it may be that those students likely to truant relatively frequently, like young people from the Traveller community, do so because they see the school environment as less supportive.

In the ***Growing Up in Ireland*** Child Cohort study (2nd wave), it will be possible to establish frequency of absence from school and the variety of factors that affect this behaviour. In the Primary Caregiver Questionnaire, the respondent is asked to say how many days the child was absent from school in the last 12 months (none – 20 days+), while in the Child Main Questionnaire, the questions posed include indicating the number of days absent during the last 12 months and whether they 'skipped classes or mitched' ('never' to 'all the time'). Thus, given that the information comes independently from the child and the parent, as well as from official school records, it will be possible to get a better estimate of truanting than is usually available in similar studies.

Child, family and school-related risk factors for truancy will also be identified and a comprehensive picture will be available for identifying patterns of truancy. This in turn will have important policy implications for prevention of early school-leaving, given the strong association between truancy/absenteeism and early school dropout. Because of the data available data at age nine, it will be possible to analyse the extent to which factors in earlier childhood, particularly family and personal influences, influence truancy.

4.10 SUMMARY AND CONCLUSIONS

From the evidence available, it is clear that home factors – including income, family type and maternal education – have a major influence on school achievement at age 13. The comprehensive information available on a range of factors, including not only SES indicators but also home processes, enhances our understanding of how such influences operate. There are indications that family structure plays an important part in academic performance, with lower educational attainment in single-parent, restructured families. However, these differences diminish or disappear when controls are applied for income and resources.

While cognitive ability is a major predictor of educational outcomes, competence-related beliefs are also particularly important in educational performance. In particular, self-efficacy – that is, the belief that one can perform the behaviour necessary to produce the desired outcome – is a major determinant of effort and persistence, which in turn have a major influence on academic achievement. Recent research has also demonstrated the importance of self-regulation in academic achievement. There are several important components in self-regulation, including planning and motivation for the activity, as well as monitoring success and identifying the reason for progress or failure. A critical part of self-regulation is knowing when help is needed in an academic context.

Schools influence every aspect of educational performance in a variety of ways. In this review, a model of school influence is put forward that conceptualises influences along the proximal-distal dimension. At the immediate level of influence, engagement with learning and teacher expectations play a crucial part. This is demonstrated in research on the effects of implicit stereotypes regarding gender and performance in mathematics; such views result in differential expectations, which in turn have an impact on achievement. Peer cultures have been shown to have major effects on school achievement. Specifically, interacting with peers who have a strong achievement orientation enhances achievement motivation and reduces the propensity to risky behaviour. Finally, at the distal level of influence, school structural factors have effects on achievement. An example is ability grouping, which has been shown to result in significant underperformance among those who have been allocated to a lower stream.

It has been shown in numerous studies, both national and international, that the transition from primary school to postprimary school has an impact on achievement (frequently a negative influence). A reason for decline in achievement may be the weakening of student engagement, including unexcused absences from school and a greater inclination to being disruptive with teachers. Engagement with school has been shown to be one of the most powerful predictors of both achievement and behavioural as well as cognitive components. While some influences on engagement are well understood, the full picture is unclear. For example, having a part-time job has been found to be influential in some studies, but the mediating factors may have to do with circumstances that lead to students working long hours.

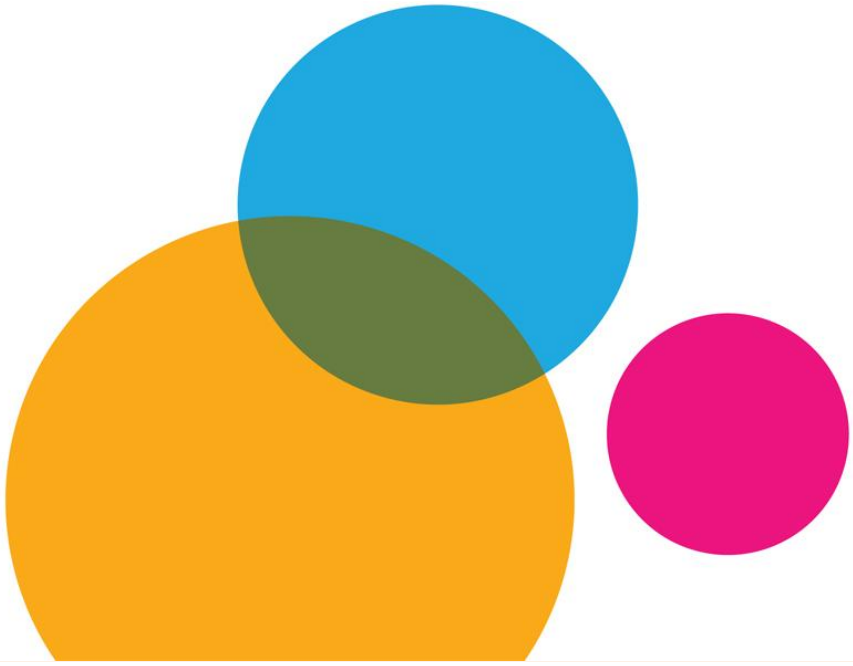
An important influence on school achievement is after-school care and whether children are left to care for themselves. There is evidence that adolescents who are not supervised after school are not only involved in more problem behaviour but also achieve less well than their peers. However, the importance of after-school care tends to diminish or even disappear when family income and related factors are taken into account. High parental

aspirations and expectations have emerged as central to adolescents' achievement in school, based on the notion that these beliefs become self-fulfilling prophecies. However, some recent research indicates that, while expectations and aspirations are often associated with achievement, the direction of the effect may be different from what is often assumed (expectations may result from the results obtained by the student) and that the effects where found are modest compared to other influences, such as parental engagement with school.

Truancy is an important factor for 13-year-olds because it impinges on school achievement. Furthermore, truancy is associated with risky behaviour, including crime and substance misuse. The factors that influence truancy are multifaceted. Boys are more likely to engage in truancy, as are young people with low self-esteem and those whose parents are not involved with school. At school level, truancy rates are higher in those schools that have an antagonistic relationship between students and teachers, as well as in schools where attendance is poorly monitored. Students attending small schools are less likely to be involved in truancy than those in larger schools, and the level of truancy is greater in urban than in rural schools. It is especially noteworthy that schools which were perceived as supportive by students were less likely to have high rates of truancy than those with a less supportive school climate.

Chapter 5

GENERAL CONCLUSIONS



CHAPTER 5: GENERAL CONCLUSIONS

In this final chapter, the main conclusions emerging from the literature review are set out. First, the common themes in the various domains examined are considered. The second part of the chapter looks at important findings in each area examined, as well as unanswered questions.

There is now agreement in the cross-disciplinary research examined here that a range of influences are important for developmental outcomes at age 13. These include individual and family characteristics and the economic, social and physical environments in which children are raised. There are some remarkable parallels in theorising about development across a range of disciplines. This facilitates the construction of a holistic conceptual framework within which the many factors influencing development can be understood. In particular there is agreement that individual outcomes can only be understood within a larger context. The growth and development of 13-year-olds are tied up with both the immediate and distal context in which they live. Immediate family and friends are important, but so too are the child's local community and the wider socio-cultural environment.

While the focus of the review is on specific research questions directly relevant to the research carried out with the 13-year-olds, one of the most interesting findings centres on the interaction of one area of functioning with other aspects of development. For example, cognitive functioning does not occur in isolation from personal and social development. Several aspects of school achievement are influenced by a combination of factors, including not only cognitive influences but also motivation, attitudes and beliefs, as well as school environment, peer influences and family factors. In the health area, there is evidence that the effects of obesity extend not only to health but also to the social and emotional domain.

As might be expected there are difficulties in pinpointing the precise impact of any particular year in a child/adolescent's life. As was evident in the review, there is evidence that several years in a one-parent or divorced family may have negative outcomes, possibly because of the prolonged lack of relational or financial supports. However, to say what the impact of this experience is at age 13 is much more difficult. Related to this difficulty of pinpointing precise effects at a given age is the evidence of the 'upward spiral of causality'; that is, success in one learning domain leads to further success, which in turn increases the association between positive influences and school achievement. An example of this phenomenon is found in the effects of print exposure on reading achievement from infancy to adolescence.

For convenience, the literature review focused on: (i) health and physical development, (ii) social and emotional development and (iii) cognitive development and educational achievement. While acknowledging the importance of the interaction between these domains of development, the research reviewed indicated the major advances in each of these areas with respect to important influences at early adolescence. For example, there is evidence that the onset of puberty is happening at an earlier age than some decades ago, especially among girls, and that this may be due to the effect of increased BMI, as well as to environmental factors. However, the consequences of this earlier onset of puberty, particularly in relation to sexuality and substance use, are much less clear. There is also firm evidence that young people at the lower end of the socio-economic dimension are more likely to experience ill-health, including chronic illness, injuries, obesity and social-emotional challenges. However, it is less clear how these effects are mediated, and the extent to which the effects are tied to experiences of childhood as opposed to adolescent adversity.

The experience of chronic illness during childhood and adolescence has effects that go beyond the health domain, including lower educational attainment and greater likelihood of non-completion of school. However, the effects of chronic illness affect other domains and also the kinds of influences that protect young people against the effects on school performance are not clear. The factors that predict initiation to smoking cigarettes have been identified in several studies. The influence of peers is a major factor associated with beginning to smoke. However, while peer smoking is a strong predictor of smoking, it is not clear if this is a direct influence of peers or a selective effect in the sense that beginning smokers tend to select friends who also like to smoke.

A range of factors have been identified at individual and family level that are known to be influential in regard to obesity, including sedentary behaviour, dietary habits and parental overweight. One important finding is that

there is often a mismatch with parental perception; most parents do not recognise a child's weight increase. Similarly, physical activity has been shown to have important effects on a range of health outcomes, including cardiovascular health and general well-being. What is especially noteworthy is that the positive effects of physical activity extend to social skills development as well as academic performance. This is another example of the important interaction between different domains of development. While there have been major advances in understanding factors associated with obesity and physical activity, there is much less consensus on the factors that may be important in interventions to address these challenges.

With regard to social and emotional development at adolescence, there is still debate regarding the extent to which this period is best characterised as one of turmoil or 'storm and stress'. There is a considerable body of evidence suggesting that hormones have a relatively modest impact on behaviour at adolescence and operate in interaction with family and social influences. Furthermore, risk-taking may not necessarily be harmful but can have positive outcomes, including intellectual advances, and may be conductive to creativity.

There is a consensus that a more differentiated view of the self begins to emerge in late childhood and continues during adolescence, with the result that there is an ability to think in divergent ways about the self, depending on the context and the circumstances. With regard to global self-esteem, there are indications that boys are inclined to think of themselves more positively than girls. However, when specific areas of self-esteem are differentiated, the gender differences that emerge largely depend on the domain under consideration. What is less clear is the importance of self-esteem in its influence on behaviour compared to other features such as self-efficacy.

Socio-economic factors play an important role in social and emotional development. It is striking, however, that, despite growing up in poverty, most children in these circumstances emerge without undue difficulties. In recent years there is evidence that children growing up in exceptionally affluent families tend to experiences challenges. What is less clear is how the effects of socio-economic factors are mediated. As in the case of family structure, parenting may be critical. It may be that non-traditional family types are not problematic for children, but are associated with other factors, including different approaches to parenting. What is very clear in the literature is that the offspring of authoritative parents tend to be more prosocial, socially competent and academically successful in comparison to adolescents whose parenting is described as authoritarian, permissive or neglectful.

Adolescents whose behaviour is consistently monitored by their parents are less likely to engage in anti-social behaviour and in general are more likely to manifest fewer problems relating to social and emotional development. In addition, the extent to which young people are inclined to disclose relevant information to their parents is a major protective factor. However, there is a problem relating to the fact that important parenting practices frequently co-vary with other influences, including poverty, marital conflict and parental stress. The latter is especially important in the social and emotional development of children and adolescents; in particular, there is evidence that children of depressed mothers are at an increased risk of a variety of problems. Furthermore, because parental depression persists over time, it may be an important influence on negative child/adolescent outcomes.

Anti-social behaviour is especially important at age 13, since it predicts subsequent problem behaviour and rebelliousness. Girls are less likely to be involved in antisocial behaviour than boys. This is especially true with regard to aggressive behaviour; however, recent research shows a decrease in the gender difference and a tendency for girls to be involved in subtle forms of hostility, such as relational aggression. There is a link between anti-social behaviour and substance misuse (both legal and illegal drugs). This link is not fully understood but it may be that the predisposing factors are similar in both cases.

A range of home factors, including income, family type and maternal education, have a major influence on school achievement at age 13. Family structure is also associated with academic performance, but its impact diminishes when controls are applied for SES factors. Cognitive ability, including measures of IQ, is a major predictor of educational outcomes, but competence-related beliefs are also particularly important. Self-efficacy (the belief that one can perform the behaviour necessary to produce the desired outcome) is a major determinant of effort and persistence, and in turn has a major impact on school achievement. Self-regulation also plays an important

role in achievement, particularly the planning and motivation for the activity, as well as monitoring of success and identifying the reason for progress or failure.

It is useful to think of school influences along the proximal-distal dimension. At the immediate (proximal) level of influence, engagement with learning and teacher expectations plays a crucial role. At the distal level of influence, school structural factors have important effects. For example, ability grouping has been shown to result in significant underperformance among students who have been allocated to a lower stream. It has been shown that the transition from primary school to postprimary school has a negative impact on achievement. Part of the reason for the decline may be the weakening of student engagement, including absences from school and a greater tendency to be disruptive with teachers.

An important influence on school achievement is after-school care and whether or not 13-year-olds are left to care for themselves. There are indications that adolescents who are not supervised after school are likely to get involved in problem behaviour and to achieve less well, and are more likely to drop out from school. However, when the various SES indicators are taken into account, after-school supervision diminishes in importance. There are similar issues of interpretation with respect to parental expectations and aspirations, which are often associated with achievement; expectations may result from the school performance of the student.

Truancy is a focus of interest not only because it impinges on school achievement but also because it is associated with risky behaviour, including crime and substance misuse. Regular absence from school is a risk factor for early school-leaving and for economic disadvantage in later life. Furthermore, because persistent absences can lead to unemployment and even criminal behaviour, there are societal as well as individual costs. Boys are more likely to engage in truancy than are girls. Young people with low self-esteem and those whose parents are not involved with school are also more likely to be involved in such behaviour. School factors are also important; truancy rates are higher in those schools that have an antagonistic relationship between students and teachers, as well as in schools where attendance is poorly monitored.

On the basis of the studies examined in this report, there are major advances in the understanding of factors that are important for health and physical development, social and emotional development, and achievement in school. It is especially noteworthy that the various domains of behaviour interact with each other, in the sense that a factor that is important in one domain often impinges on other domains. There are, however, several gaps in our knowledge. While there is a good profile of the many factors that are known to be associated with outcomes in each domain, the extent to which these factors are causal remains in doubt. For several of the research questions examined, the mediating influences were shown to be poorly understood. Indeed, in the case of many apparent influences, it is not clear whether associated influences that were part of a larger picture may have been operating.

Growing Up in Ireland at age 13 years can advance understanding of these influences quite substantially. The fact that data has been collected at age nine years of age in a longitudinal design will assist in pinpointing factors associated with changes over the ages nine to 13 years. Furthermore, because comprehensive information was sought with regard to several aspects of young people's lives, the study will help to identify which aspects are critical and allow for greater precision in identifying the influences that are causally important.

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