Growing Up in Ireland
National Longitudinal Study of Children

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INFANT COHORT

Review of the Literature Pertaining to the Second Wave of Data Collection with the Infant Cohort at Three Years

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REVIEW OF THE LITERATURE PERTAINING TO THE SECOND WAVE OF DATA COLLECTION WITH THE INFANT COHORT AT THREE YEARS

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Chapter 1

INTRODUCTION

Growing Up in Ireland (GUI) follows the development of two cohorts of children, one aged nine months at Wave 1 and one aged nine years at Wave 1. This literature review, the second with relevance to the Infant Cohort, concentrates on three-year-old children who are the focus of Wave 2 of the data collection. Throughout the review the longitudinal nature of the study will be reflected in the choice of literature and research questions. The review, which was drafted before the second wave of quantitative data collection for the Infant Cohort began in 2010, helped to shape the selection of the questions and standardised measures that formed the child, parent and carer questionnaires and child assessments.

Chapter 1 provides an overview of the background and objectives of ***Growing Up in Ireland*** and the conceptual framework guiding the study.

Chapter 2 summarises some of what we know about children at three years of age, drawing on data from other similar nations but also highlighting what we currently know about three-year-old children in Ireland and the context in which they are growing up.

Chapters 3 to 5 review the current literature on child development in the early pre-school period 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 development. In 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***.

Chapter 6 focuses on child characteristics and how they influence outcomes. Gender and temperament are explored in some detail to illustrate the ways in which children's own characteristics affect their environment and play their part in shaping children's developmental pathways and outcomes, including cognitive capacities.

In the concluding chapter, Chapter 7, the importance of the early pre-school years as a period in human development is discussed. Connections are drawn between the two data waves for the Infant Cohort. In conclusion, some of the current policy issues pertaining to three-year-olds in Ireland and their families are outlined, highlighting, where possible, the relevance of ***Growing Up in Ireland*** data to inform debate and decision-making on these issues.

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 (GUI Research Paper No. 1). There are also separate reviews of the literature relevant to the nine-year cohort (Greene et al., 2009) and the Infant Cohort at nine months (Greene et al., 2010), and qualitative research with children (Green and 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 of the quantitative and qualitative results entitled 'Key Findings' (Growing Up in Ireland Study Team, 2009, 2010, 2011). These publications focus particularly on current and future policy issues. All reports can be found on the website www.growingup.ie.

1.1 BACKGROUND AND OBJECTIVES OF GROWING UP IN IRELAND

The principal objective of ***Growing Up in Ireland***, the national longitudinal study of children, is to describe and to understand the lives of Irish children as well as 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. The Infant Cohort has been followed into early childhood (age 3) and the nine-year-olds into adolescence (age 13). The value of this longitudinal study could be strengthened 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, surveyed for the second time at age three and which is the focus of this review, was selected through the Child Benefit Register. A random sample of names was selected and the parents/guardians of eligible children were invited to participate in the study. When the babies were nine months old, the parents were interviewed in the home, and input was sought from the infant's regular carer and non-resident parent, where relevant. The interview in the home lasted for approximately 90 minutes. Similarly, at three years, all participant families were contacted again and interviewed in their homes. After a pilot study and a dress rehearsal, data collection started in December 2010. Cognitive assessments were conducted with the children along with direct measurement of the height and weight of the children and the weight of the parent/s. Where relevant, carers and non-resident parents were also interviewed.

Growing Up in Ireland can be set within the National Children's Strategy (2000). Its primary objective 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 ensure that in its conception and planning the study encompasses all children in Ireland – in all their multifaceted variation and diversity.

Growing Up in Ireland has *nine* stated objectives, as follows:

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, examining the progress and well-being 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

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

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, and 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 and 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 effect 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 determined by the interaction of these predictors, longitudinal research shows that multiple and cumulative disadvantages are a good deal less common than some research suggests (Layte & Whelan, 2002). Problems or dysfunctionality are only some of the possible outcomes from a wide range of outcomes in any interaction between individual characteristics and the environment in which they develop (Lerner, 2006). The implication of this perspective is that relationships between variables can only be understood probabilistically and that understanding possible developmental pathways and crucial points of transition is more important than understanding the correlation between dependent and independent variables.

The fourth insight, derived from the third, is related to 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 time 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, even in early infancy, in shaping outcomes. The infant is an active player in the moulding and development of his or her environment. For example, a baby with an easy, genial temperament will attract more support from adults than an infant who is cranky and difficult (Calkins, 2002). The child 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.

These five insights can be found across a range of disciplines from developmental psychology, educational development and 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 helped to stage 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, with varying degrees of directness (Greene, 1994). The perspective has evolved since its early 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.

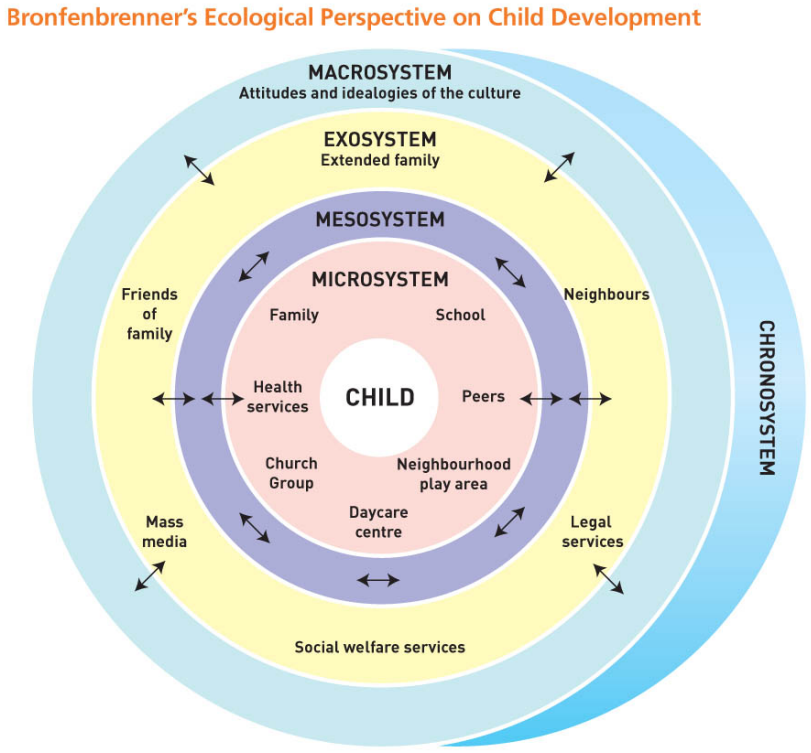
The influence of *Time* has been accorded increasing weight as the bioecological model has evolved (Bronfenbrenner & Morris, 2006). *Time* affects development in a number of ways: it is important as an historical context for a person's development, while the timing of key events in a person's life can 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; 2001). 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 early 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; – for example, in a childcare setting, in school or in the workplace – that 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 experiences, and the *mesosystem*, which encompasses the links between the different actors in the microsystem; that is, the relationships between parents, between home and school, and between close family and extended kin. In this cohort the most important people in the three-year-old's world are the child's parent or parents; they are

critically important sources of influence on the child. With the exception of children in care or in institutions, the child will interact minimally with the wider ecology that surrounds him or her. However, many factors exert influence on the parents' behaviour and on their capacity to provide a supportive environment for their child. Thus whether the parent or parent is 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. To take something as simple as the sex of the baby, it is established that parents react very differently to their young children according to whether the child is a boy or a girl (Stern & Karraker, 1989).

Figure 1.1: Bronfenbrenner's Ecological Perspective on Child Development



Source: Adapted from Bronfenbrenner (1979) and Garbarino (1982)

Outside the *mesosystem* in Bronfenbrenner's model sits the *exosystem*. This comprises the structures, institutions and settings which, while not in direct contact with the child, exert an important influence on their quality of life and outcomes. Examples of determinants within the exosystem would be the parent's workplace, which, although not directly in contact with the child, will still have an important impact on their wellbeing through its impact on the parent's wellbeing, work-life balance, availability to the child, etc. The last ring of Bronfenbrenner's schema is the *macrosystem;* this consists of 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. Thus, whether or not the state provides adequate parental leave for all working parents or income supports for vulnerable families will influence the quality of the child-rearing environment for children growing up in Ireland. Attitudes to children and childhood are an intrinsic part of the nation's culture and are often distinctive to that nation and influential in shaping policies and practices, including parents' behaviour. Together these three levels provide a catalogue of factors that may influence the experiences and wellbeing of a child as he/she 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.

1.3 SUMMARY

The ***Growing Up in Ireland*** Infant Cohort data will provide invaluable cross-sectional and longitudinal data on the lives of young children in Ireland and the contexts in which they are growing up. The longitudinal data can answer questions about what shapes the lives of children and inform policies and practices that support children's optimal development. The data from ***Growing Up in Ireland*** can also be compared to the data collected by the many other countries that have undertaken birth and infant cohort studies.

The conceptual framework adopted by ***Growing Up in Ireland*** emphasises children's 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 the study to address issues that are important to those who wish to promote the healthy and happy development of young children in Ireland.

Chapter 2

DEVELOPMENT AND CONTEXT FOR THREE-YEAR-OLDS GROWING UP IN IRELAND

2.1 DEVELOPMENTAL STATUS AT AGE THREE

By the age of three remarkable changes have taken place in every aspect of the child's development. In the literature, the child at age three is often located at the end of the toddler period (1-3) and at the start of the phase often named the preschool period (3-5 years) (Woolfolk & Perry, 2012). In this chapter the developmental status and achievements of the notional, average three-year-old will be described. Of course, the average three-year-old does not exist: there is a wide range in what would be seen as normal development at three years of age and every child is different. But the following developmental milestones and achievements would be seen as characteristic of the functioning and developmental status of the typical three-year-old child living in the more affluent countries in the world.

2.1.1. PHYSICAL DEVELOPMENT

In terms of physical development the rate of growth has slowed since the rapid development that occurs in infancy. From the age of two, children gain about 5.1 – 7.6 cm in height and 2.27 – 2.7 kg in weight every year (National Center for Health Statistics USA, 2007). In the USA the average three-year old boy weighs 14.5 kg and is 96 cm in height, and the average girl weighs 14 kg and is 94.75 cm in height (US Center for Disease Control and Prevention, http://www.cdc.gov/growthcharts). The Irish Nutrition Survey has collected data on the heights and weights of Irish children in 1948, the 1970s and 2002. Its data refer to four- to 14-year-olds only. However, looking at the four-year-olds and extrapolating tentatively to three-year-olds, the trend in Ireland, as in many affluent countries, is for children to be taller and heavier in 2002 than in the past, with weight increasing more dramatically than height (Perry, Whelton, Harrington & Cousins, 2009).

Growing Up in Ireland is able to establish norms for the height and weight of three-year-olds in Ireland in 2010/11 and, importantly, to relate weight and height at age three to the data collected when the children were nine months old. At nine months both concurrent and retrospective data were collected; thus there are data on the children's weight at birth as well as at nine months. Additionally there are data on the parents' weight and height. These comprehensive data will allow assessment of both change over time and the factors relating to that change, including how children's weight and height relate to that of their parents.

Motor development

Motor development includes two types of motor activity and skill: whole-body movement or gross-motor skills that involve control of large muscles and manipulative skills, often called fine-motor skills.

Gross-motor skills

By age three the typical child can walk backwards and runs with ease (Haugaard, 2008). Almost all three-year-olds can walk up stairs placing one foot on each step, in the manner adopted by adults (Hansen & Joshi, 2007). They can usually walk and run in a straight line but their level of coordination can prevent them from turning or stopping quickly while running. A major task at this age is to adjust their movement to that of other objects or people; for example, bringing their hands together at the right moment to catch a ball or avoiding bumping into people in a crowded shopping area. Most will be able to catch a ball with both arms extended in a horizontal position and can kick a ball, albeit without great accuracy.

In ***Growing Up in Ireland*** at three, the children are asked to stand on one leg and throw a ball. Their level of skill is recorded.

Fine motor skills

By age three the average child should be able to feed him or herself and drink from a glass (Papalia, Olds & Feldman, 2007). However, they may still be prone to spilling food and drink. The child is able to hold a crayon as an adult does, between thumb and two fingers, having abandoned the whole-hand grasp typical of the infant, but their capacity to control the crayon or pen is still somewhat limited. They can build a small tower of blocks and draw a cross and a circle. The child can usually dress him or herself, with some help needed for buttons, zips and laces.

In the ***Growing Up in Ireland*** survey, parents are questioned about the child's age when he/she first walked unsupported and whether their child walks, runs and climbs like other children of the same age. Parents are asked to identify any serious motor difficulties such as cerebral palsy. Children are also asked to copy a line, and their accuracy and their approach to holding a pencil is recorded.

Sleep

By age three, most three-year-olds sleep through the night without waking, and need to sleep for about 12 hours, though there is considerable individual variation (Vasta, Miller & Ellis, 2004). Many will still take a short nap during the day. Since length of sleep is related to health (Chaput, Brunet & Tremblay, 2006), it is important to establish norms in the Irish context, and evidence for sleep deprivation and its consequences. Questions on the child's sleeping patterns are asked in the age-three survey.

Elimination

Most three-year-old boys and girls are toilet-trained and will use a toilet and not rely on nappies during the day (Haugaard, 2008). Many will be dry at night, though a substantial minority, particularly boys, will not be dry at night until age five or older. A smaller minority will have bed-wetting problems that may persist for many years. A very small number will have problems with continued soiling at night and sometimes both day and night. Recent studies have found associations between delayed bowel and bladder control and a range of other developmental delays (Touchette et al, 2005). In a large study using Avon Longitudinal Study of Parents and Children (ALSPAC) data, Johnson et al (2008) found that delayed control was linked to a difficult temperament in the child and to maternal depression and anxiety. No large-scale study on this area has been conducted in Ireland to date; ***Growing Up in Ireland*** has the potential to track the course of bladder and bowel control and its associated factors from age three onwards.

2.1.2. HEALTH

In general, there is a paucity of information n the health of three-year-olds in Ireland. This is a data deficit that ***Growing Up in Ireland*** will be able to address.

The State of the Nation's Children consists of a collation of data on children in Ireland (Brooks et al, 2010). One of the areas covered is hospitalisation. More than half the hospital discharges in 2009 were of children aged 1-4, indicating that three-year-olds are in the age range most often admitted to hospital in Ireland. Children aged 1-4 were the group most likely to have a diagnosis of "external causes of injury or poisoning", amounting to one-third of all such diagnoses for children aged 0-17.

Concern about the weight of young children in Ireland (and older children) has been increasing in the last decade as evidence of a dramatic increase in obesity levels accumulates in almost all affluent countries. ***Growing Up in Ireland*** data on 8,500 nine-year-olds indicate that one in four of the children are overweight or obese (Williams et al, 2009).

2.1.3. SOCIAL, EMOTIONAL AND BEHAVIOURAL DEVELOPMENT

Social skills

By the age of three children have gained considerably in social competence – the capacity to maintain positive relationships with others while attaining personal social goals (Rubin et al, 1998). Children have new skills in relation to understanding their own emotions, and the emotions and perspectives of others, and in controlling their own emotions and behaviours (Wigfield et al, 2006). Advances in language enable a degree of negotiation and reciprocity in social exchanges. At this age children have a growing number of relationships with adults and other children in which they play a very active part. The number and type of relationships increase as children are exposed to more settings beyond the home, including childcare settings, neighbourhood playgrounds, etc.

At three, children are able to spend more time playing with peers and are less dependent on adults. This facilitates the capacity to cope with placement in playschool or other preschool settings. An interest in other children is evident in young infants but social play involving cooperation does not become established until

around the middle of the third year. Case (1991) found that children at age three can typically identify with and act out 'scripts', such as that associated with being 'the helper' or 'the mummy' or 'the boss'. This social understanding is evident in social play where acting out scripts such as 'playing school' or 'playing doctors and nurses' is a typical feature of interactions between young children.

Emotional development

Throughout the infant period and in the second and third year of life, the child's emotional range expands (Haugaard, 2008)). Emotions become more differentiated and subtle. By age three or four, children display a range of complex social emotions such as shame, guilt, embarrassment, envy and pride (Wigfield et al, 2006). These emotions involve the development of the cognitive capacity to be conscious of themselves and to be able to judge or evaluate their own appearance or performance. At this age the complex social emotions tend to be displayed mainly when adults are present and are very influenced by parental modelling and expectations (Harter & Whitesell, 1989). Embarrassment due simply to being the focus of attention is a common reaction of three-year-olds in a social setting (Lewis & Ramsay, 2002).

Fear is an emotion that is present very early but by the early preschool period children are capable of imagining more potentially threatening events and may start showing fear of the dark or of ghosts or other imaginary creatures or ideas.

An important achievement for the child at this stage is becoming capable of the self-regulation of their own emotions. The beginnings of self-regulation occur early in development. Newborn babies suck their fingers and curl up their limbs to calm themselves; even in the first few weeks of life babies vary in their capacity to self-soothe (Nugent et al, 2009). For the most part, babies rely on adult carers to manage their emotional state effectively. Emotional self-regulation entails the child's active management of his or her emotional responses. Children can seek to regulate their emotions by attracting the support of others or by managing emotions by themselves. They can do this by minimising their own arousal level, through a range of strategies such as talking to themselves, sucking thumbs or fingers, going into retreat, etc. They vary in their capacity to self-regulate, possibly because of their temperament but also because of their context. Thus toddlers surrounded by high levels of negative emotions may find it difficult to keep their own emotions under control (Caspi et al, 2004). A study by Denham (2003) found that at ages 3-4 children who expressed mostly positive emotions were better at emotional self-regulation, and those who could control their emotional expression better were seen as more socially competent in general by both teachers and peers.

An important social skill is the capacity to hide one's true emotions in a social setting, a positive development in some senses but perhaps not in others because it entails the capacity to lie or deceive. Researchers find that it is around age three that children typically start to show this ability. Lewis et al (1989) found that three-year-olds were able to successfully deceive adults about whether they had looked at a forbidden toy or not. Again, this skill is founded on advances in cognitive capacity, in this case the ability to understand the perspective of another person. However, it is a developing skill and three-year-olds are typically not so good at hiding their emotions with total success or for very long.

At three, parents still play a critical role in supporting the child's capacity to manage his or her own emotional response by giving feedback to the child on their emotional reactions and by providing a vocabulary by which the child can label emotional experiences.

Attachment

An attachment is a strong emotional tie. The development of attachment between parent and child occurs during infancy and has important consequences for the child's development. It is important that the parent feels an attachment to the child, and vice versa. The quality of attachment to their primary caretaker(s) varies from child to child. There is an important distinction in the literature between secure and insecure attachment (Ainsworth, 1967). Secure attachment is seen as adaptive and desirable. The infant uses the parent as a secure base and, although typically distressed by his/her absence, is quickly comforted by his/her presence. Different forms of insecure attachment have been identified, and insecurity is associated with both problems

in the child and problems in the parent. For example, infants of anxious mothers are more likely to be insecurely attached (Symons, 2001).

An early study by Schaffer and Emerson (1964) found that, by 18 months, most infants have several attachments and a few have five or more. Where fathers and mothers are present, children typically form attachments to both, though in some cases the attachment to one parent may be secure and the attachment to the other insecure (van Izjendoorn et al, 1997).

Waters at al (1979) assessed the quality of infant attachment at 15 months and then assessed the children when aged three. They found that the children who were securely attached as infants were more popular with their peers and more likely to take leadership roles. A further follow-up when the children were teenagers confirmed that these children had better social skills and had more close friends than those rated insecurely attached in infancy (Englund et al, 2000).

However, it is also known that the nature of the attachment can change with time. Thus, at age three, it is possible that a child who was securely attached to their primary caretaker at nine months has become insecurely attached. Such shifts are usually associated with life events, such as parental separation or illness (Moss et al, 2005). In ***Growing Up in Ireland*** at age three, parental attachment to the child is not assessed directly but questions about discipline and about the parent-child relationship generate data of relevance to the parents' feelings and behaviours in relation to their child. One of the sub-scales on the parenting measure, based on an unpublished scale used in Growing Up in Australia: the Longitudinal Study of Australian Children (see www.aifs.gove.au/growingup), taps the dimension of 'warmth', and another assesses 'hostility'. The Pianta Scale (Pianta, 1992), which assesses the parent-child relationship, has a scale measuring the level of parental positivity towards the child.

Behavioural adjustment

Three-year-olds are able to control their feelings and behaviour more than younger toddlers. They can understand instructions better and have some understanding of time and therefore are more able to be patient and wait for something to happen, or hurry when they need to do so.

The Strengths and Difficulties Questionnaire (SDQ) is a 25-item behavioural screening questionnaire designed to assess emotional health and problem behaviours; it can be completed by the parents or teachers of children aged 3-16 years. The instrument produces scores for each of five sub-scales: *Emotional symptoms*, *Conduct problems*, *Hyperactivity/inattention*, *Peer relationship problems* and *Prosocial behaviour*. Each sub-scale comprises 5 five items; a *Total Difficulties* score is obtained by summing scores across the four deficit-focused scales (i.e. all except the prosocial behaviour scale). Respondents are required to indicate their level of agreement to each item on a three-point scale of 'Certainly true', 'Somewhat true' or 'Not true'. Item scores vary from 0-2 depending on the type of endorsement, and the Total Difficulties score ranges from 0-40. Administration time is approximately five minutes.

The SDQ provides an outcome measure of psychological adjustment across behavioural and psychosocial domains. In addition to having good psychometric properties, it has the obvious advantage of being substantially shorter than comparable instruments (e.g. the Child Behaviour Checklist) and, given its age profile, can be used with our cohort at several data sweeps. The SDQ has also been employed in previous large-scale longitudinal research programmes such as the Millennium Cohort Study and Growing Up in Australia, so its use in the present context will facilitate international comparisons.

The SDQ norms indicate that, of the possible range of scores from 0-40, 14-16 are borderline scores and scores of 17 or above are indicative of 'abnormal' adjustment. The boys in the ***Growing Up in Ireland*** sample were more likely than girls to be rated by their mothers as having problem behaviours.

Sex differences in behaviour are observed from infancy onwards, with boys being more active and also more irritable and prone to being impulsive. Thus the finding that boys have more behavioural problems is reported frequently and across all cultures, and was confirmed in ***Growing Up in Ireland*** in the nine-year

survey (Williams et al, 2009). The roots of such sex differences have been hotly debated but would generally be seen to be due to both physical differences in activity and the relative physiological immaturity of boys in comparison to girls, as well as to environmental shaping (Wolfolk, 2012).

The definition of what constitutes behavioural maladjustment at age three is not easy to specify. A scale such as the SDQ categorises children as 'normal', 'borderline' and 'abnormal', but it must be borne in mind that it is a brief and once-off measure. Many problems that children experience at this age can be transient and may not have any lasting deleterious consequences. A longitudinal study such as ***Growing Up in Ireland*** can trace the history of such problematic behaviours, identifying problems that are severe and/or lasting and their precursors, correlates and consequences.

Sex role identity

By the age of three, the child himself or herself is also contributing to their own sex-role behaviours and identity. They have identified themselves as boy or girl and are tuning in very closely to the implications of that identity. Ruble et al (2006) found that, at age 3-4, children were very good at assigning stereotyped occupations, toys and activities to the appropriate gender. The context may well make a difference to children's thinking about gender roles. The extent to which key adults, older children and mass media emphasise gender and encourage sex-typed behaviours has been shown to affect its salience for the child (Fagot, 1995). However, as seen in the area of language development, children at this age are avid rule-learners and make inferences about what men and women, boys and girls do from the many examples around them.

The emerging differences between boys and girls can be observed in ***Growing Up in Ireland*** (Williams et al, 2009; Greene, 2010). Some of these differences are rooted in physiology, and are evident in early infancy, such as the fact that on average boys are taller than girls, but many are a complex mix of physiology, external influences and individual preferences and cognitions.

2.1.4. COGNITIVE DEVELOPMENT

Cognition

As Piaget's label *pre-operational* suggests, the child at this stage is still not able to perform logical operations. He argues that children at this stage think animistically; that is, they ascribe motives and feelings to inanimate objects. More recent research has challenged Piaget's views on the extent of children's egocentrism and how long it lasts. Thus research on young children's capacity for empathy shows empathic responses in children from 18 months on. Hoffman (2000) would argue that children as young as two or three can show a non-egocentric form of empathy in that they respond to the other person's emotions and needs. Research on children's theory of mind would indicate that by the age of four children can take the perspective of others in some circumstances (Zimmerman, 2008). However, at three they tend to show failures in logic and in their understanding of cause and effect.

Information processing

Children's ability to process information and attend to tasks over a sustained period develops over time. By age three they are making advances in their capacity to remember, focus, solve problems and plan ahead.

By three the capacity to recognise objects or situations that they have encountered before when re-exposed to them is well developed, but recall memory is still weak. When asked to remember a list of digits, children around the age of three can remember only 2-3 whereas the average adult can remember 7 (Kail, 2007). Parents play a role in supporting the development of children's memories, talking to them about what they did and elaborating on their memories (Fivush, 2001). Children at around three years of age are very suggestible in relation to what they remember and do not seem to distinguish effectively between what has happened to them and what others suggest might have happened to them (Woolfolk & Perry, 2012). They are generally unaware about their own thinking capacities and thus lack the metacognitive skills and strategies that will become very evident from age four onwards (Flavell et al, 1995).

Intelligence

Intelligence is a vexed term in relation to definition but most would agree that it refers to the individual's competence in thinking and problem-solving. Considerable investment has been made in the measurement of intelligence, dating back to the work of Alfred Binet. The best tests of intelligence are based on evidence about the key competencies required to process information and solve problems efficiently. On this basis it is evident that intelligence is multifaceted. Some of the best-known tests, such as the Wechsler Scales or British Abilities Scales, consist of many sub-scales that add up to a picture of the person's intelligence, while other, briefer measures might tap into just one type of skill, which, it is argued, best represents global intellectual ability.

In young children the skills that are typically seen to constitute intellectual activity would include skills that are foundational for higher intellectual performance, such as memory capacity and attention span. There are also tests that directly measure a more complex level of intellectual achievement such as vocabulary comprehension and block design (assembling blocks to create a specified pattern).

In ***Growing Up in Ireland*** an attempt will be made to assess the children's level of intellectual achievement or intelligence. Given the demands of a comprehensive survey such as that at the heart of each data-collection wave in ***Growing Up in Ireland***, it is not possible to administer a classic wide-ranging test of intelligence such as the Wechsler Pre-school and Primary Scale of Intelligence or the British Abilities Scales (BAS), because they take too long and because their use is restricted to trained psychologists or they require supervision by psychologists. Instead, two sub-scales were taken from the BAS: Naming Vocabulary and Picture Similarities. (Details of these and all other measures used can be found in the document 'Design, Instrumentation and Procedures for the Infant Cohort at Wave 2' (Murray, McCrory & Williams, 2011)

Language and communication

A young child needs to learn and develop many different aspects of language. In relation to the expressive use of language, the acquisition of words is the most obvious area of growth in the early years. At age two the typical child has a vocabulary of 200 words. By age three this has grown to around 500 words, although there is considerable variation in size of vocabulary among normally functioning children (Vasta et al, 2004).

At age three, children are typically able to organise words into simple sentences, three to five words long. From age two, when children begin to combine words, they adopt what is called telegraphic speech because they drop non-critical words from their sentences, in the style of old telegraphs (similar perhaps to modern texts and tweets). By age three, English-speaking children are still using some telegraphic speech but are beginning to insert verbs, articles and prepositions. Rich interpretation of early sentences reveals that children can mean different things by the same word combinations (Bloom, 1970). Over-regularisation of grammatical forms is very typical of children at this age, so they will produce statements like 'He goed to the shop' or 'I see two mouses', thus indicating that they have grasped the basic (regular) rules of grammar.

By age three, children's understanding of language has made huge strides since early infancy. The three-year-old typically comprehends more than he or she can produce and is well able to obey simple instructions (Haugaard, 2008). It is important to recognise that some children build vocabulary in two languages; some families in Ireland use both English and Irish, or another language, in interaction with their children.

It is around three years of age that problems in speech and language development may first become evident, though it is not always easy to differentiate between normal developmental lags and those that are likely to persist and become problematic. For example, many children at this age will stutter or stammer but only a few will continue to do so into their primary-school years. Speech and language impairments have many different manifestations and causes (Haugaard, 2008). They may be part of a pervasive developmental disorder or may be quite isolated and specific. It is estimated that 5-8 per cent of preschool children have diagnosable speech and language impairments (Nelson et al, 2006). Parents participating in ***Growing Up in Ireland*** will be asked whether their three-year-old has problems in understanding and producing speech, and their vocabulary will be assessed by means of the BAS scale (mentioned in the previous section).

2.2. THE CONTEXT IN WHICH THREE-YEAR-OLDS IN IRELAND LIVE

In this section some key features of the environment of three year old children in Ireland will be outlined. Although in many ways their lives will be similar to those of their age peers in other affluent countries, it is important to identify those features which may be distinctive and which will contribute to the make-up of the Irish ecology. Of course there is not just one Irish childhood; there are many sources of differences among children living in Ireland, so it is also important to describe some of the main sources of difference in children's experience.

As well as examining change in the developmental status and life experience of the children and their parents, the second wave of data collection for this cohort will be able to capture changes in the economy and in the society that might have an influence on children and on family life.

The frame for describing the context for three-year-olds will be the ecological model suggested by Bronfenbrenner and adopted by ***Growing Up in Ireland*** as a key part of the study's theoretical framework (Greene et al, 2010). ***Growing Up in Ireland*** will add to what is known about the context in which three-year-olds live their lives. In this section, the main contextual elements will be outlined as they stood in 2010 when data collection commenced, or at a date as near as possible to that time. It is expected that the contextual elements will add considerably to our understanding of their impact on outcomes.

Ireland has the highest population of children in the EU relative to the overall population. In 2009 the 1,107,034 children under the age of 18 represented 24.8 per cent of the total population, although in 1981 36.2 per cent of the population were aged under 18, so the proportion has reduced considerably. In 2001 the number of births totalled 57,854, but this increased in the following years, peaking at 75,065 in 2008. However, in 2009 it dropped back to 74,278, while 73,724 babies were born in 2010, showing a further decrease.

2.2.1. FAMILY

The most important proximal influence on the lives of three-year-olds is their family, particularly their parent or parents.

Most Irish three-year-olds live in traditional family units, i.e. with both biological parents. However, in recent decades the proportion of families that might be considered as non-traditional has increased dramatically. The fastest-growing new family form is that consisting of cohabiting couples. In 2002 there were 77,600 cohabiting couples and in 2006 this had increased to 121,800 (CSO, 2006). Of the 74,278 births in 2009, one-third was to mothers who were not married. Thus the percentage of births outside marriage was 33 per cent in 2009, a dramatic rise from 12.6 per cent in 1989. In a survey of 1,404 people of childbearing age conducted in 2010, 84 per cent of respondents said they believed it was better to live with a partner before marrying them. Over two-thirds of the sample agreed that "deciding to have a child together would be a far greater commitment than getting married" (Fine-Davis, 2011).

Four-fifths of babies in 2009 were born to mothers aged between 25 and 39. Teen pregnancy is not as prevalent in Ireland as in the UK and USA, and has remained stable for several decades at around 4 per cent of all births (Crisis Pregnancy Agency, 2005). The large majority of births to teenage mothers are to 18 and 19-year-olds.

In 2008 the total fertility rate (TFR) was 2.07, just below the replacement rate of 2.1 (which had been reached in the previous year). However, the current rate is still high in European terms. Ireland's birth rate in 2009 was 16.8 per 1,000 while the EU average was 10.7.

Analysis of the ***Growing Up in Ireland*** Infant Cohort data revealed that 14 per cent of the children lived in a one-parent, typically mother-headed, family. The majority lived in two-parent families, either married (71 per cent) or co-habiting (15.1 per cent). Further data are available in the first report on the findings in relation to the infant data wave (Williams et al, 2010).

The structure of the family has a broad relationship to child outcomes. For example, it is evident from many studies, including ***Growing Up in Ireland***, that children in one-parent families, particularly where there are two or more children, are likely to do less well than children in two-parent families (McLanahan & Sandefur, 1994; Williams et al, 2009). Such a pattern was observed in the first wave of data collection for the Infant Cohort (Williams et al, 2010). The reasons for this relationship are complex and require further disaggregation of the data and more subtle analysis, of the kind enabled by a comprehensive, longitudinal study.

By the time the children are three, interesting changes may well have taken place in the composition and experience of their families. For example, there is a trend for biological parents to marry some time after the birth of their child (Fahey & Field, 2008). Another predictable change, for a significant number of children, is the arrival of a new sibling (41 per cent of the children seen at nine months were first-born or only children).

There has been a small number of published studies on parenting style and behaviours in Ireland. For example, studies have shown a high level of use of corporal punishment in the past, which seems to have declined in recent years (Greene, 1995; Halpenny et al, 2010). A study of attachment in 18-month-old infants from of a working-class background indicated a high level of secure attachment (80 per cent) in international terms (Wieczorek-Deering, 1991). ***Growing Up in Ireland*** provides the opportunity to examine these key features of parenting, and more, with a representative sample of the whole population.

An important aspect of parenting behaviour that has not been researched formally in Ireland to date is the learning support offered by parents to their children. In the ***Growing Up in Ireland*** three-year survey, a range of parental practices found in the literature to have a positive outcome on children's early learning will be recorded. Maternal education is a key variable; in the ***Growing Up in Ireland*** survey of nine-year-olds, strong associations were found between maternal education and children's educational outcomes.

The fathering role has changed markedly over the last few decades in Ireland. Fathers today are typically much more involved with the care of their young children than was traditionally the case (McKeon et al, 1999). ***Growing Up in Ireland*** interviews both parents, where both are resident. This is not a feature of all cohort studies. Fathers' views will thus be fully explored and their attitudes and practices recorded, mirroring the survey questions administered to the mother. In this way differences and similarities will become apparent in relation to the parents' roles, and children's relationships with each parent will be charted. In the economic recession that began in 2008, more fathers have become unemployed and some may be taking on the role of house-husband as their wives go out to work. The last few decades have seen an increase in the number of lone parents. Divorce was introduced in Ireland only in 1997 and divorce rates are still low. However, ***Growing Up in Ireland*** will be able to examine changes in family composition, including those caused by divorce and marital separation, tracking the effects on children. Every effort is made to contact and interview non-resident parents, most of whom are fathers.

Contact with grandparents seems to be relatively high in Ireland (Hogan et al, 2002; Lundström, 2001), perhaps because of the small size of the country and low levels of mobility but perhaps also because of the value placed on the extended family. The role of grandparents in children's lives is another area which needs further research. They are likely to have an important role in the lives of the three-year-olds, many of them providing informal childcare and babysitting while parents return to work (Hayes & Bradley, 2006). There are signs that during the recession reliance on grandparents for childcare and for financial support has increased.

2.2.2. PARENTAL INCOME AND EMPLOYMENT

Since the parents in the Infant Cohort were first interviewed in 2008-9, Ireland has been in the grip of an economic downturn, which was just becoming evident at that time. In 2008 few could imagine the depth and length of the economic crisis. Thus in 2008 average unemployment (using the seasonally adjusted Standardised Unemployment Rate; www.cso.ie/en/statistics/labourmarket) stood at 6.4 per cent, having

increased from 4.5 per cent in 2007. At the time the parents were seen again in 2010/11 the unemployment rate was between 11 and 13 per cent; in October 2011 it reached 14.4 per cent. In 2008 60 per cent of women were in employment but by 2010 this had dropped to 56.4 per cent. Women represented 46 per cent of the labour force in 2010.

When the children in the ***Growing Up in Ireland*** Infant Cohort were nine months old, 90.6 per cent of their fathers were in paid employment, a rate that is likely to have declined by the second data wave. At Wave 1 56.9 per cent of the mothers were in paid employment, though only 32.6 per cent worked for longer than 30 hours per week. It will be interesting to see how many are working outside the home when the children are three and to what extent. Given the currently high levels of emigration some families may have left Ireland and some parents may be working abroad.

The recession is likely to have had a strong impact on most of the families in ***Growing Up in Ireland***, if not through unemployment, through wage cuts and the threat of further wage cuts, inability to repay high mortgages, cuts in social welfare and widespread price increases. Decline has been a primary feature of the economic landscape since 2008, with a general sense of inevitable deterioration in circumstances and little evidence of alleviation of the situation for some years. Few families will have escaped and, if they have to date, they may well be fearful of bad news in the future. The most vulnerable families are those who will have suffered the most (End Child Poverty Coalition, 2011).

2.2.3. HOUSING

Ireland has a high percentage of homeowners relative to international norms, and Irish people have a traditional desire to live in a house with a garden rather than in a flat. Certainly few young parents see flats as suitable accommodation for children, unlike many of their European counterparts.

At the first data wave for this cohort, 92 per cent of families lived in houses, 73 per cent of which were owner-occupied. Many of the three-year-olds will live with parents who have taken out mortgages on houses or flats. In Ireland in March 2010, 4.1 per cent (around 30,000) of mortgage-holders were in arrears for over 90 days (by 2011 this reached 6 per cent). Also, approximately 45,000 mortgages had been restructured by lenders, indicating widespread difficulty in meeting original payments. In May 2010 there were an additional 16,500 recipients of Mortgage Interest Supplements from the State. One analyst forecast that by the end of 2010 196,000 homeowners (approximately one in every four mortgage-holders) would be in negative equity (Duffy, 2010). Given the age and stage of family life of the parents in this cohort, it is probable that a significant percentage of the ***Growing Up in Ireland*** sample will be struggling to keep up payments on their houses. Mortgages and rents tend to be paid as a priority and there is no discretionary element in this decision.

The quality of housing varies considerably in Ireland; rented accommodation is the most likely to be of poor quality and unsuited to children's needs (Brooke, 2004). When the ***Growing Up in Ireland*** infants were surveyed, 26 per cent of families lived in rented accommodation.

2.2.4. CHILD CARE AND PRESCHOOL SETTINGS

Out-of-home care will be a feature of the lives of many of the children at age three. The most comprehensive and up-to-date information on preschool childcare to date comes from the Quarterly National Household Survey that reported in 2009 on 2007 data (CSO, 2009). In 2007 30 per cent of children aged under 12 were in non-parental childcare. Parents of preschool children were more likely to use non-parental childcare and were doing so more often than in the past. In 2002 42 per cent of preschoolers were in non-parental care but in 2007 this increased to 48 per cent. The most popular form of non-parental care was a group setting such as a crèche or preschool (19 per cent), followed by childminder or nanny (12 per cent) followed by unpaid relative (9 per cent) and paid relative (4 per cent). Preschool children in non-parental care spent 24 hours per week in the care setting on average. The average for three-year-olds was 23 hours. Dual-earner families working full-time were most likely to use non-parental care (68 per cent), followed by part-time lone parents

(61 per cent). The average hourly expenditure on out-of-home care was €4.90, but this varied by type of setting and geographical location. As many as 60 per cent of the sample disagreed with the statement 'I have access to high-quality, affordable childcare in my community'.

In January 2011 the State started a new free preschool year for children aged between three years two months and four years seven months on the previous September 1st (the Early Childhood Care and Education Scheme). This date coincided with the start of the data-collection phase for the three-year survey (December 2010 – August 2011). Under this scheme, which is open to all, children are entitled to up to three hours' childcare per day for five days a week. The uptake for the scheme was very high; an estimated 94 per cent of the age cohort availed of it. However, the children in ***Growing Up in Ireland*** are too young to be eligible for the scheme in the year commencing in January 2011. They will be able to participate in 2012.

2.2.5. INFORMAL SUPPORTS, NEIGHBOURHOOD AND COMMUNITY

Beyond the family and the daycare setting, aspects of the neighbourhood are likely to have an effect on the quality of children's lives. At this age children may be taken for walks outside and on visits to local parks and playgrounds. They may be taken to church or other kinds of community gatherings. Play facilities are often used by children of this age, when available. It is known that the distribution of parks and playgrounds is somewhat uneven across the country (Kerrins et al, 2011). The importance of outdoor play and children's access to nature, in a country becoming more urbanised, is widely recognised. It might be argued that children in rural settings have less need for formal parks and playgrounds but in reality dangerous country roads and restricted access to farms and open spaces may result in their experiencing relatively more deprivation than their urban counterparts. A recent study of the experience of the outdoors in early childhood education and care settings in Ireland found that, of 1,236 childcare providers, 11 per cent had no access to a dedicated outdoor space. Trees, shrubs, flowers and water were features of only 38 per cent of settings (Kernan & Devine, 2010). Kernan and Devine situated their findings in a discussion about the role of outdoor play and children's access to nature in a rapidly urbanising Ireland.

Strong connections to extended family and to the local community all serve to build social capital for the family (Putnam, 2000). According to Putnam, "social capital refers to connections among individuals–social networks and the norms of reciprocity and trustworthiness that arise from them" (p.19). Putnam argues that a high level of social capital is an important contributor to child development. Clearly, communities will vary in the extent to which there are strong social connections, and families will vary in their connectedness to their local community. Recent Irish research relevant to social capital theory suggests that Ireland is rich in informal social networks in comparison to other economically developed countries and that there has been no decline in the number of people claiming to be active in the community. On the other hand, there seems to have been a fall in the level of interpersonal trust, and data indicate that, among OECD countries, Ireland is average to slightly below average in volunteering (NESF, 2003).

One indicator of connection to community is churchgoing. According to the 2006 census, 87 per cent of the population is Roman Catholic. Figures from the European Values Study 2008 suggest that 45.2 per cent of Roman Catholic adults in the Republic attend mass weekly, which is very high by European standards (O'Mahony, 2010). Members of other minority faiths tend to attend more regularly, particularly when the family is an immigrant family. However, the decline of religious observance has been marked over recent decades and is particularly evident among young adults.

In the age-three survey, parents will be asked about their religious faith and observance and their connection to their community. Play and play spaces will also be a focus of the survey as will the respondents' views on the condition of and safety of their neighbourhood.

2.2.6 STATE SUPPORTS

The State supports children in numerous ways, both directly and indirectly. It has been argued that Ireland provides less state support than many other developed countries, choosing instead to operate a low-taxation regime, which relies on most taxpayers being able to purchase the services they need (NESC, 2005). However, a range of state supports is provided, both universal and targeted.

Child Benefit
Child Benefit is a universal benefit payable to the parents or guardians of all children aged under 16 years, or those children under 19 years who have a disability or are in full-time education or state training (e.g. FAS, Youthreach). When the birth of a child is registered in Ireland, the Department of Social Protection will begin a claim for the child. Child Benefit is paid every month for each child living with, and being supported by, their parent. As of December 2011 the monthly rate of Child Benefit was €140 for the first, second and third child and €160 for the fourth and subsequent children. At the time when the three-year-old children in the Infant Cohort were surveyed it was €140 for first children, €167 for second and €177 for third and subsequent children.

Child Benefit is payable at one and a half times the rate for twins, and at double the rate for triplets and other multiple births. Grants for multiple births which were available up to December 2011 have been cut. Prior to that date they were paid at birth, age four and age 12.

Social Assistance
Parents who have difficulty in making ends meet can apply for the Family Income Supplement, which is available to employees on low pay who have children under the age of 18 or between 18 and 22 in full-time education. The rate is calculated taking into account a range of criteria. Parents who do not have employment can apply for the Supplementary Welfare Allowance, which gives a personal allowance to each adult of around €186 per week and additional allowances (qualified child increases) for each dependent child up to the age of 22 (currently €29.80 per week).

Single parents can apply for the One Parent Family Payment from the Department of Social Protection. This is intended for parents who are bringing up a child without the support of the other parent. Government policy will see the age limit for the youngest child decreasing over the next few years, the goal being to encourage single parents to find work (as well as representing a cost saving for the State). Parents can work and receive the one-parent allowance but it is means-tested.

There are also guardians' payments for orphans and payments to foster carers.

Medical card
Those on social welfare or with an income below a specified level can qualify for a medical card that entitles them and their dependent children to a range of free health services, including visits to family doctors. Children may qualify for free care up to the age of 22 if still reliant on their parents or they may qualify at age 16 for a medical card in their own right. Those on low incomes who do not qualify for a medical card may qualify for a GP Visit-only card, which covers the cost of visits to family doctors. At nine months one-third of the ***Growing Up in Ireland*** children were covered by medical cards, half had parents with private insurance and 15 per cent had no medical cover. The Quarterly National Household Survey reported that in 2010 47 per cent of adults had private health insurance, which would also cover children where applicable; 30 per cent had medical cards, and 23 per cent had neither (QNHS, 2010).

2.2.7. CULTURAL VALUES

Children live their lives in families, neighbourhoods and other settings with which they have direct contact such as hospitals and crèches, but the quality of their lives is also influenced by the political, legal and cultural systems in place in their society. In the Bronfenbrenner model of the child's ecology, the outer ring is called the *macrosystem*, consisting of these systems, which both represent and promote the values of the

society. Values are also promoted and reproduced informally through shared traditions and taken-for-granted assumptions about what matters and how citizens should behave.

Most of the informal support for children will be provided by their families. The family in Ireland is given a special position in the Constitution, with particularly strong rights in relation to how it conducts its affairs. Article 41.1 reads:

> *The State recognises the Family as the natural primary and fundamental unit group of Society, and as a moral institution possessing inalienable and imprescriptible rights, antecedent and superior to all positive law.*

It has been argued that "the very high emphasis on the rights of the family in the Constitution may consciously or unconsciously be interpreted as giving a higher value to the rights of parents than to the rights of children" (Kilkenny Incest Investigation, 1993). It has also been argued that responsibility for childrearing has been seen as belonging to the family and not to the State, and that the primacy granted to the family has hampered the development of effective child and family support services (Lynch, 1998). The State's investment in children's services and supports is relatively low in comparison to other wealthy countries (UNICEF, 2007)

The Irish Constitution has many consequences for Irish children. To take one example, the primacy given to the family based on marriage makes it very difficult for any child born to a married couple to be adopted. Thus, unlike in the neighbouring UK, children taken into care are rarely adopted and Irish couples have turned in large numbers to international adoption when they seek to adopt a child (Greene et al, 2006)

The lives of children in Ireland are also affected by the prevailing political consensus in relation to the State's role in the social lives of Irish citizens and residents. Since the mid-1980s Ireland has adopted a low-taxation regime in relation to income, capital and corporations. Spending on social protection (state-funded health, education, social welfare, etc) is thus lower than it is in many other comparable, affluent nations (Eurostat, 2008). Irish social policy has been characterised as "a hybrid system" (NESC, 2005), with a "mix of means-tested, insurance-based and universalist income support and service arrangements" (NESC, 2005, p. 35). Thus, there is universal child benefit and free education but no universal access to healthcare, except for the minority of people who are eligible for medical cards. In the absence of a comprehensive welfare state, Ireland relied for many years on the unpaid caring of women at home and the religious orders. Demographic and social changes mean that most women are now working outside the home and the number of men and women in religious orders has declined very dramatically. Pressure on the State has therefore increased to provide childcare for the children of working mothers and to pay for costly hospital care. Care for the intellectually disabled and the mentally ill, once provided very cheaply by the religious orders, has now become the responsibility of the State.

Irish childrearing customs and practices have not been extensively or comprehensively documented over the modern era. Some early anthropological work highlighted the importance of family and the phenomenon of the stem family, with several generations living under one roof (Arensberg & Kimball, 1968) and the distant role of the Irish father (McKeon et al, 1998). More recent, small-scale studies have suggested that Irish childrearing practices constitute a mix of traditional, authoritarian practices (e.g., high level of corporal punishment) and modern democratic or permissive parenting styles (Greene, 1994). However, there has been no national study on this topic. ***Growing Up in Ireland*** will make a significant contribution to our understanding of this important influence on children's lives.

Parental values connect closely to parental practices and, again, there has not been sufficient research on this topic in Ireland. Some early work suggests a strong emphasis by Irish parents on sociability and conformity (Nugent, 1991). In a strongly rural, homogeneous society, collectivistic values would have been important, but it is likely that in affluent, contemporary Ireland, exposed to international media and multicultural influences, individualistic values have become more dominant. Parents' values have an influence on how they parent. For example, parents with individualistic values are likely to emphasise and

encourage early autonomy more than compliance and sociability. Likewise, materialistic values will have an effect on how parents spend their time, how they allocate their time and resources to their children and the kind of goods they give their children. A recent study comparing the UK, Sweden and Spain highlighted the importance of parental and societal values to child outcomes, with particular attention to some of the pitfalls of materialism and time poverty (Ipsos MORI, 2011). A similar study could usefully be conducted in Ireland to explore contemporary culture-specific values. ***Growing Up in Ireland*** data will provide useful markers in relation to parents' priorities for their children and how they perceive their parenting role.

A new government was elected in 2011 and a referendum to strengthen the constitutional rights of children was passed in autumn 2012. The new government also confirmed its prioritisation of children and children's issues by creating a full Department of Children and Youth Affairs, with an ambitious programme of reforms, including the development of a new children's strategy (the proposed Children and Young People's Policy Framework, 2012-2017). Data from ***Growing Up in Ireland*** should support this strategy

In December 2011 the new Minister stated her commitment to:

> *Improving outcomes for children, in particular through transforming child and family services and the reform of funding schemes and delivery mechanisms across all programmes in order to make the best possible use of resources.* (Frances Fitzgerald, 5 December 2011)

Undoubtedly, recent decades have seen a number of positive changes in Irish culture in relation to how it views children and childhood. Children's rights and needs have been brought to the fore in a way that did not happen in Ireland in most of the 20th century and before. The establishment of the ***Growing Up in Ireland*** study in itself was symptomatic of a new interest in finding out about the lives of children, acknowledging the needs and rights of all children and wishing to move beyond an era in which children were 'neither seen nor heard'.

2.3 SOURCES OF DIVERSITY

There are many ways in which children's backgrounds and experience differ. Class and gender are two that are most often marked, and both have been prioritised in the analysis of ***Growing Up in Ireland*** data to date. Additionally, Ireland has experienced a dramatic increase in ethnic diversity since the 1990s. Until that time Ireland was ethnically highly homogenous. The Traveller Community was the only recognised ethnic minority of any size.

In 2008/9 there were 36,244 members of the Travelling Community living in the Republic of Ireland (2010). Children from the Travelling Community share the vulnerability of their parents to poor health and poor life expectancy. The infant mortality rate is 3.6 times that of the settled community and the children have higher rates of all illnesses. Many attend school erratically and 63 per cent leave school early (All Ireland Traveller Health Survey, 2010). Children from the Travelling Community were included in the samples for both ***Growing Up in Ireland*** cohorts on a *pro rata* basis with their representation in the overall population. Accordingly, the total number of respondents is small, indicating a need for further in-depth study of this group, using comparable measures to those used in ***Growing Up in Ireland.***

The most recent complete national census, conducted in 2006, indicates that, in self-categorisation, 87 per cent of the population identified as *Irish*, 7.5 per cent as *Other white*, 1.3 per cent as *Asian*, 1.2 per cent as *Black*, 1.1 per cent as *Mixed* and 1.6 per cent as *Unspecified.* Since the influx of immigrants and asylum-seekers in the 1990s, a number of studies have focused on the experience of immigrant children. They constitute a very diverse group in terms of both origins and status. For example, the children of legal immigrants have a very different experience from the children of asylum-seekers. Studies have shown that, although many children do well, they have major challenges in relation to learning English and coping with ethnically and racially focused bullying (Curry et al, 2011). In the Infant Cohort at nine months, 73.5 per cent of the mothers were born in Ireland and 76.2 per cent of the fathers. Of the mothers 19.4 per cent had been

in Ireland for less than ten years and 18 per cent of fathers; 13.7 per cent of mothers were born in Western Europe outside Ireland, 4.2 per cent in Eastern Europe, 3.3 per cent in Africa and 5.2 per cent in other regions of the world. These numbers will permit interesting comparisons of parenting attitudes and practices and child outcomes at age three.

A major source of diversity in childhood is the presence or absence of a significant disability. In 2009, 8,043 children under the age of 18 were registered on the National Physical and Sensory Database as having a physical and/or sensory disability (Brooks et al, 2010). Of these, 6.3 per cent, or 510 children, were aged 0-4. Overall, more boys (62.5 per cent) than girls (37.5 per cent) were on the register.

There is also a National Intellectual Disability database; in 2009 8,028 children were on the register, of whom 14.4 per cent (1,159 children) were in the age range 0-4. It is likely that children aged three who are on the registers will have very evident levels of disability. In ***Growing Up in Ireland*** all children will be surveyed and it should be possible to pick up borderline levels of disability and emerging, undiagnosed problems. For the first time in Ireland, a comprehensive range of precursors to the onset of disability will be recorded as well as a wide range of health, social and psychological correlates and consequences. Chronic illness is another major area of significance. In ***Growing Up in Ireland*** 11 per cent of nine-year-olds had a chronic illness, which was found to be connected to a range of other problems in the children's lives.

There are numerous other sources of diversity in the ***Growing Up in Ireland*** sample. For example, there are children growing up in the care of the State. In early 2011, 6,175 children were in care, of whom 5,548 were in foster care. In 2006, 12,520 children were assessed by the HSE on the foot of child welfare and protection concerns. The number of children placed in State care has been steadily rising year on year, even taking into account increases in the child population. At nine months, 99.9 per cent of the children surveyed in ***Growing Up in Ireland*** were living with their biological parent/s, so the number of children in foster or residential care or who are adopted in the survey sample is very small indeed, but it may increase with age and/or time,

2.4 THE WELLBEING OF THREE-YEAR-OLDS

In 2009 the National Economic and Social Council reviewed the recent international trends in the measurement of wellbeing and its use as an index of social welfare and progress (NESC, 2009). The report points out that, where there are national goals, such as in the national policy framework for 2006-2016, *Towards 2016*, there should be measured outcomes. In the arena of social policy, indicators of wellbeing "can assess how Ireland is faring in an international context and can measure change over time" (NESC, 2009, p.57). Part of this report focused on children, discussing policy and available indicators of wellbeing in relation to six domains: economic resources; work and participation; relationships and care; community and environment; health, and democracy and values. This useful review inevitably focuses mainly on data drawn from studies of school-age and adolescent children, highlighting again the paucity of data on preschoolers. Nonetheless, it is important in emphasising the value of wellbeing indicators in policy monitoring and the need to place the lives and wellbeing of children in a life-cycle context.

In recent years, other attempts have been made to describe the wellbeing of Irish children. Two sources of information are particularly important: the biannual publication, *State of the Nation's Children*, based on the child well-being indicators developed by the Office of the Minister for Children and Youth Affairs (OMCYA) (Brooks et al, 2010), and the international comparisons conducted periodically by UNICEF using their child wellbeing barometer (e.g. UNICEF, 2007).

In *State of the Nation's Children,* many important basic statistics on child wellbeing are outlined, some of which have already been mentioned. Despite the inclusion of a number of important statistics referring specifically to three-year-olds such as child mortality, accidents, family structure, disability, etc, there is an evident lack of information on preschool children. Again, much of the data on children's relationships and educational, social, emotional and behavioural outcomes is derived from surveys conducted with schoolgoing children.

Likewise, in the UNICEF study of children's wellbeing in affluent countries (2007), many of the indices relied on data relating to older children. Of course this does not mean that the findings are not of relevance to three-year-olds in Ireland, because the child of three will grow up and become a school-aged child, while the study is also very informative in relation to the relative values and priorities of each of these affluent states. The UNICEF study showed that Ireland ranked well on some indices and poorly on others, resulting in a placement about half way down the list of 21 countries. On the six dimensions of child wellbeing, Ireland was ranked 19th for *Material wellbeing* and 19th for *Health and safety*, mainly due to the high levels of child poverty and inequality, low levels of immunisations and high levels of accidents. All these factors are germane to the life chances and wellbeing of three-year-olds. Ireland was ranked 7th for both *Educational wellbeing* and *Family and peer relationships,* but both use data from teenage children. Ireland was ranked 4th for *Behaviours and risks* and 5th for *Subjective wellbeing*. Again, these data were derived from surveys of older children, but they can still be seen as informative in relation to the context in which the three-year-old children are growing up and the values that society in general and parents more specifically promote and foster.

As a longitudinal study using standardised measures and repeated survey questions, ***Growing Up in Ireland*** also contributes to the pool of wellbeing indicators for children in Ireland. It joins the small number of studies, such the Programme of International Student Assessment (PISA) and Health Behavior of School-aged Children (HBSC) surveys, which have representative samples of children. However, ***Growing Up in Ireland*** goes beyond the provision of indicators to advancing understanding of why some children achieve good levels of wellbeing and some do not.

Chapter 3

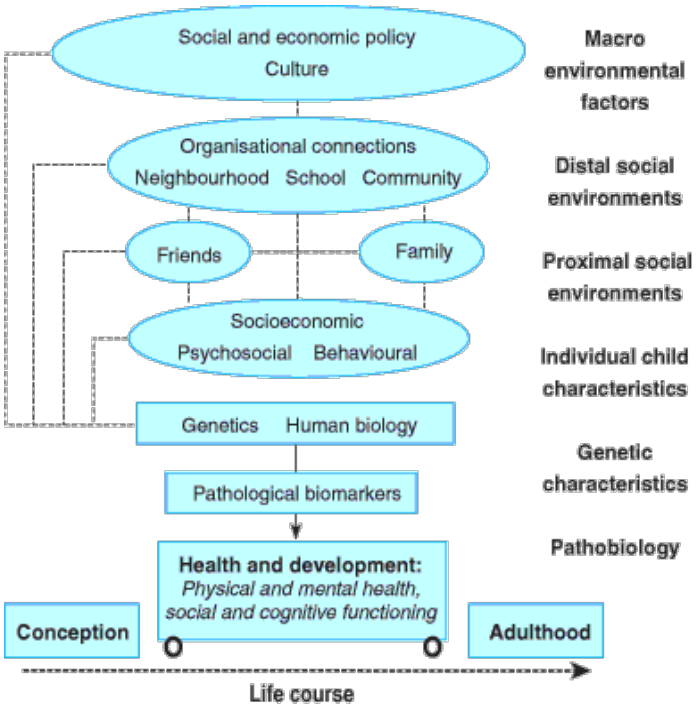
FACTORS INFLUENCING CHILDREN'S PHYSICAL HEALTH AND DEVELOPMENT

In the following three chapters the main domains of child development that will be assessed in the survey are examined in turn. In each chapter the literature relating to the factors known to influence development and child outcomes in these domains will be explored, and a set of illustrative research questions will be outlined, with reference to how they will be addressed in the ***Growing Up in Ireland*** survey**.** The list of research questions is not exhaustive, but serves to highlight some of the broad thematic research areas where ***Growing Up in Ireland*** is strong and where the data might valuably be used to address both cross-sectional and longitudinal issues. In addition (especially in the current chapter) some important contextual issues are examined; while these are not directly the focus in ***Growing Up in Ireland***, they help provide an understanding of the important factors influencing health and development. Specifically, existing research related to the development, course and prediction of areas of functioning tapped in ***Growing Up in Ireland*** are examined.

3.1. INTRODUCTION

There is growing consensus that the foundations of health are established in early life, and are shaped by the complex interplay of biological, psychological, social and environmental processes (Kuh, Power, Blane & Bartley, 2004). Within the holistic child framework adopted in this study, health is not merely a static descriptor of physiological function, but rather a dynamic factor that shapes how a child experiences, relates to and interacts with his or her environment. Figure 2 represents an alternative, health-specific graphic depiction of the ecological model to that found in Chapter One, Figure 1, which is Bronfenbrenner's model. Both graphics draw attention to the multilayered, multidimensional and reciprocal nature of the influences on children's development, and both attempt to capture the dynamic character of these interactions.

Figure 2: Ecological model of health across the life-course (from Nicholson & Sanson, 2003)



For children, the life-course does not begin at birth, but is shaped by genetic inheritance, prenatal environment and intergenerational influences. Recent years have witnessed growing interest in the role of early life exposures in moderating disease risk across the life-course, and especially in early childhood. Barker (1994), for example, has invoked the concept of biological programming to explain how under-nutrition of the developing foetus during critical stages of development can lead to fundamental physiological adaptations that modify disease risk in later life, and evidence is steadily accruing to support the central tenet of this hypothesis (Rasmussen, 2001 – see Research Question 3.2 below). Nevertheless, child development cannot be divorced from the wider socio-economic and environmental context in which the development

takes place. While genetic make-up influences physical development and shapes resistance to diseases and other chronic conditions, the expression of certain genetic characteristics may be dependent on the environment in which they occur. For example, while childhood asthma is believed to be 40 to 60 per cent heritable, genetic factors alone cannot account for the rapid rise in asthma which has been observed within one generation (McLeish & Turner, 2007). Understanding how environmental factors interact with candidate genes to influence the pathogenesis of asthma is an active field of research (e.g. hygiene hypothesis – see research question 3.5 below) that is likely to yield dividends. At this stage in the development of the project, genetic material is not being collected so it is not possible to examine the genetic contribution to health for children in ***Growing Up in Ireland***, but it may be possible to do so in the future.

Several recent reviews have described how longitudinal child cohort studies have contributed to our understanding 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 National Child Development Study (NCDS) in the UK, 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 showing that overweight children were more likely to become overweight adults. Power and Elliott contend that this cohort was among the first to demonstrate the link between early patterns of infant growth and longer-term adult health outcomes. The Avon Longitudinal Study of Parents and Children (ALSPAC) study team have shown that maternal stress during pregnancy is associated with a variety of adverse behavioural outcomes in children, including hyperactivity and sleep problems, and it has been hypothesised that these problems may result from disruption to the child's hypothalamic-pituitary axis during development (Golding, 2010). Furthermore, a consistent theme in all of these studies is the importance of each phase of childhood, including influences at age three. It is envisaged that the ***Growing Up in Ireland*** study will add to these important longitudinal findings and help to inform government policy in relation to child health.

3.2 HOW DO EARLY GROWTH PATTERNS PREDICT HEIGHT AND WEIGHT AT THREE YEARS OF AGE?

An emerging body of research suggests that early growth patterns may have implications for health and development over the life-course (Singhal, Fewtrell, Cole et al, 2003). While the importance of genetic factors as determinants of height and weight has long been recognised (Wei & Gregory, 2009), the overall contribution of heredity to growth and development is moderated by aspects of the prenatal and postnatal environment as well as by child characteristics, and their interactions over time (Rogol, Clark & Roemmich, 2000). For example, length at birth is more strongly determined by aspects of the intrauterine environment (e.g. prenatal nutrition) than it is by genetic factors, as evidenced by the fact that, in infancy, birth length is only weakly associated with parental height, but the correlation rises to the adult value of 0.5 by about 18 months of age (Tanner, 1989).

An analysis of data from the Californian Child Health and Development study (n = 10,844), which obtained anthropometric data across a number of different time intervals from birth to five years of age, found that shifts in growth rates, as indexed using Centres for Disease Control (CDC) weight for height centiles, were very common in infancy, somewhat less common for children aged 24-60 months, and least common for children aged 24-60 (Mei, Gummer-Strawn, Thompson et al, 2004). Tanner (1994) has described how a process of assortment occurs during infancy such that those who have higher relative birth-weights tend to exhibit catch-down growth (heading towards the 50th centile for age) while those who have lower birth-weights tend to exhibit catch-up growth. Catch-up growth typically occurs within the first three months of life and is complete by about 12-18 months of age, whereas catch-down growth lags somewhat and is complete by about 18-24 months. It has been estimated that as many as two-thirds of all infants cross percentiles on the growth curve, either upward or downward (Rogol, Clark & Roemmich, 2000).

A seminal study by the ALSPAC study team, which involved a random sample of 10 per cent of participating households (n = 848 full-term singletons), found that those children who were lighter and thinner at birth were those most likely to exhibit catch-up growth in the first two years of life. When assessed at five years of age, these children were taller and heavier than their peers and had higher levels of BMI, percentage body fat, total fat mass and central fat accumulation. These are considered childhood markers of obesity and cardiovascular disease (Ong, Ahmed, Emmett et al, 2000). Similarly, Ekelund and collaborators (2006) report the results of a prospective Swedish study (n = 248) which examined whether rate of weight gain in infancy and early childhood was associated with various indices of adiposity at 17 years of age. Height and weight were recorded at multiple time points (at birth, 6 months, 3 years and 6 years) and, following Ong et al (2000), rate of weight gain was operationalised using a weight standard deviation (SD) score which categorised weight gain as either rapid, slow or 'no change'. These investigators found that upward weight percentile crossing in both infancy (0-6 months) and early childhood (3-6 years) was independently and significantly associated with higher fat mass and BMI at age 17 after adjustment for confounders. Interestingly, rapid weight gain in early childhood (3-6 years) was found to be more strongly associated with obesity risk at age 17 than was weight gain during infancy (Ekelund, Ong, Linne et al, 2006). Other longitudinal studies have shown that upward centile crossing in early childhood is associated with higher blood pressure (Horta, Barros, Victora et al, 2003) and insulin resistance in later life (Singhal et al, 2003; Soto, Bazaes, Pena et al, 2003).

These findings have been interpreted as demonstrating strong support for the developmental origins of adult disease hypothesis. Barker (1994) invoked the concept of biological programming to explain how fundamental adaptations made by the foetus in response to adverse intra-uterine conditions may be less adaptive in the extra-uterine environment. The concept of biological programming has been invoked to account for the phenomenon of catch-up growth, it being assumed that low birth-weight is a consequence of poor foetal nutrition. Within this framework, the foetal capacity to restrain growth in response to under-nutrition may be considered adaptive as it enhances the survival prospects of the developing child. However, it has been suggested that these adaptations may be less adaptive for postnatal life and may predispose to disease risk in later life (Rasmussen, 2001). Thus, it could be argued that it is not birth-weight *per se*, but rather the subsequent attempt to compensate for impaired foetal growth, resulting in rapid centile crossing and accumulation of fat mass (e.g. Ekelund et al, 2006), that is the important determinant of later disease risk.

A host of other factors has also been shown to influence early childhood growth patterns. Ong, Preece, Emmett et al (2002) found that children of parents who smoked during pregnancy were significantly smaller, lighter and thinner at birth than children who were not exposed, but that these deficits were extinguished by about 12 months of age. They also found that the method of infant feeding had differential effects on early infant growth. While there was no difference in size at birth between those who were breastfed and those who were bottlefed, breastfed children exhibited a slower rate of gain in length and weight in infancy, and these patterns were still apparent at 31 months of age. Meanwhile, a recent study by the ALSPAC study team found that maternal age at menarche was inversely associated with height and weight velocity in infancy, leading to taller childhood stature, earlier maturation, and consequently, shorter adult stature (Ong, Northstone, Wells et al, 2007).

On completion of Wave 2, ***Growing Up in Ireland*** will have anthropometric data from three time points (at birth, at 9 months of age, and at 3 years of age), and therefore provides the opportunity to plot the normative pattern of growth and development in Irish children, how it is affected by nutritional factors in infancy and early childhood, and how early growth patterns are related to BMI at three years of age. In the longer term, it has the potential to contribute to the literature examining the longitudinal import of early patterns of growth for later health outcomes, including obesity, insulin resistance and cardiovascular disease.

3.3 WHAT IS THE LEVEL OF VARIABILITY IN EARLY CHILDHOOD DEVELOPMENT AND TO WHAT EXTENT IS DEVELOPMENTAL DELAY IN INFANCY INDICATIVE OF PROBLEMS AT AGE THREE?

Developmental delay has been defined as the failure of a child to attain developmental milestones at the expected age, even after allowing for the broad definition of normality (Rydz, Shevell, Majnemer et al, 2005). Given that neuro-development tends to proceed in a fairly orderly sequence, any chronological delay in attaining age-appropriate development milestones might signify a child at risk. Developmental delay can be further sub-divided into *global developmental delay,* which refers to significant delay in two or more of the following areas: gross/fine motor, speech/language, problem-solving, social/personal development; and *single domain delay*, which refers to a specific delay in only one area (Shevell, Ashwal, Donley et al, 2003).

While early research exploring the risk factors for developmental delay tended to focus on the influence of biological factors such as chromosomal abnormalities (e.g. Down Syndrome), structural malformations of the brain (e.g. hydrocephalis), prenatal illness, or biological insult, more recent research has grown to embrace dynamic systems models of child development which recognise multiple influences at the level of the gene, the child and the environment, and how they interact to determine developmental trajectories over time (Darrah, Hodge, Magill-Evans et al, 2003). The limitation of neuro-maturational models is further underscored by the finding that a significant minority of children who manifest with developmental delay have no discernible biological risk factors (Gallimore, Keogh & Bernheimer, 1999).

A further problem in this field is the rather limited availability of longitudinal studies exploring the extent to which developmental problems track over time. A notable exception is the study by Darrah et al (2003) of 102 typically developing Canadian infants, which assessed the normative stability (i.e. maintaining the same percentile rank) and ipsative stability (i.e. cross-domain comparability) of children's motor and communication scores across a number of time horizons (9, 11, 13, 16 and 21 months of age), using established developmental inventories. They observed that rate of development was non-linear and that there was considerable variability in intra-individual and inter-individual stability over time. Examination of individual child trajectories revealed that rate of development was not constant and that rate of maturation was as likely to be characterised by 'leaps and bounds' as well as steady increments. There was also considerable flux in inter-individual percentile ranks over time, with some children declining and others gaining across the span. Finally, they reported that cross-domain correlations were typically low, which suggests that development is asynchronous and that children may progress at different rates across developmental domains. More research in this vein would be welcome; ***Growing Up in Ireland*** can make some contribution to this literature by quantifying the rate of developmental growth of both typically and atypically developing children in early life.

The early childhood years are considered the 'golden years' for motor development as it is during this time that children acquire a basic repertoire of manipulative and locomotor skills, which become the basis for the emergence of more sophisticated motor skills in later years (Williams & Monsma, 2007). What then are the implications of delayed development during this critical period for children's later health and development? A small-scale but important longitudinal study of 168 term and preterm children stratified into four groups depending on the level of impairment (healthy term, healthy preterm, clinically ill preterms and preterms with neurological illness) found that perinatal morbidity was associated with lower motor scores at age four, and that those identified with motor delay had lower academic achievement scores and higher educational service use at eight years of age (Sullivan & McGrath, 2003).

Learning to talk is also a major developmental milestone of early childhood, and speech and language are a fairly good indicator of a child's overall development and cognitive ability (Nelson, Nygren, Walker et al, 2006). It has been estimated that speech and language problems affect 5-8 per cent of preschool children **(**Nelson et al, 2006). Speech and language difficulties often persist into the school years. Prospective studies have shown that speech and language impairments (SLI) are associated with poorer behavioural, socio-emotional and academic outcomes (Beitchman, Brownlie, Inglis et al, 1996; Silva, Williams & McGee, 1987).

As noted in Chapter 1, this would seem to suggest that there are sensitive periods of development during which time interventions would be most efficacious in improving developmental trajectories.

In ***Growing Up in Ireland*** children's developmental status at nine months of age was indexed using the Ages and Stages Questionnaire (ASQ) (Squires, Potter & Bricker, 2005), which generates a developmental profile across five domains: *gross motor, fine motor, communication, problem-solving* and *personal-social*. While analysis of the data from Wave 1 revealed that the vast majority of children had attained the developmental milestones typical of 10-month-olds, there was important variation in outcomes by salient characteristics of the sample, including birth-weight, nationality and singleton status. For instance, Irish children were significantly more likely to fail the gross motor component of the ASQ assessment than other components, while low birth-weight individuals had significantly higher fail rates on communication, gross motor and problem-solving skills. Tracking how typically and atypically developing children fare across a range of child outcomes, including physical health, speech and language development, socio-emotional development and cognitive development, will enable examination of the factors affecting these trajectories. ***Growing Up in Ireland*** aims to improve understanding of the level of variability in early childhood development and the extent to which children can compensate for early childhood delay. By studying the factors associated with developmental delay, it may contribute to the body of research which seeks to optimise children's development.

3.4 HOW DO SOCIO-ECONOMIC AND FAMILIAL FACTORS, PARENTAL FEEDING STYLE AND CHILD PREFERENCES INFLUENCE CHILDREN'S WEIGHT STATUS AT THREE YEARS OF AGE?

The quality and composition of children's diet during the early childhood years has attracted increasing interest in recent years, especially in the context of rising obesity among childhood populations (Livingstone & Robson, 2000). Moreover, there is some evidence to suggest that dietary habits established in childhood persist into adulthood, and that childhood nutritional status may affect adult health outcomes. The developmental systems perspective attempts to understand how children's eating behaviour is shaped by genetic predisposition and personal preferences as well as the wider familial, socio-economic and sociocultural context in which development occurs.

An enormous amount of learning about food and eating occurs during the transition from infancy to early childhood, which is marked by increasing diversification of dietary intake. Preschool children's preferences for certain foods are shaped by genetic predispositions, which include the unlearned preference for sweet and salty foods and the rejection of sour and bitter tastes (Birch, 1998). However, research has shown how these innate preferences can be modified through exposure and parenting practices. Patrick and Nicklas (2005) in a review of the literature have observed how exposure to foods is central to developing preferences and that repeated exposure can overcome dislike of certain foods.

Early childhood is a period when children's dietary behaviour is likely to be heavily influenced by the family environment. Parents shape their children's eating behaviour not only through the foods they make accessible to their children, but also through parental modelling, parenting practices and reinforcement (Scaglioni, Salvioni & Galimberti, 2008). Research shows that children tend to eat those foods which are most accessible to them in the home environment, and the foods to which children are most routinely exposed help shape preferences and consumption patterns (Patrick & Nicklas, 2005). For example, studies have shown a strong association between the availability of fruit and vegetables in the home and children's consumption of these foods (Hearn, Barownowski, Barownowski et al, 1998; Resnicow, Davis-Hearn, Smith et al, 1997). Similarly, children's and parents' intakes are correlated for most nutrients with stronger associations between mothers and children than between fathers and children (Oliveria et al, 1992:). 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, Carruth, Moran et al, 1998) and adolescents (Neumark-Sztainer, Hannan, Story et al, 2003) who eat meals with other family members tend to have superior nutritional profiles to those who do not.

A separate body of research has explored how other familial factors such as parental feeding style influence children's eating behaviours and health outcomes over the longer term. Feeding style is defined as the caregiver's approach to maintaining or modifying a child's behaviours with respect to eating (Patrick & Nicklas, 2005) and has been shown to be a fairly stable attribute over time (Montgomery, Jackson, Kelly et al, 2006). A recent review article by Ventura and Birch (2008), which synthesises much of the research on the relationship between parental feeding style, children's eating behaviours and children's weight status, has found strong support for the premise that high levels of parental control and restriction are associated with increased adiposity in children (Ogden, Reynolds & Smith, 2006; Fisher & Birch, 1999, 2000), possibly because parental control reduces the capacity of children to regulate their own energy intake. While cross-sectional studies cannot eliminate the possibility that the causal direction is reversed (i.e. heavier children elicit more restrictive feeding strategies), the preponderance of evidence from longitudinal studies seems to indicate that parental control is causal to greater weight gain. For example, a longitudinal analysis of 57 families participating in an infant growth study found that parental restriction at age three was associated with higher BMI at age seven, after adjustment for children's initial weight status (Faith, Berkowitz, Stallings et al, 2004).

An interesting finding that has emerged across a number of studies is that girls tend to be subject to higher levels of parental control than boys (Birch, Fisher, Markey, et al, 2001; Shunk & Birch, 2004), and these early differences in socialisation of eating behaviours may partly explain the higher prevalence of eating disorders among adolescent girls. Other studies have assessed different dimensions of parental feeding behaviours. For example, a cross-sectional study of 112 parent-child pairs found more body dissatisfaction among children of parents who reported using food for behavioural reinforcement (Brown & Ogden, 2004). These investigators speculated that using food as a behavioural modification technique may actually decouple it from its role in satiating hunger.

Studies of household food purchases generally report a positive association between household socio-economic status (SES) and the quality and variety of purchased foods (Darmon & Drewnowski, 2008); these patterns have also been found to hold in the Irish context (Kelleher, Lotya, O'Hara et al, 2008). The household SES has been shown to be an important determinant of dietary quality among children (Campbell, Crawford, Jackson et al, 2002). The ***Growing Up in Ireland*** middle childhood study of 8,568 nine-year old children found that parental education was positively related to fruit and vegetable consumption and inversely associated with consumption of energy-dense snack foods (Williams, Greene, Doyle et al, 2009). The longitudinal import of these early inequalities in dietary intake for longer-term health outcomes is evidenced by a US study of 519 preschool children which found that poorer dietary quality was associated with higher BMI and more unfavourable cardiovascular risk profiles at four-year follow-up (Williams & Strobino, 2008). In addition, the ALSPAC study team found that the quality of children's diets at three years of age was related to academic attainment scores at 10-11 years of age, when other factors had been statistically controlled for (Feinstein, Sabates, Sorhaindo et al, 2008).

The ***Growing Up in Ireland*** study offers an opportunity to contribute to the accumulating body of literature which assesses the dietary intake patterns of preschool children, how dietary intake varies by a range of sociodemographic and socio-economic factors, including maternal and paternal weight status, and how it affects longer-term health outcomes. For example, to what extent does poorer dietary quality explain higher obesity levels among lower SES groups? Of particular concern, given the evidence summarised above, is the extent to which parental feeding practices influence children's eating behaviour and weight status, both cross-sectionally and longitudinally. In the context of ***Growing Up in Ireland,*** childhood diet will be measured using a semi-quantitative food frequency questionnaire which enables classification of preschool children's diets as more or less healthy along the dimensions of fruit and vegetable consumption, energy-dense foods, high-sugar drinks, and dietary fats. Parental feeding style, particularly different aspects of parental control (control over eating, use of food as reward) will be indexed using a revised form of the Parental Feeding Style Questionnaire (Wardle, Sanderson, Guthrie et al, 2002), while the primary outcome variable will be children's weight status, which will be indexed using BMI.

3.5 WHAT FACTORS EXPLAIN THE HIGH PREVALENCE OF RESPIRATORY ILLNESS, ASTHMA AND RELATED ATOPIC CONDITIONS IN YOUNG CHILDREN IN IRELAND?

Respiratory illness is the most common illness of early childhood (Schwartz, 2009), with evidence of increasing prevalence (Kuehni, Davis, Brooke et al, 2001). At an international level Ireland is consistently among the countries with the highest prevalence of asthma (Masoli, Fabian, Holt et al, 2004; World Health Organisation, 2007). The ***Growing Up in Ireland*** study of nine-year-olds revealed that 50 per cent of all those with a chronic illness (or approximately 5 per cent of the total sample) had a respiratory-related illness (Williams, Greene, Doyle et al, 2009), so early childhood seems to be an apposite time to examine the antecedents of asthma and other respiratory-related conditions, including atopic manifestations. While familial aggregation of asthma and related atopic conditions is well established, the increasing prevalence and severity of asthma suggests that environmental exposures play an important role in the pathogenesis of this disease (Schwartz, 2009).

A number of theories have been posited to account for the increase in the incidence of asthma and atopic manifestations in Western countries in recent years. The hygiene hypothesis (Strachan, 2000) suggests that the increase in asthma and allergic diseases may be related to reduced exposure to infectious agents in early childhood. Some evidence that consistent with this view is found in studies of an environmentally mediated effect on the pathogenesis of specific types of chronic illness. A meta-analysis of 53 studies published before 2000 reported a protective effect of having three or more older siblings on: asthma (0.72), hay fever (0.44) and eczema (0.66) (c.f. Borchers, Keen & Gershwin, 2005). However, the central premise of the hygiene hypothesis – the protective effect of early exposure to pathogens – is disputed by the results of a number of studies which show that daycare attendance does not increase resistance to atopic manifestations (Borchers et al, 2005). Furthermore, a longitudinal study of 2,540 children found that early childhood respiratory infections do not protect against atopic manifestations at 10 years of age but actually increase the risk of asthma and related symptoms (Nafstad, Brunekreef, Skrondal et al, 2005).

Another potential causative mechanism is the effect of early exposure to pharmacological agents, particularly the effect of antibiotic use in early infancy (Cohet, Cheng, MacDonald et al, 2004; Marra, Lynd, Coombes et al, 2006; Scranton & Davis, 2009). Antibiotics disturb the gastro-intestinal flora, and it has been claimed that this hypothesis is consistent with the hygiene hypothesis as reduced microbial exposure may increase atopic (t-helper cell type 2) immune responses, which may lead to the development of asthma. A meta-analysis of eight studies (four prospective and four retrospective), which involved a total sample size of 27,167 children, found that antibiotic exposure during the first 12 months of life was associated with increased risk of developing asthma in early childhood, and that the effect was dose-related, and remained after applying controls for a range of covariates (Marra, Lynd, Coombes et al, 2006). A separate study by Marra and colleagues (2009) which examined the administrative records of all children born in British Columbia from 1997 to 2003 (n = 251, 817) also reported a small but statistically significant effect of antibiotic exposure on asthma prevalence.

Less researched is whether antibiotic exposure after the first year of life is related to asthma prevalence. Preschool-aged children consume more antibiotic medicines than any other age group (Wrigley, 2002). The Avon study team found that 62 per cent of children had received one or more antibiotics between the ages of three and 4.5 years (Wye, Hay, Northstone et al, 2008). Analysis of the Irish General Medical Services (GMS) database reveals that antibiotics represent one-third of all prescriptions given to Irish children, and that the prescribing rate was highest among children in the 0-4 age group, at 1,458/1000 of the population (Keogh, Reulbach, Bennett et al, 2010). Given that Ireland is one of only three countries in the EU where outpatient antibiotic prescribing is increasing (Report of the RCPI Policy Group on Healthcare-Associated Infection, 2009), higher rates of prescribing represents a plausible and testable causal pathway for higher asthma prevalence among the Irish childhood population.

Method of infant feeding has also been suggested as having a role in the development of childhood asthma and allergic sensitisation. While the majority of studies tend to show that breastfeeding protects against the

development of asthma (Zeiger, 2003), a longitudinal birth cohort study which followed a sample of 1,037 New Zealand-born infants for 26 years found that breastfeeding for four years actually increased the risk of asthma and allergic symptoms (Sears, Greene, Willan et al, 2002). The timing and nature of the transition to solid foods has also been implicated as a possible mediating mechanism. By connecting with the detailed data on infant feeding which was collected at Wave 1, which included measures of breastfeeding type and duration, as well as the timing of the transition to other milks and solids, and controlling for chronic illness status at that time, ***Growing Up in Ireland*** will be able to explore the explanatory value of infant feeding as a causative factor on asthma prevalence at Wave 2 (3 years of age).

A fundamental unanswered question in asthma research is why only a minority of children who wheeze at an early age develop persistent airway disease that continues throughout their lives (Schwartz, 2009). This finding suggests that there are protective factors operating which mediate risk, and it may point to critical time periods for the development of respiratory symptoms. The longitudinal framework of ***Growing Up in Ireland*** provides a platform for examining the viability of competing causal models in the aetiology of childhood asthma and atopy. Asthma prevalence at Wave 2 will be indexed using a discrete answer format like that used at Wave 1; it includes a measure as to whether the condition has been diagnosed by a medical professional. Because there is a suggestion that asthma tends to be underdiagnosed in childhood populations, a set of asthma-specific questions has been added; these will be asked of the entire cohort, to ascertain the prevalence, frequency and severity of wheezing in preschool children. Predictors include method of infant feeding at Wave 1, number of siblings living in the household, whether the child is in childcare (both of which are considered proxies for infectious exposures), and exposure to antibiotics between two and three years of age.

3.6 HOW DO PARENTAL BEHAVIOUR AND PARENTAL MENTAL HEALTH AFFECT CHILDREN'S HEALTH FUNCTIONING AT THREE YEARS OF AGE?

Within the dynamic systems perspective model, parents are the most proximal influences on child development during the early childhood years. The influence of parental health on children's health begins in the womb. It is known, for example, that mother's smoking during pregnancy has a direct and deleterious effect on children's weight at birth (Delpisheh, Kelly, Rizwan et al, 2006), and there is strong evidence that it may also affect other aspects of later health functioning, including vulnerability to asthma and upper respiratory tract infections. A seminal paper by Case and Paxson (2002) describes the multiple and interacting pathways through which parenting behaviours and family environment can affect children's health outcomes. At age three, it is parents who decide the types of foods and nutrition their children receive (see also Research Question 3.4 above), the amount of physical activity their children engage in, the amount of nurturance and social support they receive, and the quality of their environment before and after birth. However, Case and Paxson acknowledge that these choices are themselves conditioned by socio-economic circumstances and the wider social and cultural milieu. It is also the case that child characteristics play a part in influencing parents' behaviours, as discussed in Chapter Six.

Belsky and collaborators (2006) describe the results of a prospective US study (n = 1,041) which examined the relationships between socio-economic position and parenting behaviours (warmth, control, negativity) during the first four years of life on children's health functioning at six years of age. Bivariate analyses revealed that the various parenting indices and measures of socio-economic position were significantly associated with children's health, and with each other. Parental warmth and control was reported to have a beneficial effect on health while negativity was inversely related to health. The results of multivariate analyses suggested that parenting might be an important mediator of SES differences in health inequalities as parenting factors accounted for almost 50 per cent of the excess risk (Belsky, Bell, Bradley et al, 2006). Other studies have found that a problematic parent-child relationship is a risk factor for poor health in mid-childhood (Waylen, Stallard & Stewart-Brown, 2008) and adulthood (Stewart-Brown, Fletcher & Wadsworth, 2005). ***Growing Up in Ireland*** includes measures of the parent-child relationship, parenting stress and parenting style, all of which can be examined to explore their influence on the child's health.

An extensive literature has examined the relationship between parental mental health and children's emotional health and well-being (Goodman, 2007). A common finding in the literature is that children who are exposed to a caregiving environment in which the mother is suffering from major depressive illness are at increased risk for a range of adverse health outcomes, including emotional and behavioural maladjustment (Goodman & Tully, 2006). Goodman (2007) describes a number of potential pathways through which the experience of parental depression may increase children's risk of adverse health outcomes. Parental depression can affect parenting behaviours and is associated with increased negativity, disengagement and lower levels of parental nurturance (e.g. Lovejoy, Graczyk, O'Hare et al, 2000). A study by Ashman et al (2008) examined the impact of maternal depression in early childhood on various aspects of children's health and behaviour. They found that child behavioural outcomes varied as a function of the longitudinal course of maternal depression. Specifically, children whose mothers were categorised as being chronically depressed had the highest incidence of externalising behaviour problems (using both parent and teacher report) and higher incidence of respiratory reactivity. Path analysis revealed that contextual factors such as low marital satisfaction and family conflict mediated the relation between maternal depression and child behaviour problems.

More research in a similar vein would be welcome given that the majority of studies to date have been cross-sectional in nature (Goodman, 2007). This would seem like a particularly fertile area of investigation as limited research suggests that chronicity and timing of exposure may have differential effects on the manifestation of childhood internalising and externalising problems (e.g. Essex, Klein, Miech et al, 2001). The ***Growing Up in Ireland*** study collects detailed information from parents concerning depressive symptoms (CES-D scale), formal diagnoses of depression, and the timing of onset, so it will be possible to examine period effects on children's emotional and behavioural health (indexed using the Strengths and Difficulties Questionnaire at Wave 2) and a wide array of physical health indicators.

Other factors relating to parental practices foster the emergence of health behaviours. For example, data from a number of countries have shown that starting to brush teeth before a year old, twice a day, and with parental involvement, doubles the odds of being decay-free, irrespective of the level of disadvantage (Nunn, 2006). Other studies have shown that parental television viewing hours are positively associated with children's screen-time (Jago, Fox, Page et al, 2010), and that parental physical activity is positively correlated with preschool children's physical activity patterns. Both of the above have been linked with adiposity in children. Because these health-relevant behaviours are modifiable, improved understanding of how and *when* these socializing processes are at their most potent (based on ***Growing Up in Ireland*** and other work) may allow for the development of intervention strategies to improve health outcomes for children and their families.

3.7 HOW DOES SOCIO-ECONOMIC STATUS CONTRIBUTE OVER TIME TO INFLUENCE CHILD AND ADULT HEALTH OUTCOMES?

One of the most robust and consistently documented findings in the health literature is the inverse relationship between socio-economic status (SES) and health (Conroy, Sandel & Zuckerman, 2010). Gradients are found irrespective of whether education, income, social class or a large number of other SES indicators are used. 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 and mechanisms by which SES affects health. 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 SES positions themselves and the conditions they beget, the 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 (Layte & McCrory, 2011).

What is becoming increasingly clear, however, is that childhood health and socio-economic position have the potential to influence later health functioning (Haas, 2007; Luo & Waite, 2005; Palloni, Milesi, White & Turner, 2009). In an excellent example of the type of causal inference afforded by longitudinal studies, Haas

(2008) used data from the US Health and Retirement Study (HRS) to explore the extent to which functional health in old age had been shaped by health and socio-economic position during childhood. He found that poor health in childhood and disadvantaged socio-economic position were associated with a higher rate of functional limitations in childhood and a higher rate of increase in functional limitations over time, even when controlling for adult socio-economic position and chronic disease status.

Two general perspectives have been proposed to explain how health unfolds over the life-course (Conroy et al, 2010). The 'critical periods' model holds that there are certain periods during which the effects of SES on health may be more potent than at others. The foetal origins hypothesis (see above) would be an example of such a model; it argues that an insult to the foetus during intrauterine life can lead to fundamental physiological adaptations that are irreversible and may predispose to disease risk in later life (e.g. Barker, 1994). The 'accumulation' model, by contrast, holds that it is cumulative exposure to adverse circumstances across the life-course that is responsible for the social gradient in health outcomes. With some exceptions, SES affects exposure to a number of causal agents during pregnancy, infancy and childhood, which are part of longer-term biological chains of risk that may predispose to disease risk in later life (Kuh et al, 2004).

The latter proposition – that the socio-economic gradient in health widens across the life-course – remains a matter of conjecture. Two influential papers, by Case, Lubotsky and Paxson (2002) and Currie & Stabile (2003), using cross-sectional US and Canadian panel data respectively, found that the income-health gradient widened as children aged. However, others have argued that gradients are steepest in early childhood and weaken during adolescence due to the equalising effects of the school environment (West & Sweeting, 2004). This is an area where longitudinal studies like ***Growing Up in Ireland*** can 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. A longitudinal study using the NLSCY data (n = 6,306) found that income in infancy was a stronger predictor of child health outcomes at 10-11 years of age than was current income (Chen, Martin & Matthews, 2007). This provides some corroboration for the idea that transitions out of poverty cannot compensate for the effects of early life disadvantage. For example, the odds of having a condition requiring physician treatment was significantly higher for those who went from low to a higher income than for those who went from a higher to a relatively lower income between waves.

Nikiema, Spencer and Seguin (2010) report 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 Millennium Cohort Study (MCS) and the Quebec Longitudinal Study of Child Development (QLSCD). These investigators 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. For example, they found that experience of poverty only in the first year of life was associated with significantly increased risk for asthma attacks and longstanding illness in the fourth year of life in the MCS, but not in the QLSCD cohort. Similarly, living in cumulative or consistent poverty was associated with higher risk for asthma attacks, longstanding illness, and limiting illness in the MCS cohort, but only with limiting illness in the QLSCD cohort.

The foregoing review has established that social gradients in health emerge at an early age and that the gradient may widen as children age. It should be acknowledged that the gradient is not necessarily a consequence of material deprivation per se, but rather that SES serves as a marker for other processes and exposures, such as compromised intrauterine development, lower breastfeeding rates, less health-sustaining family and social environment, and fewer psychosocial resources – all of which are associated with poorer health outcomes. Using ***Growing Up in Ireland*** data, it will be feasible to explore whether the gradient has widened from Wave 1 to Wave 2, and how health at three years of age is influenced by early life and contemporaneous socio-economic factors.

3.8 WHAT IS THE EFFECT OF NEIGHBOURHOODS ON CHILDREN'S HEALTH AT AGE THREE?

There is increasing recognition that the social ecology and structure of neighbourhood environs matter for children's health and wellbeing (Roux, 2007). The finding that social gradients in health persist after controlling for individual (child and parental) characteristics has prompted a search for other potentially important determinants at the neighbourhood level. A second major catalyst has been the emergence of multilevel analytic models which allow for the simultaneous examination of within- and between-neighbourhood variability in outcomes and allow one to place parameter estimates on the relative contribution of each (Roux, 2001, 2007). Neighbourhoods have a range of social and physical characteristics which are likely to be important for child health outcomes. Perhaps unsurprisingly, socio-economic characteristics are those which have tended to be most readily researched (Leventhal & Brooks-Gunn, 2000), though studies have grown to encompass other aspects of the neighbourhood environment such as the prevailing social climate, features of the built environment (e.g. availability and access to supermarkets, parks, playgrounds, etc) and environmental exposures such as air pollution and water quality. Furthermore, the SES of neighbourhood and difference of household from neighbourhood may also be important.

Neighbourhoods can influence the health of their residents through both structural and compositional characteristics (Macintyre, MacDonald & Ellaway, 2008). Structural characteristics refer to the material infrastructure of the environment and the availability of and access to resources such as health services, supermarkets and recreational play spaces, while compositional characteristics refer to the characteristics of residents and the collective social functioning of neighbourhood environments. Both have been shown to influence health outcomes. Sellstrom and Bremberg (2006) report the results of a systematic review of 13 multilevel studies which examined the relationship between neighbourhood context and a variety of child health outcomes including birth-weight, behavioural problems, risk for injury and child maltreatment. Both neighbourhood SES and neighbourhood social climate were found to have small to moderate effects on child health outcomes. Living in a disadvantaged community was associated with deleterious effects on birth-weight in three of the four cohort studies examined, and with greater risk for behavioural problems in four of the five studies where this served as an outcome variable. Similarly, these investigators also documented independent effects of social climate on birth-weight and behavioural problems. For example, a study by Morenoff (2003) found that an increase of one standard deviation in violent crime in the community was associated with a 10.4 gram decrease in average birth weight.

Injuries in childhood represent a major public health concern. Epidemiological studies of childhood injuries typically show that children from lower socio-economic backgrounds are at increased risk of death or injury (e.g. Roberts & Powers, 1996; Silversides, Gibson, Glasgow et al, 2005), and that they present at emergency rooms with a greater severity of injuries (Hippisley-Cox, Groom, Kendrick et al, 2002). Whether the variations in accident rates observed between different social groups is an individual-level effect due to familial circumstances, or an area effect due to social and environmental factors, such as quality of housing or traffic volume, has been explored in a series of studies by Reading and colleagues. While the results of two cross-sectional studies concluded that neighbourhood determinants could explain as much as 10 per cent of the variance in injury rates among preschool aged children (Reading, Langford, Haynes et al, 1999) and those aged 5-14 years (Haynes, Reading & Gale, 2003), the results of a recent longitudinal study suggest it might be considerably less. One ecological study which examined the factors influencing injury risk over the subsequent three years found that three factors – male gender, positive affect and parenting/childcare quality – were indicative of injury risk at three years of age. The role of the environmental context and the extent to which it influences risk for injury remains an under-researched issue.

A cross-sectional study by Curtis, Dooley & Phipps (2004) which used the NLSCY data to explore patterns of variations in children's injury risk and behavioural adjustment across three separate indices of neighbourhood quality (safety, cohesiveness and problems) found that greater community cohesiveness was associated with better child behavioural outcomes, while neighbourhood problems were associated with worse child outcomes, including injury risk. Another longitudinal study which used the NLSCY data to examine neighbourhood effects demonstrated an interesting interaction between neighbourhood and

individual characteristics, showing that in households where socio-economic position was lower than the neighbourhood average, risk of childhood behavioural problems increased (Boyle & Lipman, 2002). Other studies have shown that the perceived safety of a child's neighbourhood can influence levels of physical activity and related outcomes (Handy, Cao & Mokhtarian, 2008; Weir, Etelson & Brand, 2006), including risk of overweight (Lumeng, Appugliese, Cabral et al, 2006). However, activity levels can also be influenced by community cohesiveness and social norms, as evidenced by the fact that the presence of other children playing is associated with levels of street play (Valentine, 1997).

Surveying this diverse literature, it would seem that neighbourhood characteristics, whether structural or compositional, can indeed influence child health outcomes. However, the ecological validity of findings from other child cohort studies need not necessarily hold in the Irish context. For example, there is evidence, summarised in Macintyre et al (2008), which shows that the availability of children's playgrounds and recreational open spaces varies by resource and national context. Whereas an Australian study found that lower-SES neighbourhoods had better access to gyms (Giles-Corti & Donovan, 2002), an American study arrived at the opposite conclusion (Powell, Slater, Chaloupa et al, 2006), while a Dutch study found no difference in provision by neighbourhood SES (van Lenthe, Brug & Mackenbach, 2005).

Growing Up in Ireland has the capacity to investigate the concurrent effects of structural and compositional characteristics of the neighbourhood (including parental satisfaction and engagement with the neighbourhood) and how the neighbourhood has changed from Wave 1 to Wave 2. With the potential to link to other sources of administrative data such as the Small Area of Population Statistics (SAPS), the empirical value of the data may be enhanced.

Chapter 4

FACTORS INFLUENCING EMOTIONAL, SOCIAL AND BEHAVIOURAL DEVELOPMENT AT AGE THREE

4.1 INTRODUCTION

Development in the emotional, social, and behavioural domains is intricately linked, and influence between these domains is multidirectional, transactional and ongoing (Hinshaw, 2008). Furthermore, as Bronfenbrenner argues (1977), the child's successful emotional, social, and behavioural development requires active participation in progressively more complex, reciprocal interaction with persons in the individual's immediate environment, on a regular basis and over extended periods. These interactions in the immediate environment are a crucial influence on how each child develops. This chapter looks at the variables in these interactions that affect the child's social, emotional and behavioural development. First, research on aspects of the parent-child relationship, including parenting and discipline style, is reviewed, and the ways in which ***Growing Up in Ireland*** can contribute to this literature are outlined. Secondly, the literature on risk factors for poor emotional, social and behavioural outcomes is reviewed, and ***Growing Up in Ireland***'s contribution to increasing understanding of the child's experience of these variables and their impact on the child's outcomes is delineated. Attention is given to factors that may buffer possible negative outcomes or contribute to resilience. Finally, the child's relationship with other family members, peers and the wider community is explored, and ***Growing Up in Ireland***'s potential to enhance understanding of the ways in which these relationships affect emotional, social and behavioural outcomes is assessed.

Social, emotional and behavioural outcomes are strongly affected by the child's physiology, temperament, cognitive capacity and experiential factors such as parenting style. For example, the development of emotional self-regulation is an important aspect of the child's development (Frick & Morris, 2004) and is very salient by age three. Emotional regulation is closely linked with child temperament and is in part a function of the child's biology, but the development of emotional regulation may be substantially affected by experience, such as the child's relationship with his or her parent. Emotional self-regulation affects both behavioural and social development in several ways. For example, effortful control is an important aspect of self-regulation and is essential to the child's behavioural and social functioning. Effortful control involves the child's ability to inhibit a powerful behavioural response and to respond with a more appropriate behaviour (Zentner & Bates, 2008), which in turn affects the child's ability to socialise appropriately, form peer relationships, and engage in positive relationships with teachers and carers. At age three the typical child is beginning to show a good level of competence in this regard and is able to manage social situations more effectively. Conversely, emotional regulation problems and certain temperament styles have been linked to social difficulties and adverse behavioural outcomes such as externalising and internalising behaviour problems.

Emotional development is thus strongly tied to social development; the assessment of socio-emotional development at this early stage is critical as it predicts mental health and academic outcomes. Poor outcomes in socio-emotional development are associated with substance abuse, delinquency and sub-optimal workplace performance (Denham, Wyatt, Bassett, Echeverria & Knox, 2009; Bradley & Corwyn, 2005). The construct of social competence is an important one in research on social development. It includes the child's acquisition of skills which allow him or her to engage competently with others in social interaction. During the preschool years and early childhood, the child's opportunity to interact with peers and people beyond the family setting increases dramatically. This interaction is usually qualitatively different from family-based interactions and provides new influences on the child's socio-emotional development (Fabes, Gaertner & Pop, 2008). Poor socio-emotional development during early childhood places the child at risk of behaviour problems and poor academic performance. The development of social-emotional competence influences behavioural development by enhancing or limiting the child's opportunities to interact with others and to learn from social interactions. Behaviour problems may therefore further compromise social development by negatively affecting the development of relationships and opportunities for more social learning. If the child has not successfully negotiated the development of socio-emotional competencies in early childhood, his or her opportunities to learn in formal academic and informal peer and family contexts may be limited. School readiness, for example, is now construed as a function of a child's social-emotional and behavioural competence as much as of his or her cognitive or pre-academic skills (Blair, 2002). The complex relationship between emotional, social and behavioural development and outcomes will be further

explored throughout this chapter's review of ecological factors which affect outcomes in each of these developmental domains.

4.2 RELATIONSHIP(S) WITH PRIMARY CAREGIVER(S)

4.2.1. HOW IS THE QUALITY OF THE RELATIONSHIP BETWEEN THE CHILD AND PARENT(S) AT NINE MONTHS RELATED TO THE QUALITY OF THE RELATIONSHIP AND CHILD OUTCOMES AT AGE THREE?

Within an ecological model such as the conceptual model that frames the design of ***Growing Up in Ireland*** (Bronfenbrenner, 1977), parents are in the micro-system of the child's environment, which contains the relationships that affect him or her most directly. Parenting has been conceptualised as a 'functional frame' for a child's development in which, optimally, the child is nurtured, protected, helped and provided with feedback and models of behaviour (Kaye, 1984). As a functional frame for the child, the parent may also provide a memory for the young child, modulate his or her arousal and invite cultural participation (Meadows 2010), thereby supporting important areas of social, emotional and behavioural development throughout early childhood. To provide effective frames requires sensitivity and patience so that the parents can adapt these frames to the child's changing needs as he or she develops. Research highlights that sensitive, responsive caregiving early in development is linked to optimal child outcomes in emotional, social and behavioural development (Lugo-Gil & Tamis-LeMonda, 2008). Conversely, difficulties in the parent-child relationship are linked to socio-emotional and behavioural problems in early childhood (Aguilar, Sroufe, Egeland & Carlson, 2000). In a proximal processes approach, the research focus is not on individual parenting style but rather on child-parent interaction and the reciprocal, interdependent and evolving nature of the learning relationship between parent and child.

As touched upon in Chapter Two, attachment is a significant construct in research on the parent-child relationship in early child development. Attachment, the deep and enduring bond between young children and their parents, is conceptualised as developing over time, beginning during the first few months of a child's life, and becomes relatively stable by three years of age. Thus the outcomes of the attachment bond are evident in the child's emotional, social and behavioural development at three years of age. If the environment remains stable, the quality of attachment tends to remain the same, but attachment relationships can be positively or negatively influenced by significant changes in support systems and by life experiences (Bowlby, 1988). Attachment provides the early foundation for a child's sense of security and is seen as a key contributor to socio-emotional growth and development in the infancy to toddler period (Berk, 2005).

In Wave 2 of ***Growing Up in Ireland***, the child's socio-emotional and behavioural outcomes at three years of age will be measured using the Strengths and Difficulties Questionnaire (SDQ), which is a behavioural screening of emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and pro-social behaviour – completed, in this case, by the child's primary caregiver. Data from this measure at Wave 2 can be used in a longitudinal analysis of the relationship between early attachment at nine months and socio-emotional and behavioural functioning at three years. Wave 2 of ***Growing Up in Ireland*** can also provide significant cross-sectional data on the relationship between the parent-child relationship, as measured using the Pianta Parent-Child Relationship scale (Pianta, 1992), and the child's emotional, social and behavioural outcomes as measured using the SDQ. At Wave 2, primary caregivers are also asked to rate themselves as parents and to complete a parental stressors sub-scale. Data from these measures when the child is three years of age may also be connected to data on the parent-child relationship when the child was nine months to see if early child attachment and relationship with the primary caregiver affects parental self-perception. The relationship between parental stress and child outcomes can also be examined. Because of the wide range of contextual variables in ***Growing Up in Ireland*** it will also be possible to examine those factors in the wider environment that are associated with relaxed versus stressed parenting.

4.2.2. WHAT PARENTING STYLES DO IRISH PARENTS USE AND WHAT IS THE EFFECT OF THESE STYLES ON CHILD OUTCOMES?

Despite the importance of parenting styles in early child development, little research has been carried out on parenting practices in Ireland. Research conducted on the nine-year cohort of ***Growing Up in Ireland*** (Williams et al, 2009) investigated the parenting styles of the children's parents. This work was based on the Parenting Style Inventory (PSI–II). This is a short scale and easy for the children to read and interpret (Darling & Toyokawa, 1997). Findings indicate that the majority of mothers and fathers in the study practised what is considered the optimal style of parenting, namely, the authoritative style (GUI, 2009). This style of parenting provides reasoned control with support and is considered beneficial in terms of child development and outcomes.

Parenting styles differ from parenting practices in that parenting styles set the tone for interactions, rather than being goal-directed attempts at socialising a child. Parenting styles, including parental discipline techniques, during early childhood have been linked in particular to behavioural outcomes throughout childhood and adolescence. Sensitive parenting can serve as a protective factor in child development, protecting the child from potential risk factors such as poverty (Pettit et al, 1997). Much research has been conducted on parenting styles, and findings, while culture-bound, suggest that in general an authoritative style of parenting, combining warmth and responsiveness with high demands on maturity, leads to best social and behavioural outcomes for children (Darling & Steinber, 1993). Parents who use an authoritative style of parenting are more likely to have children with more positive relationships with their peers and who become more autonomous adolescents than children of authoritarian parents. A lack of parental warmth and responsiveness means that there is limited or no reciprocated positive affect, and parents may have a harder time gaining the cooperation of the child. However, in some very specific contexts the authoritarian style seems to be most adaptive (Brody & Flor, 1998).

Parenting behaviour is affected by numerous psychosocial factors, including family size, parental mental health and socioeconomic status. Parenting style is also affected by the age of the child, child disability, gender of the child and parent, and parental perception of the child. For example, the gender of the child has been found to affect parenting practice, with mothers talking more with their daughters than their sons in the toddler years (Leaper, 1998). Parenting usually occurs as couple parenting, with both mothers and fathers impacting on each other and their child in their respective roles as parents. Co-parenting refers to ways in which parents relate to each other in the role of parent; co-parent relations may be one of the strongest influences on parenting style and child adjustment (Feinberg, 2002). The construct of co-parenting, which was developed during divorce research, is used to explore one particular aspect of the marital relationship which may directly affect the child's development. Four inter-related components have been identified: (1) the extent to which parents agree on childrearing practice; (2) division of parental duties; (3) the degree to which each parent supports/undermines the other; and (4) the joint management of family interactions (Feinberg, 2003). Early parental agreement on childrearing practice when the child is age three, for example, has been linked to psychological outcomes in adolescence (Vaughn, Block & Block, 1988).

Wave 2 will also provide quantitative information on the number of co-parenting couples of three-year-old children in Ireland, This can be linked in a cross-sectional study to socio-emotional and behavioural functioning. Wave 2 will include a parent-child relationship measure and a parenting style measure for both parents and caregivers. This will allow analysis of links between: (a) mother-child relationship and child outcomes; (b) father-child relationship and child outcomes, and (c) mother/father-child relationship and child outcomes. By gathering data on both parents' relationship with their three-year-old child, Wave 2 provides a means to examine dyadic parenting.

There is considerable support for a style of parenting involving positive reinforcement as a protective factor for child development (Burchinal et al, 2006; Treyvaud, Anderson, Howard, Bear, Hunt, Doyle et al, 2009). Based on the evidence that parenting practice can significantly affect the child's socio-emotional and behavioural development (Rubin, Cheah & Fox, 2001), several interventions have been developed to teach parents of at-risk children to respond consistently and warmly to their children. Findings indicate improved

outcomes in social and behavioural functioning (Moran, Ghate & van der Merwe, 2004). By looking at the relationship between the parent-child relationship and child outcomes in behavioural and social development, ***Growing Up in Ireland*** may contribute to intervention research on parenting by highlighting existing parenting practices in Ireland and current needs among vulnerable populations.

More research is clearly needed on parenting styles in Ireland. ***Growing Up in Ireland*** is in a unique position to gather data on this important influence on child outcomes. A measure of parenting style used by the Longitudinal Study of Australian Children was adapted and included in Wave 2 of ***Growing Up in Ireland*** for the Infant Cohort. It looks at three different aspects of parenting style: warmth, consistency and hostility. In the sensitive questionnaire, parents are also asked to rate how they feel about themselves as parents (ranging from *not very good at being a parent* to *very good parent*). Wave 2 also includes measures on the type and frequency of child-parent activities in the home (i.e. amount of time spent in joint activities), the quality of the parent-child relationship (Pianta, 1992), and parental perceptions of the quality of family life in relation to work pressures. These measures will provide cross-sectional data on aspects of parenting that are integral to socio-emotional and behavioural outcomes (assessed primarily using the SDQ).

4.2.3 HOW DOES THE QUALITY OF THE PARENT-CHILD RELATIONSHIP AT AGE THREE CONTRIBUTE TO POSITIVE OUTCOMES FOR THE CHILD?

The behaviour of parents and caregivers can contribute to both risk and protective factors for emotional development. Parents can buffer stressful events (Gunnar & Donazella, 2002), or they can be a source of stress themselves; e.g. by exposing the child to marital conflict. Together, the child's genetic predisposition and his or her social interaction with primary caregivers shape the development of the child's emotional reactivity. Parents help children learn about emotions and can help them towards increased emotional maturity by talking through the child's emotional experience of events and guiding them directly in understanding emotions and feelings, or by modelling effective emotional responses to events (Meadows, 2010).

Early social interaction is critical in effective language and communicative development. This will be further discussed in Chapter Six (on child cognitive outcomes). Aspects of supportive parenting in parent-child interaction have been found to include proactive teaching, calm discussion in disciplinary encounters, warmth, and interest and involvement in the child's peer activities (Pettit et al, 1997). Five behaviours which that commonly occur in parent-child interaction have been identified as predicting future socio-communicative achievement, including language development: using a rich vocabulary when speaking to the child, using words to respond to child behaviour, using verbal guidance to encourage development, placing an emphasis on language to communicate, and being responsive to a toddler's emerging attempts to communicate (Hart & Risley, 1995). Engaging in productive joint activities also appears to be linked to a lower rate of problem behaviours; the child's sense of self-regulatory competence may be an important mediator for this positive behaviour outcome (Bradley & Corwyn, 2005). Bradley and Corwyn longitudinally investigated the relationship between opportunities for productive activity (assessed when the children were aged 1, 6, 15, 24, 36 and 54 months and in the first grade at primary school) and maternal and teacher ratings of child behaviour in first-grade schoolchildren. It found that self-control mediated the relationship between more opportunity for productive activity and less externalising behaviour. Significantly, their findings indicated a connection between the availability of conditions supportive of productive activity and behaviour problems through the mediation of self-control and not through an increase in child competence. No significant relationship between productive activity and externalising behaviour was found when vocabulary attainment was added as a mediator. This suggests that children's self-regulation may have been positively affected by joint activities and this enhanced self-regulation positively affected behavioural outcomes. Similarly, it has been suggested that engaging in productive activity often leads to positive affective outcomes and feelings of relaxation, both of which would positively affect the child's behaviour (Kuhl, 2000).

The parents' marital relationship may also influence the child's emotional, social and behavioural development. Marital and parent-child relationships are interdependent; the parent's marital quality is linked

to the relationship between parent and child (Erel & Burman, 1995). A supportive and positive parent-parent relationship is likely to serve the nurturing and supportive needs for the child as well as for parents, and this may occur through parenting practices (Erel et al, 1995). Marital discord may affect the child's development of peer relationships, antisocial behaviour and anxiety disorders, and is strongly linked with emotional difficulties (Amato & Sobelowski, 2004). Children may not be able to feel emotionally secure when experiencing parental conflict at home; they may feel threatened and may not be able to feel safe (Davies & Cummings, 1994). Specifically, Davies and Cummings found that emotional reactivity and internal representations were most closely linked with marital relations and child adjustment. This was especially so for internalising problems. Parents who cannot provide social support, or who may not be physically or emotionally available for their children, can have a negative impact on the child's social development. Children of parents with high levels of marital discord have been shown to have higher levels of internalising and externalising behaviours, and impaired social competence (Katz & Gottman, 1993). A longitudinal study examining parental styles of conflict resolution when children were five years old and teacher ratings of children's behaviour at eight years of age has suggested a link between the ways in which couples resolve marital conflict and child behavioural outcomes: hostility during the resolution of disputes was linked to mild anti-social behaviour later in development, while anger and emotional distance on the part of the father was linked with higher teacher ratings of anxiety and social withdrawal (Katz & Gottman, 1993).

Marital dissatisfaction and conflict have been associated with less warmth and involvement, insecure mother-child attachment, parent negativity and rejection, parent-child conflict, and discipline practices (DeKlyen et al, 1998). Children may respond to marital conflict with changes in cognitive, emotional and physiological functioning. Parents who are more supportive and happier in their relationship are likely to be more available emotionally to their children and responsive to their emotional needs. Erel and Burman (1995), who conducted a meta-analysis of literature examining the interrelatedness of marital and parent-child relationships, found a positive link between the quality of marital relationship and parent-child relationship.

Parental gender also has an impact on the parent-child relationship, with evidence for differences in parenting and discipline styles across mothers and fathers. Mothers generally spend between 65 and 80 per cent more time than fathers do in direct one-to-one interaction with their child (Parke, 2002). Fathers may have different beliefs about parenting capability and this may mediate the amount of time spent with their child. Mothers may also believe fathers to be less capable, and this may further affect paternal involvement. However, in recent years the Western world has seen major increases in the amount of time fathers spend parenting their children. This particularly interesting phenomenon – the role of the father in contemporary Irish families – can be further quantified in ***Growing Up in Ireland***. It is expected that family circumstances may have changed since the first wave of ***Growing Up in Ireland*** such that more fathers are unemployed and may have taken over as full-time caregivers, with mothers more likely than before to be the sole earners in the family. Lamb, Frodi et al (1982), who observed parent-child interaction for Swedish parent couples of 16-month-old infants, found that mothers spent more time engaged in child-specific behaviours interaction than fathers, regardless of whether or not they were the primary caregiver. This finding was interpreted as evidence that gender differences in parenting are not necessarily due to social influences and that it is possible that a biological basis may be found to underlie these differences (Lamb et al, 1982). Such findings invite replication in other cultural contexts before firm conclusions can be drawn.

Wave 2 of ***Growing Up in Ireland*** will include measurement of the types of, and intensity of time spent in, joint activity between the child and caregivers. This will facilitate analysis of the relationship between parent-child activity and child socio-emotional and behavioural outcomes at age three, including internalising and externalising behaviour. This data collection can also facilitate prospective studies of the impact of this kind of activity in early childhood on future social and behavioural outcomes at a later age. Wave 2 will also assess parental conflict and resolution of conflict as measured on the supplementary questionnaires. Exposure of the child to this stress (parental conflict) is related to socio-emotional and behavioural outcomes in early childhood and later in development; it will be beneficial for child social policy to examine the link between marital conflict and child outcomes. This wave of data collection will provide data on the number of

fathers who are currently full-time caregivers, and mother-father differences as primary caregiver may be examined with regard to social, emotional and behavioural outcomes in a cross-sectional analysis.

4.2.4 WHAT ARE THE IMPLICATIONS FOR CHILD WELL-BEING AND BEHAVIOUR OF THE DISCIPLINE STYLES USED BY IRISH PARENTS?

An important part of parenting and the parent-child relationship is discipline of the child by the parent. Effective, authoritative discipline may help the child to self-regulate emotions and behaviours and serve as a protective factor for children who are overly exuberant (see discussion on temperament in Section 6.2 above). Conversely, harsh, or overly punitive, discipline is linked to externalising behavioural problems, particularly in boys.

The relationship between harsh parenting and externalising behaviour is well documented. Harsh, punitive or inconsistent discipline is linked to poor behavioural outcomes, including aggression and non-compliance (Bayer, Hiscock, Ukoumunne, Price & Wake, 2008). One longitudinal study of supportive parenting practice and child outcomes found that absence of externalising behaviour problems and enhanced social skilfulness was predicted by positive discipline techniques such as reasoning and calm discussion (Pettit, Bates & Dodge, 1997). Harsh discipline techniques may directly disrupt the child's emotional regulation system by placing stress on the child, or the child may learn to behave aggressively or punitively through parental modelling of harsh disciplinary behaviour. Disengaged parenting has also been linked to externalising behaviour problems; it has been hypothesised that conduct problems may be an attempt to gain attention from disengaged parents (Pettit et al, 1997). The relationship of both severe discipline style and disengaged parenting style with poor behavioural outcomes may reflect problems in parent-child attachment. However, poor behavioural outcomes are also likely to be due to gene-environment interaction, whereby the child and parent may share a similar 'difficult' temperament which negatively affects the parent-child relationship in a reciprocal way. Parenting interventions which teach the parent to respond with greater warmth and sensitivity to the child may change the course of the child's development and expression of his or her temperament, reflecting the impact that both genetics and the environment have on the development of the parent-child relationship (Nicholson, Berthelsen, Williams & Abad, 2010).

In a cross-sectional study of discipline practice in Northern Ireland, talking, praising, hugging, quarrelling and yelling were found to be regular aspects of parent-child interaction but physical punishment was much less frequent (Lloyd & Devine, 2006). Corporal punishment is significantly associated with several behaviours and experiences, only one of which could be considered positive, namely, immediate compliance. In a meta-analysis of corporal punishment studies, this form of discipline was linked to 10 undesirable constructs throughout the child's lifespan: decreased moral internalisation, increased child aggression, increased child delinquent and antisocial behaviour, decreased quality of relationship between parent and child, decreased child mental health, increased risk of being a victim of physical abuse, increased adult aggression, increased adult criminal and antisocial behaviour, decreased adult mental health, and increased risk of abusing own child or spouse (Gershoff, 2002). While compliance may be considered a positive short-term outcome, most negative outcomes associated with corporal punishment would seem to undermine its use as an effective or appropriate long-term discipline technique.

Mother-father differences have also been found in the parenting and disciplining of boys and girls. This has been linked to negative behavioural outcomes for boys (Lloyd et al, 2006). Fathers spend a larger proportion of their time than mothers in playful and physically stimulating interaction with their children (especially their sons) (Lewis, 1997). Boys are more at risk of developing conduct behaviour problems. Harsh and negative parenting by fathers of preschool boys has been found to be associated with more severe behaviour problems, indicating an important role of fathers in the development of conduct problems (Deklyen et al, 1998). It is likely that, when combined with other factors, harsh discipline increases the likelihood of childhood problems rather than acting as a risk factor on its own.

More recent research indicates a change in the style of discipline. A study of 1,353 Irish parents found that non-aggressive, inductive discipline strategies were most frequently used and that use of physical punishment was low (25 per cent of parents had used some kind of physical punishment) (Halpenny, Nixon & Watson, 2010). Views on corporal punishment were also explored in the study. A total of 42 per cent of parents stated that smacking should be illegal (Halpenny et al, 2010), indicating a lack of consensus. Non-Irish studies have found that younger children are more likely to experience physical punishment than older children, with physical punishment most common for toddlers and preschool children (Ghate, Hazel, Creighton, Finch & Field, 2003; Durrant, 2005). Similar findings were found by Halpenny et al in their study of discipline techniques used by parents in Ireland; children aged between two and four were more likely to experience physical punishment than older or younger children (Halpenny et al, 2010). An earlier study of working-class mothers of 18-month-olds living in Dublin in the late 1980s found that 93 per cent of the children had been smacked at least once (Greene et al, 1993), and a survey by Irish Marketing Surveys of 1,000 adults revealed that 86 per cent claimed to have been physically punished by their parents (IMS, 1993), so there is a strong indication that corporal punishment is being used less frequently than in the past. ***Growing Up in Ireland*** can track change in relation to levels and patterns in the use of disciplinary strategies, not only over time but also relative to age.

The parenting style scale used in ***Growing Up in Ireland*** measured warmth (6 items) hostility (6 items) and consistency (5 items). It was adapted from the Longitudinal Study of Australian Children.

4.3 RELATIONSHIPS WITH SIBLINGS AND PEERS, EXTENDED FAMILY, AND OTHER CAREGIVERS

4.3.1. WHAT IS THE NATURE OF PEER AND SIBLING RELATIONSHIPS AMONG IRISH PRESCHOOLERS, AND HOW INFLUENTIAL ARE THEY FOR POSITIVE SOCIAL DEVELOPMENT AND WELL-BEING?

Between the ages of two and five, major changes occur in how children understand emotions and mental states. Adult-child interactions are not the only source of social interaction affecting the social and emotional development of young children (Dunn, 1999). Negotiating peer interactions presents a strong challenge to the regulation of stress, especially when social skills are just developing during preschool and early school years. Children learn to regulate their emotions and behaviour as well as the mores of social interaction through sibling relationships (where this applies), wherein the siblings may or may not be equal partners, and through peer relationships, wherein children are usually equal partners. Children are more likely to spend more time with their siblings than with their fathers and perhaps even their mothers (Meadows, 2010). Siblings act as a major reference point and source of knowledge for each other and often influence social and behavioural development, including the development of child's personal identity. Sibling relationships are often uninhibited, highly emotional and intimate (Newson & Newson, 1976 in Meadows, 2010). Young children frequently imitate and learn from older siblings. Child-child relationships are therefore an important factor in social, emotional and behavioural outcomes by promoting discourse about social and emotional factors such as feelings, thoughts and beliefs. For example, children have been found to refer more to shared thoughts and ideas when talking with siblings and peers, and to refer more to personal mental states when talking with their mothers (Youngblade & Dunn, 1995).

The birth of siblings and the order in which a child is born are thought to have some impact on child development. The more intellectually developed first-born sibling may contribute to the development of the younger, less cognitively developed second-born, but this contribution changes as the second child grows older. First-borns may display hostility at the birth of a new sibling who takes up more of the parents' time and attention, while younger siblings may display feelings of inadequacy in comparison to more developed older siblings (Meadows, 2010). Individual differences among siblings also necessarily affect how parents interact with each child, resulting in potentially significant within-family differences in how children are parented and in the relationships between siblings (Meadows, 2010). Parenting styles may change not only between families but also between parents and children within families, which may result in a different context for child development within the same family environment. For example, there is some evidence that

the parent-child relationship differs between siblings, with maternal affect being more positive with the second-born than with the first, and with the second-born displaying more positive emotion than the first (Moore, Cohn, & Campbell, 1997).

Sibling relationships differ qualitatively from peer relationships. At 47 months, children are twice as likely to resolve conflict with peers through compromise or negotiation than with siblings (Brown, Donelan-McCall & Dunn, 1996). In a longitudinal study of individual differences in children's early understanding of others' emotions and mental states and later understanding of ambivalent emotions, 41 children aged 33 months were observed in interactions with close friends, and their socio-cognitive functioning was assessed. Early differences in social understanding were associated with later differences in pretend play with the friend, and friendship interactions at six years were linked to later appreciation of mixed emotions (Maguire & Dunn, 1997). Performance on tasks of affective perspective-taking and false belief has also been found to be significantly associated with connected communication between friends, where connected communication was assessed by totalling the length of time children spent together interacting, playing and pretending (Slomkowski, Cheryl & Dunn, 1996). However, it is not clear from studies such as that of Slomkowski et al whether effective social understanding aids peer friendship development or whether close friendship is responsible for better social understanding. In a developmental and ecological framework, it is considered most likely that influence is bidirectional and transactional, and therefore that child-child relationships play an important role in the child's social and behavioural outcomes.

Linking with data collected at Wave 1 of ***Growing Up in Ireland***, which included information on family size and the birth order of the Study Child, Wave 2 of ***Growing Up in Ireland*** will collect data on the birth of a new sibling(s), and also on how well the child relates to his or her siblings. Both the number of children in the Study Family and the position of the Study Child at the start of ***Growing Up in Ireland*** when the child was aged nine months can be examined with regard to social and behavioural outcomes at age three. This will allow some investigation of whether family size and birth order affect these outcomes in early childhood. The ease with which the child relates to siblings at age three may also be linked to current child outcomes and to future social and behavioural outcomes at a later stage in the cohort study. The measure of socio-emotional and behavioural outcomes (Strengths and Difficulties Questionnaire) contains questions about the child's relationships with peers, and data on these questions may be associated with emotional and behavioural outcomes measures.

4.3.2. HOW DO THREE-YEAR OLDS RELATE TO THEIR GRANDPARENTS AND MEMBERS OF THEIR EXTENDED FAMILY, AND HOW DOES THE QUALITY AND INTENSITY OF THESE RELATIONSHIPS RELATE TO CHILD OUTCOMES?

Grandparents may provide a strong influence on children's development (Smith & Drew, 2002). They may provide emotional support during familial stress, act as a secure attachment for young children where one or more parent is disengaged, or serve as a protective factor for the development of children of young mothers who may have inadequate parenting skills (Bornstein & Sawyer, 2006). Grandparents may also act as role models for the child's parents. The presence of grandmothers has been found to benefit young African-American mothers of low SES, who showed more positive and less harsh parenting behaviours when living with their mother than those who did not (Chase-Lansdale, Brooks-Gunn & Zamsky, 1994).

Although it will not be possible to examine the issue in the current phase of ***Growing Up in Ireland*****,** parenting patterns are shown to be passed down from generation to generation, and the parent's relationship and attachment with his or her own parents is linked to the parent's relationship with his or her child (Smith & Drew, 2002). A qualitative study of child-grandparent relationships of 20 families of Bangladeshi origin revealed bidirectional intergenerational learning between grandparents and children. Both grandparent and child supported each other in learning about novel things; touch was found to be an important aspect of the communicative interplay between grandparent and child (Kenner, Ruby, Jessel, Gregory & Arju, 2007). In the United States, it has been estimated that 11 per cent of grandparents are primary caregivers of children (Fuller-Thomson, Minkler & Driver, 1997); about 12 per cent of grandparents in the UK are thought to reside with their grandchildren (Baydar & Brooks-Gunn, 1998). The potential impact of grandparents on a child's

emotional, social and behavioural development should be of interest for policymakers. Influences can be direct: resulting from contact and face-to-face interaction; and indirect: mediated by other, indirect means.

One source of indirect influence of grandparents is via financial support. This may be particularly evident in a time of recession. Grandparents can provide not only financial but also emotional support to both parents and child; greater emotional attachment to grandparents is associated with fewer child adjustment problems (Lussier, Deater-Deckare, Dunn & Davies, 2002). Support with childminding is also an important contribution, as has been discussed in sections relating to childcare.

By collecting data on the frequency, intensity and nature of support between grandparent and child both at Wave 1 and Wave 2, ***Growing Up in Ireland*** will contribute valuable data on this important relationship in the lives of Irish children. Key questions that ***Growing Up in Ireland*** can address include: the nature of the role of grandparents in the lives of young Irish children, at nine months and three years of age; the support provided by grandparents to both parents and child, and the link between close grandparent contact during early childhood and child outcomes at age three. At Wave 2, data will also be collected on the extent to which grandparents provide childcare for parents. This data can be connected with child outcomes in socio-emotional and behavioural functioning at age three. The recession starting in 2008 may have had an impact on grandparents' roles in Ireland; anecdotal data has emerged on increased reliance on them for childcare at a time of high unemployment.

4.3.3 HOW DOES THE CHILD'S EXPERIENCE OF CHILDCARE INFLUENCE EMOTIONAL, SOCIAL AND BEHAVIOURAL OUTCOMES AT THREE YEARS OF AGE?

Childcare quality has been identified as a consistent predictor of cognitive and language skills (NICHD Early Child Care Research Network, 2002). In many but not all studies, these associations are stronger for children who are at risk for poorer outcomes (Burchinal et al, 2006). The positive link between good childcare and child cognitive outcomes seems to be especially strong for vulnerable children of low-income families and where there is a low level of parental education. For these children, experience of good childcare may help set up a positive trajectory for future academic achievement (Meadows, 2006).

While good childcare, with an emphasis on school-like activities and education-based activities, is linked with better cognitive and language skills, there is less consistent evidence for positive outcomes in social skills (NICHD, 2002). Children in childcare have been shown to have elevated levels of cortisol, more aggression, greater displays of anxiety, and poorer relationships with other students, but the effects are smaller in the case of good-quality childcare. The closeness of the teacher-child relationship may moderate the child's social outcomes in childcare (Peisner-Feinberg, Burchinal, Clifford, Culkin, Howes, Kagan et al, 2001). In a study of the long-term effects of early childcare on child development, Belsky et al (2007) found that parenting was a stronger and more consistent predictor of both cognitive and social development than early childcare experience. However, early experience of high-quality childcare at age four and a half predicted higher vocabulary scores at age 12 than the experience of poor childcare settings. Overall, early experience of centre-based childcare (before age three years) has been found to predict more teacher-reported externalising problem behaviours at 12 years of age, especially if the child had been in care for long hours, whereas non-centre-based childcare did not predict externalising problems (Belsky et al, 2007). Loeb et al (2005) also reported a negative effect of centre-based childcare on sociobehavioural outcomes. They found that these negative behavioural effects are greater if children start childcare when very young, and that these outcomes are not related to family income. The intensity (or the amount) of time spent in centre-based childcare also contributes to increased negative behavioural outcomes.

Thus, while children appear to benefit from childcare experience in terms of greater academic benefits, centre-based childcare may create particular problems for the child in the form of externalising problems later in development. An association between multiple childcare arrangements and child behaviour problems at ages two and three has also been found (Morrissey, 2009; NICHD, 2002). Mother and caregiver reports of behaviour for 850 two- and three-year-olds showed a related increase in behaviour problems and a decrease in prosocial behaviour with increased number of childcare arrangements. This negative relationship was found to be particularly strong for girls and younger children (Morrissey, 2009).

Detailed information regarding childcare provision for three-year-olds in Ireland will be collected at Wave 2 of ***Growing Up in Ireland***. This information will provide significant data on the type, intensity and quality of childcare received by preschool children in Ireland. A cross-sectional analysis of experience of childcare and socio-emotional and behavioural outcomes can also be made using the data provided at Wave 2. Information collected on the childcare experience of Irish children at ages nine months and three years may also be examined longitudinally in relation to child outcomes later in development. Wave 2 will also provide socio-economic data that can be linked to parental uptake of childcare services and the factors that affect the child's early experience of childcare.

Chapter 5

FACTORS INFLUENCING COGNITIVE AND LANGUAGE DEVELOPMENT AT AGE THREE

5.1. INTRODUCTION

Development in conceptual and linguistic functioning is rapid in the preschool years. Several factors have been shown to influence cognitive development during this time. Factors which affect cognitive development at three years of age include: (a) parenting behaviour and the practice of child-centred family activities; (b) the everyday childcare environment of the child, and (c) socio-economic status. Genetic contribution to cognitive outcomes is also a key factor but this is not measured in ***Growing Up in Ireland*** at this point, although the child's developmental status in infancy can be taken into account in analyses of the two sets of survey data.

This chapter begins with a review of the literature on each of these factors which affect cognitive development. The ways in which Wave 2 of ***Growing Up in Ireland*** permit research into each of these factors, and the assessments which will be used to measure conceptual and language development, will then be outlined.

At three years of age the child's knowledge and ability have already grown considerably. Despite many age-consistent misconceptions and errors in reasoning, children at this age are skilled and competent when they are given adequate contextual support (Gelman, 2006). Preschool children demonstrate mastery of a range of concepts that are similar to those of adults. They are able to form varied and subtle concepts, even those that do not depend on concrete and perceptually obvious properties, including concepts of causality, goals and purpose (Gelman, 2006). Between the ages of nine months and three years, children's language skills develop rapidly, with particularly considerable growth in lexical development. During this period of growth, the typical child's vocabulary will have grown from no words or one word at 12 months to at least 200 words at three years of age (Kuhl, 2007). Cognitive and language development are closely linked, and development in each related domain is integral to effective development in the other. Given the communicative function of language, it is not surprising that language development during this period is also highly influenced by developments in social functioning. Indeed, current research on child language acquisition highlights the critical role of social input and shared interaction in typical language development (Tomasello, 2003; Karmiloff & Karmiloff-Smith, 2001). Conceptual and communicative development has been shown to be sensitive to factors in the child's environment, including childcare, parental input and family context.

5.2. PARENTING STYLES

Most aspects of cognitive and language ability are estimated to be moderately heritable; the influence of genetic factors on cognitive ability is thought to be greatest during early and middle childhood (Deater-Deckard & Cahill, 2006). Despite the moderate to sizeable genetic variance found in studies of cognitive and language ability in childhood, the necessity for some level of environmental input and support is not disputed, and interventions have been shown to be effective in improving outcomes (Barnett, 1995).

Non-shared environmental influences (i.e. those environmental influences associated with children growing up in the same family differently rather than similarly) account for about half the variance in studies of cognitive ability, and their impact is found throughout childhood (Deater-Deckard et al, 2006). The quality of the parent-child relationship is an important environmental influence which is linked to child cognitive outcomes (Guralnick, 2006). The importance which parents attach to shared activities with their children has also been linked to child cognitive outcomes: parents who view these activities as important have been found to have children with better cognitive outcomes at three years of age (Growing Up in Scotland, 2009). The types of activities which children and parents engage in together are also shown to be important for positive cognitive outcomes (Bradley, Caldwell, Rock, Ramey, Barnard, Gray et al, 1989). Children acquire many mathematical concepts in informal settings, and parental engagement in informal activities with the child may promote mathematical thinking (Ginsburg, Cannon, Eisenband & Pappas, 2006). For example, shared tasks like reading from storybooks and playing board-games where mathematical concepts are explored through numbers and size ratios may provide an important source of knowledge and practical learning for the young child. Block play may provide the child with opportunities to engage in mathematical activity, such as making symmetrical constructions in three dimensions (Hewitt, 2001). Counting and checking games have also been advocated as effective and enjoyable tools in teaching addition and subtraction in early childhood (Zur &

Gelman, 2004). Playing number games and modelling counting advances the child's development of simple mathematical skills. Reading to children throughout childhood is linked with fewer reading problems (Meadows, 2010) and amounts of reading to and talking to young children have been found to be positively correlated with cognitive achievement.

Research indicates a deleterious effect of television viewing before the age of three on child outcomes. It is recommended that children under the age of two should not view television (American Academy of Pediatrics). Several studies have found negative associations between television viewing during early childhood and child outcomes (Zimmerman & Christakis, 2005; Manganello & Taylor, 2009). Television viewing before the age of three, and from age three to five, has been linked with adverse cognitive outcomes (Zimmerman et al, 2005). However, the effects of viewing are moderated by parental involvement as well as by the content viewed.

Parent-child joint activity is associated with positive outcomes for child language development. Joint attention and social-communicative interaction are considered critical for language development (Tomasello, 2003; Karmiloff & Karmiloff-Smith, 2001). It has been hypothesised that social interaction is essential for natural speech learning; it is argued that social processes in the brain are associated with the mechanisms involved in language acquisition (Kuhl, 2007). The type and quality of socio-communicative interaction is important. The use of a wide variety of more sophisticated words, which introduce new concepts and logic to the child, is clearly associated with positive language outcomes (Guralnick, 2006).

Parental mental health may be another factor in the child's relationship with others, which affects child cognitive outcomes. Post-partum depression has been found to have a modest, negative effect on cognitive outcomes, with boys at greater risk for adverse outcomes than girls (Grace, Evindar & Stewart, 2003). These effects are most likely mediated through parenting behaviours and are most likely to be greater if the parent suffers from chronic or recurrent depression (Grace et al, 2003).

Wave 2 of the ***Growing Up in Ireland*** Infant Cohort will involve collecting data on the types and frequency of joint activities between parent and child. The joint activities measured include language and literacy-type activities such as reading, learning the alphabet and learning songs, and cognitively stimulating activities such as counting, playing board games, painting and drawing. Research indicates that all of these activities are important in increasing school-readiness. ***Growing Up in Ireland*** will provide data to assess the extent to which the parental initiation of these types of behaviours is linked to cognitive and language outcomes in Irish children at three years of age. Data on the amount of television viewed by Irish children at age three will also be collected and this can be examined with regard to cognitive ability at this age.

Cognitive ability in the second wave of data collection when the child is three years of age will be measured using two sub-tests from the British Ability Scales Second Edition (BAS II): (1) the Naming Vocabulary task and (2) the Picture Similarities task. The BAS is designed to assess cognitive development in children aged 2:6 years to 7:11 years. The Naming Vocabulary task, with a total of 36 items, is an assessment of expressive language ability in which the child is shown a picture and asked to say its name. The Picture Similarities task, with a total of 33 items, is an assessment of nonverbal reasoning ability. During this task, the child is shown a row of four pictures, given a card with a fifth picture, and asked to place the card under the picture with which the card shares an element or concept. To reduce participant burden and to avoid children being upset by the experience of repeatedly failing items, the number of items asked of each child in both tasks is dependent on their performance.

5.3. PRESCHOOL EXPERIENCE

Throughout early childhood, a large number of children will experience centre-based childcare. By three years of age, many children will have experienced childcare aimed specifically at providing school-specific experience and increasing school readiness. Much research has been conducted on the impact of early childcare and preschool experience on the socio-emotional and behavioural outcomes of young children. Childcare and preschool centres also significantly affect cognitive and language development. Longitudinal studies indicate a modest long-term effect of high-quality early childcare on cognitive development in young school-aged children (Loeb, Bridges, Bassok, Fuller & Rumberger, 2007; Hansen & Hawkes, 2009), especially for children from at-risk backgrounds (particularly in terms of maternal education but also in terms of low income) (Peisner-Feinberg, Burchinal, Clifford, Culkin, Howes, Kagan & Yazejian, 2001; Hart & Risley, 1995). The quality of childcare experience has been found to moderate the link between childcare experience and good cognitive outcomes, with higher-quality childcare typically more associated with better outcomes. Quality of childcare during early childhood is linked to greater vocabulary size (Belsky et al, 2007), and higher reading and maths scores (Loeb et al, 2007). In particular, experience of adult talk at home and in childcare settings is a strong predictor of vocabulary development, which in turn is a strong predictor of reading skills. Centre-based childcare may therefore act as an effective intervention for children from disadvantaged backgrounds who may not experience a rich verbal environment at home (Hart & Risley, 1995).

The type of childcare experienced by children at nine months is also associated with cognitive and other child outcomes at three years. Grandparents are a common source of childcare for families in Ireland and other countries. In Wave 1 of ***Growing Up in Ireland,*** grandparents were found to be the most common type of provider of non-parental childcare for nine-month-old infants (12 per cent of the children in the study were minded by a grandparent). Using data from the Millennium Cohort Study, researchers found that grandparent care was positively associated with vocabulary test scores but was also linked with problem behavioural scores at three years (Hansen & Hawkes, 2009). These positive outcomes for language were found only for children in more advantaged families (i.e. mostly two-parent families with a higher income and highly educated mothers). Children in informal childcare arrangements, where such care was provided by a grandparent or friend, were more likely to have difficulty getting along with other children (Hansen et al, 2009). In contrast, the study found a positive association between experience of formal group care at nine months and school readiness test scores at three years, and no association between formal group care and problem behaviour (Hansen & Hawkes, 2009). These findings suggest that the quality and type of childcare provision is important for child outcomes, and that more support is likely to be needed for grandparents in order for them to provide the optimal childcare experience for children at this age. Grandparents provide a valuable service for their children and their families (Share & Kerrins, 2009). Policy may be needed to ensure that grandparents have the necessary supports to provide best possible care for these children. At Wave 2, ***Growing Up in Ireland*** will be able to link experience of types of childcare at nine months and three years with child outcomes at age three, including cognitive outcomes, and examine whether the type and quality of childcare is linked with these outcomes.

The age at which children experience childcare moderates the effects of childcare on child cognitive outcomes, with best outcomes found for children who start childcare between the ages of two and three (Loeb et al, 2007). For example, experience of 30 hours or more per week of childcare during the child's first nine months is linked to poorer school readiness skills at 36 months (Brooks Gunn, Han & Waldfogel, 2002).

Growing Up in Ireland is in a unique position to chart the effects of childcare experience during the child's first three years on cognitive outcomes at three years of age. Data collected at Waves 1 and 2 provide critical data on preschool experience that can be associated at a later stage with cognitive development and academic achievement during the child's school years. At Wave 2 of the cohort study, data on the type, intensity and quality of childcare, and on the factors which shape parental choice of childcare, will be collected, including shifts between care options. This will significantly contribute to knowledge about the effects of childcare experience on the cognitive development of children living in Ireland.

5.4 FAMILY INCOME

The type and extent to which parents share activities with young children is linked with socio-economic status (SES). However, SES in its own right has been linked with cognitive outcomes in young children (Brookes-Gunn et al, 1997). SES is a fairly good predictor of academic achievement (Bradley & Corwyn, 2002) with people of lower SES at greater risk of adverse outcomes. SES comprises a combination of factors, including a measure of parental employment, income, education and social status. It is unlikely that SES itself is a causal variable in child cognitive outcomes but rather that it impacts on child outcomes by affecting family support and resources, parental stress and relationships, and parenting behaviour. SES may also affect cognitive outcomes through inequalities in access to health services and quality education, and therefore has longer-term consequences for several child outcomes such as school readiness, early school learning and access to university.

Correlations between SES measures and outcomes are typically significant but are usually not very high; caution is warranted in assessing the particular role of SES in child outcomes (Meadows, 2010). For example, Seo and Ginsburg (2004) videotaped children of all SES backgrounds during free play, coding for pattern and shape exploration, magnitude statements, and enumeration or numerical judgement; no significant differences in mathematical activity based on SES were found. Parenting has been identified as one of the most likely causal mechanisms of the association between low income and child cognitive outcomes. That is to say, that responsive and sensitive parenting and parenting that is cognitively stimulating may serve as a protective factor in mediating cognitive outcome in children from impoverished families (Burchinal, Roberts, Zeisel, Hennon & Hooper, 2006; Lugo-Gil & Tamis-LeMonda, 2008). The child's language skills may also serve as a protective factor for children who are exposed to multiple social risks during early childhood, with findings that social risk is a weaker predictor of poor cognitive outcomes if the child has more responsive and sensitive parents or care providers, or has stronger language skills on starting school (Burchinal et al, 2006). Poor language skills at the time the child is entering school may reflect early exposure to risk in low-income families where language stimulation and learning resources are inadequate. As language skill is critical for learning in the classroom, inadequate language skills may mediate poverty effects on academic outcomes in school-aged children (Burchinal et al, 2006).

Poverty clearly affects the child's cognitive and language development through many pathways. It is, therefore, important to be aware not only of the impact of poverty on cognitive development in the development of child education policy, but also of the mechanisms through which poverty affects child outcomes. Most importantly, there is a lot of evidence that the adverse effects of poverty on cognitive and language development can be mediated by certain protective factors such as responsive, stimulating parenting and high-quality childcare. Interventions which target and facilitate the development of these protective factors through parenting and childcare are constructive and attainable targets for policymakers in child education.

Growing Up in Ireland will further contribute to research on this important factor in child cognitive development by collecting data on the SES of children growing up in Ireland and linking this data with measures of reasoning and verbal ability at three years of age. Changes in the financial and employment circumstances of families since Wave 1 of ***Growing Up in Ireland*** can also be measured and linked to developmental outcomes in conceptual and language functioning at the second wave of the study. A future wave of data collection when the children are five years of age would contribute significantly to information on important predictors for cognitive outcomes, such as environmental and socio-demographic variables. The period from 2008 has seen considerable economic and social upheaval in Ireland. ***Growing Up in Ireland*** is in a pivotal position to measure the effects of social and economic change on child outcomes.

Chapter 6

CHILD CHARACTERISTICS AND THEIR INFLUENCE ON CHILDREN'S DEVELOPMENT

6.1 INTRODUCTION

Several factors in the ecological system of the developing child, including psychosocial, sociodemographic and environmental factors affect child outcomes and child development. However, the child also plays a critical role in shaping some of his or her own developmental outcomes. This chapter reviews literature on the personal characteristics of the child which contribute to developmental outcomes. Individual differences in child temperament, for example, affect adult-child relationships and interact with other variables to contribute enormously to individual developmental pathways (Hinshaw, 2008; Bornstein & Sawyer, 2006). Specifically, this review focuses on child temperament and gender as important child characteristics impacting on child development. Contemporary research findings on each of these child characteristics are reviewed, and the ways in which Wave 2 of ***Growing Up in Ireland*** can contribute to existing research are then outlined, particularly how ***Growing Up in Ireland*** can assist in understanding the role of temperament and gender in Irish children's development.

6.2 TEMPERAMENT

Temperament may be defined as biologically based individual differences in behavioural tendencies which present early in life and remain relatively stable across contexts and time (Meadows, 2010). Temperament is instrumental in guiding emotional and behavioural adaptation (Martin & Fox, 2008), is thought to be linked to an individual's genetic endowment (Posner, Rothbart & Sheese, 2007), and is closely linked to the development of the child's personality (Rothbart, 2007). It is involved in the development of attention, behavioural self-regulation and emotional regulation processes, and is related to successful adjustment in academic, social and personal situations (Martin & Fox, 2008; Sanson, Hemphill & Smart, 2004). The child's temperament is therefore clearly visible at three years of age and contributes greatly to emotional, social, behavioural and cognitive outcomes. One interesting finding is the stability of temperament from early childhood onwards. It is a significant factor in child outcomes, both by mediating developmental processes and by moderating the effects of environmental and interpersonal factors which affect development (as discussed in Chapters Four and Five).

6.2.1 WHAT IS THE LINK BETWEEN TEMPERAMENTAL CHARACTERISTICS AND DEVELOPMENTAL OUTCOMES?

Temperament characteristics are shaped by both environmental and biological influences, and can be described in terms of three broad aspects: (1) reactivity or negative emotionality; (2) self-regulation, and (3) approach-withdrawal or sociability (Sanson, Hemphill & Smart, 2004). Temperament is a significant source of individual difference affecting child development, and is closely linked with personality development (Rothbart, 2007). Temperament during early childhood is linked to more aggression and poor social functioning at later ages (Kagan, 1994) and may act as a vulnerability or protective factor for both internalising and externalising problems (Tschann et al, 1996).

Given the biological basis of temperament, it is not surprising that some dimensions of temperament are linked to particular patterns of physiological responses throughout development (Zentner & Bates, 2008). When faced with unfamiliar people and situations, two-year-olds who responded with distinct patterns of avoidance and distress showed physiological signs of stress at age seven and more avoidance and distress behaviours. Two-year-olds who showed minimal avoidance or distress in unfamiliar situations also tended to preserve these behavioural dispositions and exhibit less physiological signs of stress. Four-month-old infants rated as highly reactive were three times more likely to develop anxiety symptoms by the age of seven than infants rated as low-reactive (Kagan, Snidman, Zentner & Peterson, 1999, in Zentner et al, 2008). In adolescence, these highly reactive children also tended to report more frequent bouts of sadness, and showed distinct physiological signs of stress (Kagan, Snidman, Kahn & Towsley, 2007 in Zentner et al, 2008).

While an inhibited temperamental style is linked to internalising disorders and poor emotional and behavioural outcomes, behavioural inhibition may serve as a protective factor against the development of externalising problems. Externalising behaviours bring a host of problematic outcomes for child

development; inhibition may protect the child from the problems associated with over-exuberance. However, protection from externalising problems is likely to be at the cost of vulnerability to developing internalising problems (Martin & Fox, 2006).

In contrast to an inhibited temperament, exuberance and high levels of reactivity are associated with increased conduct problem behaviours, including aggression and antisocial behaviour (Frick & Morris, 2004). In a longitudinal study of the relationship between temperament, conflict, maternal affect and externalising behaviours, emotional and behavioural under-control at age two predicted externalising problems at age four. The strength of the relationship between conflict-aggressive behaviour at age two and externalising problems at age four was related to the toddler's emotional and behavioural regulation as well as exposure to maternal negativity. The study also found that the relationship between conflict-aggressive behaviour at age two and externalising problems at age four was strongest among children who were exposed to higher levels of maternal negativity (Rubin, Burgess, Dwyer & Hastings, 2003). The child's temperamental style may impede emotional regulation and lead to conduct problems either: (a) directly by encouraging physical aggression in arousing situations, leading the child to behave recklessly; or (b) indirectly by negatively affecting social interaction, impeding the development of the child's conscience and sense of guilt and empathy (Frick & Morris, 2004). A lack of fearful inhibition has been linked to the abnormal development of empathy and guilt, with many antisocial adolescents showing a significant deficit in conscience development and exhibiting fearless temperament (Frick & Morris, 2004).

Extreme temperament styles may make difficult the successful negotiation of developmental milestones in social, emotional and behavioural functioning, but they do not make success impossible. There are many pathways to development, and these pathways are not immutable (Hinshaw, 2008). However, much research has been carried out on the continuity of temperament across development; some aspects of early child temperament have been found to typically remain consistent. In a small sample longitudinal study of 63 children, Pfeifer et al (2002) found that the majority of children who had been initially classified as either extremely inhibited or extremely uninhibited at age 32 months retained their temperamental classification at ages four and seven. Inhibited children were rated as the shyest at age seven, and uninhibited children as the boldest and most impulsive. Children in the intermediate group were most likely to change in temperamental classification. This was true for both maternal report on questionnaires and laboratory-based measures. In a study of the stability of temperamental exuberance across early childhood and associations between exuberance and socio-emotional outcomes, Degnan et al (2011) found a high-exuberance profile to be moderately stable across infancy and toddlerhood. Children with an exuberant temperament are characterised by high levels of positive affect, sociability and approach behaviour; the study found that this profile was associated with greater ratings of externalising behaviour and surgency by parents, and more observations of social competence and externalising problem behaviours, at five years of age (Degnan, Hane, Henderson, Moas, Reeb-Sutherland & Fox, 2011). A high-exuberance profile, therefore, is a potential risk factor for conduct problems, but may be a protective factor in aiding social competence and a willingness to engage with others. Several factors may affect temperamental continuity over time, including parenting and childcare factors (Fox, Henderson, Rublin et al, 2001), some of which will be explored in the next section.

The child's attention processes are closely linked with temperament. Feelings of fear, frustration, discomfort and high-intensity pleasure are linked to measures of attentional control (Derryberry & Rothbart, 1988), and attention processes may play a large mediating role in the effects of environment on child outcomes. Longitudinal research on the role attention processes play in mediating the effects of family environment on academic and social outcomes suggests that the ability to maintain sustained attention partially accounts for the effects of the family environment on child academic and social outcomes, and that impulsivity partially accounts for the link between family context, cognitive and social outcomes, and externalising behaviours (NICHD Early Child Care Research Network, 2003). The ability to sustain attention is also thought to mediate parent-child relationships and social outcomes (NICHD Early Child Care Research Network, 2009).

Wave 2 of ***Growing Up in Ireland*** will include a measure of child temperament at three years of age, using items adapted from the Australian Temperament Project (used in the Longitudinal Study of Australian

Children). Outcomes on this measure can be connected to current social, emotional and behavioural functioning as assessed using the Strengths and Difficulties Questionnaire. Longitudinal analysis of the link between temperament at nine months and socio-emotional and behavioural outcomes at three years, and stability of temperament between nine months and three years, can also be conducted at this stage of the cohort study. Potential interaction effects of parenting practices and the child's ability to sustain attention (as rated through the temperament measure at Wave 2) on child outcomes at three years of age may also be investigated at this stage of the study.

6.2.2 HOW DO THE CHARACTERISTICS OF THE CHILD, SUCH AS TEMPERAMENT, INFLUENCE PARENTING AND FAMILY DYNAMICS?

The temperament of the child may have a significant impact on the parent-child relationship. It is an important moderator of the effect of parenting style on child outcomes (Stright, Gallagher & Kelley, 2008). Parent-child interaction is reciprocal, and child temperament in early childhood may strongly influence the quality of parent-child interaction (Clark, Kochanska & Ready, 2000). Parental perception of child temperament may alter parenting behaviours (van den Boom, 1989; Keener, Zeanah et al, 1988), influence parental investment in a child (Lengua & Kovacs, 2005), and affect the development of secure attachment (Putnam, Sanson et al., 2002; van den Boom, 1994). Much of this research on temperament highlights the moderating role of temperament in child development, and it has been found to significantly moderate parenting effects on emotional, social and behavioural outcomes.

Inhibition has been found to remain relatively more stable over time for boys than girls. It has been suggested that this may also be due to parental socialisation effects (Stevenson-Hinde, 2000). Parents may be overly solicitous regarding inhibited sons but find inhibition more appropriate in daughters. This lack of interference in relation to inhibited behaviour may leave girls more open to the influence of other factors in the child's environment, which may, in turn, affect their behaviour. Thus the expression of certain dimensions of temperament may affect parenting if this temperament is perceived as atypical for one gender. Temperament may, therefore, moderate parental behaviour towards the child (Martin & Fox, 2006). Findings that negative reactivity during infancy is positively related to social reticence at age four for boys but not for girls has also been suggested as supportive of the idea that caregivers interact in qualitatively different ways with highly reactive sons and daughters, and that socially withdrawn and highly reactive boys may have more negative and less engaging experiences with caregivers than girls who exhibit the same temperament style (Henderson et al, 2001).

Much of the above research on temperament points to the likelihood of both parent-to-child effects and child-to-parent effects. Parental over-control and over-protectiveness have been linked with child inhibition, and are theorised to reinforce social wariness and foster the development of peer withdrawal (Rubin & Stewart, 1996, as cited by Sanson et al, 2004). Over-protective and over-indulgent parenting has been found to exacerbate temperamental inhibition in young children (Rubin, Hastings, Stewart, Henderson & Chen, 1997), most likely by negatively affecting the development of adaptive self-regulating strategies. However, maternal positive affect and responsiveness can benefit the child's level of regulatory development (Kochanska, 1997). Similarly, quality of maternal care influences child adjustment to stressful experiences, and poor attachment and unsupportive maternal care has been linked to elevated levels of cortisol during stress responses in children already predisposed to high levels of frustration and anxiety (Gunnar et al, 1996).

Wave 2 of ***Growing Up in Ireland*** will provide data which will allow for both longitudinal and cross-sectional analysis of the link between child temperament and parenting and discipline style. Potential questions which can be answered at this stage of the cohort study include: What is the relationship between the child's temperament at age three and parenting style during infancy? Does temperament change during early childhood, and are these changes linked to socio-emotional and behavioural outcomes at age three? How does parental mental health during early childhood affect child temperament and socio-emotional and behavioural outcomes in early childhood? Equally interesting are the ideas regarding differential susceptibility of children; it may be that parenting matters more for child outcomes for children with certain temperamental characteristics.

6.3 CHILD GENDER

6.3.1 IS CHILDREN'S GENDER LINKED WITH CHILD OUTCOMES?

Gender differences have been reported in cognitive ability, levels of aggression and aspects of temperament. At age three, girls have been found to perform better than boys on tests of conceptual and language ability (Hansen & Joshi, 2007). Boys have been shown to exhibit higher rates of aggression and externalising problem behaviours in preschool years and throughout the lifespan (Cote, Vaillancourt, Leblanc, Nagin & Tremblay, 2006). Gender differences have also been found in measures related to temperament such as positive affectivity (de Boo & Kolk, 2007), and attention regulation and extroversion (Else-Quest et al, 2006), and findings from the Millennium Cohort Study indicate better behavioural adjustment for girls at ages three and five (Schoon, Cheng & Jones, 2010).

Children's gender has been found to influence development by eliciting differential responses from parents and family, and by influencing how children respond to their environments (Vallotton, Harewood, Ayoub, Pan, Mastergeorge & Brophy-Herb, 2011). Research suggests that children's gender moderates the effects of other variables on development, such as parenting and child temperament. For example, parental stress may affect boys' language development more than girls', and maternal stress has been linked with negative effects on boys' behavioural development (Magill-Evans & Harrison, 2001). Parental stress over financial difficulties is linked to less nurturance in the parent-child relationship, and this has been shown to negatively affect self-confidence, and peer and academic adjustment for both boys and girls (Conger, Conger, Elder, Lorenz, Jr., Simmons & Whitbeck, 1993). However, while the effects of parental stress appears to be mediated by the parent-child relationship characteristics for boys, it seems to have a direct effect on girls (Conger et al, 1993), indicating that the processes through which parental stress affects boys and girls are different (Vallotton et al, 2011).

Although sex differences in intelligence are thought to be negligible (Hyde, Fennema & Lamon, 1990), boys are more likely to have cognitive problems and language delays; this is associated with higher rates of oppositional behaviour and attention problems for boys (Barkley, Shelton, Crosswait, Moorhouse, Fletcher, Barrett et al, 2002). Sex differences in expressive language development have been found, however; girls are more likely to produce language earlier than boys despite equal language input from parents to infants of both sexes (Karmiloff & Karmiloff-Smith, 2001. The finding that boys are less likely than girls to perform well at school and more likely to have language delays may be associated with the finding that boys show higher rates of oppositional behaviour and attention problems (Barkley et al, 2002). For example, ratings of behavioural problems of nine-year-old children in Ireland in the ***Growing Up in Ireland*** Child Cohort by both mothers and teachers revealed higher ratings of conduct and hyperactivity problems and more peer relationship difficulties for boys (Williams, Greene et al.,2009). Conversely, girls were rated as having more emotional symptoms but were also rated as more prosocial (Williams et al, 2009).

Much of the research on gender differences points to gender as a moderator of the relationship between temperament and behavioural outcomes. In a study of 211 four- to six-year-old Australian children and Turkish children living in Australia, child persistence was found to influence prosocial behaviour for Australian children, with girls demonstrating more persistence than boys (Yagmurlu & Sanson, 2009). In this study, gender differences in social outcomes were linked with differences in child persistence; this may be due to children's increased attention regulation and an ability to maintain focus (Yagmurlu et al, 2009). Research suggests that gender also moderates the influence of parenting on emotional and behavioural outcomes (Bezirganian & Cohen, 1994). Generally, externalising behaviour problems such as aggression are more evident in preschool children. Further, significant sex differences may arise through socialisation and cultural standards, especially in societies that promote gender-specific roles and behaviour (Meadows, 2010). In a meta-analysis of gender differences in the temperament of children aged three to 13 years, Else-Quest, Hyde, Goldsmith & Van Hulle (2006) found: (1) that girls demonstrated a greater ability to regulate attention and impulses than boys; (2) evidence of negligible gender differences in level of negative affectivity, and (3) evidence of very small gender differences in measures of surgency (high levels of positive affect) or extroversion.

There is evidence that even the most robust finding of gender differences in behavioural outcomes – namely in the expression of aggression – disappears in contexts where gender norms are minimised (Lightdale & Prentice, 1994), and stable behavioural patterns, such as aggression, may prove quite malleable in early childhood depending on the interaction between child temperament and socialisation factors in the child's environment (Rubin, Burgess, Dwyer & Hastings, 2003).

Given the research evidence for gender as a moderating rather than mediating factor in social, emotional and behavioural outcomes, it will be interesting to see if ***Growing Up in Ireland*** reveals significant gender differences in outcomes for three-year-old Irish children. Gender differences in health, temperament and developmental skills at nine months (Williams, Greene, McNally, Murray & Quail, 2010) and in health, socio-emotional and behavioural outcomes at nine years (Williams et al, 2009) were found in both ***Growing Up in Ireland*** cohorts. Exploration of the data collected at three years will further contribute to knowledge of patterns of gender differences throughout childhood. By collecting comprehensive data on child functioning in cognitive, social, emotional and behavioural domains, as well as validated measures of child temperament, Wave 2 of ***Growing Up in Ireland*** will be able to longitudinally examine the potential moderating effects of gender on early child outcomes.

Temperament and gender provide just two examples of child characteristics that can play a part in the child's contribution to his or her own developmental pathways and outcomes. Other factors, such as verbal ability and social skills, will also be amenable to analysis using the ***Growing Up in Ireland*** data.

Chapter 7

CONCLUSIONS

7.1 UNDERSTANDING MORE ABOUT THREE-YEAR-OLDS IN IRELAND

The survey at age three will add substantially to knowledge about three-year-olds and their families in Ireland. The information reviewed in Chapter Two reveals a very patchy picture of the lives of three-year-olds; this can be filled out by the findings from the ***Growing Up in Ireland*** Infant Cohort's nationally representative sample. The ***Growing Up in Ireland*** survey has several major strengths, at least three of which are evident even when the data are being used only cross-sectionally.

The first of these strengths is that the perspective on the child and the choice of data to be collected reflect a comprehensive or holistic picture of child development. Thus, unlike in previous more narrowly focused studies of children in Ireland, it is possible to place the subject under scrutiny into a wider context and to link it to other features of the child's life and context, thereby advancing understanding of causality and relationships. Thus, taking an example from the Child Cohort, bullying can be related to the child's physical health, showing for the first time the strong connection between bullying and chronic illness, and opening the way to further understanding of how that relationship works (O'Dowd, 2010).

The second strength is the use of multiple informants, again reflecting the ecological, holistic perspective and the recognition that many key people influence the child and know about his or her development, not just the child's mother.

The third strength is that for the first time there is a dataset on three-year-olds in Ireland that is nationally representative, and presents a picture of how all children are faring and an accurate assessment of the numbers doing well and the numbers doing less well across a wide range of key dimensions of development. Researchers and policymakers can use the ***Growing Up in Ireland*** data to identify norms by which to compare the development of sub-groups of similar-age children. Lack of normative data has been a major handicap to researchers in the past.

Growing Up in Ireland data analysed today present a generally very positive picture of how Irish children are faring and this is an important finding, particularly in global terms. However, it is important not to lose sight of the minority, even if it appears to be very small. In the ***Growing Up in Ireland*** sample of 9,793 three-year-olds, 1 per cent represents 98 children, translating to an estimated 700 in an age cohort of just over 70,000. An important approach to analysis enabled by the comprehensiveness of the ***Growing Up in Ireland*** data is to look across vulnerabilities in order to identify the children who have multiple problems in several facets of their lives and so to enhance our understanding of resilience and focus on those children in need of the most support.

Many of the questions that the survey data can address will be cross-sectional and, now that there are two data waves, many are concerned with changes over time in the early years of the child's life. A selection of the possible questions addressing both cross-sectional and developmental issues has been outlined in the previous chapters.

7.2 LINKING THE INFANT AND AGE THREE WAVES

A further strength of ***Growing Up in Ireland*** is that it is a longitudinal study, so it will be possible to link data from the nine-month survey to the data gathered when the children are three. This will be the first time in Ireland that data collected on a nationally representative sample of infants has been followed up into the early preschool period. It will be possible to examine outcomes at age three for a number of early life events and conditions that have been shown in other studies to have either positive or negatives outcomes. For example, breastfeeding is shown to be related to good health outcomes for children, in both the long and short term, and it is national policy in Ireland to promote it (Department of Health and Children, 2005). Breastfeeding has also been shown to relate to children's intellectual performance, even when other variables have been taken into account (Anderson et al, 1999). Once the data on three-year-olds are analysed, it will be possible to look at a range of outcomes related to whether or not the child was breastfed, and for how long. Turning to a known risk factor, being of low birth-weight – whether the child is premature or small for the specific date – is associated with a higher level of poor outcomes (Taylor et al, 2000). However

some recent studies indicate that the impact of low birth-weight diminishes over time and that any persisting negative outcomes are likely to be associated with very low birth-weight only (Boardman et al, 2002). ***Growing Up in Ireland*** will be able to contribute to this debate by examining outcomes and correlates in the infant sample, in which 5 per cent of the children were classified as low birth-weight (under 2.5 kgs). Contextual variables mediate the associations between birth-weight and outcomes, and it is important to understand how such relationships operate in the Irish context.

On the basis of well-founded data it is possible to develop more effective policies and programmes. For example, it may be possible to target information about and support for breastfeeding to those women who most need it, and to understand more fully both the impediments to and facilitators of breastfeeding success.

7.3. DEVELOPMENT AT AGE THREE AND LATER OUTCOMES

Ideally, ***Growing Up in Ireland*** data collection will extend beyond two data waves per cohort. In relation to the Infant Cohort, the two waves of data are recording the infant and early childhood experience and development of over 11,000 children. The events in their lives and key influences on their development in the first three years of life have all been comprehensively assessed. Thus the data collected to date provide a strong foundation for a longer-term longitudinal study that will track the children through childhood and beyond. There are many examples internationally of such studies.

Recent studies that follow children from infancy into the school years include: the Millennium Cohort Study in the UK; the Longitudinal Study of Australian Children; Growing Up in Scotland; the National Longitudinal Study of Children and Youth in Canada, and the Early Childhood Longitudinal Study in the USA. There are many more across the globe. The investment in these studies has been made because of the value of the data they generate to policymakers, practitioners and researchers.

Recent years have seen a renewed awareness of the importance of experiences in the early years to later development – an awareness that has a very long history, as such statements as the following, from Plato, indicate: "*And the first step … is always what matters most, particularly when we are dealing with the young and tender. This is the time when they are taking shape and when any impression we choose to make leaves a permanent mark."*

The importance of the early years in life has been recognised by psychology theorising since the discipline was first established at the turn of the 20th century (Kagan, 1998). More recently, strong views on the importance of the early years have been expressed by economists such as Heckman and Masterov (2007) and by neuroscientists such as Knudsen (2004). Their views have moved beyond academic circles to become very influential in policymaking as it impinges on the years 0-5. Intervention studies, laboratory-based studies of animals and natural experiments such as those offered by the sad experiences of Romanian orphans add to the accumulating knowledge on the impact of the early years (Shonkoff & Phillips, 2001; Rutter et al, 1998). Although these recent studies on the early years are evidence-based, their interpretation is not without contention (Bruer, 1999).

Longitudinal studies such as ***Growing Up in Ireland*** are well placed to track the long-term impact of early experiences and to examine the effects of later-emerging influences and the importance of factors like timing and duration.

7.4. POLICY ISSUES RELEVANT TO CHILDREN AGED THREE

Growing Up in Ireland is described as a policy-driven study. The Department of Children and Youth Affairs website states: "***Growing Up in Ireland*** data contribute to the setting of effective and responsive policies relating to children and to the design of services for children and families" (www.dcya.gov.ie). The use of the ***Growing Up in Ireland*** data for such purposes is explicitly encouraged by the Department (www.dcya.gove.ie/documents/childcare/Growing_up_in_Ireland, 2011).

To illustrate the possible uses of ***Growing Up in Ireland*** data in the current policy context, a number of policy issues relevant to the lives of three-year-olds is outlined below. There are other current issues and new issues emerge all the time, so the list of issues is not definitive.

7.4.1. CHILD BENEFIT

Ireland has for some time adhered to a policy of giving generous and universal Child Benefit directly to parents. At the onset of the economic recession, the rates were cut, and discussion on the viability of continuing a policy of universal provision was renewed. The argument against universal provision is that in straitened times money should be directed towards those most in need, but there are other issues in relation to child benefit such as whether it should be taxed, extended, maintained as a buffer against recession etc (Department of Social Protection, 2011; End Child Poverty Coalition, 2011). ***Growing Up in Ireland*** will identify which families are most in need and how the lack of economic resources affects child outcomes, thus providing evidence about the contribution of extra income to families of different types and sizes.

7.4.2. IMPACT OF THE RECESSION

Parents will be asked whether or not they have difficulty in making ends meet. It is anticipated that, given the decreasing employment and increasing economic hardship that began around 2008, the percentage that are in difficulty will be high. The same question was asked when the infants were nine months old so it will be possible to track the increase or decrease in numbers reporting difficulty. It will be possible also to link parental perceptions of financial strain to their wider circumstances and their income level. Such information will be a very useful addition to the accumulating evidence on how the recession has affected families and children. It will be informative on the question as to whether the recession has had a disproportionate effect on some families and, if so, why this should be the case. Parents of three-year-olds are also asked directly about their perception of the effects of the recession on their family.

Growing Up in Ireland uses a very similar measure to EU-SILC for calculating relative income poverty and consistent poverty. It will be possible to examine changes in levels of child poverty as assessed using these household-focused measures. This will identify changes in poverty status from nine months to three years and the correlates of such status changes. For children, it is known that the length of time spent in poverty, as well as the age at which poverty is experienced, is an important variable in relation to longer-term outcomes (Nolan et al, 2006). The ***Growing Up in Ireland*** findings will be of direct relevance to the policies enshrined in the *National Action Plan for Social Inclusion*, 2007-12.

Growing Up in Ireland data on poverty will also feed into the discussion on the measurement of child poverty centred on the reality that current government targets are based on household-centred rather than child-centred forms of measurement (Whelan & Maitre, 2011; Swords et al, 2011).

A consultation held by the Department of Social Protection in 2011 collated the views of many different organisations on child income support measures and their role in reducing child poverty, set out in a report on value for money in child income supports and associated spending (Department of Social Protection, 2011). All concerned appeared to be acutely aware of the difficulty of introducing reform measures in line with the framework for the development of social policies in Ireland, *The Developmental Welfare State* (National Economic and Social Council, 2005), at a time of austerity, but the need for review and reform was nonetheless seen as pressing. The use of ***Growing Up in Ireland*** data to provide evidence on how child wellbeing relates to child income support was mentioned in the report of the consultation seminar.

7.4.3. CHILDREN'S SERVICES

The strongest recent expression of government policy in relation to children's services is contained in the *Agenda for Children's Services* (OMCYA, 2007). The agenda and its specified national outcomes for children were endorsed by the new Minister for Children and Youth Affairs on the establishment of the Department of Children and Youth Affairs in 2011 (www.dcya.oie).

The Developmental Welfare State (see above) pointed out that in Ireland social spending on children's services was low in OECD terms, with more emphasis being placed on direct cash transfers such as Child Benefit. In a developmental welfare state, the advocated policy approach is one of 'tailored universalism', where all citizens receive essential services and supports and those who need special additional supports receive them. The National Economic and Social Council (NESC) proposed the development of services as a key element in the improvement of social protection. It also advocated a lifecycle approach to provision, recognising the importance of getting things right for children. The *Developmental Welfare State* framework influenced *Towards 2016, Ten-Year Framework Social Partnership Agreement 2006-2015,* which included seven high-level goals relating to children, most of which refer to services. They include:

1. Every child should grow up in a family with access to sufficient resources, supports and services to nurture and care for the child, and to foster the child's development and full and equal participation in society.
2. Every family should be able to access childcare services which are appropriate to the circumstances and needs of their children.
5. Every child should have access to world-class health, personal social services and suitable accommodation.

The goals are commendable but by 2007 there was concern that, despite the existence of strong and well-thought-out policy frameworks, such as those outlined in *Towards 2016* and previously in the 2000 *National Children's Strategy* (NCO, 2000), policy implementation was a major challenge in the Irish context. Thus the *Agenda for Children's Services* focuses on implementation of policy by both policymakers and practitioners. It mentions the need for enacting policy and monitoring its implementation, and gives practical advice to policymakers and practitioners on how to track the effect of their efforts to effect policy initiatives. To this end it specifies seven national outcomes for children:

- Healthy both physically and mentally
- Supported in active learning
- Safe from accidental and intentional harm
- Economically secure
- Secure in the immediate and wider physical environment
- Part of positive networks of family, friends, neighbours and the community
- Included and participating in society

Growing Up in Ireland will be able to feed information into this programme of reform. Many of the outcomes that it assesses can be mapped onto the seven national outcomes, and its data can provide a baseline from which to measure the wished-for improvement in child outcomes.

7.4.4. CHILD OBESITY

As detailed in Chapter Three, there has been much recent concern in Ireland – as in many Western countries – about the rapid increase in childhood obesity. Data from the survey of nine-year-olds confirm the level of the problem, with about one-quarter of children at age nine either overweight or obese. Obesity is a major health issue for both adults and children and a major cost to the State, given its association with ill health.

Obesity at age three may be seen as different to obesity at age nine since the three-year-old child has minimal say in *what* they eat. That is not to say that they are not active agents in *how* they eat, since many children at this age have already developed strong food preferences and a range of tactics to avoid eating foods they do not like and to pester parents for more of the food they like. However unlike nine-year-olds, they do not have their own money and freedom to buy snack foods in shops. It is also unlikely that psychological factors like low self-esteem and low mood are causing three-year-olds to overeat. It is a real concern that by the time they are nine there will be more overweight and obese children in the Infant Cohort

than in the Child Cohort. Children's food consumption at age three is probably more amenable to being controlled and altered than it is at age nine. It is important, therefore, as part of any anti-obesity campaign to include consideration of preschoolers, who are still in the process of developing their food preferences and eating and exercise habits. Many of the child-focused strategies mentioned in the 2005 *National Task Force on Obesity* report rely on schools to deliver messages about healthy eating and exercise to children who are old enough to understand the messages (2005, p.88). This is probably, if not too late, much later than it should be in terms of the development of problem weight and associated unhealthy habits. The excellent and comprehensive Task Force report mentions the potential of using antenatal and postnatal health checks and parenting classes as ways of influencing new parents and monitoring the BMI of their children. ***Growing Up in Ireland*** can assist in the area of policy and intervention by estimating the prevalence and correlates of overweight and obesity among children.

In 2011 the Minister for Health announced the establishment of a Special Action Group on Obesity. It may advance some of the wide range of recommendations in the Task Force report, many of which have not been implemented. It might be useful to add a lifecycle perspective on obesity, which was not a feature of the 2005 report, highlighting the early origins of this multifaceted problem. Consideration of the implications of the ***Growing Up in Ireland*** findings for both cohorts should certainly form part of the Special Action Group's deliberations (Layte & McCrory, 2011).

7.4.5. EARLY CHILDHOOD CARE AND EDUCATION (ECCE)

The free preschool year, introduced by the previous government, has been maintained under the new administration despite the economic downturn. However, issues arise in relation to the scheme's long-term maintenance and whether or not it will be expanded. In the UK there is funding for two free preschool years (for ages three and four), with a government commitment to extending the scheme to all disadvantaged two-year-olds in 2013 and to 40 per cent of two-year-olds by 2014.

As stated in Chapter Two, Ireland lags behind many European states in theprovision of early-years care and education, though it has improved significantly since the UN report, *The Child Care Transition – A League Table of Early Childhood Education and Care in Economically Advanced Countries,* was published in 2008. This report determined that, of 25 OECD countries in the league table, Ireland came last, tied with Canada, having achieved only one of the 10 benchmarks (UNICEF, 2008). In the 1990s new investment in childcare in Ireland was an initiative of the then Department of Justice, Equality and Law Reform; the rationale for investment was primarily couched in terms of freeing mothers to join the workforce. In recent years the emphasis has shifted to arguments around boosting child development and school readiness. The evidence base is largely centred on studies conducted in the US, summarised and marshalled by Nobel Prize winner James Heckman to create a convincing case for early-years investment as opposed to investment at a later stage (Heckman, 2006).

There has been a great deal of recent discussion on policy and practice in relation to ECCE in Ireland. Statistics on what is happening on a national level have been provided by the Central Statistics Office and the Quarterly National Household Survey (QNHS), which are useful but limited in scope. ***Growing Up in Ireland*** data from the nine-month and three-year surveys will provide the most comprehensive picture of ECCE in Ireland to date and should prompt further, more in-depth studies. The comprehensive *Síolta, the National Quality Framework for Early Childhood Education*, published in 2006, is gradually being implemented. A rigorous evaluation should be conducted of the impact of Síolta and of the new early-years curriculum (Aistear). In the light of concerns about literacy and numeracy prompted by the 2011 PISA results, any intervention aimed to boost literacy and numeracy should include the preschool as well as primary years.

Potentially, ***Growing Up in Ireland*** will be able to examine the impact of the introduction of the free preschool year, if another data wave for the Infant Cohort is funded. Most of the children in the Infant Cohort will enter the programme, given the very high take-up to date, and their progress at primary school can be compared with the children in the Child Cohort, who did not receive this kind of support.

Even if the longitudinal potential of the study is not fully realised, it will be possible to look in depth across the two existing data waves at the different experiences and outcomes of children who have availed of different types of out-of-home-care for different durations. Thus ***Growing Up in Ireland*** will make an invaluable contribution to the ongoing debate about the nature and value of out-of-home preschool experience. In relation to the recession, the cost of childcare, already very high in Ireland before the recession, is an obvious challenge for parents; many working parents are resorting to cobbling together a care package for their children, often relying on grandparents and other paid and unpaid untrained carers, perhaps with an admixture of a few days or half days in a crèche. The impact of this type of care on child outcomes can be assessed using the three-year data.

7.5. POLICY IMPLICATIONS

As outlined in this literature review, many questions can be addressed through analysis of the ***Growing Up in Ireland*** Infant Cohort data. It has also been argued that the continuation of the study into childhood and beyond will add value with each additional data wave. ***Growing Up in Ireland*** serves multiple purposes. It provides world-class data for research into Irish childhood and Irish families and for understanding the particular conditions that influence Irish childhoods in all their richness and diversity. Numerous publications are scheduled to be produced by the Study Team using these data. The three-year data will be lodged in 2012 in the national statistical archive, ISSDA, for use by the wider community of researchers. ***Growing Up in Ireland*** data can be linked to other datasets such as those generated by the CSO. Findings from ***Growing Up in Ireland*** can be added to those produced by international surveys such as PISA and HBSC to compare the development of Irish children with those growing up in other jurisdictions. ***Growing Up in Ireland*** generates data in the here and now, which allows policy decisions to be informed by high-quality evidence. It is to be hoped that its current value and its value as a legacy project to future generations will be recognised in a practical manner, through Government funding of future data waves.

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