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National Longitudinal Study of Children

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INFANT COHORT

Report on the Pre-pilot, Pilot and Dress Rehearsal Exercises for Wave 2 of the Infant Cohort at Age Three Years

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REPORT ON THE PRE-PILOT, PILOT AND DRESS REHEARSAL EXERCISES FOR WAVE 2 OF THE INFANT COHORT AT AGE THREE YEARS

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TABLE OF CONTENTS

LIST OF TABLES

About this report

This report describes the piloting process leading up to the main phase of quantitative fieldwork for Wave 2 of the Infant Cohort of ***Growing Up in Ireland***, when the children were aged three years. This involved three phases: Pre-pilot, Pilot and Dress Rehearsal. The first chapter provides background information on the objectives of and conceptual framework for ***Growing Up in Ireland***. Chapter 2 describes the samples used in each phase of piloting. Chapter 3 outlines the procedures in the field and how these changed between phases. Chapter 4 outlines the content areas of the questionnaires used with household members and the principal changes to these, leading up to the Main Study. Chapter 5 provides further information on some of the standardised measures used in the household instruments. The Ages and Stages Questionnaire (a measure of child development) is described in Chapter 6, and the process of deciding on a measure of cognitive ability is the subject of Chapter 7. Chapter 8 deals with the direct measurements associated with the household visit, and the remaining components are outlined in Chapter 9. There are also two appendices of accompanying questionnaires and other documentation for the Pilot (A) and Dress Rehearsal (B); for convenience these are presented in separate documents.

Chapter 1

INTRODUCTION TO GROWING UP IN IRELAND

1.1 INTRODUCTION

Growing Up in Ireland – the National Longitudinal Study of Children, is a study of the factors which contribute to or undermine the wellbeing of children in 21st century Ireland. The project involves studying two main cohorts of children with a view to improving our understanding of their development across a range of domains over time. The first cohort focuses on nine-year-olds, the second on infants of nine months of age. The study of the older cohort is based on a nationally representative sample of 8,500 nine-year-olds. The younger one, which is the subject of this report, is based on a nationally representative sample of 11,100 infants and their families. The survey is longitudinal in nature, with the infant cohort being interviewed three times and the child cohort being interviewed twice over the course of the project. The older cohort and their parents/guardians are interviewed at nine and at 13 years of age. The parents of the Infant Cohort are interviewed when their children are nine months of age and subsequently when they are three years old.

This report describes the piloting process leading up to the final set of instruments and procedures for the main phase of data collection in the second wave of the Infant Cohort when the children were aged three years. In the current chapter, we provide the context for the rest of the document. We begin by describing the background and objectives of the study and then move on to a brief summary of the conceptual framework underlying ***Growing Up in Ireland***.

1.2 BACKGROUND AND OBJECTIVES

Growing Up in Ireland provides an important input to the implementation of *The National Children's Strategy*, a major national plan for children, published in 2000 by the Department of Health and Children. The principal objective of the study is to provide evidence-based research into the wellbeing of children and childhood. It has been commissioned by the Irish Government and is funded by the Department of Health and Children through the Office of the Minister for Children and Youth Affairs (OMCYA) in association with the Department of Social Protection and the Central Statistics Office. The study is being implemented by a group of researchers led by the Economic and Social Research Institute (ESRI) and Trinity College Dublin (TCD).

The study has nine core objectives, as set out below.

1. To describe the lives of Irish children, to establish what is typical and normal as well as what is atypical and problematic

2. To chart the development of Irish children over time, to examine the progress and wellbeing of children at critical periods from birth to adulthood

3 To identify the key factors that, independently of others, most help or hinder children's development

4. To establish the effects of early child 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

1.3 CONCEPTUAL FRAMEWORK

The study adopts a dynamic systems perspective founded upon five insights from different disciplines: (i) ecology, (ii) dynamic connectedness, (iii) probabilism, (iv) period effects and (v) the active role or agency of the child in the developmental process. The bioecological model of Urie Bronfenbrenner (Bronfenbrenner 1979; Bronfenbrenner & Morris, 2006) is a key tool in operationalising this perspective.

Bronfenbrenner's bioecological model indicates multiple layers of influence in the development of an individual child. The child develops through interactions with people and other elements in this bioecological context. The layers of influence in Bronfenbrenner's conceptualisation of the child's ecology extend outward from the individual to close relationships in contexts such as the home and childcare or preschool (*microsystem*); the relationship between the elements of the microsystem, such as between parents and childcare (*mesosystem*); the institutions and settings that influence the microsystem such as health services (*exosystem*), and finally all the actions and interactions which take place under the influence of more global forces such as cultural beliefs, national policies and general economic prosperity (*macrosystem*). At age three years, much of the influence of the exosystem and macrosystem is mediated through the microsystem – for example, child benefit, which is paid to parents to assist in providing for the child, and the free preschool year scheme that aims to extend the opportunity of a formal preschool experience to more children. Further information on the conceptual framework for ***Growing Up in Ireland*** is available in a separate publication.[1]

1.4 DATA SOURCES

The three-year-old child was central to the Wave 2 data collection; this was the Study Child who was selected into the study at the initial sampling stage, and all other respondents are included in the study only because of their link to that child. The Study Child is the central focus of ***Growing Up in Ireland*** and all data ultimately relate back to him or her.

The main interview was administered to the child's Primary Caregiver, usually the mother. Each household had to have at least a Study Child and a Primary Caregiver to be a valid household for inclusion in the study. The spouse/partner of the Primary Caregiver who was living in the household was also interviewed. This person was usually, but not necessarily, the biological father of the child. Contact details for any non-resident parents or regular carers were sought from the Primary Caregiver. These individuals were sent a postal self-complete questionnaire, with the Primary Caregiver's permission.

[1] http://www.growingup.ie/fileadmin/user_upload/documents/Technical_Reports/GUI_Background_and_Conceptual_Framework.pdf

Chapter 2

SAMPLES, RESPONSE RATES AND FIELD PROCEDURES

This chapter describes the methods for recruiting the samples used in all three phases of the piloting process. It also outlines the response rates for the Pilot and Dress Rehearsal samples.

2.1 PRE-PILOT

The Pre-pilot was a convenience sample of friends and colleagues of staff in the ***Growing Up in Ireland*** team based in the ESRI and TCD. A total of 21 families with children aged around three years participated in this phase of the project in September 2009. The purpose of the Pre-pilot work was to administer the instruments in the context of a household interview, thereby indicating the likely administration and completion time with families and providing information on the comprehensibility and feasibility of individual elements. Given the nature of the sample, it did not purport to be representative.

2.2 PILOT AND DRESS REHEARSAL

The samples for the Pilot and Dress Rehearsal were the respondents who had participated in the corresponding phases for Wave 1 when the children were aged nine months. As Wave 2 piloting took place exactly two years after Wave 1, the children in the Pilot and Dress Rehearsal were aged two years and nine months, rather than the full 36 months, as children in the Main Study would be. This was necessary to allow sufficient lead time between the piloting process and the Main Study to make all changes necessary to the questionnaires and to secure ethical and other approval before main-phase fieldwork took place. The Wave 2 Pilot for the Infant Cohort was the first time that participants from a previous wave would be recontacted and asked to participate in a second wave of data collection, and therefore the first chance to capture longitudinal data in the study.

A total of 177 families successfully completed interviews in the Wave 2 Pilot phase, representing a response rate of just over 88 per cent of the 201 families who took part in the Wave 1 Pilot and who were still resident within the State in Wave 2. The corresponding figure for the Wave 2 Dress Rehearsal was 237 families from the original 270 who participated in Wave 1, representing a response rate of just under 88 per cent. Five families from the Pilot and two families from the Dress Rehearsal had emigrated between waves and so were excluded from the calculation of response rates. More detailed information on response rates is given in Table 2.1.

Table 2.1: Response rates achieved in the Pilot and Dress Rehearsal for Wave 2 for the 3-year cohort

RESPONSE OUTCOME	PILOT		DRESS REHEARSAL	
	No.	**Per cent**	**No.**	**Per cent**
Successfully completed	177	88.1	237	87.8
Refused[1]	14	7.0	14	5.2
Continually 'unavailable' throughout fieldwork	4	2.0	5	1.9
No contact, despite repeated call-backs	2	1.0	2	0.7
Moved, no forwarding address	4	2.0	8	3.0
Other	-	-	4	1.5
Total above	**201**	**100.0**	**270**	**100.0**
Moved outside RoI	*5*		*2*	
Grand total	*206*		*272*	

[1] Includes two cases where the family started the interview but failed to complete it.

At Wave 1 of the Dress Rehearsal, alternative contact details were recorded from participating families to assist in tracing in the event of the family having changed address between rounds of the survey. The alternative contact details, typically those of a relative, proved very useful for tracking purposes. A further avenue which worked very successfully in the Dress Rehearsal was the tracing of the families through the Child Benefit Register with the assistance of the Department of Social Protection (DSP). The addresses of 14 families were passed to the Department and a new address was secured in respect of 13 of these. Just over half were successfully interviewed.[2]

2.2.1 DIFFERENCES BETWEEN RESPONDENTS AND NON-RESPONDENTS

A major advantage of a longitudinal study is the amount of information available on participants and non-participants from preceding rounds of data collection. This allows one to identify systematic trends in participation and attrition. It was noted in the Pilot, for example, that re-participation rates were highest for families in which the Primary Caregiver was a third-level graduate (93 per cent). This compares with 84 per cent among families in which the Primary Caregiver held a diploma/certificate and 81 per cent among those who had completed lower secondary education or less. The response rate where the Primary Caregiver had completed second level was somewhat lower, at just over 77 per cent. Families in the Pilot where the Primary Caregiver described him/herself as an Irish citizen had higher re-participation rates (88 per cent) than those whose Primary Caregiver was not an Irish citizen (79 per cent). Non-contact due to 'moved, no forwarding address' and 'moved outside Ireland' was greater among families where the Primary Caregiver was not an Irish citizen (14 per cent compared to 1.8 per cent for Irish citizens). Similar trends were observed in relation to the Dress Rehearsal response/non-response rates.

These trends in interwave attrition are common to all longitudinal studies of families and households, notwithstanding field and tracking procedures implemented to address them. They will be incorporated into the statistical adjustment for reweighting of the final data from the main round of fieldwork.

2.3 CONTACTING THE HOUSEHOLD

As the sample for the Pre-pilot was a convenience sample of colleagues, friends and acquaintances, times and dates for interviews were arranged by phone by ***Growing Up in Ireland*** staff. For both the Pilot and Dress Rehearsal, the first contact with the household to announce the second wave was a letter from the Study Team. The interviewer subsequently made a personal visit to each household to arrange a convenient time for interview. At the initial visit, interviewers asked to speak to the person listed as the Primary Caregiver of the Study Child in Wave 1. Having reminded the parent/guardian of the introductory letter and information leaflet which had already been posted to them, and answering any queries the parent had, the interviewer asked the parent/guardian to sign two copies of the consent form. One was retained by the family for their records. The other was returned to the Study Team.

[2] The Study Team gratefully acknowledges the assistance of the DSP in securing the new addresses from the Child Benefit Register.

2.4 OUTLINE OF INSTRUMENTS

In all phases of piloting, the main interview was with the Primary Caregiver. Table 2.2 summarises the instruments used in all four phases (including the main fieldwork phase). The individual instruments are described in detail in subsequent chapters.

Table 2.2: Summary of instruments used in all four phases

Instrument	Pre-pilot	Pilot	Dress Rehearsal	Main
Primary Caregiver questionnaire (main and supplementary sections)	✔	✔	✔	✔
Secondary Caregiver questionnaire (main and supplementary sections)[a]	✔	✔	✔	✔
Questionnaire modules for twins and triplets [a]		✔	✔	✔
Follow-up information		✔	✔	✔
Height of Primary Caregiver [b]		✔	✔	✔
Height of Secondary Caregiver [a b]		✔	✔	✔
Weight of Primary Caregiver		✔	✔	✔
Weight of Secondary Caregiver [a]		✔	✔	✔
Child height		✔	✔	✔
Child weight		✔	✔	✔
Child head circumference		✔	✔	
Ages and Stages Questionnaire	✔	✔	✔	
BAS Naming Vocabulary	✔	✔	✔	✔
BAS Picture Similarities		✔		✔
British Picture Vocabulary Scale			✔	
Bracken School Readiness Scale	✔			
GPS co-ordinates (where new address or co-ordinates missing from Wave 1) [a]		✔	✔	✔
Non-resident parent questionnaire [c]		✔	✔	✔
Carer (home-based) questionnaire [c]		✔	✔	✔
Carer (centre-based) questionnaire [c]		✔	✔	✔

a. If applicable to the household
b. Only for new respondents or where missing at Wave 1 in the Main Study
c. These items were issued by the Study Team on a postal basis and self-completed by non-resident parent/regular carer, where relevant.

Chapter 3

PRIMARY AND SECONDARY CAREGIVER QUESTIONNAIRES

This chapter focuses on the main questionnaires administered in the Pre-pilot, Pilot and Dress Rehearsal phases of the Infant Cohort at three years of age. As well as the broad content of the instruments, consideration is also given to changes in them between one phase of piloting and another. All questionnaires used are contained in the appendices to this report.

In developing and testing the questionnaires, a number of selection criteria were used to decide on which outcome, input and indicator variables should be used in the instruments. These included:

- *Importance:* are there scientific grounds for believing that the variable exerts a substantial influence on child outcomes?
- *Measurability:* can the variable be validly, reliably and ethically measured using the methods of large-scale survey research?
- *Policy relevance:* is the variable actionable through public policy?
- *Policy urgency:* is the area of public policy to which the variable is relevant one where a need for evidence-based reform is widely acknowledged or can be shown to exist?
- *Prevalence and variance:* is the variable sufficiently prevalent in the population as to yield an analysable level of variance in the available samples?
- *Continuity of measure over time:* consistency in the age appropriateness of the measure across waves, not only from Waves 1 and 2 but also allowing for the study of developmental trajectories beyond age 3
- *Added value:* does the variable relate to influences on child wellbeing that are inadequately covered by other research?
- *Robustness:* does the indicator provide a measure of the construct/variable of interest that is proven to be valid and reliable?
- *Ethical acceptability:* does it meet relevant ethical standards?
- *Acceptability to respondent:* will inclusion of the variable deter participation or increase attrition among the study respondents?
- *Time efficiency:* does the indicator take as little interview time as possible, taking account of the importance of the variable and requirement for robust measurement?
- *International use:* has the indicator been successfully used in research in other countries, particularly in comparable studies such as the UK Millennium Cohort Study and the Longitudinal Study of Australian Children?
- *Use in Ireland:* has the indicator been successfully used in previous research in Ireland?

Inevitably, the balancing of preferred instruments with availability of time in the home and respondent capacity meant that some difficult decisions had to be taken in developing the questionnaires. Reference was made to the criteria above when deciding on changes between Pilot, Dress Rehearsal and main fieldwork phases. The evolution of all instruments and procedures owes much to the contribution from the Research Ethics Committee and the wider Project Team and Steering Group (see publication on *Design, Instrumentation and*

Procedures for the Infant Cohort at Wave 2 for further details on inputs to the instruments).[3] The main questionnaires used, and changes in them from one phase of piloting to another, are considered below.

3.1 MAIN PRIMARY CAREGIVER QUESTIONNAIRE

In all phases, most of the information about the child and family was collected during the main interview with the Primary Caregiver, which was the longest part of the household visit. It was administered on a CAPI basis. The main topics covered in the Primary Caregiver Questionnaire (listed in Table 3.1) are broadly consistent across the three piloting phases, although there are sometimes significant changes to individual questions (including additions and deletions). The full versions of each questionnaire used in the Pilot and Dress Rehearsal are shown separately in the appendices. In this chapter we provide a broad overview of the contents of the instruments used in each of the piloting phases, focusing, where relevant, on some of the main changes between phases.

Table 3.1: Topics covered by Primary Caregiver Main Questionnaire

Section A	Introduction and Household Composition
Section B	Child's Habits and Routines
Section C	Child's Physical Health and Development
Section D	Primary Caregiver's Health
Section E	Child's Play and Activities
Section F	Child's Functioning and Relationships
Section G	Childcare Arrangements
Section H	Parenting and Family Context
Section J	Socio-demographics
Section K	About You (Primary Caregiver)
Section L	Neighbourhood/Community

3.2 THE PRIMARY CAREGIVER, MAIN QUESTIONNAIRE

This section expands somewhat on the content of the main questionnaire administered to the Primary Caregiver at each stage of piloting.

SECTION A: HOUSEHOLD COMPOSITION

This section recorded details on the composition and basic socio-demographic characteristics of members of the Study Child's household. It has been used in all waves of the study and was unchanged between Pre-pilot, Pilot and Dress Rehearsal phases. Table 3.2 provides details on where the relevant questions are located in the questionnaire used in the four phases of fieldwork.

[3] http://www.growingup.ie/fileadmin/user_upload/documents/Technical_Reports/3_year_instrumentation_report_20.12.13.pdf

Table 3.2: Questions on Household Composition

	Pre-pilot	Pilot	Dress Rehearsal	Main
A. HOUSEHOLD COMPOSITION	***Question Number***			
Household composition & family structure (including family dynamics, Wave 1 to Wave 2)	A1a-A5e	A1a-A8c	A1a-A8c	A1a - A8c
Siblings living outside the household	A7-A7c	A9a-A9c	A9a-A9c	A9a - A9c

SECTION B: CHILD'S HABITS AND ROUTINES

This section included questions on the child's habits and routines, such as sleeping, toileting, comforting behaviours, parent-child relationships and discipline. One can see from Table 3.3 that, between the Pilot and Dress Rehearsal stages, some deletions were made to questions on sleeping arrangements, largely due to a lack of variance in response patterns and a view that the information did not provide much traction in terms of understanding child outcomes. The Ages and Stages Questionnaire (ASQ) was included in the Pre-pilot and Pilot stages as a separate booklet, with postal return to the Study Team. Due to the relatively low level of response on this as a self-completion instrument, however, it was decided to include a smaller number of items measuring gross and fine motor skills on the main questionnaire completed by the Primary Caregiver (PCG) in the Dress Rehearsal and main rounds of fieldwork.

Table 3.3: Questions on Child's Habits and Routines

	Pre-pilot	Pilot	Dress Rehearsal	Main
B. Child's Habits and Routines	***Question Number***			
Baby's first steps	B1	B1	C22	C20
Baby's first words	B2	C43		
Time baby sleeps and wakes	B4a-B4c	B2-B4	B1-B3	B1 - B3
Baby's sleeping patterns a problem for PCG?	B8-B9	B5	B4	B4
Difficulties sleeping	B5	B6	B5	
Sleeping arrangements	B6-B7	B7		
Toilet training	B10-B11	B8-B9	B6	B5
Comforting behaviours	B12	B10	B7	B6
Parent-child relationship (Pianta scale)			B9	B7
Disciplining the baby			B10	B8
ASQ/Motor skills			B8a-B8f; C23a-C23f; FM1-FM6; PR1-PR6; CM1-CM6	Motor only: E9 – E10

SECTION C: CHILD'S PHYSICAL HEALTH AND DEVELOPMENT

This section recorded details on the child's current health; chronic illnesses; conditions or disability; vaccination history; healthcare use as well as problems in assessing healthcare; sight and hearing problems; use of antibiotics, and dietary profile. The information recorded is summarised in Table 3.4. The main change made to the questionnaires on the basis of the results from the piloting exercise was a change to the questions on dietary profile. The Food Choice Questionnaire (Steptoe, Pollard & Wardle, 1995), which was used in the Pilot, was replaced with a more succinct set of questions on this topic in the Dress Rehearsal. These were in line with those used for the Child Cohort at nine years of age and performed very well with the older children. Questions on Food Shopping Habits and some on any special diet which the Study Child may have had were dropped following the Pilot. This was primarily on the grounds of these items not obviously informing research on the child's developmental outcomes.

Table 3.4: Questions on Child's Physical Health and Development

	Pre-pilot	Pilot	Dress Rehearsal	Main
C. Child's Physical Health and Development	***Question Number***			
Current health	D1	C1	C1	C1
Chronic, longstanding illnesses, conditions, disability	D2-D6	C2-C6	C2-C6	C2 - C6
Wheezing and asthma	D3z_1 - D3z_3	C3z_1 -C3z_3	C6z_1 -C3z_3	C6z_1 - C6z_3
Vaccinations	D8	C7	C7	C7
Healthcare use and accidents	D9a-D15	C8; C10-C13	C8; C10-C13	C8; C11 - C13
Sight problem requiring correction	D16-D17	C14	C14	C14
Hearing problem requiring correction	D18-D19	C15	C15	C15
Antibiotic use	D7	C9	C9	C9a - C9b
Constraints in accessing healthcare	D20-D21	C17	C16-C17	C16
Concerns re child's speech development	D22-D25	C18-C21	C18-C21	C17 - C19
Other concerns about child's behaviour or development	D26-D27	C22-C23	C24-C25	
Dental care	D28-D31	C24-C28		C21 - C22
Age at which breastfeeding stopped	D32a-D33	C29-C30	C30-C31	C23 - C24
Child's dietary profile	D34-D41g	C31-C37	C32-C34	C25 - C26
PCG's perception of child's weight	D42	C38	C35	C27
Food shopping habits	D43-D45	C39-C42		

SECTION D: PARENTAL HEALTH

This section focused principally on the health and lifestyle of the Primary Caregiver (Table 3.5). Some questions on parental exercise were removed after the Dress Rehearsal as these were not felt to be directly focused on child outcomes. Questions on smoking and

alcohol consumption among Primary Caregivers were moved after the Pilot round from the main (administered) questionnaire to the self-completed sensitive module.

Table 3.5: Questions on Parental Health

	Pre-pilot	Pilot	Dress Rehearsal	Main
D. Child's Physical Health and Development	***Question Number***			
PCG current health	E1	D1	D1	D1
PCG chronic, longstanding conditions	E2-E6	D2-D6	D2-D6	D2 - D5
Anyone else in household with chronic, longstanding conditions	E7-E8	D7-D8		
Smoking behaviour	E9-E12	D9-D12		
Alcohol consumption	E13-E14	D13-D14		
Physical activities	E15-E16	D15	D7	
Medical cover – GMS or private medical insurance	E17-E19	D16-D18	D8-D10	D6 - D8
Self-reported height and weight		D19-D20		

SECTION E: CHILD'S PLAY AND RELATIONSHIPS

This section recorded details on the child's indoor and outdoor activities (Table 3.6). There was some reduction in the questions on the amount of the child's screen-time and outdoor play activity between the Dress Rehearsal and Main Study. Although this was not the preferred option, these cuts had to be implemented to reduce respondent burden and ensure response rates at the second and subsequent rounds of the study.

Table 3.6: Questions on Child's Play and Activities

	Pre-pilot	Pilot	Dress Rehearsal	Main
E. Child's Play and Activities	***Question Number***			
Child's activities and engagement	F1-F3	E1	E3; E9-E10	
Child's activities undertaken in the home	F5-F6	E7	E8	E3
Access to books in the home	F4	E2	E4	E4
TV, video, computer games	F8-F12	E3-E6	E5-E7	E5 - E8

SECTION F: CHILD'S FUNCTIONING AND RELATIONSHIPS

This section focused on information on the child's relationships with siblings and others (Table 3.7). An important component was the Strengths and Difficulties Questionnaire (SDQ).

Table 3.7: Questions on Child's Functioning and Relationships

	Pre-pilot	Pilot	Dress Rehearsal	Main
F. Child's Functioning and Relationships	***Question Number***			
Life events	G1a-G1b	H10		
Gross and fine motor skills				E9, E10 (page 11), L_obs_3 - L_obs_6 (page 24)
Strengths and Difficulties Questionnaire (SDQ)	G2	F1	F1	F1
Sibling relationships	G6-G8	F4-F6	F2-F3	F2 - F3
Temperament	G4-G5; L41-L42	F2-F3	E1-E2	E1-E2

SECTION G: CHILDCARE ARRANGEMENTS

This section concentrated on the nature, quality and cost of non-parental childcare as well as issues around early enrolment in primary school and intentions regarding actual or likely uptake of the free preschool year (Table 3.8). The section was included in the Pre-pilot and Pilot phases but was temporarily suspended from the Dress Rehearsal phase, to allow time in that phase for testing to be spent on other issues.

Table 3.8: Questions on Childcare Arrangements

	Pre-pilot	Pilot	Dress Rehearsal	Main
G. Childcare Arrangements	***Question Number***			
Nature, quantity, costs of childcare	H1-H19	G1-G13		G1 - G7
Free preschool year scheme	H22	G14		G8
Enrolment in primary school?	J8-J9	H7-H8		G9

SECTION H: PARENTING AND FAMILY CONTEXT

This section mainly recorded information on parent-child relationships, parenting style, discipline and work-life balance (Table 3.9). One of the most important changes was the replacement of the Parental Authority Questionnaire (PAQR) (Reitman, Rhode, Hupp & Altobello, 2002) with the scale for parenting style which was used in the Longitudinal Study of Australian Children (LSAC). The latter was shorter and so imposed a lighter burden on the respondent. Between Dress Rehearsal and Main Study, the 'reasoning' sub-scale of the LSAC scale for parenting style was removed as overlapping details were available from elsewhere in the questionnaire. The LSAC scale for parenting style also allowed a broad mapping to the Baumrind typology of parenting styles used in other phases of the cohort

study. Questions on traumatic life events which had affected the child were also removed, following the Pilot, as these had been asked at the earlier round of the Child Cohort survey (and could be reinserted in later rounds if felt appropriate). Their inclusion at Wave 2 was felt to unreasonably increase respondent burden, at the risk of increasing attrition in subsequent waves.

Table 3.9: Questions on Parenting and Family Context

	Pre-pilot	Pilot	Dress Rehearsal	Main
H. Parenting and Family Context	***Question Number***			
Parent-child relationship	J1-J2	H1-H2	B9	B7
Parenting style			H4-H5	H2-H3
Discipline	J3	H3	B10	B8
PAQR	J4	H4		
Work-life balance	J5	H5	H6	H4
Support from outside home (incl. grandparents)	J6a-J7	H6	H7	H5 - H9
Pocket money		H9		

SECTION J: SOCIO-DEMOGRAPHIC CHARACTERISTICS

This section contained standard questions on background characteristics of the family, including accommodation tenure status, principal economic status and social class; family income; indicators of deprivation, and questions on the impact of the recession (Table 3.10). The main changes implemented between pilot phases related to the set of deprivation items used. The standard set of Basic Deprivation Indicators (as used extensively in Ireland by EU-SILC and other studies) was included. In the Pilot a set of deprivation items developed by the Office of National Statistics was included. In the Dress Rehearsal a set of items included in the Millennium Cohort Study was included. Following analyses of the Pilot and Dress Rehearsal data, it was felt that these alternative sets of deprivation items did not perform better in discriminating between families in terms of financial strain than did the widely used set of Basic Deprivation items included in the EU-SILC survey and included in previous rounds of ***Growing Up in Ireland.*** Accordingly, it was decided to continue in the Main Phase of the cohort with the Basic Deprivation indicators.

Table 3.10: Questions on Socio-demographics and Background Characteristics

	Pre-pilot	Pilot	Dress Rehearsal	Main
J. Socio-demographics and background characteristics	***Question Number***			
Nature of accommodation		J1-J4		J1 - J2
Nature of tenure		J3		J3
Suitability of accommodation for family				J4a - J4b
Principal economic status / family social class		J5-J23	J5-J23	J5 - J23
Family income		J24-J29; J31	J24-J28	J24 - J28
Social welfare payments				J29 - J31c
Family deprivation indicators, incl. perceived impact of recession	L37-L40	J30; J32-J33; J35-J37	J29-J37	J32 - J38
Child deprivation measure		J34		

SECTION K: ABOUT THE RESPONDENT

This section recorded information on the Primary Caregiver's education, numeracy, citizenship, religious denomination and so on (Table 3.11). It also recorded information on the family's intention to remain in Ireland and involvement in the local community, as well as a question (in the Pilot) on whether or not the family would, in principle, provide a sample of their child's saliva, with a view to DNA extraction and profiling. A large portion of Section K was temporarily suspended from the Dress Rehearsal as it was known from other rounds of the project that these questions worked well and recorded the relevant information. The related time saving in the Dress Rehearsal allowed testing of other segments at that phase of piloting.

Table 3.11: Questions on the Primary Caregiver

	Pre-pilot	Pilot	Dress Rehearsal	Main
K. About the Respondent	***Question Number***			
PCG education		K1-K2	K1	K1 - K2
Languages spoken in the home		K3		K3
PCG's competence in English		K4-K6		K4 - K6
PCG's numeracy		K7		K7
PCG's religious denomination		K8-K11		K8 - K9
PCG citizenship and country of birth		K12-K13		K10 - K14
PCG's ethnicity		K14-K17	K17	K15
Involvement in local community		K18		
Intention to remain in Ireland		K19		
Permission to collect saliva		K20		

A hypothetical question on the parent's willingness to provide a saliva sample was included in the Pilot survey. This was replaced in the Dress Rehearsal with the collection of an actual sample (see Section 9.2 below).

SECTION L: NEIGHBOURHOOD/COMMUNITY

This section considered issues around length of time living in the local neighbourhood; perception of its quality and safety; local services available to the family, and sense of integration in the community (Table 3.12). These questions were asked most comprehensively in the Pilot and suspended from the Dress Rehearsal. Only those relating to length of time living in the local neighbourhood and perception of it in terms of quality and safety were ultimately included in the Main Study. Although desirable, the other questions on sense of integration and availability of community services were felt not to be central to issues of child outcomes.

Table 3.12: Questions on Neighbourhood/Community

	Pre-pilot	Pilot	Dress Rehearsal	Main
L. Neighbourhood/Community	***Question Number***			
Length of time in local neighbourhood		L1		L1; L3
Neighbourhood quality/safety		L2		L2
Local services		L3		
Integration in community		L4-L5		
Urban/rural setting		L6		

3.3 THE SECONDARY CAREGIVER'S MAIN QUESTIONNAIRE

This instrument was administered to the spouse or partner of the Primary Caregiver. The questionnaire was a substantially reduced version of the Primary Caregiver instrument, focusing exclusively on the factual information and characteristics of the Secondary Caregiver as well as the relationship between him/her and the Study Child. Questions were grouped under the following headings, which mirrored the corresponding sections of the Primary Caregiver Main Questionnaire:

Section A Introduction

Section B Parental Health

Section C Parenting and Family Context

Section D Socio-demographics

Section E About You (Secondary Caregiver)

Changes made to the Primary Caregiver Questionnaire (outlined above) between Pre-pilot, Pilot and Dress Rehearsal phases were also implemented in the corresponding sections of the Secondary Caregiver Questionnaire (Table 3.13).

Table 3.13: Broad outline of Secondary Caregiver, Main Questionnaire

	Pre-pilot	Pilot	Dress Rehearsal	Main
Secondary Caregiver – Main and Sensitive	***Question Number***			
SCG Relationship to baby	A1	A1	A1	A1
PARENTAL HEALTH & LIFESTYLE				
SCG current health	B1	B1	B1	B1
SCG chronic conditions	B2-B6	B2-B6	B2-B6	B2 - B5
SCG smoking	B7-B9	B7-B9		
SCG alcohol consumption	B10-B11	B10-B11		
Physical activity	B12-B13	B12	B7	
Self-reported height and weight		B13-B14		
PARENTING AND FAMILY CONTEXT				
Quality of relationship with Study Child	C1-C2	C1-C2	C1-C4	C1 - C3
Work-life balance	C3	C3	C5	C4
SOCIO-DEMOGRAPHICS / CLASSIFICATORY				
Principal economic status / family social class		D1-D18	D1-D18	D1 - D18
Level of educational attainment		E1-E2	E1-E2	E1 - E2
SCG's competence in English		E3-E5	E3-E5	E3 - E5
SCG's numeracy		E6	E6	E6
SCG's religious denomination		E7-E8	E7-E10	E7 - E8
SCG's citizenship and country of birth		E9-E13	E11E12	E9 - E13
Ethnicity		E14-E16	E13-E16	E14

3.4 PRIMARY CAREGIVER AND SECONDARY CAREGIVER SENSITIVE SECTIONS

This questionnaire recorded more sensitive information from the respondent and was completed on a self-completion basis on the laptop (Table 3.14). The same questionnaire was used for Primary and Secondary Caregivers (with gender-related questions and wording being accommodated on the computer), except that reasons for people leaving since Wave 1 was only asked of the Primary Caregiver.

To assist respondents in self-completing this questionnaire on the laptop, it started with three example questions which were worked through with the interviewer. Once the examples had been completed correctly, the sensitive supplement recorded information on the following topics:

- Questions for adoptive/foster parents
- Nature and quality of relationship with current spouse/partner, if relevant
- Parental stress
- Parental efficacy
- Experience of depression, anxiety or nerves
- Alcohol consumption
- Drug use

- Contact with the criminal justice system
- Details of any non-resident parent, including his/her contact with the Study Child and any financial support provided

Table 3.14: Sensitive questionnaires self-completed by Primary and Secondary Caregivers

	Pre-pilot	Pilot	Dress Rehearsal	Main
Supplementary Section	***Question Number***			
Details on persons who have left family since Wave 1		AS1-AS3	AS1-AS3	AS1 - AS3
Relationship to Study Child – biological, adoptive, foster	S1-S11	S1-S11	S1-S11	S1 - S11
Marital status	S12-S16	S12-S16	S12-S16	S12 - S16
Quality of marital relationship	S17-S23	S17-S23	S17-S23	S17 - S20
Parental stress and efficacy	S27a-S27b	S27a-S27b	S25-S26a	S21 - S22
Currently pregnant?	S27c	S27c	S26b	S23
Use of parental support services	S28	S28		
Current alcohol consumption	S29a-S29e	S29a-S29e	S27-S29	S24 - S26e
Current smoking			S30	S27 - S29
Current drug-taking	S31	S31	S31	S30
Depression & anxiety	S32-S33	S32-S33	S32-S33	S31 - S33
Contact with An Garda Síochána	S34-S35	S34-S35	S34-S35	S34 - S35
PCG ON NON-RESIDENT PARENTS				
Nature of previous relationship with Study Child's non-resident parent	S36-S38	S36-S38	S36-S38	S36 - S38
Custody arrangements	S39-S41	S39-S41	S39-S41	S39 - S41
Non-resident parent's (NRP) contact with Study Child	S42-S43	S42-S43	S42-S43	S42 - S43
Maintenance arrangements	S44	S44	S44	S44
Current relationship with NRP	S45-S46	S45-S46	S45-S46	S45 - S46

3.4.1 CHANGES TO THE SENSITIVE SUPPLEMENTS

From the Pilot study to the Dress Rehearsal, the questions on seeking support from sources such as Parentline were removed. The list of drugs which the respondent might currently be taking (e.g. S31 on Dress Rehearsal questionnaire) was reduced to include only those with a possible psychoactive effect. Questions of current smoking and drinking were moved into the sensitive supplement from the main questionnaires as outlined earlier, between Pilot and Dress Rehearsal. The question on arguing about the children was extended to include arguments about money and housework.

From the Dress Rehearsal to the Main Study, questions about arguments were reduced. Questions on other partners and smoking in the presence of the Study Child were removed. The use of prescription and illicit drugs was reduced to a single question on illicit drug-taking. The seven-item Dyadic Adjustment Scale was replaced with a four-item version of

the same scale. The routing of the FAST alcohol screening items was changed so that it was asked of anyone who drank alcohol currently (regardless of frequency).

3.5 TWIN/TRIPLET MODULES FOR PRIMARY AND SECONDARY CAREGIVERS

These questionnaires were administered to the Primary and Secondary Caregivers in respect of non-singleton children in the family. They recorded the child-specific details on the non-singleton sibling(s) of the Study Child. They did not repeat any of the parent or family-specific information already recorded on the main Primary and Secondary Caregiver instruments. The section headings in the Twin/Triplet module of the Primary Caregiver questionnaire were:

Section B Child's Habits and Routines

Section C Child's Physical Health and Development

Section E Child's Play and Activities

Section F Child's Functioning and Relationships

Section G Childcare Arrangements

Section H Parenting and Family Context

For the Secondary Caregiver, the only section repeated for the twins/triplets was Section C: on Parenting and Family Context.

3.5.1 CHANGES TO THE TWIN/TRIPLET MODULES

Changes to these questionnaires mirrored those to the corresponding questions on the main Primary and Secondary Caregiver Questionnaires. The only exception was that, between the Dress Rehearsal and Main Study, an introductory section specifically on the similarities and differences between the twins/triplets was added. It also asked about the history of multiple births in the family.

3.6 TIMINGS

Table 3.15 summarises the mean times for each section of the household instruments used in the Pilot and Dress Rehearsal. Times for the cognitive tests and physical measurements are estimates, based on interviewer records.

Table 3.15: Mean timings in minutes for individual components in the household interview

Primary Caregiver	Pilot (mins)	Dress Rehearsal (mins)
A. Composition/household grid	5.5	5.5
B. Habits and routines	6.4	6.5
C. Child's health and development	15.7	10.5
D. Parental health	3.7	1.7
E. Play and activities	3.4	7.1
F. Functioning and relationships	7.5	3.6
G. Childcare arrangements	5.1	5.1*
H. Parenting and family context	10.9	7.4
J. Sociodemographics/income	11.6	10.8
K. About you	4.9	4.9*
L. Community/neighbourhood	2.2	2.2*
Total Primary Caregiver Main	**71.4**	**65.3**
Primary Caregiver Sensitive	11.1	11.4
Total Secondary Caregiver	18	13
Secondary Caregiver Sensitive	12	11
Cognitive Tests	19	29
Physical Measurements	13	13
ASQ (in household for Dress Rehearsal only)	-	15
Total for above components	**144.5**	**158.1**

*Estimated from Pilot. As outlined in Section 4.1, these sections were temporarily suspended from the Dress Rehearsal and reinstated for the main phase.

The overall visit in the household typically took nearly 150 minutes in the Pilot and almost 180 minutes in the Dress Rehearsal. The target was 90 minutes. These timings underlined the necessity to delete sections from the questionnaires for the main fieldwork. The contact time in some households was considerably longer – particularly where English was not the first language of the respondents. To minimise the response burden for families in the Dress Rehearsal, some sections were temporarily suspended at that phase, as described above. In Table 3.15, however, the time estimates for the suspended sections were reinserted to gauge the likely length of the interview in the Main Study.

Chapter 4

SELECTED STANDARDISED MEASURES

This chapter presents details on the psychometric work undertaken in relation to some of the key standardised measures used in Wave 2 of the Infant Cohort. It focuses on instruments where the measure changed, or a change was considered, from Wave 1 to Wave 2, or where the measure changed as a result of the piloting process. The chapter details instruments used to measure child temperament, parental stress, parenting style and deprivation. Other measures such as the Ages and Stages Questionnaire, cognitive measures and physical measures will be discussed in later chapters.

4.1 CHILD TEMPERAMENT

Child temperament at three years of age was measured using the **Short Temperament Scale for Toddlers** (STST; Prior, Sanson, Smart & Oberklaid, 2000) in the Pilot, Dress Rehearsal and Main Study. This parent-report instrument comprises 12 items and yields scores for each of three sub-scales: Sociability, Persistence and Reactivity. Items are scored on a six-point response format ranging from *almost never* to *almost always*. Psychometric information provided by the LSAC study team[4] indicates that the items comprising the various scales have acceptable internal-consistency reliability and excellent model fit when subjected to confirmatory factor analyses. Analysis of the ***Growing Up in Ireland*** Pilot data revealed that alphas were good for the persistence (.68) and sociability (.73) scales, but somewhat lower for the reactivity scale (.59). The corresponding figures from the Dress Rehearsal data were .65, .68 and .64 for persistence, sociability and reactivity respectively (Table 4.1).

Table 4.1: Comparison of mean scores for sociability, persistence and reactivity temperament sub-scales

	Sociability	Persistence	Reactivity
GUI Pilot Mean	4.1	4.6	3.0
GUI DR Mean	4.1	4.7	3.1
LSAC Mean	3.9	4.3	3.0
ATP Mean	3.4	4.1	3.2

*DR = Dress Rehearsal; LSAC = Longitudinal Study of Australian Children; ATP = Australian Temperament Project

Table 4.1 shows the means for the three sub-scales of sociability, persistence and reactivity. It also shows mean scores reported by Growing Up in Australia (LSAC) for children aged 2-3 years,[5] as well as those reported for 2-3 year-olds by the Australian Temperament Project (Smart & Sanson, 2008). In broad terms the mean figures are largely in line across the three studies (GUI, LSAC and ATP).

4.1.1 TEMPERAMENT FROM WAVE 1 TO WAVE 2

In the Pilot at nine months (and in the Main Study), infant temperament was measured using the Infant Characteristics Questionnaire (ICQ; Bates, Freeland & Lounsbury, 1979). Both the Short Temperament Scale for Toddlers (STST) at Wave 2 and the ICQ at Wave 1 included a single question reflecting the Primary Caregiver's overall perception of how easy or difficult the child was. On the STST (Wave 2) the answer options are *easier than average* (43 per

[4] Personal communication from the Longitudinal Study of Australian Children.
[5] Note that these numbers are approximate as they have been read from a graph published in Smart and Sanson (2008).

cent), *about average* (53.5 per cent) and *more difficult than average* (3.5 per cent). For the ICQ, respondents used a seven-point scale where 1 was anchored as *super easy*, 4 as *ordinary, some problems* and 7 as *highly difficult to deal with*. Table 4.2 shows the correspondence between the global rating of temperament at Wave 1 with the current global rating at Wave 2.

Table 4.2: Comparison of child's global easiness-of-temperament rating from Wave 1 (ICQ) to Wave 2 (STST)

		LSAC Global Question (Wave 2)			
		Easier than average	*About average*	*More difficult than average*	*Total*
ICQ Global Question (Wave 1)	Super easy 1	21.5%	19.2%	0.0%	40.7%
	2	13.4%	14.5%	0.6%	28.5%
	3	3.5%	8.1%	1.2%	12.8%
	Ordinary 4	2.9%	10.5%	0.6%	14.0%
	5	1.7%	1.2%	0.6%	3.5%
	6	0	0	0	0
	Highly difficult 7	0.0%	0.0%	0.6%	0.6%
	Total	43.0%	53.5%	3.5%	100.0%

Table 4.3 indicates reasonable correspondence on global ratings between waves. Of the 40.7 per cent of children who were rated as *super easy* at nine months, over half are described as *easier than average* at follow-up. The remainder are described as *average* and none are now described as *difficult*. A move away from easier ratings to more average ratings is, perhaps, not entirely unexpected given the age of the children in the Pilot (2 years, 9 months). The one child who was rated as a '7' – *highly difficult to deal with* – at nine months was still described as being *more difficult than average* two years later.

Using the Dress Rehearsal data, the four sub-scales of the ICQ (fussy-difficult, unadaptable, dull, and unpredictable) were contrasted with the STST scales of persistence, reactivity and sociability. The Pearson's r correlation values are shown in Table 4.3, from which one can see the following significant correlations which are in the expected direction:

- Fussy-difficult at nine months was positively related to reactivity at age three years
- Unadaptability at nine months was negatively correlated with sociability at age three
- Unpredictability at nine months was weakly, but significantly negatively correlated with persistence at age three
- Being dull (as in subdued) at nine months was weakly, but significantly, negatively correlated with sociability at age three

Table 4.3: Correspondence between characteristics measured by ICQ in Wave 1 and those measured by STST in Wave 2

		Nine months			
		Fussy-difficult	Unadaptable	Dull	Unpredictable
3 years	Reactivity	.28**	.12	-.01	-.01
	Persistence	-.09	.02	-.13	-.15*
	Sociability	-.11	-.24**	-.14*	-.03

** Significant at the .01 level * Significant at the 0.05 level

The issue of stability of temperament across time is important because, if it is very variable across time and across situations, it may be argued that temperament is a weak concept, and that it is not likely to be a strong predictor of later social and psychological wellbeing.

On the basis of the analysis of Pilot and Dress Rehearsal results, the Short Temperament Scale for Toddlers was retained for the Main Study.

4.2 PARENTAL STRESS

The Parental Stress Scale (Berry & Jones, 1995) is an 18-item self-report scale designed to assess both positive and negative aspects of parenthood. It comprises four sub-scales: Parental Rewards (6 items); Parental Stressors (6 items); Lack of control (3 items); and Parental Satisfaction (3 items), with items rated on a five-point Likert-type scale ranging from *strongly disagree* to *strongly agree*. A total stress score is calculated as a composite of the items (ranging from 18-90); higher scores indicate higher levels of stress.

Psychometric information

Berry and Jones (1995) report reliability and validity data for a sample of 1,276 parents of both typically developing children and those with developmental and behavioural problems. The Parental Stress Scale demonstrated satisfactory levels of internal reliability (.83), and test-retest reliability (.81). It also demonstrated satisfactory convergent validity with various measures of stress, emotion, and role satisfaction, including perceived stress, work/family stress, loneliness, anxiety, guilt, marital satisfaction, marital commitment, job satisfaction, and social support.

Following consultation with relevant experts, it was decided to use only the six-item parental stressors sub-scale for the Pilot and Dress Rehearsal at Wave 2. This was partly due to time pressures and also because parents were asked about parenting self-efficacy elsewhere. The case for keeping this sub-scale was strengthened by the fact that the parental stressors sub-scale was also used with the Child Cohort (at age nine and 13). Using this sub-scale thus ensured comparability and consistency not only across waves, but across cohorts. Analysis of the Pilot data showed that the internal reliability consistency of the parental stressors sub-scale was good (α =.76). Total stress scores ranged from 6.0 to 29.0, with a mean of 15.6 (S.D. = 4.57). The internal consistency reliability of the parental stressors sub-scale was also acceptable in the Dress Rehearsal (α = 0.70). Scores ranged from 6.0 to 27.0, with a mean of 14.6 (S.D. = 3.94).

The parental stress score was cross-referenced against other items on the questionnaire which tap into parenting difficulties. Tables 4.4 and 4.5 show that the parental stress score is positively related to the frequency with which parents smack or shout at their children, and

negatively related to a measure of parenting efficacy. This pattern was observed for both the Pilot and Dress Rehearsal data.

Table 4.4: Mean parental stressors score by frequency of smacking and shouting

	Smacking *Per cent*		**Shouting** *Per cent*	
	Pilot	Dress Rehearsal	Pilot	Dress Rehearsal
Never	15.0	14.2	14.5	12.7
Rarely	15.3	14.7	14.7	14.2
Now and again	17.9	15.2	15.8	15.1
Regularly	22.5	17.0	18.9	15.8
Always	-	19.0	19.5	17.3

Table 4.5: Mean parental stress score by self-reported parenting efficacy

	Primary Caregiver *Per cent*		**Secondary Caregiver** *Per cent*	
Self-evaluation as a parent	Pilot	Dress Rehearsal	Pilot	Dress Rehearsal
Not very good at being a parent	-	20.0	22.0	18.0
A person who has some difficulty being a parent	22.6	19.3	18.5	16.5
An average parent	16.6	15.7	15.4	15.4
A better than average parent	14.6	14.6	14.5	14.4
A very good parent	15.0	13.0	13.6	12.1

4.2.1 PARENTAL STRESS FROM WAVE 1 TO WAVE 2

The parental stressors sub-scale was also used in Wave 1 of the Pilot and Dress Rehearsal (as part of the overall measure). It appears that parental stress scores are moderately stable over time, with a correlation of r = .50 (n = 170; p<.001) from Wave 1 to Wave 2 in the Pilot, and *r* = .58 (p<.001) in the Dress Rehearsal, adding further credence to the decision to maintain it alone for the Main Study.

4.3 PARENTING STYLES

The term parenting style refers to the degree of warmth and control which parents show when interacting with their children, such as when responding to bad behaviour. Parenting style was not assessed at nine months (Wave 1) but was assessed in the nine-year study, using the child's own report.

4.3.1 PARENTAL AUTHORITY QUESTIONNAIRE (PAQ-R, REITMAN ET AL, 2002)

The PAQ-R is a 30-item parent-report instrument for use with parents of children aged 3-5 years. It assesses attitudes and behaviours associated with Baumrind's original authoritative, authoritarian and permissive parenting styles. The original instrument consists of three 10-item scales, rated on a five-point Likert scale ranging from *strongly agree* to *strongly disagree*. Scores on each sub-scale range from 10 to 50. The measure yields a separate, continuous score for each dimension of parenting; higher scores indicate a higher degree of commitment to a particular parenting style. The 30-item version of the PAQ-R was reduced to 15 items following consultation with the scale's developer in order to facilitate its use in the Pilot study. Items were chosen which had high content validity and high factor loadings (based on Reitman et al's paper), while seeking to eliminate any items with cross-factor loadings. The resulting 15-item scale comprised five items per scale, yielding sub-scale scores ranging from 5–25.

Psychometric information

Reitman et al reported alphas of .73, .73 and .67 for the authoritarian, permissive and authoritative scales respectively. When this scale was used in the Pilot phase of Wave 2, just under 84 per cent (83.7 per cent) of respondents were classified as having an authoritative parenting style and a further 8.7 per cent as having an authoritarian parenting style. A dominant parenting style could not be assigned in 7.6 per cent of cases because respondents had identical scores across two of the sub-scales.

The PAQ-R did not, however, perform well in the Pilot. Interviewers noted that respondents had difficulties with item wording. Analyses of internal consistency reliability revealed that none of the PAQ-R scales performed particularly well, yielding alphas (authoritarian = .54; authoritative = .40; permissive = .56) substantially below the standard criterion. Exploratory factor analysis of the shortened 15-item version of the instrument failed to distil factorially pure measures of the parenting constructs, even when a forced three-factor solution was imposed on the data. It was decided, therefore, to replace the PAQ-R with an alternative measure of parenting style for the Dress Rehearsal.

4.3.2 LSAC PARENTING MEASURE

A 22-item parenting measure developed for LSAC was used in the Dress Rehearsal. It yields scores for each of four parenting dimensions: warmth (6 items), reasoning (5 items), hostility (6 items) and consistency (5 items) that have been shown to mediate child outcomes. In the Growing Up in Australia (LSAC) study, this instrument was found to be a strong predictor or mediator of child outcomes (Smart & Sanson, 2006).

In the ***Growing Up in Ireland*** Dress Rehearsal, internal consistency reliability for the warmth (α = .73), reasoning (α = .82) and consistency (α = .68) constructs met or exceeded the standard criterion, while that for hostility was somewhat lower (α = .62). Nevertheless, inspection of the item-total correlations revealed that reliability could not be improved by eliminating items from this scale as reliability depends on both the average inter-item correlation and the number of items in the scale. Table 4.6 provides summary data in respect of the various LSAC parenting dimensions in the Dress Rehearsal.

Table 4.6: Summary statistics for the LSAC parenting dimensions

	Warmth	Reasoning	Hostility	Consistency
N	214	214	213	213
Mean	4.76	4.35	1.85	3.88
Std. Deviation	035	0.62	0.49	0.74

As a check on the validity of the LSAC parenting measure, scale scores for the four parenting dimensions were compared against scores on the Pianta parent-child relationship scale (which indexes both positive and negative aspects of the parent-child dynamic) and the SDQ Total Difficulties score, which serves as the primary outcome measure of emotional-behavioural development at three years of age (Table 4.7).

Table 4.7: Pearson product-moment correlations between the LSAC parenting dimensions, and the Pianta parent-child relationship scale and SDQ total difficulties index

	Reasoning	Hostility	Consistency	SDQ Total Difficulties	Pianta positivity	Pianta conflict
Warmth	.46***	-.32***	.04	-.23***	.37***	-.29***
Reasoning	-	-.19**	.13	-.27***	.28***	-.29***
Hostility	-	-	-.18**	.47***	-.14*	.47***
Consistency	-	-	-	-.23***	-.01	-.19**

*** Significant at the 0.01 level ** Significant at the .01 level * Significant at the 0.05 level

Results indicated that the various parenting measures had low to moderate correlations with the Pianta and SDQ scores, in a manner which was conceptually meaningful. For example, warmth was significantly positively related to positivity in the parent-child relationship (r = .37; p<.001), and significantly inversely related with conflict (r = -.29; p<.001) and the SDQ total difficulties score (r = -.23; p<.01). The hostility dimension, in contrast, was significantly positively related to conflict in the parent-child relationship (r = .47; p<.01) and the SDQ total difficulties score (r = .47; p<.01), and significantly inversely associated with positivity in the parent-child relationship (r = .14; p<.05).

The LSAC parenting measure was retained for the Main Study. Due to time pressures and overlap with another question (B10a: '*How often do you discuss/explain why behaviour is wrong?*'), the reasoning sub-scale was not used in the Main Study. Table 4.8 shows that the LSAC reasoning scores were positively related to the frequency with which parents discuss or explain why behaviour is wrong.

Table 4.8: Mean LSAC reasoning score by frequency of discussing/explaining why behaviour was wrong

B10(a) Discuss/Explain	Mean	N	Std. Deviation
Never	1.80	1	-
Rarely	3.40	1	-
Now and again	3.48	13	0.69
Regularly	4.15	55	0.55
Always	4.53	144	0.51

4.4 DEPRIVATION INDICES

The Wave 2 Pilot contrasted two measures of household deprivation: the Basic Deprivation Index and the Child Deprivation Index. The Dress Rehearsal contrasted the Basic Deprivation Index with a deprivation index based on items used by the Millennium Cohort Study.

4.4.1 THE BASIC DEPRIVATION INDEX

The Basic Deprivation Index was used in the Pilot at Wave 1 and in the main infant study. Developed by the Economic and Social Research Institute (ESRI), it has been used to assess the incidence, correlates and drivers of poverty and deprivation both in Ireland and, increasingly, internationally. The scale has been developed through work stretching back to 1987 (see Callan et al, 1993, Layte et al, 2001, Nolan et al, 2002 and Maitre et al, 2006). It has most recently been revised using data collected by the Central Statistics Office in 2003 as part of the EU-harmonised European Union – Survey of Income and Living Conditions (EU-SILC).

Psychometric information

The Basic Deprivation Index is made up of 11 items relating to poverty in areas such as food, clothing, furniture, debt and minimal participation in social life. The index can be used on its own as a measure of non-monetary deprivation. It has also been very widely combined with thresholds of relative income poverty to provide a measure of 'consistent' poverty status and changes therein over time. The dimensionality of deprivation was investigated using exploratory factor analysis on an initial set of 39 items from the EU-SILC survey. Item loadings on the basic deprivation dimension ranged from .55 for going without heating to .71 for *being able to afford new clothes* and *having a roast joint or equivalent (at least once a week)* (Whelan, Maitre & Nolan, 2007).

4.4.2 THE CHILD DEPRIVATION INDEX

The Basic Deprivation Index was used in the main phases of the nine-year cohort as well as the Infant Cohort. It focuses, however, on deprivation at the *household* level rather than on deprivation which is directly experienced by the child. In addition, provisional analyses using the nine-year data suggested that the Basic Deprivation Index did not have the predictive power expected of it. To address these issues, the Study Team tested another measure of deprivation as used by the Office of National Statistics in the UK. Twenty items were adapted from the Child Deprivation Index (Gordon et al, 2000), which was designed to measure child poverty.

Psychometric information

The items comprising the scale were chosen by the original test constructors because more than 50 per cent of parents in the British sample regarded them as necessities. These items included books and leisure equipment, as well as food and clothing. Validity tests were made on each item; the odds of a child lacking the item because their parent(s) could not afford it were checked against four subjective measures of poverty. The test developers suggest a cut-off of lacking one or more necessities as the classification of poverty. Although the original scale comprised 30 items, 10 of these were dropped for the ***Growing Up in Ireland*** Pilot because they were not age-appropriate for three-years-olds (e.g. *school trip at least once per term*).

4.4.3 COMPARISON OF THE DEPRIVATION INDICES IN THE PILOT

Each household completed both indices. Most families were not missing out on any item because they *couldn't afford it*, when measured using either the Basic Deprivation Scale (84 per cent) or the Child Deprivation Index (88 per cent). According to the Basic Deprivation Index, a household is considered deprived if it is missing out on two or more items from the scale; on the Child Deprivation Index it is any one item. Table 4.9 shows how many families were classified as deprived on either or both scales. On the Basic Deprivation Index, 9.3 per cent of households were classified as deprived; on the Child Deprivation Index it was 12.3 per cent. For 84.2 per cent of families, their deprivation classification was in agreement across the scales.

Table 4.9: Comparison of deprivation classifications on the Basic Deprivation Index (BDI) and Child Deprivation Index (CDI)

			Basic Deprivation Index		Total
			Not Deprived	Deprived	
			(Per cent)		
Child Deprivation Index	Not Deprived	% within CDI	96.0	4.0	100.0
		% of total	**84.2**	**3.5**	**87.7**
	Deprived	% within CDI	52.4	47.6	100.0
		% of total	**6.4**	**5.8%**	**12.3%**

The Child Deprivation Index did not evidence any obvious advantage in discriminating sub-groups of children or in terms of its relationships to other characteristics recorded, compared with the previously used Basic Deprivation Index. On this basis the Child Deprivation Index was not retained for the Dress Rehearsal. The Basic Deprivation Index was retained, but in the Dress Rehearsal would be compared with a third index as used by the Millennium Cohort Study (MCS).

4.4.4 COMPARISON OF THE BASIC DEPRIVATION INDEX AND MCS INDEX IN THE DRESS REHEARSAL

All households completed both the Basic Deprivation Index and an index of items from a list of necessities which was included in the Millennium Cohort Study. These items draw on work done in the UK by Bradshaw and colleagues (e.g. Bradshaw, Gordon, Levitas et al, 1998). Some of the items relate specifically to the child rather than the household: for example "a warm waterproof coat for <child>" rather than "does each household member possess a warm waterproof coat?"

Using the Basic Deprivation Index, a majority of families (72 per cent) were not missing on any item because they could not afford it. This figure was lower than in the Pilot. Over 11 per cent of families could be classified as 'at risk of deprivation' because they could not afford two or more of the basic items. Using the list from the MCS, however, showed that more families were missing at least one of these items (45 per cent) than on the Basic Deprivation Index (28 per cent). Over a quarter (28 per cent) were missing two or more items. On closer examination of individual items in Table 4.10, however, it appears that the non-child-related items are those that have the highest rates of absence due to money. For example, just 0.5 per cent of families could not afford a *warm waterproof coat for <child>* whereas 23 per cent could *not afford a small amount of money for the parent to spend on themselves each week*.

Table 4.10: Rates for missing out on individual items in the MCS set

Item	Per cent who could not afford
Warm waterproof coat for child	0.5
New properly fitted shoes for child	0.5
Fresh fruit and vegetables at least once a day for child	0.9
Insurance for contents of your home	19.2
Hobby or leisure activity for parent	18.4
Two pairs of weather-proof shoes for parent	3.3
Small amount of money for parent to spend on self weekly	23.4
Holiday away from home once a year, not staying with relatives	33.8

Table 4.11 shows how many families were unable to afford two or more items from both the Basic Deprivation Index and the MCS set of items. Just over 10 per cent of families were missing two or more items from both scales due to a lack of money. Nearly 18 per cent of families were lacking two or more items from the MCS set but were not at risk of deprivation according to the Basic Deprivation Index. This may be because the latter items are somewhat more basic than those in the MCS set and, as previously highlighted, the more adult-focused items, such as a parental hobby, were the most frequently lacking in the former. Less than 1 per cent of families were classified as at risk of deprivation according to the Basic Deprivation Index but were not lacking two or more items on the MCS set.

Table 4.11: Comparison of deprivation classifications on the Basic Deprivation Index (BDI) and 'unable to afford two or more items' on the MCS set

			Unable to afford two or more items from MCS set		Total
			No	Yes	
			(Per cent)		
Unable to afford two or more items on Basic Deprivation Index	No	% within BDI	80.0	20.0	100.0
		% within MCS	98.7	63.3	88.8
		% of total	**71.0**	**17.8**	**88.8**
	Yes (at risk of deprivation)	% within BDI	8.3	91.7	100.0
		% within MCS	1.3	36.7	11.2
		% of total	**0.9**	**10.3**	**11.2**
Total		% within BDI	72.0	28.0	100.0
		% within MCS	100.0	100.0	100.0
		% of total	**72.0**	**28.0**	**100.0**

To help in assessing their relative validity, 'being unable to afford two or more items' from either index was contrasted with the Primary Caregiver's response to the question at J30: '*How well would you say you and your spouse/partner are managing financially these days*?'. The results appear in Table 4.12.

Table 4.12: Family classified as at risk of deprivation contrasted with how easy it is for them to make ends meet

		Living comfortably	Doing alright	Just about getting by	Finding it quite difficult	Finding it very difficult	Total
		Per cent					
BDI: At risk of deprivation	**No**	22.6	39.5	31.1	4.2	2.6	100
	Yes	0	4.2	41.7	33.3	20.8	100
Unable to afford two or more MCS items	**No**	27.3	44.2	24.0	3.9	0.6	100
	Yes	1.7	13.3	53.3	16.7	15.0	100

No-one who described themselves as *living comfortably* was considered at risk of deprivation according to the Basic Deprivation Index. Over 20 per cent of those who were at risk of deprivation described themselves as *finding it very difficult*. The MCS index shows a similar pattern to the Basic Deprivation Index; just 1.7 per cent of those who were unable to afford two or more of the items described themselves as *living comfortably*.

4.4.5 CHANGES FROM WAVE 1 TO WAVE 2 USING THE BASIC DEPRIVATION INDEX

Seven per cent of the Pilot families had moved *into* risk of deprivation between Wave 1 and Wave 2, while 1.2 per cent of families had moved *out of* risk of deprivation. The overall rate of deprivation among the Pilot sample increased from 3.5 per cent at Wave 1 to 9.4 per cent at Wave 2. As the intervening period witnessed an economic decline, such an increase in deprivation rates is not unexpected.

As Table 4.13 indicates, a similar pattern was observed with the Dress Rehearsal families: nearly 8 per cent of families had *become* at risk of deprivation between Wave 1 and Wave 2 while 2.8 per cent had moved *out of* risk of deprivation. The overall rate of deprivation increased from 6.1 per cent at Wave 1 to 11.2 per cent at Wave 2. Again, considering the decline in economic conditions, changes from Wave 1 to Wave 2 (and even between Pilot and Dress Rehearsal in Wave 2) are not unexpected.

Table 4.13: Change in deprivation status from Wave 1 to Wave 2, using Basic Deprivation Index

		Basic Deprivation Index Wave 2 (3 yrs)		Total
PILOT		*Not Deprived*	*Deprived*	
		Per cent		
Basic Deprivation Index Wave 1 (9 months)	Not Deprived	89.5	7.0	96.5
	Deprived	1.2	2.3	3.5
		90.6	9.4	100.0
DRESS REHEARSAL		*Not Deprived*	*Deprived*	
Basic Deprivation Index Time 1 (9 months)	Not Deprived	86.0	7.9	93.9
	Deprived	2.8	3.3	6.1
		88.8	11.2	100.0

The MCS Index showed higher levels of deprivation in relation to the adult-related items as compared to the child-centred items. For the Main Study, therefore, the Study Team considered it preferable to be able to plot movement in and out of deprivation risk using the same measure as used in Wave 1 of the Infant Cohort main phase, i.e. the Basic Deprivation Index.

Chapter 5

AGES AND STAGES QUESTIONNAIRE

This chapter deals with the Ages and Stages Questionnaire (Squires, Potter & Bricker, 1999). This is a measure of child development which was used with the infants at Wave 1.

5.1 ABOUT THE AGES AND STAGES QUESTIONNAIRE (ASQ)

The Ages and Stages Questionnaire (ASQ) was selected for use in the three-year Pre-pilot, Pilot and Dress Rehearsal as it had been used in the main phase of Wave 1, when the children were nine months of age. Its inclusion in Wave 1 was based on its good psychometric properties and a rigorous piloting and Dress Rehearsal process. The ASQ manual reports specificity and sensitivity of 90 per cent with a standardised assessment using the Revised Gesell Development Examination for the 36-month questionnaire (n=31), and specificity of 91 per cent using the Stanford-Binet Intelligence Scale (n=33) (Squires, Potter & Bricker, 1999). These cut-off points, developed during the test authors' norming process, are two standard deviations below the mean score for the norming group, which combined at-risk and non-risk children.

5.2 ORGANISATION AND ADMINISTRATION OF THE ASQ

The ASQ is organised as separate questionnaires for 19 age intervals spanning four months to 60 months. For the piloting phases, the 36-month questionnaire was used as it was the version likely to be used in the Main Study, although the Study Team noted that the children in the Pilot phase were typically aged two years and nine months (33 months). The questionnaires are divided into sections reflecting different developmental domains: **communication, gross motor, fine motor, problem solving,** and **personal-social**, with six questions per section.

For the Pre-pilot and Pilot phases, the Primary Caregiver was given the ASQ at the conclusion of the household visit in the form of a self-complete booklet. S/he was asked to complete it and try as many of the activities as needed to establish whether or not the child was able to do each activity. While Primary Caregivers who wished to complete the booklet in the presence of the interviewer were facilitated in doing so, the majority chose to keep it for later postal return. In the Pilot, families who had not returned the self-completion booklet by the end of fieldwork were sent one reminder letter, enclosing a second booklet. The response rate for the Pilot was 60 per cent, including those completed during the household interview and returned by the interviewer. Primary Caregivers were asked to indicate the time they spent completing the ASQ on the returned booklet. Based on these parental estimates, the mean time taken to complete the ASQ was 19 minutes.

Due to the low response rate with the postal return in the Pilot, the ASQ was brought back into the main household visit for the Dress Rehearsal. It was, however, not possible to directly administer all of the items due to time constraints. Accordingly, the child (with the Primary Caregiver) only attempted activities that were too specific for the caregiver to have previously observed. These included fine motor items, which involved copying a horizontal line, a vertical line and a circle, and problem-solving items such as copying, block-building and digit recall. Other items (including all of the gross motor items) were administered on a parent-report basis only. The gross motor and personal-social questions were embedded in the main PCG interview in Sections C and B respectively. Fine motor, problem-solving and communication items were completed after the cognitive items.

5.3 RESULTS ON THE ASQ

Scores on the ASQ range between 0 and 60 for each domain. A child is deemed to have passed or failed a section depending on whether his/her score for that section is above or below the pre-defined cut-off point.

The results of the ASQ in the Pilot and Dress Rehearsal in terms of mean, median, minimum and maximum scores are presented in Table 5.1. The pass/fail rate on each sub-scale is also shown in the table. One can see that the pass rates were similar between Pilot and Dress Rehearsal for communication, fine motor and personal-social but were somewhat different for gross motor and problem-solving. There were, however, more questionnaires completed for the Dress Rehearsal than the Pilot as the latter was completed in the household in the course of the interview.

Table 5.1: Summary statistics for 36-month ASQ in Pilot and Dress Rehearsal

	Communication		**Gross Motor**		**Fine Motor**		**Problem-Solving**		**Personal-Social**	
	Pilot	*D.R.*	*Pilot*	*D.R.*	*Pilot*	*D.R.*	*Pilot*	*D.R.*	*Pilot*	*D.R.*
Mean	51.6	52.8	51.8	55.5	41.1	41.7	50.6	53.1	51.4	51.6
Norm Mean	*54.3*		*54.7*		*52.5*		*55*		*53.5*	
Median	55	55.0	55	60.0	45	45.0	60	60	55	55.0
Minimum	0	.00	20	.00	0	.00	0	0	20	10.00
Maximum	60	60.00	60	60.00	60	60.00	60	60	60	60.00
Cut-off score	*38.6*		*35.6*		*30.6*		*38.5*		*38.6*	
% of infants exceeding cut-off point	91	94	88	97	76	74	83	91	91	94

5.4 COMPARISON BETWEEN WAVE 1 AND WAVE 2 MEASURES IN THE DRESS REHEARSAL

In order to assess the stability of the ASQ and thus its strength as a construct which could be linked to or predict other outcomes, Pearson's r correlations between domain scores at Wave 1 and Wave 2 of the Dress Rehearsal were explored. These were found to be significant (one-tailed), albeit very moderate, for all but fine motor skills: Communication ($r = .18$, $n=162$, $p<.05$); Gross Motor ($r = .22$, $n=163$, $p<.01$); Fine Motor ($r = .03$, $n=157$, p = n.s.); Problem-Solving ($r = .13$, $n=156$, $p<.05$); Personal-Social ($r = .37$, $n=164$, $p<.01$). The lack of correspondence between fine motor skills appears to be due to the relatively poor performance of children in Wave 2: over a quarter of the children who passed as infants failed at the later wave.

5.5 CORRESPONDENCE BETWEEN 36-MONTH ASQ SCORES AND OTHER MEASURES IN THE 3-YEAR DRESS REHEARSAL

5.5.1 VOCABULARY

With a view to considering concurrent validity, Table 5.2 shows the mean raw scores on the BAS Naming Vocabulary measure according to whether the child passed or failed a given domain on the ASQ 36-month. T-tests were used to assess significance. Higher mean scores on the BAS Naming Vocabulary test were associated with passing rather than failing each domain in the ASQ, with the exception of gross motor scores.

Although the pattern was reversed for gross motor scores, only two children actually failed this domain so the result should be treated with caution; in addition, the correlation was not significant, as shown in Table 5.3. The same pattern of results was found with the within-sample percentile ranks.

Table 5.2: Mean scores on the BAS Naming Vocabulary measure according to pass/failure on each ASQ domain in the three-year Dress Rehearsal

	36-Month ASQ Domain		N	Mean	SD
BAS Naming Vocabulary Raw Score	**Communication**	*Fail*	*8*	*10.8*	*3.7*
		Pass	192	15.3*	4.9
	Gross Motor	*Fail*	*2*	*18.0*	*.0*
		Pass	197	15.1**[6]	4.9
	Fine Motor	*Fail*	*47*	*13.9*	*4.8*
		Pass	152	15.5*	4.9
	Problem-Solving	*Fail*	*18*	*12.2*	*4.1*
		Pass	182	15.4**	4.9
	Personal-Social	*Fail*	*8*	*11.3**	*3.6*
		Pass	192	15.2*	4.9

*Different from the *fail* mean score at the 5 per cent level
**Different from the *fail* mean score at the 1 per cent level

Table 5.3: Correlations between 36-month ASQ scores and raw scores on the BAS Vocabulary Measure

	ASQ 36 MONTH				
Vocabulary Raw Scores	**Communication**	**Gross Motor**	**Fine Motor**	**Problem-Solving**	**Personal-Social**
BAS Naming	.36**	-.03	.21**	.29**	.31**

* Significant at the 5 per cent level, two-tailed **Significant at the 1 per cent level, two-tailed

5.5.2 TEMPERAMENT AND BEHAVIOUR

Because temperament is a likely predictor of future behaviour, it was believed appropriate to assess validity for the measures by correlating the temperament measure with behaviour-related sub-scales from the ASQ. There was a significant positive correlation between scores on the ASQ 36-month personal-social scale and the persistence scale of the abbreviated Short Temperament Scale for Toddlers (STST) (r = .27, p<.001, one-tailed). The reactivity sub-scale of the STST was weakly but negatively correlated with the ASQ personal-social scale, as expected (r = -.12, p<.05, one-tailed). There was also a zero correlation between the ASQ personal-social and the sociability scale of the STST (r = .00, p = .500, n=213, one-tailed). This result is not unexpected as shy children can still have strong personal-social skills, while high sociability can often be associated with externalising problems.

[6] Note that only two children failed the gross motor, and the t-test is only significant as equal variances are not assumed.

5.6 MEASURING CHILD DEVELOPMENT IN THE MAIN STUDY

While the Ages and Stages Questionnaire performed at an acceptable level in the Pilot and Dress Rehearsal, it became clear from the Dress Rehearsal that it would not be feasible to administer two direct assessments (BAS Naming Vocabulary and Picture Similarities) along with all five of the ASQ domains, due both to time constraints and the response burden placed on the three-year-old Study Child. The Pilot had previously indicated that administering the ASQ on a self-completion basis with postal return was not feasible, due to a poor response rate. Given the instrument's heavy respondent burden, the overlap between several of its domains and comparable measures recorded elsewhere in the questionnaire, as well as the weaker than expected relationships with other characteristics, it was decided to remove the ASQ from the instruments administered in the Main Study. As noted, however, there is considerable overlap between some of the ASQ domains and other measures that remain in the Main Study, as follows:

Communication – BAS Naming Vocabulary

Problem-solving – BAS Picture Similarities

Personal-social – SDQ

The only domains not covered elsewhere at all in the existing measures were gross motor and fine motor. Rather than administer a part-measure of development, three milestones for each of these domains were highlighted for inclusion in the final draft of the instruments. One parent-report item for each domain was included in Section E of the main Primary Caregiver Questionnaire (using a tricycle and assembling jigsaw puzzles/lego pieces). Two gross motor activities (standing on one leg; throwing a ball overhand) and two fine motor activities (copying a vertical line and holding a pencil in a pincer grip) were then observed by the interviewer prior to the administration of the cognitive tests. In this way, the motor tasks also functioned as an ice-breaker exercise between interviewer and child prior to the cognitive tests. Selection of the motor indicators was based on the advice given by the American Academy of Pediatrics to parents of 3-4 year-olds to seek professional advice if their child cannot ride a tricycle. (The authors recognise that the three-year-old Study Children in ***Growing Up in Ireland*** were at the early end of this range.) The same set of indicators suggest that 3-4 year-olds should also be able to throw a ball overhand and stand on one leg.[7]

[7] See http://www.healthychildren.org/English/ages-stages/toddler/pages/Developmental-Milestones-3-to-4-Years-Old.aspx

Chapter 6

MEASUREMENT OF CHILDREN'S COGNITIVE ABILITIES

A child's cognitive ability in early life has been shown to be a good indicator of their later educational development (Feinstein, 2003). Although a number of instruments for measuring cognitive ability in children are available (see Lichtenberger, 2005 for a review), the challenge faced by the Study Team was to find an instrument which possessed strong measurement properties and could be adapted for use in a large social research project such as ***Growing Up in Ireland***. This chapter details the process of arriving at a suitable measure for the Main Study.

6.1 BRITISH ABILITIES SCALES

Two sub-tests from the British Ability Scales (BAS), the Naming Vocabulary and Picture Similarities scales, were selected as the preferred instruments for the Pilot study, as the BAS demonstrates a number of positive features. These include the fact that the BAS is a direct assessment (rather than parental report) and that elements, including the Naming Vocabulary and Picture Similarities, have been successfully implemented by child cohort studies similar to ***Growing Up in Ireland***, including the Millennium Cohort Study and Growing Up in Scotland. Further details on these tests can be found in McCrory, Williams, Murray, Quail and Thornton, 2011.

6.1.1 PSYCHOMETRIC INFORMATION

The Study Team chose two of the core scales (Naming Vocabulary and Picture Similarities) to derive measures of children's verbal and non-verbal ability. These two tests are among those most heavily saturated with General Crystallised (Gc) and General Fluid (Gf) ability, identified in Horn and Cattell's taxonomy of human abilities. In terms of reliability, Elliott, Smith and McCulloch (1997) report co-efficient alphas of .78 and .86 for the Naming Vocabulary test for children aged 2:6–2:11 and 3:0–3:5 years respectively. The corresponding alphas for the Picture Similarities test were .87 and .82 for the respective age bands. As an indicator of validity, the Naming Vocabulary and Picture Similarities sub-tests of the BAS correlated .68 and .47 with the verbal and performance IQ components of the Wechsler Preschool and Primary Scale of Intelligence – Revised respectively.

6.1.2 OUTLINE OF NAMING VOCABULARY AND PICTURE SIMILARITIES

The Picture Similarities and Naming Vocabulary scales from the British Abilities Scales measure reasoning/problem-solving and English vocabulary respectively. In the Picture Similarities test, children are shown a page with four pictures and given a card containing a fifth picture. The child has to match the card to one of the four pictures based on some shared characteristic or construct (e.g. a card showing a stamp was matched to the picture of an addressed envelope). For the Naming Vocabulary test, the child is shown pictures of everyday objects and asked to call out the name of the object (in English).

Scoring and decision points

In the Naming Vocabulary Test, the administrator presents all items up to a Decision Point (items 16 and 30), beyond which children will proceed only if they have fewer than three failures on all items administered up to that point. However, the scale also has an Alternative Stopping Point (which is in fact obligatory) whereby the administrator halts if the child gets five consecutive items incorrect. On the Picture Similarities test, the Decision Points are after items 23 and 28 but the Alternative Stopping Point is after any six incorrect items within the last eight administered items. For both tests, the children in the Pilot started at item 1.

6.2 USE OF THE BRITISH ABILITIES SCALES (BAS) AND ALTERNATIVES IN PILOTING

The Pre-pilot used the Naming Vocabulary scale from the BAS in addition to the School-Readiness Composite of the Bracken Basic Concept Scale. Both tests were administered using a pencil and score sheet to record responses. While the administration of the BAS Naming Vocabulary went relatively smoothly, the School-Readiness Composite (which was also used by the Millennium Cohort Study) was withdrawn as hardly any of the children were familiar with letters or numbers, which form a key part of this test.

6.2.1 ADAPTATIONS TO ADMINISTRATION FOR THE PILOT

For the Pilot, the BAS Naming Vocabulary was administered along with the BAS Picture Similarities from the same test battery (see above). The Pre-pilot exercise established the feasibility of administering the cognitive tests in the home. Designed for administration and scoring on paper, the BAS was adapted for the Pilot study to be scored electronically. The BAS employs complex decision rules determining which items should be presented to the child, based on their pattern of correct or incorrect responding (see above, and the *Design, Instrumentation and Procedures Report* for more detail). To remove the requirement for interviewers to track the sequence of answers, a CAPI program was developed which determined the questions which would be presented to the child based on their pattern of responding.

In addition to the electronic scoring of items, other modifications were made to the tests to ensure standardised administration and scoring across interviewers. For example, items 1 and 2 on the Naming Vocabulary test and items 1, 2, 3, 4 and 5 on the Picture Similarities test are designated *teaching items*. The BAS stipulates that, if the child gets any of these items incorrect, the interviewer is to provide teaching on these items in order to familiarise the child with the requirements of the test; correct responses to these items are acknowledged. To ensure that all children failing these items were coached in a similar manner, verbatim instructions for teaching these items were displayed on the CAPI screen for the interviewer. These modifications also extended to the scoring of the tests. For example, in addition to a listing of acceptable responses to each picture stimulus on the test, the administration and scoring instructions which accompany the Naming Vocabulary test give a listing of specific incorrect responses that *must* be queried further. In an attempt to reduce administrator burden and to increase the reliability of scoring, the list of acceptable responses, as well as those which were to be queried further, were also posted on each individual CAPI screen.

Following the Pilot exercise, the interviewers raised a number of issues with the administration of the tests that required clarification and a standardised response. The test publishers were consulted with regard to queries about individual items.[8] Other issues and the guidelines adopted for the Dress Rehearsal phases and Main Study are outlined in Table 6.1.

[8] For example, whether the response 'French door/patio door' should be accepted in place of 'window' on the Naming Vocabulary test – in this case the authors declined permission for any response other than 'window').

Table 6.1: Issues and subsequent clarifications for the BAS cognitive tests

Applicable test	Issue	Guidelines
Both tests	Prompting/hints by parents or siblings	Laminated card reminding parents not to help to be left in sight during test
	Child's English judged by parents to be good enough for the Picture Similarities but not for the Naming Vocabulary	Acceptable to administer one but not the other depending on parental guidance. Screen to indicate this included on CAPI separately for both tests
	Children too shy to talk	Administer Picture Similarities (non-verbal) before Naming Vocabulary. For Main Study, gross and fine motor activities precede cognitive tests
Naming Vocabulary	Child appears to have correct word but pronunciation is poor, or child has a speech impediment	Give child benefit of the doubt in terms of pronunciation, e.g. accept 'bish' for 'fish'
	Child speaks at too low a volume	Child can be asked to repeat the response
	Child gives name of item in another language	Ask child to repeat the response in English (once only). Continued other-language response to be marked incorrect

6.2.2 RESULTS FROM THE PILOT STUDY AND ADAPTATION FOR THE DRESS REHEARSAL

The administration of the Naming Vocabulary and Picture Similarities scales proceeded satisfactorily, but some concerns were raised during the analysis of the Naming Vocabulary test. In particular it was noted that a cluster of children (20 per cent) seemed to be just below the threshold for passing the first decision point after item 16 (i.e. getting a raw score of 13). This may have been due to some apparently ambiguous items in this set – viz. the 'ear' to which the children, interviewers reported, frequently offered no response; and the 'window' which (as noted in footnote above) was frequently described as a patio door or a French door. To check the overall performance of the Naming Vocabulary measure, the Study Team ran it again in the Dress Rehearsal along with an alternative vocabulary measure, in case it should prove necessary to switch measures for the main phase. As there were no issues with the Picture Similarities scale, it was retained for the main phase but excluded from the Dress Rehearsal to create space for the second vocabulary measure being tested without imposing an unacceptable respondent burden on the Study Child. Descriptive statistics for the raw scores on both the Naming Vocabulary and Picture Similarities, and the various transformed scores are given in Table 6.2. These are much in line with expectations.

Table 6.2: Descriptive statistics for Naming Vocabulary and Picture Similarities in the Pilot

	Raw score		Ability score		T-score		Percentile	
	Naming vocab.	Picture sim.	Naming vocab.	Picture sim.	Naming vocab.	Picture sim.	Naming vocab.	Picture sim.
Mean	15.21	15.20	67.37	56.69	48.70	52.00	46.21	55.83
N	158	162	158	162	133[A]	135[A]	133[A]	135[A]
Std. Deviation	5.01	4.76	18.50	14.16	12.04	10.76	31.73	27.60

A. t-scores and percentiles calculated only for children aged at least 2 years 9 months

6.3 COGNITIVE ASSESSMENT IN THE DRESS REHEARSAL

The comparison vocabulary measure used in the Dress Rehearsal was the British Picture Vocabulary Scale (BPVS). The main difference between the BAS Naming Vocabulary scale and the BPVS is that the former measures *expressive* vocabulary (saying the word) whereas the latter measures *receptive* vocabulary (understanding the word). While these abilities require the development of diverging pathways in the brain, a high correlation between the two would be expected in most children. The BPVS assesses understanding of words so the child points to pictures rather than stating answers. Administering the BPVS as well as the Naming Vocabulary scale in the Dress Rehearsal served a dual purpose of providing a comparison for the Naming Vocabulary scale and being a pilot for the BPVS should the performance of the former be less than satisfactory and a replacement required.

6.3.1 ADMINISTRATION OF THE BPVS

Interviewers were instructed to start with the BPVS and follow with the Naming Vocabulary. Administration for the Naming Vocabulary scale was as per the Pilot. The BPVS administration procedures are outlined below. Correct responses were recorded using CAPI to determine the correct sequence of administration for the interviewer.

Procedure

- An item consists of one page containing four pictures. The interviewer calls out a word and the child must point to the corresponding picture.
- A set contains 12 items. A child must get at least four items in a given set correct in order to progress to the next set.
- Once a set is started the child must attempt all 12 items in that set.
- For the Dress Rehearsal the first three sets (36 items) were administered to bring the child to the starting point for a child aged 5-6 years.

6.3.2 RESULTS FROM THE DRESS REHEARSAL AND CHANGES FOR THE MAIN PHASE

While the interviewers noted that the BPVS presented an added benefit of 'breaking the ice', it appears that in some respects the test may be too easy given that, even after 36 items being administered, a majority of children should have been administered at least an additional 12

items to reach their ceiling set (as per administration instructions summarised above). This means that, in the Main Study, most children would be given 48 items (Set 4 – starting point for ages 5-6) or even 60 items (Set 5 – starting point for age 7); the one-in-four chance of the child getting an answer correct by chance adds to this likelihood. In contrast, the ceiling for the Naming Vocabulary in the Dress Rehearsal was reached after 30 items, with a maximum of 36 items in the set. This test showed a similar scoring pattern to that observed in the Pilot, including the issue of clustering around the first decision point.

Comparison of BPVS and BAS

Nine children (4 per cent) were unable to attempt the vocabulary tests because of insufficient English. Of those children who completed both tests, the correlation between the raw scores on the BPVS and BAS (both with a range of 0-36) was significant and positive (Pearson's $r = .58$, $n=201$, $p<.001$, two-tailed). In terms of the agreement between a child's percentile rank on each test, 38 per cent of children had a difference of less than 10 between their percentile rank on each test and 6 per cent had a difference of more than 50 between ranks, although this was distributed evenly between those who did better on the BPVS and those who did better on the Naming Vocabulary scale.

While the same issues with clustering and apparently ambiguous items remain for the Naming Vocabulary scale, these issues may be countered to some extent by calculating our own percentile ranks for respondents in the main three-year study. The Naming Vocabulary scale had the advantage of a steeper testing curve, such that fewer items are needed to establish the child's ceiling performance, and so may be less tiring and burdensome for the child than the longer BPVS. However, the principal advantage of the Naming Vocabulary scale is that, as it has been used by the Millennium Cohort Study and Growing Up in Scotland, there is a possibility of directly comparing children across the different countries on this central measure. On the balance of advantages and disadvantages, the Study Team decided to retain the BAS Naming Vocabulary scale for the main phase – to be used in conjunction with the BAS Picture Similarities.

Chapter 7

OTHER DIRECT MEASUREMENTS

This chapter describes the procedures and instruments used to capture three categories of information: the child's physical measurements, adults' physical measurements and the geo-positioning co-ordinates.

7.1 CHILD'S PHYSICAL MEASUREMENTS

7.1.1 HEIGHT, WEIGHT AND HEAD CIRCUMFERENCE MEASUREMENTS IN PILOTING

No measurements were taken in the Pre-pilot. Child measurements for height, weight and head circumference followed the same procedure, and used the same equipment, in the Pilot and Dress Rehearsal. Child height was measured using a Leicester portable height stick. In the Pilot, valid child height measurements were obtained in respect of 95.3 per cent of the completed sample. They ranged between 81 and 105 centimetres (cm), with a mean height of 93.7cm (SD = 3.90). In the Dress Rehearsal, 98.1 per cent of the sample returned a valid child height measurement, ranging between 81cm and 104cm, with a mean height of 93.9cm (S.D. = 3.73).

Child weight was measured using SECA digital scales. Measurements were obtained for 96.5 per cent of participating households in the Pilot and 95.3 per cent in the Dress Rehearsal. The scales were the same ones as used at nine months, but with the baby tray removed so that the three-year-old could stand on them. Child weight ranged from 10.5 to 20 kilograms (kg), with a mean of 15kg (SD = 1.86) in the Pilot. In the Dress Rehearsal the range was 10.6kg to 19.8kg, and again the mean weight was 15kg (SD = 1.71). Parents were asked to remove the child's shoes and any other outdoor clothing to help keep measurement error to a minimum.

Head circumference measurements were recorded using a SECA disposable head tape. Child head measurements were obtained in respect of 95.9 per cent of the sample for the Pilot and 97.2 per cent in the Dress Rehearsal. Interviewers were required to take three head circumference measurements for each respondent. Results revealed that test-retest stability was excellent, with a mean correlation of .96 ($p<.001$) in both the Pilot and Dress Rehearsal phases. Head circumference ranged from 51cm to 59cm in the Pilot, and from 47.3cm to 54.7cm in the Dress Rehearsal.

The main phase proceeded with child height and weight measurements as implemented in the Pilot and Dress Rehearsal. Head circumference measurements were not retained, however, on the recommendation of paediatricians on the Study Team.

7.1.2 LONGITUDINAL TRACKING OF CHILDREN'S PHYSICAL MEASUREMENTS DATA IN DRESS REHEARSAL

To show how the physical measures data collected at Wave 1 connect with the data collected at Wave 2, children's height and weight measurements at both waves were categorised into quartiles and compared (Tables 7.1 and 7.2). Although the number of cases in each cell is small (owing to the relatively small sample size in the Dress Rehearsal), the data show a considerable stability in height relative to age.

Table 7.1: Comparison of Dress Rehearsal children in each weight quartile from Wave 1 to Wave 2

			Weight Quartile – Wave 2				Total
			Lowest quartile	2nd quartile	3rd quartile	Highest quartile	
Weight quartile – Wave 1	Lowest quartile	Count	33	12	2	0	47
		Per cent in Wave 1	70.2	25.5	4.3	.0	100.0
	2nd quartile	Count	13	18	8	11	50
		Per cent in Wave 1	26.0	36.0	16.0	22.0	100.0
	3rd quartile	Count	5	10	20	8	43
		Per cent in Wave 1	11.6	23.3	46.5	18.6	100.0
	Highest quartile	Count	3	7	20	30	60
		Per cent in Wave 1	5.0	11.7	33.3	50.0	100.0
Total		Count	54	47	50	49	200
		Per cent in Wave 1	27.0	23.5	25.0	24.5	100.0

From Table 7.1 one can see that 70.2 per cent of children who were in the lowest quartile of the weight distribution at nine months of age were still in the lowest quartile at three years of age. Approximately 52 per cent of those who were in the second quartile at Wave 1 were in the second or third quartile at Wave 2, and the same pattern essentially holds for those who were in the third quartile at Wave 1. Finally, 50.0 per cent of those who were in the highest weight quartile at Wave 1 were in the highest quartile at Wave 2 also.

Similarly, Table 7.2 shows that children's height shows considerable stability across waves; with 52.8 per cent of those in the lowest quartile at Wave 1 being in the lowest quartile at Wave 2, while 50.9 per cent of those who were in the highest height quartile at Wave 1 were also in the highest quartile at Wave 2. It is also notable that those in the lowest and highest quartiles are likely to be in the same quartile two years later. In the context of ***Growing Up in Ireland***, there is clearly an interest in those who 'catch up' on the one hand, or 'fail to thrive' on the other, and identifying the reasons for either of these outcomes.

Table 7.2: Comparison of Dress Rehearsal children in each height quartile from Wave 1 to Wave 2

			Height Quartile – Wave 2				Total
			Lowest quartile	2nd quartile	3rd quartile	Highest quartile	
Height Quartile – Wave 1	Lowest quartile	Count	28	11	9	5	53
		Per cent in Wave 1	52.8	20.8	17.0	9.4	100.0
	2nd quartile	Count	13	12	18	3	46
		Per cent in Wave 1	28.3	26.1	39.1	6.5	100.0
	3rd quartile	Count	10	10	16	15	51
		Per cent in Wave 1	19.6	19.6	31.4	29.4	100.0
	Highest quartile	Count	2	11	14	28	55
		Per cent in Wave 1	3.6	20.0	25.5	50.9	100.0
Total		Count	53	44	57	51	205
		Per cent in Wave 1	25.9	21.5	27.8	24.9	100.0

7.2 ADULT MEASUREMENTS

Adult height and weight were recorded in the course of the household interview, using the Leicester height stick (also used for the children) and SECA analogue weighing scales. The same procedures were followed for the Pilot and Dress Rehearsal. In the Pilot, adult height was measured using a Leicester portable height stick. Valid height and weight measurements were obtained in respect of 97.7 per cent of Primary Caregivers and 89.0 per cent of Secondary Caregivers. The mean height for Primary Caregivers was 164 cms (SD = 6.87) and for Secondary Caregivers it was 176.5 cms (SD = 6.85). The means for weight measurements were 69.3kg (SD = 13.7) and 85.8kg (SD = 16.6) for Primary and Secondary Caregivers respectively.

7.3 GEO-CODING OF HOUSEHOLDS

The GPS coordinates of households were recorded at Wave 1. For the Pilot and Dress Rehearsal, and subsequently for the Main Study, GPS coordinates were recorded only in cases where the family had moved address or where a valid measurement from Wave 1 was missing. A Garmin eTrex high-sensitivity GPS receiver was the device used by the interviewer to record coordinates.

Chapter 8

POSTAL QUESTIONNAIRES AND OTHER COMPONENTS

This chapter deals with the two types of postal questionnaire that were distributed outside the household, and the procedures surrounding the possibility of collecting a bio-sample for the Main Study.

8.1 POSTAL QUESTIONNAIRES

There were two broad categories of recipients for postal questionnaires: non-resident parents and regular carers (other than parents) who looked after the child on a regular basis for at least eight hours per week. Postal questionnaires were not used in the Pre-pilot but did form part of the Pilot and Dress Rehearsal phases.

8.1.1 NON-RESIDENT PARENT QUESTIONNAIRE

The purpose of this instrument was to record some details from the non-resident parent of the Study Child (where relevant), the rationale for which borrows heavily from reviews of the topic by Dunn (2004), Wilson (2006) and Waldfogel et al (2010), which synthesise much of the work on the influence of non-resident parents on children's wellbeing. The Primary Caregiver was asked to provide contact details of his/her non-resident counterpart. The instrument was administered on a postal self-completion basis and there were few changes between waves. In the Pilot, but not in the Dress Rehearsal or Main Study, the interviewer was permitted to hand the questionnaire directly to the non-resident parent if he/she happened to be present during the household visit. It covered the following issues:

- Quantity, frequency and quality of contact and how arrangements were arrived at
- Roles perceived to be most important for a parent to take with his/her child
- Involvement in routine caring tasks for the child
- Financial arrangements (maintenance, etc) between non-resident and resident parent
- Nature of parental relationship when Study Child was conceived, timing of separation and guardianship status
- Current relationship with mother/father of Study Child and input to his/her upbringing
- Attitudes to parenthood
- Socio-demographic characteristics of the non-resident parent

Questionnaires were sent to non-resident parents outside, as well as within, the State where sufficient contact details were provided.

8.1.2 NON-COHORT CAREGIVER QUESTIONNAIRES

These instruments were designed for completion on a postal basis by carers of the Study Child (in addition to Primary and Secondary Caregivers) who provided at least eight hours of care per week on a regular basis. Studies in the US estimate that almost two-thirds of the preschool-age population attend some form of regular childcare; this has led to increasing research interest in the extent to which childcare environs affect multiple aspects of children's health and wellbeing (Peisner-Feinberg, 2004). The Primary Caregiver was asked to provide the contact details for the carer in question. There were similar, but separate, instruments for care delivered in a home setting or in a childcare centre such as a crèche.

The carer questionnaires had the following sections in common:

- Length of time and number of days per week for delivery of the care
- Perceived nature of relationship between caregiver and Study Child
- Details on other children being cared for by the non-cohort caregiver
- Facilities/activities available to the child
- Reading and books
- Strengths and Difficulties Questionnaire
- Concerns about child's behaviour or development
- Details on whether or not the caregiver minded the child when the latter was sick
- Sociodemographic details of caregiver, including qualifications (if any) related to childcare provision

In addition, the home carer was asked about his/her relationship to the child (e.g. grandparent) and whether care took place in the child's home or the carer's home. Centre carers were additionally asked about staffing levels.

8.2 BIO-SAMPLING

In the nested studies protocol for ***Growing Up in Ireland***, the feasibility of collecting a bio-sample from the main Infant Cohort at Wave 2 was assessed during the piloting process. This started in the Pre-pilot with a hypothetical question to the Primary Caregiver on how they would react if asked to provide a sample of the child's saliva for genetic testing. A hypothetical question was also included in the Pilot phase that allowed parents/carers to differentiate between permission for a specific study only or more general consent for as yet unspecified research questions.

The question used in the Pilot sample was as set out below:

K20. *This study wants to understand the factors that promote and hinder children's wellbeing. We are especially interested in how your child's social and psychological make-up is influenced by his/her genes and how genes are related to characteristics such as the child's family, education, community etc. in influencing the child's development.*

If we had information relating to your child's genetic make-up it would help us to understand health and illness in future years. To get information on your child's genes we would need a sample of his/her saliva (spit) in a special container. It would be sent to a laboratory in St James Hospital in Dublin and stored for study by scientists at a later date.

The sample of saliva could be provided to investigate ***specific*** *questions related to the genetic background of the child's emotional development, physical health, illnesses such as Attention Deficit Disorder, allergies, bronchitis and so on. Alternatively, the saliva sample could be used to carry out genetic research into a range of* ***unspecified*** *research issues, some of which have not even been thought of yet.*

I am NOT asking you for a sample of your child's saliva. I would like to know, however, if you, as a parent/guardian of <child> would, ***in principle****, be willing to provide a sample of his/her saliva to be used in genetic research into* ***specified*** *or* ***unspecified*** *research issues.*

So, looking at the responses on this card, if you were asked to provide a saliva sample from your child would you be willing to provide it:

To investigate ***specific*** *research questions, such as emotional or physical health* ..... ☐1
To investigate any ***unspecified*** *research questions which may arise in the future* ..... ☐2
It would depend (please elaborate) ..... ☐3
I would not like to provide a sample ..... ☐4

Again, please note that we are not asking for a saliva sample. We are just asking what your view would be, in principle, on collecting one in a survey like this.

The question attempted to tap into whether or not the caregiver would be willing to provide the saliva sample (i) for unspecified research purposes, (ii) for specified research purposes, (iii) or would be unwilling to provide a sample.

The results of this experiment are as outlined in Table 8.1. From this one can see that 24 per cent agreed to provide the sample for unspecified purposes and 47 per cent for specified purposes, with a further 18 per cent saying '… *it would depend*'. A total of 10 per cent definitively refused. When the 18 per cent were asked to record what it would depend on, the main issues raised by respondents centred on receiving more information on use and access to the data as well as joint consent from both parents/guardians. Specifically, respondents said they would need more information on:

- what the sample would be used for
- who would have access to the data – ***Growing Up in Ireland*** researchers only, researchers from Ireland only, all researchers
- where and for how long it would be stored, along with details on security and confidentiality of the data
- whether or not feedback would be provided on the results of any analysis undertaken on the extracted DNA

Table 8.1: Respondents in 3-year Pilot sample classified according to willingness to provide a saliva sample from infant

Response categories	Per cent
Agree, to unspecified research question(s)	24
Agree, to specified research question(s)	47
'It would depend'	18
Refusal	10
Total	*100.0*

Interviewers were provided with a buccal swab kit, which they showed to the respondent, explaining what was required. On debriefing, all interviewers were agreed that the kit itself did not seem to raise any concerns with parents/guardians. Interviewers stressed to families that they were not attempting to collect a saliva sample in the Pre-pilot or Pilot phases but only recording details on its acceptability to families.

In the Dress Rehearsal, the assessment was extended to include the actual taking of a saliva sample (for unspecified, as opposed to specific, research questions). Dedicated information sheets and consent forms were developed for this purpose. It was emphasised to respondents that they could still take part in the main household interviews, even if they did not consent to the saliva sample. Where families consented to the taking of a saliva sample (75 per cent), two alternative collection methods were deployed, on a randomly allocated basis. The first is referred to as an Isohelix buccal swab. This involves the parent/guardian wiping the upper and lower cheek gutters (both sides of the mouth) with a cotton swab. The swab is then placed in a vial, a desiccant pellet (to absorb moisture) is included, and the vial sealed. Two swabs are used with each child – one for the upper/lower left cheek and one for the upper/lower right cheek. The second saliva kit is known as the Oragene kit. This involves the child spitting into a plastic container, which is then sealed by the parent/guardian. S/he takes the saliva sample in both instances, being instructed by the interviewer in how to do this. Interviewers were trained by staff from TCD's laboratories who would be working on the samples.

A focus group was subsequently arranged with a small number of participating parents to discuss the issues surrounding the collection of a saliva collection.

In contacting families for the Dress Rehearsal, a split sample design was adopted, in which the GUI-Genes Information Sheet was sent to half of the sample in advance, along with the introductory letter and the Information Sheet for the main ***Growing Up in Ireland*** study. The other half of the sample was sent only the Information Sheet for the main ***Growing Up in Ireland*** study in advance but not the sheet in relation to the saliva sample. It was hoped that the split sample design would provide insights into any potential effect the collection of the saliva sample might have on participation and recruitment rates into the Main Study. The Study Team wanted to assess whether or not there would be any differences in response rates in the Main Study between the respondents sent the detailed Information Sheet on the bio-sampling component in advance and those given the information sheet only when the interviewer paid his/her first visit to the home. When interviewers made their first call to the family they went through both the main ***Growing Up in Ireland*** Information Sheet and the GUI-Genes Information Sheet, and answered any questions on both.

A number of aspects of response rates were considered in analysis of the Dress Rehearsal results. First consideration was given to whether or not inclusion of the saliva sample in any way affected participation in the main ***Growing Up in Ireland*** study. The Study Team found no evidence to suggest that it had any influence on overall participation in the Main Study. The response rate of 88% was in line with the Pilot phase of the Infant Cohort (at three years). The reasons for refusal to participate in the main phase of the Dress Rehearsal were not linked to the collection of the sample.

A second aspect of response rates was the percentage of families who participated in the Main Study who also provided the saliva sample. Just under 75% of families who took part in the ***Growing Up in Ireland*** study also participated in GUI-Genes (Table 8.2). This shows that participation rates were somewhat (though not significantly) higher among families who were first presented with the Information Sheet by the interviewer than among those who received it in advance by post (76.3 per cent compared with 73.4 per cent respectively).

Table 8.2: Response rates in GUI-Genes study among families participating in Main Study, Dress Rehearsal, Infant Cohort (at three years)

	Per cent consenting
Information Sheet by post in advance	73.4
Information Sheet initially from interviewer	76.3
Total	74.8

The importance of these figures lies in informed consent. A slightly lower participation rate was observed among those who received the GUI-Genes Information Sheet in advance and who thus had the longest time to read and reflect on it.

A final point of note from the Dress Rehearsal is the choice of sample kit. Table 8.3 shows that there was no variation in agreeing to provide the saliva sample according to whether or not it was collected by the Oragene or Isohelix kit. This was entirely as one would expect as respondents would not have known in advance which kit they would be asked to use. Accordingly, from Column A in Table 8.3, one can see that 75 per cent of participants in ***Growing Up in Ireland*** consented to provide the saliva sample. Column B of the table shows details of the percentage of those who had consented to participate who were successfully able to provide the saliva sample. This shows that 69.6 per cent of those children whose parent consented, and who were asked to use the Oragene kit, were able to provide the saliva sample – in other words, were able to spit into the relevant container. In contrast, 98 per cent of families who consented and who were asked to provide the sample using the Isohelix swab were able to do so.

Table 8.3: Rates of consent into GUI-Genes and success rates among those who consented in producing the saliva sample, classified by Oragene or Isohelix sampling kit

	A Per cent consenting from those participating in Main Study	B Per cent of consents who successfully provided saliva sample
Oragene	74.2	69.6
Isohelix	75.0	98.0
Total	74.8	92.2

This relative lack of success with the Oragene kit is consistent with a child's ability to spit on demand. A three-year-old is at the threshold of being able to provide the sample in this way.

Collected samples were returned to a laboratory in Trinity College Dublin, on an anonymised basis. Tests were carried out on the saliva to assess the quality and quantity of DNA which could be extracted from the child's saliva. Analysis was not carried out on the DNA itself, to extract either candidate genes or to develop a DNA profile.

Overall, the collection of saliva using the Isohelix buccal swab kit was found to be feasible. Children had more difficulty in providing the sample with the Oragene kit, which required them to provide the sample by spitting on demand into the container. This proved more difficult for three-year-olds than the approach using a buccal swab.

8.3 TRAINING OF INTERVIEWERS

For all phases of the study, interviewers were assigned households only after successful completion of a comprehensive training course, which took place over four days for new interviewers, two days for those who had worked on the nine-month wave, and three days for those who had worked on the study previously, but not the nine-month wave. These modules covered the use of laptops for the interviews and data transfer, and all associated procedures. Particular attention was given to training in the administration of the cognitive tests. Role play was used during training for both the adult interviews and the child assessments.

In addition to procedures and instrumentation, interviewers received training in the areas of research ethics, child protection protocols and the reporting of incidents, and appropriate interviewer practices. The final assessment criteria following interviewer training were:

1. Understanding of the interview process and procedure
2. Competence with the laptop
3. Communications and interpersonal skills
4. Attendance at training

Before commencing work, interviewers were required to pass a Garda vetting process and to be appointed Officers of Statistics (under the Statistics Act, 1993). All interviewers were further obliged to provide:

- Recent employer's reference or, where this was not available, a character reference
- Declaration of appropriate physical and mental health signed by their GP
- Confirmation of Class 2 car insurance on their motor policy

Chapter 9

SUMMARY AND CONCLUSIONS

There were three phases of piloting leading to the final set of questionnaires, assessments and procedures for the main phase of Wave 2 of the Infant Cohort. While the Pre-pilot was based on a very small opportunistic sample, the Pilot and Dress Rehearsal phases returned to the same families who had participated in the corresponding phases at Wave 1. This marked the first time ***Growing Up in Ireland*** returned to families, and hence the first opportunity to collect longitudinal data.

The value of the piloting process was that evidence could be obtained on issues such as research protocols (for example, completing the BAS tests using CAPI), and making decisions on whether proposed variables or instruments were appropriate for this stage of the study. Obviously, when making these decisions it was important to strike a balance between the longitudinal value of the information collected (for researchers, policymakers, etc), budgetary constraints and respondent burden.

Some elements which were piloted were not included in the main phase. Two of the larger components that were extensively tested in piloting but were not ultimately used (for different reasons) were the Ages and Stages Questionnaire, and the nested bio-sampling study – the former largely due to respondent burden and overlap with other measures included in the instrumentation, the latter largely due to the children just being at the cusp of where they could provide the necessary saliva samples.

Clearly, much of the groundwork for testing the conceptual model began at the nine-month phase and therefore many of the measures naturally flowed from there. However, some questions which were appropriate for nine-month-olds were not appropriate for three-year-olds and were removed at the second wave. In contrast, at three years it became more appropriate to explore matters such as the child's social and psychological development, and cognitive development, two areas of major importance not only for three-year-olds but also in terms of their impact on future outcomes for the child. For this reason, the SDQ and the BAS tests were piloted and introduced into the Main Study. Different environments such as non-parental care and preschool will now become important for many children; with two waves of data it is possible to look at the impacts on the child's outcomes of maternity leave and work-life balance for mothers returning to work.

Finally, a very important aspect of this study is the sociohistorical context in which it takes place. Data collection for the first wave of the nine-month cohort took place at the height of an economic boom in Ireland. By the time of data collection with the three-year-olds, Ireland was in the depth of a recession. In many ways this has offered researchers and policymakers alike an almost unique opportunity to assess the effects of a 'natural' phenomenon such as this. For example, it offers the opportunity to explore the effects of changes in family employment status, income and working hours, and the ways in which these might affect parental behaviours and family processes, and subsequently outcomes for the child – for example, in terms of their socio-emotional and cognitive functioning.

Further information on the final instruments and procedures for the main phase is available in the publication *Design, Instrumentation & Procedures for the Infant Cohort at Wave 2,*[9] which includes a detailed rationale for the instrumentation used in the Main Study (at three years). That report also includes a table documenting the measures used in the infant wave and the three-year wave of the study, as an indication of what measures have been used across time, which ones have been dropped, and which ones were introduced at Wave 2. A corresponding

[9] http://www.growingup.ie/fileadmin/user_upload/documents/Technical_Reports/3_year_instrumentation_report_20.12.13.pdf

report for the Infant Cohort at Wave 1 is also available on the ***Growing Up in Ireland*** website.[10]

[10] http://www.growingup.ie/fileadmin/user_upload/documents/Technical_Reports/9_month_instrumentation_report_final_18.12.13.pdf

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