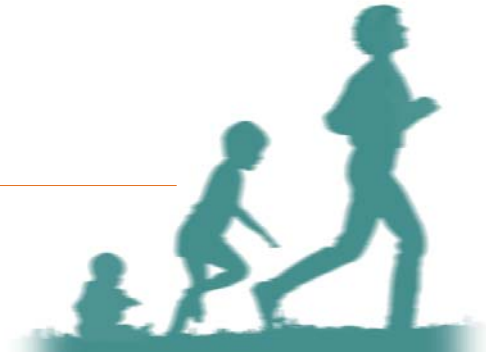


3 Measures



Details of the measures and instruments used in the project are included in a list at the end of this book.

We include here only a broad summary of measurement of temperament across the years; measures of behavioural adjustment across the years; and additional themes and measures at different time points which applied to the whole sample.

Measures used in specific smaller studies can be found in the numbered references to our publications at the end of each sub-section in this report.

Temperament

Our childhood measures of temperament were based on the model of temperament developed by Thomas and Chess (1977), and put into a questionnaire format by Carey and colleagues (Carey and McDevitt 1978).

Dimensions of temperament covered in our questionnaires included:

Sociability – tendency to approach new people and situations versus shyness and withdrawal;

Adaptability – ability to adapt over time to new foods, new experiences, and new life challenges;

Mood – whether positive or negative on a day-to-day basis;

Intensity – of responses to everyday occurrences and experiences, such as crying or protesting very lustily, or responding in a mild way;

Distractibility – the ease with which a child can be distracted or comforted when needed;

Persistence – the ability to remain focused on an activity or a task;

Rhythmicity – the regularity and predictability of the child's usual pattern of activities, including eating and sleeping schedules;

Reactivity – the readiness with which a child reacts to a particular stimulus or event;

Activity – the amount of body movement and activity level on a day-to-day basis.

Parents responded to our temperament surveys by rating their child's behaviour on questions concerned with usual patterns of behaviour. Some examples are: for infancy, 'the baby moves a lot, e.g. squirms, bounces, kicks, while lying awake in the cot' (this is a measure of the Activity dimension); 'the baby adjusts within ten minutes to new surroundings, e.g. home, shop, play area' (this measures Sociability); 'the baby ignores voices or other ordinary sounds when playing with a favourite toy' (Persistence); 'the baby wants daytime naps at differing times (over one hour difference) from day-to-day' (Rhythmicity); 'the baby does not react to differences in taste or consistency of food or

drink' (Reactivity); 'the baby reacts strongly to feeding, whether positively, e.g. smacks lips, laughs, squeals, or negatively, e.g. cries' (Intensity). For each age level, the questions were modified to reflect the kinds of behaviours appropriate to the age of the child. However, the core dimensions of temperament that we measured remain similar.

The temperament questionnaires used in our research were originally developed for use with American families. Where necessary we adapted them to fit an Australian audience ('nappy' for 'diaper'). At every survey we analysed the responses to our temperament questionnaires to discover what were the typical kinds of temperament dimensions which were clearly shown by Australian children.

The various questionnaires parents have filled-out were originally designed to describe 7–9 separate temperament dimensions, but when we analysed our Australian temperament data, we usually found a smaller number of dimensions emerging. This is similar to the results of other researchers in other countries. The main dimensions of temperament which emerged consistently in our research, from infancy through adolescence were called: Sociability/Approach, Irritability, Rhythmicity, Persistence, Reactivity, Flexibility, and Activity (shown in Table 2 below).

Some of the temperament dimensions identified in earlier research by Thomas and Chess (1977) seem to combine together, rather than remain distinct, for example, Adaptability and Sociability usually combine into a single temperament dimension which we usually call Sociability. Surprisingly, high levels of Activity tend to be associated with an easy, rather than difficult temperament style, a uniquely Australian finding. There is quite substantial commonality between the factors which emerge in our temperament studies and those reported by other research groups from the United States and Europe (see Prior, Kyrios and Oberklaid 1986; Rothbart and Bates 1998).

We also have a Teacher Temperament Questionnaire (Keogh, Pullis & Caldwell 1982), which we have used in each school survey. The dimensions of interest in this questionnaire are Task Orientation (the child's characteristic ways of attending to and persisting with school learning requirements); Reactivity (the child's usual way of reacting to changing events, experiences and demands in the classroom) and Flexibility,

Table 2 Temperament factors found at each age level in the ATP				
Infancy 4-8 months STSI ¹	Toddlerhood 18-36 months STST ²	Early Childhood 3-8 years STSC ³	Mid-childhood 9-10 years EAS ⁴	Adolescence 11-16 years SATI ⁵
Approach	Approach	Approach	Sociability Shyness	Approach
Irritability	Irritability	Inflexibility	Emotionality	Negative Reactivity
Cooperation- Manageability	Cooperation- Manageability			
Activity - Reactivity	Activity - Reactivity		Activity	Activity
Rhythmicity	Rhythmicity	Rhythmicity		
	Persistence	Persistence		Persistence
	Distractibility			

¹ Short Temperament Scale for Infants ² Short Temperament Scale for Toddlers ³ Short Temperament Scale for Children
⁴ Emotionality, Activity, Sociability (EAS) Temperament Scale ⁵ School-Aged Temperament Inventory
Source: Australian Temperament Project 1983–2000.

(the child's sociability and adaptability in interacting with others). These kinds of characteristics are obviously particularly relevant to how well the child copes with life at school.

As the children have matured, our temperament questionnaires have changed to fit their developmental stage. In the latter part of primary school and through early secondary school, for example, we used the McCloskey School-Age Temperament Inventory (McCloskey 1995), which included the temperament dimensions of Negative Reactivity (responds intensely to frustration); Persistence (doesn't give up when working on a difficult job); Approach/Sociability (seems uncomfortable when at someone's house for the first time); and Activity (moves fast to get to where he/she wants to go).

At the adolescence stage we asked parents and adolescents to complete a measure of personality (as well as temperament) about the teenagers, and this is described on page 13. The list of Measures and Instruments used in the ATP (at the end of this book) gives references for these measures.

Behaviour

At each stage of the project we have asked parents to report on the behavioural development of the children with an emphasis on problem behaviours. This strategy was designed to allow us to investigate the early signs of good and poor adjustment, and to look at child and family factors which might be associated with a child's psycho-social health and wellbeing.

In infancy we asked parents to report on whether their baby had sleep problems, colic, or excessive crying. These are the common difficulties during the first year of life. For the toddler-age period we asked for ratings on a range of problems common to this age group: temper tantrums, shyness, dependency, accident proneness, excessive crying, mood swings, sleep problems, and overactivity (the children were 1–2 and 2–3 years old).

At 2–3 years, parents completed a Behaviour Checklist with 20 items concerning common emotional and behavioural problems. This gave us an estimate of the level of adjustment of each child by comparison with 'normal' levels. The questions covered issues such as activity, settling at night, concentration, tempers, and fears. Parents made ratings on a 3-point scale of 'never', 'sometimes' and 'often'. At this stage a number of children were rated as having moderate to severe problems on various scales, for example: sleep (17 per cent); excessive crying (12 per cent); temper tantrums (30 per cent); excessive shyness (19 per cent); overactivity (30 per cent); with 5 per cent having severe problems with dependency. Other difficulties rated by some parents as severe at 2–3 years included: eating fads, (18 per cent); night wetting (30 per cent); day wetting (10 per cent); bowel training (10 per cent); getting to sleep (8 per cent); waking at night (10 per cent); sleeping with parent (15 per cent); and clinging (5 per cent). The relatively high rate of concerns on some of these behaviours indicates that for many children, they are relatively common aspects of the developmental process at this age.

Because the development of aggressive behaviour is of special interest in its long-term influence on social adjustment, we also used an 'Aggression Questionnaire' at 2–3 and 3–4 years in which we asked mothers to rate the levels of cooperative, sharing, and hostile-aggressive behaviour. Examples of questions are: 'when there is competition for a special toy, my child is determined to win'; 'my child refuses to do as he/she is asked' and 'my child shows that he/she is very sorry if he/she causes any trouble', with ratings on a 5-point scale ranging from: 'not at all true', 'sometimes true' to 'very true'.

From pre-school age until adolescence, our measures of behaviour problems have been standard questionnaires used in many studies across the world. These have included the

Rutter Child Behaviour Questionnaires, and for the adolescent phases, the Quay and Peterson Revised Behaviour Problem Checklist. Parents and teachers were asked to rate the child on a range of questions covering hyperactive and inattentive behaviour, expressions of aggression and hostility, and signs of anxious, withdrawn, fearful and depressed behaviour. We can calculate a 'behaviour problems' score from this list of questions, for each child. Children from 11–12 years onward have also rated their own behavioural adjustment on these questionnaires.

Other key aspects of development assessed

Mother's overall temperament rating: At each survey, we have asked parents to give an overall rating of their child's temperament when compared with other children of the same age. We have found this rating to be most valuable because it represents the mother's feelings about the overall difficulty or easiness of her child and will reflect how comfortable it is for the mother and child to get along together.

Children's health: When the children were 5–6, 7–8, and 11–12 years, we asked parents about their child's health, covering the main illnesses and problems (such as asthma, eczema, epilepsy). From this we were able to gain a picture of health levels and problems among Victorian children.

Family stress: A measure of the stresses being experienced by families has been collected in the surveys since the children were 7–8 years. We asked parents to report any life changes or problems, for instance, loss of job, or income, or house; or death or illness of members of the family; and to tell us how serious and worrying these events had been.

School readiness: Preparatory Grade teachers filled out a short questionnaire when the child was 5–6 years which aimed at finding out how the child was adapting to life at school. Ratings covered aspects such as 'concentration', 'self-reliance', 'cooperation with other children', 'physical coordination'. We used a 5-point scale ranging from 'adapting very well', through to 'considerable difficulty'.

School adaptation: At 7–8 years, teachers gave ratings about how the children were progressing at school and about their attitude and capacity to manage schoolroom routines. Some of the items were: following a series of directions; getting things in correct order; reading comprehension; arithmetic skills; spelling skills; motivation; and enthusiasm (using a 4-point scale, ranging from 'strong' to 'very poor').

Reading: When the children were 7–8 years old, their teachers gave them a 20-item graded test of reading which was devised for Australian children, in which the child had to choose from three words the one closest in meaning to a given word. Examples are 'cattle' (the given word) with 'milk-grass-cows' (the words to choose from); 'tale' with 'end-story-sleep'; and 'replied' with 'answered-listened-surprised'. In Grade 6 we again asked the teachers to administer a similar reading test appropriate to this age and stage of schooling.

Social behaviour: (measured at 7–8, 9–10, 11–12, 13–14, and 15–16 years). We asked parents, children and teachers about how the child behaved in social situations such as in the family, with friends, and in the classroom using the Gresham and Elliott Social Skills Rating System. The questions covered issues such as self-control, confidence and skills in social situations, cooperation and responsibility and academic competence. Examples of items are: 'accepts friends' ideas for playing'; 'asks permission before using another family member's property'; and 'receives criticism well'. Teachers also gave ratings of specific social behaviours when the children were 7–8 years old covering aggressiveness and general sociability.

Adolescent measures

As the children entered the teenage years, our range of questions broadened to include:

Personality: The dimensions of personality we studied were Extraversion (energy, outgoingness); Agreeableness (cooperative, kind); Emotional Stability (emotionality, contentment); Conscientiousness (reliable, organised); and Openness to Experience (curious, reflective). We have also included other aspects of behavioural style such as sensation and thrill seeking (willingness to do adventurous or frightening things); and control of emotions (able to keep feelings under control, can calm down when tense).

Behavioural and emotional problems, substance use: The teenage behaviours we included here covered eating behaviours and body image, anti-social behaviour, substance use (smoking, alcohol, marijuana, other drugs), and depression, as well as the measures of anxiety, hyperactivity, aggression and oppositional behaviours we have included from early childhood onwards. For eating behaviours and body image, we asked teenagers and parents to choose one of nine silhouettes (ranging from very thin to very large) that they judged to be closest to the teenager's body size. We also asked teenagers about their feelings about their body size and shape (whether they thought they were too fat, or skinny, or not muscular enough); attitudes towards weight (whether they worried about weight gain, thought about dieting); and eating behaviours (bingeing, eating sweets without worry). Anti-social behaviours were measured by questions about fighting, vandalism, stealing, running away from home, police contact. For substance use, we asked questions about how often and how much teenagers had smoked, used alcohol, sniffed, used marijuana or other drugs (such as speed, ecstasy) during the past month. We measured depression by asking questions about feelings of sadness, tiredness, crying, loneliness, and negative mood.

Peer relationships: Parents, teachers and children answered questions about popularity, peer networks, and closeness of relationships with friends from the time the children were 11–12 years of age. In more recent years, teenagers have answered questions about their perceptions of friends' support, intimacy, trust, and communication. We have also asked how often the teenagers' best friends were involved in anti-social behaviours or substance use.

School adjustment: Here we asked parents and teenagers about how the teenagers were getting on at school, covering aspects such as understanding the work in class, getting homework and assignments done, managing school rules and routines, getting on with teachers, and making and keeping friends.

Parenting: The questions assessing parent-adolescent relationships and parenting style covered aspects such as: use of reasoning, warmth of parent-child relationship, type of discipline, use of punishment, monitoring (knowing where the teenager goes and with whom), communication and family conflict.

Social responsibility and civic mindedness: From 15–16 years onwards we have been interested in teenagers' perceptions of themselves as members of the wider society and how active they are in community projects and endeavours. Issues covered included: being involved in fund-raising or voluntary activities, being concerned about environmental issues, being interested or involved in national or international politics, and having a religious commitment.

Further reading

See items 11, 21, 24, 41, 53, 56, 57, 58, 61, 65, 66, 68, 69, 70, 75, 76 and 80 in the list of Australian Temperament Project publications at the end of this book.