Longitudinal Study of Australian Children
Key Research Questions
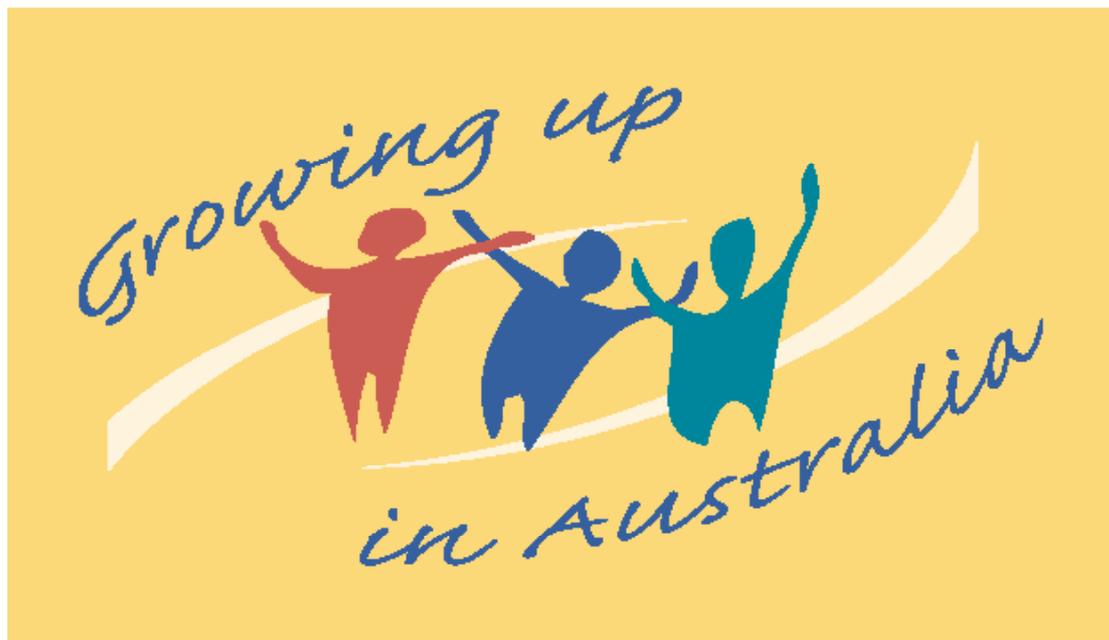
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Model of Child Development

LSAC is based on an ecological framework of children's development (Sanson, Nicholson, Ungerer, Zubrick, & Wilson, 2002), placing emphasis on both the immediate and broader environment as important for child development. In this conceptual framework the 'family, school, community and broader society, as well as the children's own attributes, are seen to contribute to the child's development in complex interacting ways over time' (p5, Sanson et al., 2002)

Bronfenbrenner's (1979) ecological model of human development was adopted at the outset of LSAC to underpin the design and development of the study (Figure 1). Bronfenbrenner's model emphasises the contexts in which people develop as well as the ability for change. This model can be viewed as a well differentiated and complete account of contextual influences on development (Lerner, 2006).

Source: Zubrick, SR., Williams, AA., and Silburn, SR. (2000), *Indicators of Social and Family Functioning*, Department of Family and Community Services, Canberra.
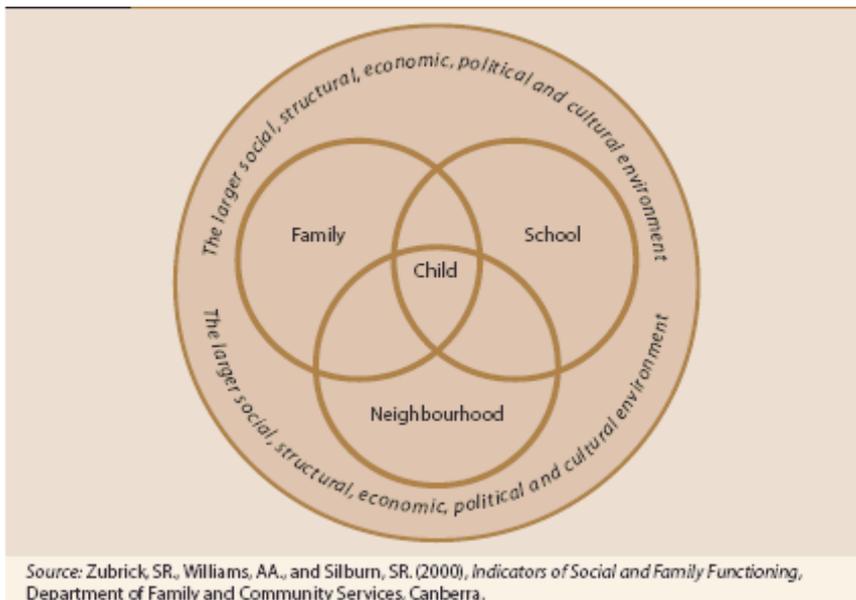
Figure 1: Ecological contexts shaping child development

While the conceptual framework of LSAC has not changed, more recent versions of Bronfenbrenner's model offer a more detailed description of the influences on development. The model is now called the Bioecological Model of Human Development and explicitly includes the child's own contribution to their development and time as important influences (Bronfenbrenner & Morris, 1998, 2006). Since this bioecological model is more descriptive in terms of environmental aspects influencing child development (Figure 2), it is useful for LSAC to adopt this more comprehensive model.

Bronfenbrenner's theory (1979; Bronfenbrenner & Morris, 1998, 2006) notes the bidirectional nature of interactions between the individual and the context in which they develop. An individual's dispositions, aptitudes, and demands on the

environment all shape the course of their development.   Changes in life events can be imposed on the child, or arise from the child as they themselves select, create and modify their own experiences.

Bronfenbrenner's ecological framework views development as influenced by five environmental systems, ranging from proximal contexts of direct interaction with people to broad-based contexts of culture, all occurring over time. The five systems are the microsystem, mesosystem, exosystem, macrosystem and chronosystem. Any relations between a child and their immediate environment is called a microsystem (Bronfenbrenner, 1979). This includes the child's family, peers, school, and neighbourhood. The mesosystem refers to the interrelationships among two or more microsystems in which an individual actively participates, for example the relation of family experiences (a microsystem) to their school (another microsystem). A social setting that affects a child but does not directly impinge on them is referred to as an exosystem. Exosystems include parents' place of employment, parents' social networks, and government and social policy. The macrosystem refers to the attitudes, beliefs and ideologies of the child's culture (e.g. a culture's values concerning child-rearing). The chronosystem refers to the pattern of the environmental events and transitions over time (Bronfenbrenner & Morris, 1998, 2006). In essence the model says that child development results from interactions between the child and their families, schools, communities and their broader society over time. In the model the historical time and place of an individual, the timing of transitions and events occurring during their lives and historical events are all important in determining a person's life course.

Within this ecological framework, LSAC takes a developmental pathways approach, emphasising trajectories of development across the lifespan. This perspective seeks to identify the factors that influence pathways for good and for poor outcomes. Factors influencing trajectories, especially at crucial transition points such as entry into child care or school or movement out of education into the workforce, are also able to be identified and explored. The child's current circumstances and how earlier transitions have been negotiated (including the skills that children may or may not have developed through these processes) may influence subsequent transitions. By identifying early indicators of detrimental and of beneficial pathways, programs and interventions can be designed to help steer children on a healthy course through life.
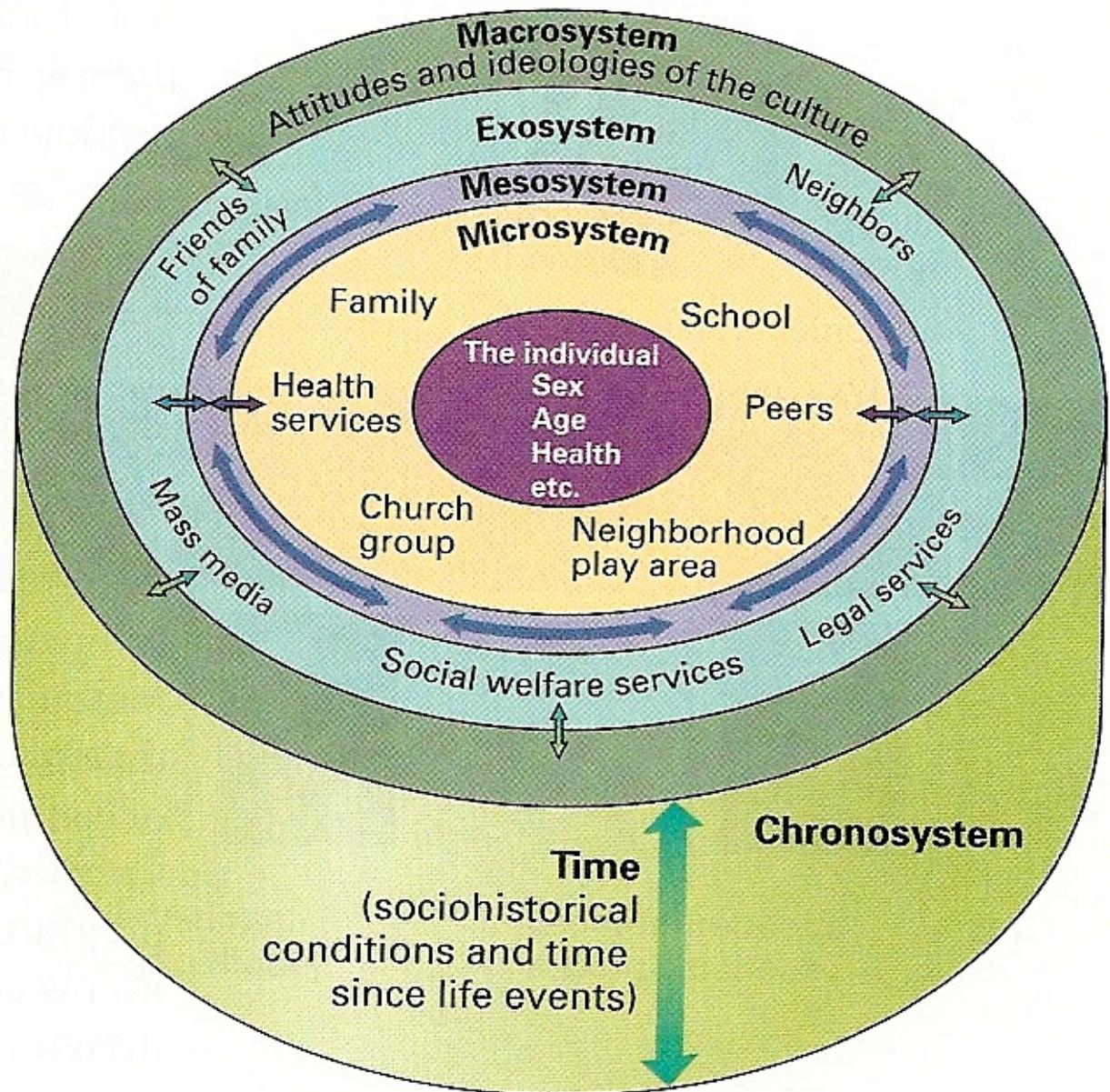
Figure 2: Bronfenbrenner: ecological theory of child development.
Source: Santrock 2007

Key Research Questions

Fourteen Key Research Questions (KRQs) were developed at the beginning of LSAC planning and broadly grouped under the headings of: health, family functioning, non parental child care, cross discipline and education (Sanson et al., 2002). The research questions ensured LSAC reflected a strong theoretical understanding of child development and that social policy issues could be addressed by the study. These KRQs gave focus to the content of the LSAC during the first four waves of data collection. A review of the KRQs was conducted in 2008 to ensure the study continued to measure the issues and circumstances of child developmental as the children moved into adolescence and to identify gaps in the current KRQs. This paper summarises the outcomes of that review.

LSAC aims to provide data which enables a comprehensive understanding of children's development within Australia's current social, economic and cultural environment. This allows the study to become an important source of data to build the evidence base for future policy and practice for children and their families. To allow for comprehensive study of children, LSAC needs to measure a range of child outcomes. Available resources, environmental influences and the interactions of these environments must also be appropriately measured. The KRQs help identify the salient aspects of a child's environment that need to be captured.

The KRQs attempt to incorporate all aspects of a child's environment and development and act as a guide to the development of data collection. Some aspects are simple and cheap to measure and well established instruments are readily available (e.g., direct measures of height and weight). Other aspects are more complicated, and brief, reliable measures are often not yet established and/or easily accessible. Some constructs are more difficult to measure at some ages than others, for example cognitive ability is difficult to assess in infants. Some issues such as drug use or sexual activity become most relevant at older ages, and are sensitive for parents and/or children; including questions about them in the study at young ages may increase risk of attrition. Finally, costs and respondent burden place real limits of the amount of information participants can be asked or will be willing to provide. While attempts are made to design the study so all KRQs can be fully explored, this is not always practically possible. While most aspects are able to be measured, some at this stage remain aspirational. Over time there is hope that many of these aspirational aspects will be measured.

Child Outcomes

Throughout the KRQs the term *outcomes* in relation to the child refers to a diverse range of child outcomes. The transition from infancy to adulthood involves such processes as acquiring skills and knowledge, developing mental and physical capacities, establishing personality, improving social competencies, and emotional, attentional and behavioural self-regulation. Outcomes are interrelated and any environmental factor can have an effect on multiple aspects of child development. Consequently, all outcomes are included in all KRQs to acknowledge the interrelated nature of development.

Helping children develop into adults capable of productive social and economic participation in society is of key interest to policy makers. Their future roles as learners, workers, family members, community members and citizens all need to be considered. While there are many other outcomes we might hope children will achieve (e.g. happiness), the broad goals of social and economic participation may best capture what it means to be a positive contributor to society.

It is now widely recognised that the traditional method of attempting to identify single biological and/or environmental causes of developmental problems is almost all cases not viable or sensible. Child development is the result of a complex dynamic interplay between biological, social and behavioural factors (Centre for Community Child Health, 2000; Lerner, 2006; Zubrick, Silburn, & Prior, 2005). The timing and exposure of these influences can be critical to their effect on current and future development and any individual can potentially have multiple (and diverse) developmental trajectories. Which of these eventuates will be largely influenced by the context of their development.

Social, emotional, physical/health and cognitive functioning capture the major aspects of current wellbeing of a child. Some experiences may result in an immediate and obvious outcome; for example a serious accident resulting in severe injury. Other have a slow and/or cumulative effect that is only obvious in the long term (for example chronic exposure to tobacco smoke) (Zubrick et al., 2005). While a longitudinal study can assess the impact of acute events, it is the slow and cumulative impacts on outcomes for which a study such as LSAC is particularly useful. Longitudinal studies can examine characteristics of children and their environments over time to understand how they relate to, and influence, later outcomes.

These aspects of development have been summarised into three 'domains' which are proposed to be the major components of current wellbeing and the future capability to be a successful civic and economic participant. They are: health and physical development, social and emotional functioning, and learning and cognitive ability. The domains and some of the constructs they include are:

HEALTH AND PHYSICAL DEVELOPMENT
- health-related quality of life/health functioning
- global health
- special needs
- perinatal indicators such as birth-weight and gestational age
- specific health issues such as asthma, oral health, vision, sleep problems, toileting problems (enuresis, constipation), headache, allergies
- injuries and hospital admissions
- nutrition
- motor skills
- physical activity, fitness and cardiovascular health
- height, weight and girth
- puberty

SOCIAL AND EMOTIONAL FUNCTIONING
- mental health including:
    - internalizing problems (e.g. anxiety, depression)
    - externalising problems (e.g conduct problems, hyperactivity)
- temperament
- social competence
- self esteem, self-concept
- parent-child, teacher-child and peer relationships
- bullying
- civic engagement and social consciousness
- issues such as substance use, antisocial behaviours, risk taking behaviours and eating disorders

LEARNING AND COGNITVE DEVELOPMENT
- non-verbal reasoning
- language – vocabulary, communication skills and receptive language
- academic readiness
- literacy and numeracy competence

- academic achievement
- school engagement and adjustment

The term 'outcomes' is used in the following KRQs to refer to all these aspects of functioning.

Overarching Research Question

What are the childhood experiences and conditions (from pre-natal, infancy, childhood, adolescence and adulthood) that impact on child, adolescent and adult outcomes and on trajectories of development? What are the mechanisms underlying linkages and interactions and how do these change over time? What factors and processes protect children from events or contexts that increase the risk of poor outcomes?

Including

- the prenatal environment
- child characteristics such as temperament, disabilities or illnesses
- childhood health and disabilities, and health service utilisation
- the nature of relationships that children form with parents, teachers and other important adults
- parental behaviour and wellbeing
- parenting behaviours
- the nature of relationships with peers and siblings
- significant environments such as the home, childcare, school and neighbourhood
- socio-economic circumstances

Key Research Question 1

What factors influence a child's physical health and development over time? What is the effect of physical health on a child's overall wellbeing and on other specific outcomes, and how does this influence change over time?

Including
- prenatal environment, such as exposure to alcohol and other drugs
- perinatal context, such as preterm birth, low birth weight, delivery and illness
- postnatal environment, such as early growth, feeding, and immunisation
- childhood exposures, such as acute and chronic illness, injury, special health care needs, growth, under- and over-nutrition, and physical activity
- child and adolescent physical health (e.g. physical fitness, respiratory function, cardiovascular health) and biomarkers for later health
- adolescent development and behaviours such as puberty, pregnancy, risk taking and protective behaviours
- health trajectories.

Key Research Question 2

What are the nature and impacts of family composition, relationships and dynamics on individual outcomes, and how do these relationships and their effects change over time?

Including

- changing family composition, structure and resources
- involvement of extended family and/or other family members
- parental relationships (including non-resident parents), including level of conflict, and parental self-efficacy
- parenting behaviours, values, and skills
- roles and relationships within the family including children's relationships with mothers, fathers and siblings;
- caring responsibilities within the family
- family break-up and re-formation
- family coping strategies, particularly in times of stress and conflict

Key Research Question 3

What is the influence of parent labour force participation, education and economic status on individual outcomes? How do the patterns and impacts of parent labour force participation, education and economic status change over time?

Including

- workforce status and conditions of work
- intergenerational patterns of employment
- intergenerational patterns of educational attainment
- family socioeconomic status, including the experience of financial stress, poverty and income inequality

Key Research Question 4

What are the effects of non parental child care on individual outcomes (particularly those relating to social and cognitive competence, attachment, impulse control, and control of attention). How do these experiences and influences change over time? Including

- child's age at entry into care arrangement
- quality of care
- formal care environments such as child care, family day care, outside school hours care and holiday programs
- informal care such as care by friends and family members, vacation care and other forms of adult-supervised care
- multiple care arrangements and changes in care arrangements
- unsupervised self-care or supervision by a non-adult sibling or friend/neighbour

Key Research Question 5

What are the experiences that influence children's school engagement and achievement? How do these impact on individual outcomes and how do these patterns and effects change over time? Including:

- the child's own characteristics, such as temperament, cognitive competence and disabilities
- family support for children's learning
- learning experiences prior to school, at outside school hours care and through extra-curricular activities
- parental involvement in school activities and events

- transition experiences into school and through school and from school to work or further education and training
- teacher, school, neighbourhood and community factors

Key Research Question 6

What are the impacts of children's use of time on individual outcomes (such as physical fitness and obesity, family relationships, social skills, and learning)? How does the impact of different patterns of time use change over time?

Including
- types of activities, such as outdoor, unstructured play, media use
- the context of time use, e.g., where, and with whom, does the child spend their time
- family and cultural characteristics and circumstances associated with different patterns of time use

Key Research Question 7

What are impacts of child, parental and community beliefs, attitudes and expectations on outcomes? How do the patterns and effects of these beliefs, attitudes and expectations change over time?

Including

- the relationship between children's and parents' beliefs, attitudes and expectations
- the role of media in shaping beliefs, attitudes and expectations
- the role of institutions such as schools in shaping beliefs, attitudes and expectations
- the role of society in shaping beliefs, attitudes and expectations

Key Research Question 8

What characteristics of children, families and communities help children to develop resilience and cope with transitions or adversity? How do these factors influence individual outcomes and how do these influences change over time?

Including:

- coping with regular transitions throughout the week
- coping with negative life events such as death, environmental disaster
- effective ways of supporting children through key transitions in life, including school, residential and family changes
- the relationship between social capital factors to resilience and coping

Key Research Question 9

What social connections and support are available to families and children and how do they impact on individual outcomes, and how do the impacts of these social connections and support change over time?

Including

- characteristics of formal, informal and virtual peer networks;
- involvement of parents in establishing, promoting and monitoring the child's social networks;
- engagement in non-family social structures and institutions such as cultural, sports or church groups; and
- connection of families to wider social and cultural networks and community level resources
- cultural beliefs, expectations, practices and attitudes;

Key Research Question 10

What are the impacts of broad neighbourhood characteristics and community connectedness, engagement, trust and violence on individual outcomes, and how do these impacts change over time?

Including

- physical characteristics of the neighbourhood, e.g., parks, traffic safety
- stability and demographics (including age profile and income) of neighbourhood
- availability, access and use of broad level resources and amenities (e.g. health and parental support services)
- characteristics of the broader environments with which the child interacts (e.g. church, school)

Key Research Question 11

What is the impact of intergenerational characteristics on individual outcomes, and how does this impact change over time?

Including
- characteristics of parents' families of origin,
- family dynamics across generations
- family socioeconomics circumstances
- intergenerational patterns of physical health, mental health and wellbeing
- intergenerational patterns of education and training

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