Australian Child Wellbeing Project

Technical Report

December 2015

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Background

The Australian Child Wellbeing Project was conducted by a team of researchers at Flinders University of South Australia, the University of New South Wales, and the Australian Council for Educational Research. It was funded by the Australian Research Council through a Linkage Grant, and supported by Partner Organisations including the Departments of Education (DOE), and Social Services, the Australian Institute of Health and Welfare (AIHW), and the Australian Bureau of Statistics (ABS).

A Project Steering Group provided strategic direction for the Project. The Steering Group was chaired by Professor George Patton, University of Melbourne, and included as members the Chief Investigators (Associate Professor Gerry Redmond, Dr Jennifer Skattebol and Professor Peter Saunders), Partner Investigators (Professor Dr Sabine Andresen, Professor Jonathan Bradshaw and Dr Sue Thomson), representatives of the Partner Organisations, and independent advisers: Dr Ben Edwards (AIFS); Diana Jackson (ARACY); Associate Professor Pammi Raghavendra (Flinders University); and Ms Margaret Raven (University of NSW).

Research team

Flinders University: Associate Professor Gerry Redmond and Dr Ms Anna Moffat.

University of NSW: Dr Jennifer Skattebol, Professor Peter Saunders and Dr Myra Hamilton.

Australian Council for Educational Research: Dr Sue Thomson, Dr Petra Lietz, Mollie Tobin, Elizabeth O'Grady, Jorge Fallas, Greg Macaskill, Martin Murphy, Louise Ockwell, Katherine Dix and Juliet Young-Thornton.

University of York (UK): Professor Jonathan Bradshaw.

University of Frankfurt (Germany): Professor Dr Sabine Andresen.

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Abbreviations

ABS	Australian Bureau of Statistics
ACER	Australian Council *for* Educational Research
ACWP	Australian Child Wellbeing Project
ARC	Australian Research Council
ATSI	Aboriginal and Torres Strait Islander
CALD	Culturally and Linguistically Diverse
HBSC	Health Behaviour in School-aged Children study
HOWRU	Victorian Adolescent Health and Wellbeing Survey
IRSD	Index of Relative Socio-economic Disadvantage; SEIFA index
LSAC	Longitudinal Study of Australian Children
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
SEIFA	Socio-Economic Indexes for Areas, Australia
SES	Socio-Economic Status
TIMSS	Trends in International Mathematics and Science Study
UNSW	University of New South Wales
USB	Universal Serial Bus digital memory stick

1. ACWP Overview

The Australian Child Wellbeing Project (ACWP) was conducted from 2012 – 2015 using a mixed-methods, child-centred approach. Young people's perspectives were used to inform a nationally representative survey of children's wellbeing in the middle years. The aims of the ACWP survey were to benchmark child wellbeing in Australia and to provide useful information for services that promote young people's healthy development. In particular, the ACWP aimed to improve our understanding of how young people in Australia perceive their wellbeing with a particular focus on disadvantaged young people. These groups included young people that identified as Indigenous, culturally and linguistically diverse, living with disability, living in regional and remote Australia, economically disadvantaged, or living in out of home care.

A final outcome of this project was to make the extensive ACWP database publically available in order to provide further opportunity to exploit the rich data and improve understanding. Accordingly, this technical report consolidates the research conducted by ACER during the three-year study. It provides supporting information about technical aspects of the main survey and its resulting reports, and for facilitating secondary data analyses of the ACWP database. Specifically, it details issues related to survey design, implementation and data analysis. Results from the ACWP main survey are not reported in the technical report, but are presented in the final report.

This technical report and data user guide contains an overview of the design, sampling, and data collection activities of the ACWP main study conducted in 2014. In addition, it reports the technical aspects of the first and second stage statistical and thematic analyses presented in the ACWP Final Report, along with guidelines about using the ACWP database.

The ACWP Survey

The ACWP survey is Australia's first nationally representative survey of child wellbeing in the middle years and it enables comparisons to national (e.g., LSAC, HOWRU) and international (e.g., HBSC, Children's Worlds) surveys. Accordingly, it was designed using a mix of pre-existing items from national and international surveys, along with a number of self-developed items. Information about the origins of items in the ACWP are available in the annotated screenshots of the Year 4, Year 6 and Year 8 surveys.

The survey examined students' perspectives along multiple dimensions of wellbeing, in order to group students and identify possible profiles of wellbeing. Dimensions of wellbeing in the ACWP survey include: family, friends, school, neighbourhood, health, money and material wellbeing, as well as themes that cut-across these domains, such as closeness of relationships, life satisfaction, and bullying. The ACWP survey also included factual questions related to children's background (e.g., self-demographics and family socio-economic demographics) that might further contribute to the identification of different profiles of wellbeing. The ACWP survey data are reported at Years 4, 6 and 8, as well as by reporting sub-groups of interest, which include gender, geographic location and socio-economic background, among others.

Each Year level was administered a version of the ACWP survey, which included a core set of common questions across each Year level to cover age-appropriate aspects of children's wellbeing. These common questions enabled survey results to be compared across the Year levels. In some instances, Year level surveys contained questions particular to specific Year levels. The Year 6 and 8 surveys included questions for older students about: family composition and possessions, conflict in

friendships, drug and alcohol use, neighbourhood safety and pubertal development. The Year 8 survey included questions about family monitoring.

Participation

Permission to conduct the main survey of the ACWP research program was obtained from the Australian Council for Educational Research, the Flinders University of South Australia and the University of New South Wales.

Approximately 5,400 children across Years 4, 6 and 8 participated in the ACWP main survey in Term 3 2014, from August to September. One hundred and eighty sampled schools participated in the survey. These schools were drawn to be representative of the education system in Australia, which includes Catholic, government and independent schools across all Australian States/Territories (Australian Capital Territory, New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia). While the ACWP survey results have been weighted to be representative of school sectors and States/Territories, comparisons are not reported by school sector nor by State/Territory. Sampled schools were recruited to participate and active parental consent was required of all students. Schools nominated classes for participation, and all students obtaining active parental consent were invited to participate in the survey.

Implementation

The ACWP was administered on computers and was hosted online, with students gaining access to the survey via unique login credentials. In cases where schools did not have access to stable internet service, the survey was administered via a USB on computers. The survey included an age appropriate, attractive interface with illustrations and animations in order to encourage survey participation and completion. In order to support students with lower levels of literacy, the survey included audio capabilities so that all instructions, questions and response options could be read aloud to students if selected by the student (i.e., clicking survey text using a computer mouse). Most survey item types included Likert-type attitudinal questions. The ACWP also included unique item types made possible by the online administration of the survey. These new question types used drag and drop functionality where students were asked to move multiple items into an interactive response area.

Project Team and Management

The ACWP was a three-year research study (2012-2015) funded by the Australian Research Council (ARC) through a Linkage Grant, conducted by researchers at the Flinders University of South Australia (Flinders University), the University of New South Wales (UNSW) and the Australian Council *for* Educational Research (ACER). ACWP was led by chief investigators: Associate Professor Gerry Redmond – Flinders University, Dr Jen Skattebol – UNSW, and Professor Peter Saunders – UNSW.

The team that led the qualitative research and final project report included researchers at Flinders University and UNSW. The survey team for the development, trialing, implementation and reporting of all stages of the ACWP survey comprised of researchers from ACER.

The ACWP included support from the following Australian federal government partners: the Department of Education; the Department of Social Services; the Australian Institute of Health and Welfare; and the Australian Bureau of Statistics. The ACWP received strategic direction from a Project Steering Group, which was chaired by Professor George Patton from the University of Melbourne, and included chief and partner investigators, representatives of the federal partner organisations, as well as from independent advisors.

Phases of the project

An overview of the entire ACWP study and all six research phases involved in the project is presented.

	Phase	Research activities	Timeline
Phase 1	**Obtaining young people's conceptualisations of wellbeing**	Qualitative research with six groups of disadvantaged young people (Indigenous, culturally and linguistically diverse, living with disability, living in regional and remote Australia, economically disadvantaged, and living in out of home care), as well as qualitative research with one group of mainstream young people. See Skattebol et al. (2013) for the Phase 1 Report.	Jul 2012 - Apr 2013
Phase 2	**Developing wellbeing indicators**	Phase two included the development of wellbeing indicators for the national survey, informed in part by findings from Phase one qualitative research. Wellbeing indicators were developed and a pilot survey was constructed. See Lietz et al. (2013) for the Phase 2 Report.	May - Dec 2013
Phase 3	**Field Trial Survey**	Phase three included a field trial of the main survey questionnaire, in order to pilot items and finalise the survey questionnaire. The field trial was conducted in 11 schools in NSW and Victoria. See Lietz et al. (2014) for the Phase 3 Report.	Feb - Jun 2014
Phase 4	**a) National survey sampling and preparation**	This phase of the study involved drawing a nationally representative sample of schools for the national survey, which were invited to participate in the study.	Feb - Jun 2014
	b) National survey implementation	This phase of the study involved the implementation of the main national survey to 5,440 students in 180 schools across Australia.	Jul - Oct 2014
	c) Second round of qualitative research	This phase of the study includes a second round of in-depth interviews and focus group discussions with young people from marginalised groups in order to provide more depth and context to the main survey findings. See Lietz et al. (2015) for Phase 4 Report.	Jul - Nov 2015
Phase 5	**a) Main survey data preparation**	This phase of the study involved the cleaning and preparation of the main survey database.	Nov 2014 - Aug 2015
	b) Main survey descriptive analyses	This phase of the study involved undertaking descriptive analyses and reporting on all variables and scales in the main survey.	Feb - Nov 2015
	c) In-depth analyses	This phase involved in-depth analyses of the main survey data. See Redmond et al. (2016) for Phase 5 details in Final Report.	Feb - Nov 2015
Phase 6	**a) ACWP final report**	The final project report integrated findings from all phases of the project, to include qualitative research, descriptive results and in-depth analyses. See Redmond et al. (2016) for Final Report.	Dec 2015
	b) Public database and technical report	The last phase of the project involved the production of an anonymised public database of ACWP main survey data, this technical report to support secondary data analyses, and to provide technical information to complement the ACWP final report. See Lietz et al. (2016) for Technical Report	Dec 2015

2. Survey Design

A principal aim of the ACWP study was to develop an improved understanding of different profiles of children's wellbeing in the middle years. A particular focus was placed on marginalised young people in order to provide useful information for services that promote young people's healthy development. As such, the ACWP main survey collected data about children's attitudes and behaviours in certain areas of their lives. In addition, background information was collected to understand better children's wellbeing in an Australian context and to complement the qualitative research findings of the study. This chapter provides information about the design of the ACWP main survey questionnaire, which includes the conceptualisation of the survey framework; national and international comparisons; the process of designing the survey; and the survey instrument and unique question types.

ACWP framework

Domains and cross-cutting themes

The ACWP survey was designed to measure children's perspectives of their wellbeing in certain areas of their lives, or domains of wellbeing. These domains were identified in the first phase of qualitative research by young people as being important for their wellbeing: *Family*, *Friends*, *School*, *Neighbourhood*, *Health*, *Money and material wellbeing*, as well as themes that cut-across these domains. The cross-cutting themes that applied to one or more domains included: *Bullying, Life satisfaction/quality of life, Closeness of relationships, Importance of domains* and *Being positive about the future*. Another domain, Self-Demographics, was included by the research team to obtain information on factors that have been identified as being related to wellbeing, which are described further in the Factuals/correlates section, below. Taken together, these major domains and cross-cutting themes conceptualised a holistic understanding of children's wellbeing in the middle years. The major domains and cross-cutting themes in the ACWP main survey are presented in Table 1.

Subdomains

Major domains in the ACWP main survey were further conceptualised through subdomains, or constructs that measured a specified aspect of a major domain that was theorised to be important for understanding children's overall wellbeing. For example, the major domain of Friends included subdomains of *Support* and *Conflict*, which indicated that in the ACWP survey, the conceptualisation of Friendship as it related to children's wellbeing measured the level of support and conflict in children's close friendships. Subdomains formed part of the Family, Friends, School, Neighbourhood, Health, and Money and Material Wellbeing domains and are also presented in Table 1.

Factuals/correlates

The ACWP survey consisted of factual questions that have been identified as being related to, or correlates of children's overall wellbeing, as well as factors that are related to children's wellbeing within specified domains. Factuals and correlates are intended to help understand and describe different clusters of wellbeing. Factual questions obtained information about students' background and home environments particularly in the Self-Demographics and Family domains. In addition, factual questions were included within domains which had been identified as being important for understanding children's wellbeing within that domain. For example, the *Number of close friends* was a factual question included in the Friends domain in order to better describe and understand the subdomains of *Support* and *Conflict* in children's close friendships. The factuals and correlates as organised by major domains in the ACWP survey are presented in Table 1.

Table 1. ACWP main survey questionnaire framework and indicators

Major domain	Domain type	Indicator and Year levels	Cross-cutting Subdomain					
Family	Factual/ correlate	Organisation of household 4,6,8		Closeness of relationships 4,6,8 - Rings-Me item	Quality of life 4,6,8	Life satisfaction 4,6,8	Importance of wellbeing domains 4,6,8 - Bookshelf item	
		First home 6,8						
		Second home 6,8						
		Adults paid job 4,6,8						
		Family possessions 4,6,8						
		SES deprivation – petrol 4,6,8						
		Books in home 4,6,8						
		Moved house 4,6,8						
		Changed school 4,6,8						
		Out of home care 4,6,8						
		Family health 4,6,8						
		Caring responsibilities 4,6,8						
	Subdomain - Togetherness	Family cohesion 4,6,8						Learning 4,6,8 - Family Cohesion, School satisfaction, and Parental interest
		Family monitoring 8						
	Subdomain - Worry	Vulnerability significant other 4,6,8						
		Harm significant other 4,6,8						
Friends	Factual/correl. Subdomain	Number of close friends 4,6,8	Bullying 4,6,8					
		Support closest friend 4,6,8						
		Conflict closest friend 6,8						
School	Factual/ correlate	Missed school last term 4,6,8						
		Teacher support 4,6,8						
		Parental interest 4,6,8						
	Subdomain	School satisfaction 4,6,8						
		School pressure 6,8						
		Success at school compared to peers 4,6,8						
		Outside school activities 4,6,8						
		Educational aspirations 6,8						
Neighbourhood/ community	Subdomain	Neighbourhood resources 4,6,8						
		Neighbourhood safety 6,8						
Health	Factual/ correlate	Hungry to bed 4,6,8						
		Smoked 6,8						
		Been drunk 6,8						
	Subdomain	Overall subjective health 4,6,8						
		Somatic wellbeing 4,6,8						
		Psychological wellbeing 4,6,8						
Money & material WB	Factual/correl.	Material deprivation 4,6,8						
Self-demographics	Factual/ correlate	Gender 4,6,8						
		CALD background 4,6,8						
		Aboriginal and Torres Strait Islander 4,6,8						
		Disability 4,6,8						
		Disability difficulties 4,6,8						
		Puberty 6,8						

Indicators

Wellbeing indicators refer to the items that, taken together, reflect the framework subdomains and factuals/correlates. Indicators refer to the items that measure attitudinal or behavioural outcomes specified by subdomains and factuals/correlates. Indicators are detailed in Table 1. A more detailed

overview of all individual variables administered in the survey is provided in the ACWP data file codebook in the Appendix. The ACWP the Year level surveys can be found at australianchildwellbeing.com.au.

Survey development

The first phase of the project involved qualitative research, in-depth interviews and focus group discussions with young people from marginalised and mainstream backgrounds, to explore in an open-ended way the dimensions that children identify as being important for their own wellbeing. Findings from the first phase of the project helped to identify and prioritise the wellbeing domains and themes in the main survey questionnaire. For example, domains and themes that were given higher priority by children in the qualitative research were further developed and given more space in the main survey questionnaire.

The qualitative work with young people identified and prioritised the following six domains of wellbeing:

- Family: Highest priority, most frequently raised by young people and discussed as the most important element of wellbeing.
- Friends: Ranked as a very high priority by majority of the groups and medium for other groups. Important element is a distinction between 'good' and 'bad' friends.
- School: Mixed priorities, depending on group.
- Neighbourhood/Community: Wide variety of meaning, mixed priorities.
- Health: Less important than family, friends and school.
- Money and material wellbeing: Least important for wellbeing.

Detailed findings from the first phase of the study can be found in the ACWP Phase 1 report (Skattebol et al., 2013).

The development of the main survey questionnaire also involved an extensive review of existing wellbeing instruments, wellbeing and health surveys, and background questionnaires from large-scale assessments, in order to identify questions that could enable national and international comparisons with ACWP survey data.

Existing wellbeing instruments that were reviewed during this first step of questionnaire development included the following:

- Health Behaviour in School-Aged Children (HBSC)
- Personal Wellbeing Index-School Children (PWI-SC)
- HowRU?
- Children's Society (CS)
- Children's Worlds (CW)
- Communities that Care (CC)
- Growing up in Ireland
- Huebner Life Satisfaction
- Kidscreen
- Social and Emotional Wellbeing Survey (SEWB)
- Middle Years Development Instrument (MDI)
- The Young Lives Study
- World Vision Kinderstudy
- The Longitudinal Study of Australian Children (LSAC)
- Health-Related Quality of Life in children and adolescents (KIND)
- Brief Multidimensional Students' Life Satisfaction Scale (MSLSS)

The following background questionnaires from large-scale assessments of students' learning were reviewed to identify relevant questions that would enable ACWP data to be compared with data from participating countries and economies:

- Progress in Reading Literacy (PIRLS)
- Trends in International Mathematics and Science Study (TIMSS)
- Programme for International Student Assessment (PISA)

In those instances where items were sourced from these existing surveys, permission was sought for inclusion in the ACWP. Where items had been used in other surveys or had been reported in scholarly articles, every effort was made to identify, and then seek permission, to use the item from the original source. Details regarding the source and permission to use each item have been documented in the PDF versions of the survey (australianchildwellbeing.com.au).

Once a draft questionnaire was constructed, the questionnaire was presented to the Project Steering Group (PSG) for two rounds of feedback in 2013. Feedback from the PSG ranged from very specific suggestions regarding question wording to broader considerations regarding the extent and depth with which children were to be asked about certain aspects of wellbeing. In many instances, the desire of asking in greater depth about an aspect had to be balanced against the need to keep the questionnaire of manageable length for student in Years 4, 6, and 8.

Another stage of questionnaire development included cognitive interviews with 22 children from three locations across New South Wales and South Australia. Cognitive interviews were conducted with children from identified marginalised subgroups of interest to the survey (e.g. children from low socio-economic backgrounds). Cognitive interviews examined children's responses to the questionnaire by observing comprehension and response processes in order to help finalise the questionnaire for the field trial.

The field trial was conducted at the beginning of 2014 in 11 schools in Victoria and New South Wales. Data analysis of the field trial questionnaire helped to finalise the content of the main survey questionnaire as well as processes for survey implementation.

The principal findings from the field trial analyses, relevant to the development of the main survey questionnaire include:

- Missing data and descriptive analyses indicated that the Year 8 questionnaire was too long and needed to be shortened. This was achieved by reducing the questionnaire by 31 items.
- The Year 4 questionnaire took longer than the originally assumed 20 minutes. Instructions to schools about the amount of time to allow for students to complete the survey will be adjusted to 20 to 30 minutes.
- Overall, response rates at the school and individual student levels were low. Obtaining informed parental consent was identified as a major factor influencing student participation.
- Problems with data export features were encountered and led in some instances to missing or incorrect data exported for particular items. Data export processes and technical testing were updated for the main survey and a technical readiness test for schools was developed in order to detect troubleshooting issues associated with school implementation.
- There were no missing data issues associated with items that required students to scroll down on the screen to view the complete item.
- Preliminary analyses with HBSC health items showed that it would be possible to undertake international comparisons using ACWP data.

- Using field trial data, it was possible to construct separate indicators of socio-economic background or affluence, and material deprivation, which relate differently to other survey content.

Detailed reports on the development of the field trial questionnaire and field trial data analysis can be found in the Phase 2 (Lietz et al., 2013) and Phase 3 (Lietz et al., 2014) reports (australianchildwellbeing.com.au).

Survey instruments

The finalisation of the main survey questionnaire content from the field trial to the main survey had to consider survey length and respondent fatigue, so that the survey did not take more than 20 to 30 minutes for children to complete. An analysis of the field trial survey data showed that students in Year 8 were much more likely to drop out of the survey than students in Years 4 and 6. The research team prioritised paring down questionnaire content for Year 8 students to make the survey a more manageable length and reduce the possibility of missing data. The finalisation of the three Year level questionnaires also had to consider question order, and survey branching – that is items conditional on responses to other items. Permissions also had implications for the design of survey instruments, relating to permissions to use content from other surveys, as well as jurisdictional permissions to administer the survey to children in schools. The finalisation of the main survey questionnaire is discussed in detail in the Phase 4 report (Lietz et al., 2015), and the final survey instruments as they appeared to children can be found in on the ACWP website (australianchildwellbeing.com.au).

International and national comparisons

A noteworthy feature of the ACWP survey was the inclusion of survey items from other national and international surveys, to enable the comparison of ACWP survey data to other surveys and contexts. In some instances, survey items were adapted from other surveys (e.g. wording changes, response categories modified) and therefore direct comparisons cannot be undertaken. The main international and national surveys that informed the development of ACWP survey items and for which comparisons may be undertaken by secondary data analysts with ACWP data include:

- Children's Worlds
- Children's Society
- Health Behavior in School-Aged Children (HBSC)
- Youth12 - Health and wellbeing survey of New Zealand secondary school students
- Middle Years Development Instrument Survey (MDI)
- Longitudinal Survey of Australian Children (LSAC)
- HOWRU – Victorian Adolescent Health and Wellbeing Survey

The source of all questions used in the ACWP survey questionnaires is listed in the Year level surveys (australianchildwellbeing.com.au).

3. Survey Implementation

Ethics and permissions

Permission to conduct the main survey of the ACWP research program was obtained from the Australian Council for Educational Research, the Flinders University of South Australia and the University of New South Wales.

Before approaching sampled schools to participate in the ACWP, permission was sought from relevant authorities. In total, 31 separate applications were prepared, including eight for all Australian States/Territories and 23 Catholic dioceses. Discussions with the different authorities during the application process were quite varied. In some instances, the focus was on keeping the work in schools to a minimum. This resulted, for example, in one jurisdiction requesting that schools not be sent tokens of appreciation or certificates for participation for students, as this would have meant work associated with the distribution of these items. In other instances, the focus was on providing parents with as much information as possible, resulting in the provision of demonstration access to the full survey for parents. Of the total 31 applications, 27 were approved and four were declined, three of which were in very small Catholic dioceses. In all instances, part of the approval was conditional on written active informed consent by parents, as well as by the students.

Survey processes

Before the survey

Written invitations including promotional materials were sent to sampled schools in a staggered fashion due to the different length of time it took to obtain permissions from the various authorities. The written communication was sent to schools in hard copy information packs. Information was required about the study and steps to participate.

In addition to the printed and electronic information and promotional material, a video was produced to promote the survey (australianchildwellbeing.com.au) and schools were contacted by phone by former school principals to assist with the recruitment.

Once a school had indicated its willingness to participate by returning the form, consent forms and brochures were couriered to these schools. In addition, test administration details were emailed to the nominated survey co-ordinator within the school, together with access codes and instructions to be distributed to students at the time of the survey administration.

An important element in the pre-survey communication was the technical readiness test, which enabled school survey coordinators to examine whether their technical set up would be appropriate. Steps were taken by the research team to address any problems encountered, including on the provision of an offline version of the survey on USB flash drives.

Survey administration was very flexible in order to make participation as easy and as non-interfering as possible with the school routine. Firstly, schools could specify the period in which they wanted to administer the survey within Term 3. Secondly, students could access the survey any time during the administration period. Thirdly, students were able to log in and out as many times as needed until they finished the survey. Fourthly, while the survey was anonymous at the student level, school-level sampling information (e.g. State/Territory, school sector, geolocation, etc.) was attached to each anonymously participating student during the survey administration period. This enabled survey monitoring and follow-up to increase survey response rates.

The main challenge to survey participation was the informed active parental consent required by all jurisdictions and dioceses, and the university human research ethics committees. Despite their best efforts to promote the survey at assemblies, staff meetings and through newsletters, the schools found it very difficult to get students to return the signed parental consent forms. In many instances, this meant that rather than whole classes, only individual students were allowed to participate in the study. To facilitate survey administration in those circumstances, some schools took up the offer by the ACWP to pay for another teacher, or suitably qualified school staff member, to take those students who had managed to return the signed informed consent forms out of the regular classes in order to administer the survey. As a direct consequence of this recruitment challenge, 51 of the 231 schools that had originally agreed to participate in the survey withdrew from the study.

During the survey

A helpdesk was resourced via the ACWP 1800 telephone number, and a dedicated email address was established. Any issues were dealt with immediately. In addition to the helpdesk support, participation rates were continuously monitored. If schools were found not to have started the testing a few days after their desired starting date, ACER staff contacted the school to identify their reasons and provide any assistance necessary to encourage survey participation.

After the survey

Where such permission had been granted by authorities, schools were sent certificates and pencils for distribution to participating students as tokens of appreciation for survey participation. In addition, customised reports for any school with at least 20 participating students were provided. Schools with fewer participating students received a general report based on all ACWP survey responses for the Year level(s) at which they had participated.

Without the ongoing support of and communication with schools throughout the survey process, the response rate could have been much worse. Schools in Australia are increasingly invited and mandated to participate in national and international surveys through the population and sample surveys that form part of the National Assessment Program (http://www.nap.edu.au/). Particularly when the survey is voluntary, it is vital for adequate allocation of time and resources to recruit and support schools.

Online administration

Survey access

The ACWP survey was administered online, with participating students logging into an external website to access and complete the survey. In this way, school and student participation could be monitored in real-time, and survey data were immediately stored on the secure online server. Online administration does not require manual data entry, unlike traditional pencil and paper survey administration, and therefore does not require processes like reliability checks for manual data entry.

Online administration required schools to provide students access to a computer or other electronic device (e.g. tablet, mobile phone) with a stable internet connection. In a few instances where schools in rural or remote areas did not have a stable internet connection at school, an alternative USB administration was prepared. The survey was pre-loaded onto USBs and couriered to participating schools, with a pre-paid envelope for schools to post back the USBs to the research team. USB administration required access to a computer or other device with a USB port, but not an internet connection. Data were automatically saved onto the USB as students progressed through the survey. Once the schools had returned the USBs to the research team via the post, data from USB administration were uploaded onto the secure survey server and merged with other student data that had been administered online.

Login credentials and sampling

Access to the survey was controlled through unique login credentials that were linked to the ACWP sampling framework. Unique credentials contained identifying information about the sampled participating schools: State/Territory, school sector, sampled Year level, and a randomly generated student number. A list of unique credentials was provided to a nominated test administrator at each participating school, who distributed these credentials to participating students in the appropriate Year levels. Login credentials were linked to specific Year level surveys so that students were automatically shown the appropriate Year level survey. In this way, while the research team monitored school and student participation, student anonymity was protected as survey administration was handled at the school level and no identifying student information was shared with the research team that could be linked to specific student login credentials.

Later in data cleaning, the school information contained in the student login credentials allowed the research team to merge school-level information onto the data file for each participating student, such as school-level SEIFA values, school geographic location, school sex, and other information.

Survey functionalities

The online survey itself also contained several functionalities to support students during survey administration, and reduce the risk of dropout and missing data. In order to support students with lower levels of literacy, the survey included audio capabilities so that all instructions, questions and response options could be read aloud to students if selected by the student (i.e. clicking survey text using a computer mouse). Online survey navigation allowed students to return to prior screens if they had skipped a question, and a navigation bar at the top of the survey displayed which screen number students were currently on, and if expanded, the navigation pane displayed screens with missing data by highlighting screens in red. Students were able to click on highlighted screens with missing data and were immediately taken to the screen in order to complete any skipped questions. Furthermore, the survey used a colourful and engaging template around the question stimulus area, with animated aliens and space creatures in order to encourage students to progress through and complete the survey.

Mandatory screens and survey branching

The survey was designed to have several branching points, in order to ask follow-up questions to a relevant sub-set of respondents. Therefore within each Year level survey, some questions were only displayed to students depending on their answer to a previous filter question. In order to ensure that students were shown the correct survey branch, filter questions were made mandatory in the online survey before each branching point. For example, the question about students' gender was made mandatory to allow the online survey to later branch to the correct puberty items for Years 6 and 8 students. Mandatory screens and survey branching are presented in full in the Year level surveys available from the website (australianchildwellbeing.com.au). Implications for missing data and auxiliary codes, due to mandatory screens and survey branching, is explained below in the *Missing data* section.

Process of online survey finalisation

Technical and administrative issues that impacted upon survey implementation and data collection are detailed here, as they relate to reliability and validity of the ACWP main survey data that are available in the public data file.

Finalisation of the online platform for the main survey addressed essential improvements across all features of the online survey tool aimed at improving useability, efficiency and data integrity. In terms of administration and monitoring tasks, several improvements were made to the survey. These included the following:

- The length and standardisation of student credentials were adjusted to minimise issues when entering these into the login screen. The URL for accessing the survey was also shortened and simplified.
- Reviewing troubleshooting issues from schools, which included a) reported compatibility issues across browsers and devices and b) access issues with student credentials and internet access.
- The backend interface for reviewing school and student participation was modified to ensure more accurate and precise monitoring. This directly impacted on increasing the overall participation rate.
- The technical readiness tool for testing the suitability of computers and internet browsers was improved. This included the ability to capture both when and if schools had accessed the tool, and the outcome of the test. These tests allowed ACER to more efficiently support schools with technical issues prior to survey administration, such as identifying un-supported browsers or issues with audio functionalities. However, there were a few instances with technical issues during the main survey implementation, such as issues with local school-level proxy and security settings.
- A unique set of Test Administration credentials were provided to schools to function as a demonstration set and assist to familiarise the school administrator with the survey. These credentials ensured that student credentials were not used for demonstration purposes, which could have affected the reliability of the data captured from students.
- Preparation of all student credentials and Test Administration credentials were mapped to the sampling framework with relevant sampling information attached to each credential.
- The introduction of another auxiliary code to distinguish between different types of missing data. Auxiliary codes distinguished between: questions that were viewed by students and were actively skipped; questions that were not administered to students because of filter questions and survey branching; and questions that were never viewed by students because they decided to end participation before finishing the survey.
- Preparation of the online survey in a USB format, for administration in remote schools with no or unreliable internet connectivity.

All updates to the main survey questionnaire were manually authored in the online survey tool after the field trial. These updates included deleted questions and items, modified or new questions and items, and changed question order across the Years 4, 6 and 8 surveys. Any changes also necessitated the re-recording of the changed text.

The quality of the data export from the survey tool was also examined. This led to refinements to ensure accurate data capture taking into account item and question deletion and question reordering from field trial to main survey.

Several improvements were made to survey functionality between the field trial and main survey to enhance the user experience. These included changes to the progress bar, audio updates based on content changes, minimisation of required scrolling to view questions and standardisation of styling. Pop-up message/reminder windows were introduced and validation rules for certain questions were also refined to improve survey flow. To improve user experience, animations and videos were added.

In addition, improvements were made to custom-designed interactive questions, specifically the ‘Closeness of Relationships’, or drag-and-drop circle question, and the ‘Importance of Domains’, or bookshelf question. Please see the Phase 3 report for more information about custom online-survey questions. Technical changes were undertaken to improve the online display of these questions, as well as updating the online data capture to reflect field trial to main survey updates to the questions, such as removing response options in the drag-and-drop circle question, and allowing more response options in the bookshelf question.

A final and important step in the preparation of the final survey tool was beta-testing. This involved systematic testing of all survey functionalities including audio, mandatory items, animations and custom item functionalities. Beta-testing also required survey flow and conditional rules to be examined. For example, items regarding the type of household, puberty, disability, bullying and family affluence were dependant on responses to another question. Data entry and export were also thoroughly tested as was the applicability of the survey tool across different platforms, devices and internet browsers. For example, the survey tool was trialled with IE9, Firefox, Safari, Opera, Chrome, tablets, PC, MAC etc. This phase of beta-testing of the main survey was essential for quality assurance and data validity and reliability.

4. Sampling Design, Participation and Weights

This chapter describes the procedures employed to sample the schools and students from the target population. The aim was to optimise the representativeness of results at the Year levels, whilst also maintaining a sufficient sample size through the random replacement of non-participating schools to enable the calculation of appropriate sampling weights.

Target population

The target population for the ACWP survey was all students in Years 4, 6, and 8 in Australia. These years were selected as the study focussed on children in the middle years of schooling.

Sampling framework

In order to arrive at a nationally representative sample of schools in Years 4, 6 and 8 across Australia, the schools were selected using a two-stage stratified probability sample whereby schools were sampled first, followed by students being selected from those sampled schools.

A total of 449 schools from all eight Australian States and Territories were sampled. Each sampled school had one or two sampled replacement schools, for instance where the first sampled school decided not to participate. Permission to run the survey was obtained from all eight State and Territory government education jurisdictions, as well as from 23 Catholic dioceses.

In the second stage of the stratified probability sample, students were sampled within schools. In most States/Territories, this included all students enrolled at the school at Years 4 and 6 (in the case of primary or combined schools) and at Year 8 (in the case of secondary or combined schools). Flexibility was provided, however, depending on the preference of the school. For example, schools could choose for the whole Year level or for just one intact class group to participate. After an extensive recruitment period, a total of 231 schools opted to participate, with 130 of these being first sampled schools rather than replacement schools. Table 2 shows the sampled and participating schools involved in the main survey.

Table 2. Participating schools and estimated number of students in ACWP main survey sample

State/ Territory	N primary schools	Estimated N students Year 4	Estimated N students Year 6	N secondary schools	Estimated N students Year 8	Total schools	Total students
NSW	39	1437	1429	40	5104	79	7970
VIC	35	1119	1054	35	5334	70	7507
QLD	35	1417	1535	35	6888	70	9840
SA	30	852	790	29	4306	59	5948
WA	30	885	970	29	4907	59	6762
TAS	30	1218	1252	20	478	50	2948
NT	15	297	294	16	1431	31	2022
ACT	15	704	726	15	2638	30	4068
AUS	**229**	**7929**	**8050**	**219**	**31086**	**448**	**47065**

It should be noted that 51 of the 231 schools which had originally agreed to participate withdrew from the study during the implementation phase. This was due to the challenges arising from the authorities' permission requirements, which meant that active explicit consent from both students and parents/caregivers had to be obtained prior to survey participation, as detailed in the previous chapter.

Participation rates

As already highlighted, the main challenge to survey participation was the informed active parental/caregiver consent required by all jurisdictions and dioceses, and the university human research ethics committees. Despite their best efforts, schools found it extremely difficult to get students to return the signed parental/caregiver consent forms which directly impacted on survey participation.

The final number of respondents was 5,440, from 180 schools. The ACWP main survey public data file contains 181 unique school identification numbers. One school was sampled at the Year 4 and 6 levels, and the same school was also sampled at the Year 8 level. Therefore, one school technically participated as two separate schools. Table 3 shows participation rates, or frequency of participating students, by school and student characteristics.

Table 3. Participation rates

Reporting subgroup	Year 4	Year 6	Year 8	Total
Total	717	827	3896	5440
Gender				
Females	398	484	1939	2821
Males	319	343	1957	2619
Geographic location				
Metro	477	495	2808	3780
Provincial	188	283	1069	1540
Rural/Remote	52	49	19	120
National SEIFA				
Low	177	169	702	1048
Middle	205	322	1406	1933
High	335	336	1788	2459
Indigenous background				
Indigenous	57	52	136	245
Non-Indigenous	660	775	3758	5193
Culturally & linguistically diverse				
Language other than English spoken at home	102	45	276	423
English spoken at home	614	782	3617	5013
Out of home care				
Out of home care	33	21	30	84
At home care	680	797	3836	5313
Disability				
Disability	86	86	397	569
No disability	623	733	3433	4789

Note: Some subgroups do not add up to the total number of students due to missing data for those students on the variables used to calculate the subgroup.

Examining participation rates by reporting subgroup in Table 3 above, about a fifth of respondents attended schools in low SES areas (1048/5440=19%), while 45 per cent (2459/5400) attended schools in high SES areas. Ten per cent of respondents (569/5440) reported having a disability, eight per cent stated they spoke a language other than English at home (n=423), five per cent identified as Aboriginal or Torres Strait Islander (n=245/5440), two per cent stated that they were living in out of home care (n=84/5440) and two per cent attended schools in remote areas (n=120/5440). It is important to note that final sample numbers for Out of Home Care students (OOHC) and students living in rural and remote areas were particularly small, and therefore, any results for these groups should be interpreted with caution.

Response rates

Response rates could be calculated for schools, students, SEIFA and geographic location as these strata formed part of the sampling frame. Response rates could not be calculated for the other reporting subgroups because these did not feature as a sampling stratum – that is population estimates are not known.

Response rates were calculated for schools and students by Year level by comparing the number of sampled schools and estimated number of sampled students with the actual number of participating schools and number of participating students.

School and student response rates are reported in Table 4. As can be seen, the school response rate ranged from 32.6 per cent at Year 4 to 46.1 per cent at Year 8 while the student response rate ranged from 29.4 per cent at Year 4 to 30.3 per cent at Year 8. These response rates resulted in an overall response rate of 12 per cent across the three Year levels. While this response rate may appear low it is still considerable given the voluntary nature of the survey combined with the requirement of obtaining informed and active consent by both students and parents.

Table 4. School and student response rates overall and by SEIFA and Geographic location

Year level		Schools sampled	Schools that participated	Students sampled from school sample	Students who participated	School Response Rate %	Student Response Rate %	Overall Response Rate %
Overall school and student response rates								
	Year 4	230	77	2438	717	32.6	29.4	9.6
	Year 6			2176	827	33.0	38.0	12.6
	Year 8	219	101	12857	3896	46.1	30.3	14.0
	Overall	**449**	**177**	**17471**	**5440**	**39.4**	**31.1**	**12.3**
National SEIFA								
Year 4	High	74	27	1003	341	36.5	34.0	12.4
	Middle	82	25	753	199	30.5	26.4	8.1
	Low	74	23	682	177	31.1	26.0	8.1
Year 6	High	74	25	892	340	33.8	38.1	12.9
	Middle	82	28	807	318	34.1	39.4	13.5
	Low	74	23	477	169	31.1	35.4	11.0
Year 8	High	84	36	5282	1788	42.9	33.9	14.5
	Middle	70	39	5302	1406	55.7	26.5	14.8
	Low	65	26	2273	702	40.0	30.9	12.4
Geographic location								
Year 4	Metropolitan	116	37	1629	477	31.9	29.3	9.3
	Provincial	87	29	676	188	33.3	27.8	9.3
	Rural/Remote	27	9	133	52	33.3	39.1	13.0
Year 6	Metropolitan	116	34	1375	495	29.3	36.0	10.6
	Provincial	87	31	689	283	35.6	41.1	14.6
	Rural/Remote	27	11	112	49	40.7	43.8	17.8
Year 8	Metropolitan	144	61	9246	2808	42.4	30.4	12.9
	Provincial	62	35	3528	1069	56.5	30.3	17.1
	Rural/Remote	13	5	83	19	38.5	22.9	8.8

Given that both SEIFA and geographic location formed part of the sampling framework, response rates could also be calculated for these characteristics and are presented in Table 4. Examining overall response rates by SEIFA, which take into account both school and student response rates, response rates were relatively lower for students in middle and low SEIFA schools in Year 4 (both 8.1%). The highest overall response rates were achieved in high and middle income SEIFA schools in Year 8 (14.5% and 14.8% respectively).

The lowest overall response rate for geographic location was recorded for students in remotely located schools at Year 8 (8.8%), while the highest overall response rates were recorded for remote schools at Year 6 (17.8%) and provincial schools at Year 8 (17.1%).

As detailed in the next section, sampling weights were developed to align these proportions with the proportions in the population.

Survey sampling weights

The ACWP survey data file includes a sampling weight (WTFINAL) which is suggested to be used in analyses and reporting for two main reasons:

1. To ensure that when aggregated to the national level, key population subgroups contribute to outcomes in proportion to their population size.
2. To adjust for school and student level non-response.

The sampling weight (WTFINAL) was constructed across the three Year levels along the lines of a senate weight whereby each Year level contributed equally to the overall population. This was considered appropriate as the total number of students at each Year level did not differ sufficiently to warrant the production of separate Year level weights.

The ACWP sampling framework used a two stage stratified probability sample, first sampling schools, and then sampling students within schools. The sampling weight took into account the proportion that each of the following school sampling strata represented in the target population as a whole:

- School State/Territory (i.e. Australian Capital Territory, New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria, Western Australia);
- School sector (i.e. Catholic, Government, Independent);
- School geographic location; and
- School SEIFA level.

The sample weight also considered the following student-level stratum:

- Student gender (i.e. male/female).

The geographic location variable was a school-level variable, which classified the location of sampled schools into eight geographic categories. The original eight geographic location categories were recoded into three new categorical variables. This recoding closely matched the three geographic categories defined in the Australian national reports for the following large-scale student assessments: Programme for International Student Assessment (PISA), Progress in International Reading Literacy Study (PIRLS), and Trends in International Mathematics and Science Study (TIMSS).

Geographic location recodes were as follows:

Metro: State capital city regions (1), Major urban population 100,000 or more (2);

Provincial: Provincial city 50,000-99,999 (3), Provincial city 25,000 to 49,000 (4), Inner provincial areas (5), Outer provincial areas (6); and

Remote: Remote zone (7), Very remote zone (8).

The SEIFA variable was a school-level variable, which was a socio-economic index of geographic areas, where sampled schools were located. SEIFA indices were developed by the Australian Bureau of Statistics (Pink, 2011) and the ACWP specifically used the SEIFA Index of Relative Socio-Economic Disadvantage (IRSD). The IRSD SEIFA index used deciles to rank Australian geographic areas within States/Territories by relative socio-economic disadvantage through taking into account access to material and social resources and ability to participate in society. A low national SEIFA score (e.g. 1) indicated relatively greater disadvantage while a high national SEIFA score (e.g. 10) indicated a relative lack of disadvantage. The ACWP used the IRSD in order to focus on one of the survey groups of interest, namely students from low socio-economic backgrounds. The original ten SEIFA categories of relative disadvantage were recoded into three new categorical variables of school-level socio-economic background as follows:

SEIFA (Socio-Economic Indexes for Areas):

Low: SEIFA deciles 1-3;
Middle: SEIFA deciles 4-7;
High: SEIFA deciles 8-10.

In some cases, only very small numbers of participating students were present in the cells generated through the cross-classification of these various characteristics.

A choice then had to be made to either reduce the variables in the cross classification or further reduce the levels of the variables (e.g. combining provincial and remote into 'non-metropolitan'). After consideration of the data, the subject matter of the survey, and the explicit desire by jurisdictions involved in the study to avoid comparisons by State/Territory or school sector, a decision was made for weighting purposes to remove State/Territory and sector from the cross classification, and to focus on the distribution of the sample data across geographic location, SEIFA level - based on the national deciles – and student gender. The influence of State/Territory and sector in weighting was nevertheless present through the incorporation of base weights in the weight construction, as discussed below.

Substitutes for non-participating sampled schools

At the time of sampling, schools on the sampling frame adjacent to the sampled schools were identified as potential substitutes to be used if the sampled school did not participate and these were used where possible. In addition, a small number of participating schools that were not sampled for a particular Year level had students who participated at that level. This occurred, for example, in schools that were sampled at the secondary level but also had students who participated at Year 4, and schools which had been sampled at the primary level that also had students who participated at Year 8. These schools with participant data that were not sampled at the Year level were also used as substitutes for sampled schools from the same State/Territory and sector and with a similar geographic location/SEIFA profile that did not participate.

Construction of student weights

Base weights

The starting point for weighting was the sample design weights, which reflected the probabilities in the selection of school and student at the time of sampling. This tended to mean, for example, that students from the larger State/Territory began with a larger weight because, in general, they would be representing more students in the population than sampled students from a smaller State/Territory. Within States/Territories, the drawn sample was selected in proportion to State/Territory and sector. Whether the participating school was a sampled school or one of its matched replacement schools, the school selection probability was based on the selection of the sampled school.

Alignment of response data to the population

With differential response patterns occurring across geographic location, SEIFA level and student gender, the next task was to align the responding sample to the population distribution across these variables. This was done through a process known as 'iterative proportional fitting', where the base weights were iteratively adjusted across these three variables, with the aim of aligning them to the marginal totals of the population distribution for each variable separately. This process successfully produced weights ('pre weights') that aligned to the totals of the population distribution.

Trimming

Following this process, the distribution of the pre-weights within each weighting class – as defined by the cross classification: geographic location*SEIFA level*student gender – was examined for 'outlier' weights, that is, very large weights in comparison to the others in that weighting class. Excessively large weights in a class relative to others can be problematic, as it means that individual students might have an inordinate influence on the survey analyses. To avoid this, weights that were larger than four times the median for the class were trimmed to that value (i.e. four times the median).

Following the weight trimming, all of the weights in the class were adjusted by the factor equal to:

$$\frac{\textit{sum of the pre-weights in the class}}{\textit{sum of the trimmed weights in the class}}$$

The sum of these preliminary weights within the class then corresponded with the population for that weighting class.

Scaling and relative weighting

After these steps, the distributions of the weighted sample and the population across location, SEIFA level and sex, and (separately) across State/Territory and sector were compared. Overall, the weighted distributions matched very well with that of the population. Table 5 show the unweighted and weighted distributions of Year 4, Year 6 and Year 8 participants and the population distributions of students by cross-classification of geographic location, SEIFA level and gender.

The columns that display values for unweighted and weighted proportions for the ACWP sample illustrate how certain subgroups of respondents were weighted more or less to align with the population distributions by classification.

Weights for Years 4, 6 and 8 were combined into an overall senate weight for the three Year levels. It should be noted that while more students in Year 8 participated in comparison to students in Years 4 and 6, there is a clustering effect in that participating Year 8 students were drawn from a similar number of schools compared to Year 4 and Year 6 students. As such, the Year 8 participating sample should not be considered as being particularly more representative of its population than the Year 4 and Year 6 participating samples.

Guidelines for using weights

A value for a student level weight on the ACWP main survey public data file represents the number of Year 4, 6 or 8 students in the Australian population that the respondent represents, accounting for the Year level population size by State/Territory, school sector, geographic location, SEIFA level and student gender.

Student level weights should be used when undertaking comparisons at the Year level and are representative of the national Australian population of Year 4, 6 and 8 students.

As noted above, 'base' weights are used to adjust for different selection probabilities at the time of sampling. Further adjustments are made to these base weights to account for non-response.

Table 5. Student level weights

Geographic location	National SEIFA	ACWP N Students - Unweighted		ACWP N Students - Weighted		Proportion of ACWP Sample - Unweighted %		Proportion of ACWP Sample - Weighted %		Proportion of population enrolled %	
Year 4 student weights		**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**
Metro	High	132	183	43149	47526	18.4	25.5	16.2	17.8	17.1	16.2
	Low	34	36	23319	16237	4.7	5.0	8.7	6.1	7.0	6.7
	Middle	39	53	36555	30629	5.4	7.4	13.7	11.5	13.8	13.1
Provincial	High	4	5	2113	295	0.6	0.7	0.8	0.1	0.9	0.9
	Low	42	37	15710	11782	5.9	5.2	5.9	4.4	5.9	5.6
	Middle	44	56	14044	19879	6.1	7.8	5.3	7.4	5.5	5.2
Rural/ Remote	High	8	3	545	149	1.1	0.4	0.2	0.1	0.1	0.1
	Low	12	16	755	2294	1.7	2.2	0.3	0.9	0.5	0.5
	Middle	4	9	779	1329	0.6	1.3	0.3	0.5	0.5	0.5
Total		**717**		**267090**		**100.0**		**100.0**		**100.0**	
Year 6 student weights		**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**
Metro	High	116	197	40092	51964	14.0	23.8	15.0	19.5	17.0	16.4
	Low	29	27	21422	13853	3.5	3.3	8.0	5.2	7.0	6.7
	Middle	53	73	38172	29756	6.4	8.8	14.3	11.1	13.5	12.4
Provincial	High	3	8	1162	915	0.4	1.0	0.4	0.3	0.9	0.9
	Low	36	49	16745	14934	4.4	5.9	6.3	5.6	5.8	5.6
	Middle	80	107	15436	16757	9.7	12.9	5.8	6.3	5.9	5.6
Rural/ Remote	High	8	4	394	118	1.0	0.5	0.1	0.0	0.1	0.1
	Low	13	15	2211	690	1.6	1.8	0.8	0.3	0.5	0.5
	Middle	5	4	1450	1020	0.6	0.5	0.5	0.4	0.5	0.5
Total		**827**		**267090**		**100.0**		**100.0**		**100.0**	
Year 8 student weights		**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**	**Boy**	**Girl**
Metro	High	857	802	45882	46173	22.0	20.6	17.2	17.3	17.7	17.6
	Low	74	98	9607	15343	1.9	2.5	3.6	5.7	6.7	6.4
	Middle	482	495	43000	36112	12.4	12.7	16.1	13.5	13.0	12.0
Provincial	High	108	21	5251	1514	2.8	0.5	2.0	0.6	0.8	0.8
	Low	255	267	22993	18715	6.5	6.9	8.6	7.0	6.3	6.1
	Middle	172	246	8435	9507	4.4	6.3	3.2	3.6	5.5	5.4
Rural/ Remote	High	_	_	_	_	_	_	_	_	0.0	0.0
	Low	2	6	185	3343	0.1	0.2	0.1	1.3	0.4	0.4
	Middle	7	4	621	409	0.2	0.1	0.2	0.2	0.4	0.4
Total		**3,896**		**267090**		**100.0**		**100.0**		**100.0**	

With non-response comes the potential for non-response bias, where respondents and non-respondents differ with respect to survey outcomes. For example, prior research indicates that the requirement for active parental consent and the non-response arising from this requirement is likely to lead to a responding sample that is biased (Shaw, Cross, Thomas & Zubrick, 2014).

While the process for developing student level weights has been quite successful in aligning the sample data to the population distributions, weighting can only attempt to ameliorate the potential biases arising when sampled schools and students do not respond. In some instances, the actual number of cases representing a subpopulation are very small. It is assumed that these students are representative of that population, although this cannot be verified. One should, therefore, treat analyses and reporting based on these data when examining reporting subgroups of interest with caution.

Moreover, while the final weight (WTFINAL) should be used in Year level analyses and comparison of results, the use of this weight should be avoided when undertaking comparisons for reporting other than geographic location, SEIFA level and student gender as these characteristics were included in the calculation of this sampling weight. At subgroup levels such as students in out-of-home care (OOHC) or students from culturally and linguistically diverse backgrounds (CALD), unweighted results should be reported and discussed as indicative rather than representative.

Representativeness of groups of interest

The ACWP was designed with a particular focus on understanding the perspectives of young people who belong to subgroups that may experience disadvantage or marginalisation. These groups included: young people living in rural or remote areas in Australia; young people from low socio-economic backgrounds; indigenous students, or Aboriginal and Torres Strait islander students (ATSI); culturally and linguistically diverse young people (CALD); young people living in out of home care (OOHC), and young people living with a disability.

While the survey sampling weights could align with the target Australian population by geographic location, SEIFA level, and by gender, no adjustments could be made for ATSI, CALD, OOHC and Disability, as this individual student level information did not form part of the sampling framework from which schools and students were sampled.

This section reports on the representativeness of the ACWP groups of interest through comparisons to external data sources where available.

Geographic location and National SEIFA

Results of the proportions in each of these geographic location categories and national SEIFA categories, by Year level, are given in Table 6.

Table 6. Weighted Geographic location and SEIFA by Year level

Reporting subgroup		Year 4 %	Year 6 %	Year 8 %	Total %
Geographic location	Metropolitan	73.9	73.1	73.4	73.5
	Provincial	23.9	24.7	24.9	24.5
	Rural/Remote	2.2	2.2	1.7	2.0
National SEIFA	Low	26.2	26.2	26.3	26.2
	Middle	38.6	38.4	36.7	37.9
	High	35.1	35.4	37.0	35.8

Comparison data for geographic location were available from the PIRLS and TIMSS 2011 national report, which shared the school sample for both surveys in 2011. The weighted proportions of students at schools from the three geographic location categories at Year 4 were 72 per cent in metro, 27 per cent in provincial and one per cent for remote locations. The corresponding proportions in the ACWP aligned quite well with 74 per cent in metro, 24 per cent in provincial and two per cent of students located in remote areas.

The PISA 2012 national report presented proportions of 15-year-old students in geographic location categories of 72 per cent in metro, 26 per cent in provincial and one per cent in remote locations. This

aligned with the ACWP Year 8 data of 70 per cent in metro, 28 per cent in provincial and two per cent in rural/remote areas.

In the case of SEIFA, socio-economic status (SES) was taken into account in both the sampling design of ACWP and the algorithms used to produce sampling weights. The distributions at Years 4, 6 and 8, by relative socio-economic disadvantage, were calculated after the sampling weights were applied to the sample data, and these aligned well with the expected distributions for the population.

It should be noted that the ACWP collected information on many other variables aimed at generating additional indicators of SES to enable comparisons with results from other surveys, such as the HBSC.

One indicator of home background that is frequently used in large-scale assessments of education is information regarding the number of books in the home. Table 7 presents results for the ACWP and TIMSS which was conducted in Australia in 2011. As TIMSS is only administered at Years 4 and 8 comparative information is not available for Year 6. The proportions reported in TIMSS and the ACWP are quite similar. At Year 4, 19 per cent of Year 4 students state that they have few books compared to 22 per cent in TIMSS at Year 4. In addition, both studies report similar proportion of between 26 and 200 books with ACWP proportions of 60 and 53 per cent at Year 4 and 8 compared with 59 and 51 per cent for TIMSS Year 4 and 8, respectively.

Table 7. Books in the home ACWP and TIMSS, by Year level

	ACWP Books in the home			TIMSS 2011 Books in the home		
Year Level	**Few %** 25 or fewer books	**Average %** between 26 and 200 books	**Many %** more than 200 books	**Few %** 25 or fewer books	**Average %** between 26 and 200 books	**Many %** more than 200 books
Year 4	19.1	60.0	20.9	22.0	59.0	19.0
Year 6	20.9	51.7	27.4	NA	NA	NA
Year 8	23.7	52.9	23.5	22.0	51.0	27.0

Note: TIMSS 2011 sampled at Year 4 and Year 8.

Aboriginal and Torres Strait Islander students (ATSI)

Results of number of students identifying as ATSI at each Year level, together with unweighted and weighted proportions for the ACWP and TIMSS and PISA comparative data are presented in Table 8.

As information on ATSI was not included in the development of the weights for the ACWP, the more appropriate comparison are the unweighted ACWP proportions. These show for Year 4, that the proportion of students identifying as ATSI is about the same in the ACWP (7.9%) compared with the proportions reported in TIMSS (7%). At Year 8, the unweighted proportion of students identifying as ATSI (3.5%) is slightly lower than what is recorded in TIMSS and about the same as the proportion in PISA (3%).

Table 8. Indigenous status in ACWP, TIMSS and PISA, by Year level

Aboriginal and/or Torres Strait Islander Status		ACWP N Students	ACWP Unweighted % Students	ACWP Weighted % Students	TIMSS 2011 Weighted % Students	PISA 2012 Weighted % Students
Year 4	Indigenous	57	7.9	9.9	7.0	NA
	Non-Indigenous	660	92.1	90.1	93.0	NA
Year 6	Indigenous	52	6.3	6.9	NA	NA
	Non-Indigenous	775	93.7	93.1	NA	NA
Year 8	Indigenous	136	3.5	4.8	5.0	3.0
	Non-Indigenous	3,758	96.5	95.2	95.0	97.0
Total						
	Indigenous	245	4.5	7.2	NA	NA
	Non-Indigenous	5,193	95.5	92.8	NA	NA

Note: PISA samples 15 year-olds, and ACWP Year 8 students are 13-14 years-old.

Disability

Table 9 provides information about the proportions of students with a disability in the ACWP survey and estimates about the proportion of 5 to 14-year-olds in Australia with a disability as reported by the ABS. As information on disability was not included in the development of weights for the ACWP, comparison to the unweighted data is more appropriate, although Table 9 shows little differences in unweighted and weighted proportions of this characteristic. Still, compared to the ABS estimates, the proportion of children categorised as having a disability is somewhat higher in the ACWP at all Year levels.

Table 9. Disability status in ACWP and ABS, by Year level

Disability Status		ACWP N Students	ACWP Unweighted Students %	ACWP Weighted Students %	Australian Population % 5 -14 years old*
Year 4	Disability	86	12.1	12.3	8.8
	No disability	623	87.9	87.7	91.2
Year 6	Disability	86	10.5	10.2	8.8
	No disability	733	89.5	89.8	91.2
Year 8	Disability	397	10.4	11.0	8.8
	No disability	3433	89.6	89.0	91.2
Total					
	Disability	569	10.6	11.2	8.8
	No disability	4789	89.4	88.8	91.2

* Source: ABS 2012 Survey of Disability, Ageing and Carers

Out of home care

While it was difficult to find national comparison data for children in out of home care, the AIHW has reported that one per cent of children under the age of 18 are estimated to be in out of home care. The weighted proportions recorded for the ACWP in Table 10 are higher at Year 4 (6.3%) and Year 6 (3.2%) and the same at Year 8 (0.8%). It should be noted that the unweighted proportions would be the more appropriate comparison given that no information was available on this characteristic in the development of the weights. However, the unweighted proportions of children in OOHC reported for the ACWP, while lower (4.6% and 2.6% respectively at Year 4 and 6), are still higher than the AIHW estimates.

Table 10. Out of home care status ACWP and AIHW, by Year level

Out of Home Care Status		ACWP N Students	ACWP Unweighted Students %	ACWP Weighted Students %	Australian Population % 0 - 17 years old*
Year 4	Out of home care	33	4.6	6.3	1.0
	At home care	680	95.4	93.7	99.0
Year 6	Out of home care	21	2.6	3.2	1.0
	At home care	797	97.4	96.8	99.0
Year 8	Out of home care	30	0.8	0.8	1.0
	At home care	3836	99.2	99.2	99.0
Total					
	Out of home care	84	1.6	3.5	1.0
	At home care	5313	98.4	96.5	99.0

* Source: Child Protection Australia 2013 - 2014 Australian institute of Health and Welfare; refers to children in out of home care during 2013 - 2014

Culturally and linguistically diverse students (CALD)

In the ACWP, the variables used to define CALD were drawn from TIMSS 2011, and therefore could be compared to Australian data from TIMSS 2011. Proportions of CALD students identified in ACWP and TIMSS are displayed in Table 11. The proportions at Year 4 differ somewhat between the weighted ACWP results and the TIMSS 2011 results. In TIMSS, the proportion identified as CALD at Year 4 was

higher at 21 per cent compared with the 16 per cent of students who identified as CALD at Year 4 in the ACWP. However, at Year 8, the proportions coincide with seven per cent CALD reported in TIMSS as well as the ACWP.

Table 11. Culturally and linguistically diverse status ACWP and TIMSS, by Year level

Culturally and Linguistically Diverse Status		ACWP N Students	ACWP Unweighted Students %	ACWP Weighted Students %	TIMSS 2011 Weighted Students %
Year 4	English spoken at home	614	85.8	84.3	79.0
Language other than	English spoken at home	102	14.2	15.7	21.0
Year 6	English spoken at home	782	94.6	94.9	NA
Language other than	English spoken at home	45	5.4	5.1	NA
Year 8	English spoken at home	3617	92.8	93.4	93.0
Language other than	English spoken at home	276	7.1	6.6	7.0
Total					
	English spoken at home	5013	92.2	90.8	NA
Language other than	English spoken at home	423	7.8	9.2	NA

Note: TIMSS 2011 sampled at Year 4 and Year 8.

5. Indicative Standard Errors

The statistics reported in the ACWP Final Report (Redmond et al., 2016), which are often reported as percentages, means or mean scale scores, provide accurate results for Year 4, 6 and 8 students who participated in the ACWP survey, or in other words, the ACWP sample. If more samples were drawn again and again from the same population of students, the sample statistics would vary slightly from sample to sample. Accordingly, the statistics reported in the ACWP Final Report can only provide an estimate of the entire Australian population of Year 4, 6 and 8 students. *Standard errors* report the standard deviation of estimates for a statistic if we were to draw repeated samples again and again from the same population. In this way, standard errors help to gauge how accurate our sample statistic is from the population value. Standard errors can be used to construct confidence intervals by determining a range of values within which there is a high probability that the true population value lies. For example, in repeated samples drawn from a population, there is a 68 per cent probability that a sample statistic would be within one standard error above or below the true population value. Therefore, standard errors can help to determine if reported differences between subgroups for a variable are meaningful and reflective of the population, or if differences observed between subgroups are an artefact of the sample and would not be reflective of the population estimate if we were to draw repeated samples.

Due to the potential of systematic non-response bias that was introduced by the required active parental consent and subsequent lower response rates, usual tests of significance that assume independence of observations are inappropriate to conduct with ACWP data. Therefore, instead of reporting standard errors for every statistic, indicative standard errors have been produced to aid in the interpretation of meaningful differences reported in the main survey report. While standard errors will vary from variable to variable, this variation is typically small and the reported indicative standard errors are considered to be typical of other reported percentages and means.

Indicative standard errors have been calculated using two variables in the ACWP survey and are listed in Table 12 for Years 4, 6 and 8 and by reporting subgroups at each Year level. Indicative standard errors have been produced for estimated proportions or per cents using the *Positive about the future* (WB02A01) variable, which has been recoded into a dichotomous variable with agree and strongly agree collapsed into one category. Indicative standard errors have also been produced for mean scores using the *Quality of life - Cantril Ladder* variable (WB04A01), also reported in Table 12.

Table 12. Indicative standard errors

Reporting subgroups	Standard Errors of reported percentages for Positive about the future measured in percentages			Standard Errors on the mean score on the Cantril scale measured in units on the Cantril scale		
National estimates	**Year 4 %**	**Year 6 %**	**Year 8 %**	**Year 4 %**	**Year 6 %**	**Year 8 %**
by Year level	2.6	1.9	0.9	0.07	0.09	0.05
By Gender						
Females	3.3	2.6	1.3	0.14	0.11	0.07
Males	2.8	2.6	1.2	0.14	0.1	0.06
By Geographic location						
Metropolitan	3	2.4	1.2	0.08	0.12	0.06
Provincial	3.7	1.9	1.1	0.13	0.11	0.07
Rural/Remote	3.1	5.7	*	0.24	0.16	*
By SEIFA level						
High	1.5	1.3	1.5	0.12	0.16	0.07
Middle	3.9	1.5	1.9	0.1	0.15	0.08
Low	5.5	6.4	1.4	0.11	0.17	0.06

* denotes that a standard error was not calculated because a minimum number of cases was not met

Reporting standard errors

Given that Year level is the primary reporting category for ACWP main survey results, weighted results by Year level (proportions and means) are reported for each variable in the ACWP Final Report (Redmond et al., 2016). While unweighted results for all subgroups are reported, indicative standard errors have been produced for Gender, Geographic location and SEIFA reporting subgroups, as these sampling strata were included in the development of the Year level weights. Other ACWP subgroups of interest, namely Indigenous students, culturally and linguistically diverse students, students with a disability, out of home care students, and students who are carers, have relatively larger associated standard errors and wide-ranging confidence intervals. As such, comparisons with these reporting subgroups have been de-emphasised in the report as the large standard errors associated with these groups are not suited for comparisons.

Using a variable from the ACWP survey as an example, Table 13 reports weighted proportions of Year 4, 6 and 8 students that selected different response options for the variable *Hungry to bed* (HE02A01). Examining proportions by Year level for the response option, 'Sometimes', confidence intervals can be constructed using the indicative standard errors for each Year level.

Table 13. Example of weighted proportions for Hungry to bed by Year level

Year	Always %	Often %	Sometimes %	Never %
Year 4	2.1	2.9	19.9	75.1
Year 6	0.6	1.9	14.9	82.6
Year 8	0.8	2.0	11.1	86.1

Looking at the proportion of Year 4 students who selected that they 'Sometimes' that they go to bed hungry, it is more likely than not (or 68% likely) that the proportion of the Year 4 population is within one standard error (2.6%) of the reported sample statistic, or within the range of 17.3 per cent to 22.5 per cent. There is an almost certain probability (or 95%), that the proportion of the Year 4 population selecting this response option is within 1.96 standard errors of the reported sample statistic, or within a range of 14.8 per cent to 25 per cent.

Guidelines for using and interpreting indicative standard errors

Based on the indicative standard errors reported in Table 12 for proportions, guidelines or minimum differences were developed to support the interpretation of results. Indicative confidence intervals from one standard error below the sample value to one standard error above the sample value were constructed to enable statements to the effect that the population value was *more likely than not* (68% probability) within the range of the confidence interval. Differences between estimates were considered meaningful if the confidence intervals of an estimate - for example the proportion of students in Year 4 going to bed hungry often compared with the proportion of Year 8 students reporting going to bed hungry often - did not overlap. In other words, Year 4 students were more likely to go to bed hungry often than Year 8 students.

In line with these considerations, the following differences in **weighted** proportions between Year levels, reported in Table 14, are more likely than not to be of substance (i.e. meaningful, non-trivial) rather than due to chance (i.e. trivial) if differences meet or exceed these values.

The reporting of Year level comparisons in the ACWP Final Report emphasised meaningful patterns across response options between Year levels, meaning that noteworthy differences between Year levels should be found across response options, instead of highlighting differences between Year levels for one response option only. Indicative standard errors should be used to highlight and interpret meaningful patterns between Year levels.

Table 14. Guidelines for minimum differences in weighted proportions to be meaningful

Between group comparisons	Minimum difference comparison %		
Year level	**Year 4-Year 6**	**Year 4-Year 8**	**Year 6-Year 8**
	4.6	3.6	2.9
Gender	**Year 4**	**Year 6**	**Year 8**
Difference Females-Males	6.20	5.30	2.60
Location	**Year 4**	**Year 6**	**Year 8**
Difference Metro-Provincial	6.80	4.40	2.40
Difference Metro-Rural/Remote	6.20	8.20	*
Difference Provincial-Rural/Remote	6.90	7.70	*
SEIFA/SES	**Year 4**	**Year 6**	**Year 8**
Difference Low-High	7.10	7.80	3.00
Difference Middle-High	5.50	2.90	3.50
Difference Low-Middle	9.50	8.00	3.40

* denotes that a standard error was not calculated because the requirement of a minimum number of cases was not met.

Based on these indicative standard errors, minimum values were also calculated for differences in weighted proportions to be meaningful between the reporting subgroups of Gender, Geographic location and SEIFA (see Table 14).

These guidelines were developed to enable users of the ACWP data and the reports to judge which differences can be considered meaningful. Again, users of the data are encouraged to look for patterns in results and with reference to a conceptual and theoretical framework, rather than interpret any differences as substantive, even if they exceed those minimum values.

6. The Data File and Derived Variables

Overall structure

The ACWP public data file contains all data collected via the online survey with the addition of some computed variables. Data have been subjected to validity and consistency checks as well as overall data cleaning procedures. The variables in the data file are structured in the following order:

- Sampling variables
- Survey item variables in alphabetical order
- Additional derived variables
- Plausible values of scales
- Reporting subgroups and groups of interest
- Weight variable

The full list of ACWP variables is contained in the code book (see Appendix). This section of the technical report describes the variables in the data files, any naming conventions as well as details on computations as appropriate. Where the details are more complex, these variables have dedicated sections.

Sampling variables

The first five variables in the data file were not collected from the students but were previously defined by sampling characteristics of the students or schools:

IDSTRT	This variable groups cases though a combination of State/Territory and school sector.
IDSCHOOL	This is a unique school identification number.
IDUNIQUE	This is a unique identification number for each student.
SCHSEX	This variable indicates whether the student attended a single sex or co-educational school.
YRSURVEY	This variable indicates which version of the survey the student completed, either Year 4, 6 or 8. This may be helpful when splitting the file for considering only Year 4 students, for example, and when considering missing values for particular variables.

Survey item variables naming and coding conventions

All survey variables are listed in alphabetical order. Variable names consist of six or seven digits and generally adhere to the following naming convention.

Characters 1-2	**Characters 3-4**	**Character 5**	**Characters 6-7**
Identify the ACWP domain to which the item belongs: BU = bullying FA = family FR= friends HE = health MW = money and material wellbeing NE = neighbourhood and community SC= school SD = student demographics WB= wellbeing	Group variables into their indicator group. e.g. 01, 02, 03	Indicates if item was asked of all students or only some of the age groups. A=All students O=Older, Years 6 and 8 E=Year 8 F=Year 4 RE variables not applicable	Identify the items within the indicator group. e.g. 01, 02, 03 RE variables not applicable

Note that names were assigned to variables in the field trial phase and were retained for the main survey. As such, some numerical values may not be sequential due to items having been deleted. For

example, the indicator group of FR03 (Conflict closest friend) only includes FR03O01, FR03O03 FR03O04 and FR03O05 (FR03O02 is missing as it was not included in the final survey).

Columns 96 to 170 in the data file relate to a single item, namely *Closeness of relationships* (or ring item). This set of survey variables represent the raw data collected through the item. These variable names do not follow the convention of the other survey item variables and were adjusted to better reflect each of the 75 derived variables. These variables were also transformed into additional variables to assist in interpretation of the data collected. This is discussed later in more detail.

Survey item variables were coded so that more was reflected by a higher value, for example, *None* = 0 and *Always* = 5, or *No* = 0 and *Yes* = 1.

Additional derived variables

Family composition

The data file also contains eight *Family composition* variables designed to indicate the type of household in which Years 6 and 8 students live. These variables were computed from variables FA02O01-FA02O10; FA02O01-FA03O10.

The composition of children's families, whether they live in dual-parent, single-parent or step-parent households is important for understanding aspects of children's wellbeing, such as material deprivation or the closeness of their family relationships.

The *Organisation of the household* variables for the first or primary home that Year 6 and 8 students live in (FA02O01-FA02O10) were used to create four dichotomous *Family composition* variables to describe the primary household in which students live:

BOTHPAR1 - Lives with both mother and father - first home
SINGPAR1 - Lives in a single parent household - first home
STEPPAR1 - Lives with one parent and stepparent - first home
OTHPAR1 - Lives in another family type - first home

Four additional *Family composition* variables were derived from *Organisation of the household* variables if students indicated that they regularly live in a second home (FA03O01-FA03O10) in order to describe the secondary household in which students may live:

BOTHPAR2 - Lives with both mother and father - second home
SINGPAR2 - Lives in a single parent household - second home
STEPPAR2 - Lives with one parent and stepparent - second home
OTHPAR2 - Lives in another family type - second home

An analysis of *Organisation of the household* variables revealed that, in some cases, children indicated living in unlikely family situations, such as living with both parents and one parent's partner in the same home, or living with both parents and both parents' partners in the same home. While these data were not set to invalid in data cleaning and have been retained in the public data file, the derived Family composition variables had to set explicit recoding rules in order to define different family composition classifications. Family composition variables were based upon values for parent-like figures in the Organisation of the household variables, including: mother (FA02O01, FA03O01), father (FA02O02, FA03O02), mother's partner (FA02O03, FA03O03) and fathers partner (FA02O04, FA03O04). The variable definitions and associated syntax for creating the *Family composition* variables are outlined below.

BOTHPAR *– Lives with both mother and father.* To ascertain if children lived in a dual parent household or not, children had to indicate living with both their mother and their father and no other parents' partner or step-parent. Due to the label used, 'parent's partner', from the data it is not able to be determined if parents' partners referred to same-sex parents, such as having two mothers, or a

parent's partner referred to an opposite-sex step-parent. While the research team acknowledges that same-sex parents can constitute living in a dual parent household, in order to be able to differentiate between dual-parent and step-parent households, parents' partners were assumed to be step-parents and therefore if indicated in the *Organisation of the household* variables, were not considered to be dual-parent households in the derived *Family composition* variables.

***SINGPAR** – Lives in a single parent household.* To determine if children lived in a dual parent household or not, children had to indicate living with only their mother or only with their father. If children indicated living with only one adult figure, such as a parent's partner only, or a grandparent only, this was classified as an *Other family composition* type, and is described further below.

***STEPPAR** – Lives with one parent and stepparent.* To determine if children lived in a step-parent household, children had to indicate living with a mother or father, and either a mother's partner or father's partner. In a very few cases, children indicated living with a parent and an unexpected partner in the same home, such as living with a mother and father's partner only in the same home. While these cases were few and could be plausible, though unlikely, they were classified as *Other family composition* type and are described below.

***OTHPAR** – Lives in another family type.* To determine if children lived in another family type or not, they had to indicate that they did not live in a dual-parent household, single-parent household, or step-parent household according to the above definitions. Therefore other family types includes various combinations of living with other adults but not parents or parents' partners such as with grandparents, aunts, uncles and siblings, which could be adult siblings. Also, the unlikely parent situations outlined above were coded as *Other family composition* type, such as living with both parents and parent's partners in the same home, or only living with parents' partners and no parents, etc. The following syntax outlines how OTHPAR variables were derived for first and second homes, using OTHPAR1 As an example.

```
Compute OTHPAR1 = $sysmis.
Recode FA02O01 (96=96) (97=97) (99=99) (ELSE=0) INTO OTHPAR1.
Missing Values OTHPAR1 (96 THRU 99).
IF (FA02O01=1) and (FA02O02=1) and (FA02O03=1) and (FA02O04=0) OTHPAR1=1.
IF (FA02O01=1) and (FA02O02=1) and (FA02O03=0) and (FA02O04=1) OTHPAR1=1.
IF (FA02O01=1) and (FA02O02=1) and (FA02O03=1) and (FA02O04=1) OTHPAR1=1.
IF (FA02O01=1) and (FA02O02=0) and (FA02O03=0) and (FA02O04=1) OTHPAR1=1.
IF (FA02O01=0) and (FA02O02=1) and (FA02O03=1) and (FA02O04=0) OTHPAR1=1.
IF (FA02O01=0) and (FA02O02=0) and (FA02O03=1) and (FA02O04=1) OTHPAR1=1.
IF (FA02O01=0) and (FA02O02=0) and (FA02O03=1) and (FA02O04=0) OTHPAR1=1.
IF (FA02O01=0) and (FA02O02=0) and (FA02O03=0) and (FA02O04=1) OTHPAR1=1.IF (BOTHPAR1=0
and SINGPAR1=0 and STEPPAR1=0 and FA02O05=1) OTHPAR1=1.
IF (BOTHPAR1=0 and SINGPAR1=0 and STEPPAR1=0 and FA02O06=1) OTHPAR1=1.
IF (BOTHPAR1=0 and SINGPAR1=0 and STEPPAR1=0 and FA02O10=1) OTHPAR1=1.
IF (BOTHPAR1=0 and SINGPAR1=0 and STEPPAR1=0 and FA02O05=1 and FA02O06=1) OTHPAR1=1.
IF (BOTHPAR1=0 and SINGPAR1=0 and STEPPAR1=0 and FA02O05=1 and FA02O10=1) OTHPAR1=1.
IF (BOTHPAR1=0 and SINGPAR1=0 and STEPPAR1=0 and FA02O06=1 and FA02O10=1) OTHPAR1=1.
IF (BOTHPAR1=0 and SINGPAR1=0 and STEPPAR1=0 and FA02O08=1) OTHPAR1=1.
IF (BOTHPAR1=0 and SINGPAR1=0 and STEPPAR1=0 and FA02O09=1) OTHPAR1=1.
EXECUTE.
```

Closeness of relationship /Ring variables

Next, the data file contains five items derived from the raw data of the *Closeness of relationship* variables. These additional RING variables (RING1, RING2, RING3, RING4, RING5) indicate the quantity and proximity of their close relationships while collapsing across specific persons of reference. The

variables were created by summing the values of the 14 RE variables, excluding Pets, for each ring across all persons of reference. This was done for the second, third, fourth and fifth rings. Accordingly, the mean number of close relationships can be examined across all five rings to gain an understanding of children's quantity and proximity of close relationships.

```
COMPUTE RING1=$sysmis.
COMPUTE RING1= SUM (RE01MO, RE01FA, RE01SF, RE01SM, RE01FM, RE01FF, RE01SI, RE01BR, RE01UN, RE01AU, RE01GM, RE01GF, RE01OA, RE01OC).
Recode RE01MO (96=96) (97=97) (99=99) INTO RING1.
Missing Values RING1 (96 THRU 99).
EXECUTE.

COMPUTE RING2=$sysmis.
COMPUTE RING2= SUM (RE02MO, RE02FA, RE02SF, RE02SM, RE02FM, RE02FF, RE02SI, RE02BR, RE02UN, RE02AU, RE02GM, RE02GF, RE02OA, RE02OC).
Recode RE02MO (96=96) (97=97) (99=99) INTO RING2.
Missing Values RING2 (96 THRU 99).
EXECUTE.

COMPUTE RING3=$sysmis.
COMPUTE RING3= SUM (RE03MO, RE03FA, RE03SF, RE03SM, RE03FM, RE03FF, RE03SI, RE03BR, RE03UN, RE03AU, RE03GM, RE03GF, RE03OA, RE03OC).
Recode RE03MO (96=96) (97=97) (99=99) INTO RING3.
Missing Values RING3 (96 THRU 99).
EXECUTE.

COMPUTE RING4=$sysmis.
COMPUTE RING4= SUM (RE04MO, RE04FA, RE04SF, RE04SM, RE04FM, RE04FF, RE04SI, RE04BR, RE04UN, RE04AU, RE04GM, RE04GF, RE04OA, RE04OC).
Recode RE04MO (96=96) (97=97) (99=99) INTO RING4.
Missing Values RING4 (96 THRU 99).
EXECUTE.

COMPUTE RING5=$sysmis.
COMPUTE RING5= SUM (RE05MO, RE05FA, RE05SF, RE05SM, RE05FM, RE05FF, RE05SI, RE05BR, RE05UN, RE05AU, RE05GM, RE05GF, RE05OA, RE05OC).
Recode RE05MO (96=96) (97=97) (99=99) INTO RING5.
Missing Values RING5 (96 THRU 99).
EXECUTE.
```

Importance of domains

Seven items relating to I*mportance of domains* (WB03A01-A06) variables are also included in the data file. As the *Importance of domains* variables measured the relative ranking of wellbeing domains, DOMAIN variables were derived in order to measure the number of domains placed on each shelf, with DOMAIN 1 through DOMAIN 7 corresponding to a shelf, or order of priority on the seven point scale. The possible values, one through six, correspond to the number of wellbeing domains that were assigned a specific rank by the student. These variables are also discussed in detail later.

```
Count DOMAIN1= WB03A01 WB03A02 WB03A03 WB03A04 WB03A05 WB03A06 (1).
Recode WB03A01 (96=96) INTO DOMAIN1.
Recode WB03A01 (99=99) INTO DOMAIN1.
MISSING VALUES DOMAIN1 (96 THRU 99).
```

```
EXECUTE.

Count DOMAIN2= WB03A01 WB03A02 WB03A03 WB03A04 WB03A05 WB03A06 (2).
Recode WB03A01 (96=96) INTO DOMAIN2.
Recode WB03A01 (99=99) INTO DOMAIN2.
MISSING VALUES DOMAIN2 (96 THRU 99).
EXECUTE.

Count DOMAIN3= WB03A01 WB03A02 WB03A03 WB03A04 WB03A05 WB03A06 (3).
Recode WB03A01 (96=96) INTO DOMAIN3.
Recode WB03A01 (99=99) INTO DOMAIN3.
MISSING VALUES DOMAIN3 (96 THRU 99).
EXECUTE.

Count DOMAIN4= WB03A01 WB03A02 WB03A03 WB03A04 WB03A05 WB03A06 (4).
Recode WB03A01 (96=96) INTO DOMAIN4.
Recode WB03A01 (99=99) INTO DOMAIN4.
MISSING VALUES DOMAIN4 (96 THRU 99).
EXECUTE.

Count DOMAIN5= WB03A01 WB03A02 WB03A03 WB03A04 WB03A05 WB03A06 (5).
Recode WB03A01 (96=96) INTO DOMAIN5.
Recode WB03A01 (99=99) INTO DOMAIN5.
MISSING VALUES DOMAIN5 (96 THRU 99).
EXECUTE.

Count DOMAIN6= WB03A01 WB03A02 WB03A03 WB03A04 WB03A05 WB03A06 (6).
Recode WB03A01 (96=96) INTO DOMAIN6.
Recode WB03A01 (99=99) INTO DOMAIN6.
MISSING VALUES DOMAIN6 (96 THRU 99).
EXECUTE.

Count DOMAIN7= WB03A01 WB03A02 WB03A03 WB03A04 WB03A05 WB03A06 (6).
Recode WB03A01 (96=96) INTO DOMAIN7.
Recode WB03A01 (99=99) INTO DOMAIN7.
MISSING VALUES DOMAIN7 (96 THRU 99).
EXECUTE.
```

Reporting subgroups and groups of interest

In addition, the data file contains the derived variables used for reporting subgroups and groups of interest in the various ACWP reports, as detailed here with an explanation of how they were computed.

Carer - looks after someone with a mental illness, disability or drug/alcohol addiction

The Carers group was not a reporting subgroup but a group of interest that emerged between the field trial and the main survey of the ACWP. This variable was derived using responses to variables FA21A01, FA21A02, FA21A03, FA21A04 and FA22A02. If students indicated any family health issue, or combination of family health issues from variables FA21A01, FA21A02 and FA21A03, as well as indicating that they do extra work around the home because someone in their family sick or cannot do things, FA22A01, then they were identified as being a Carer, and were given a value of '1' for this

derived variable. If students indicated to not have any family health issue for all variables FA21A01, FA21A02, FA21A03, OR they indicated not having to do extra work around the house (FA22A01), they were not identified as being a Carer, and were given a value of '0'.

```
Compute CARER = $sysmis.
Recode FA22A01 (96=96) (97=97) (99=99) (ELSE=0) INTO CARER.
Missing Values CARER  (96 THRU 99).
IF (FA22A01=1) and ((FA21A01=1) OR (FA21A02=1)  OR (FA21A03=1)) CARER=1.
IF (FA22A01=0) CARER=0.
IF (FA21A04=1) CARER=0.
EXECUTE.
```

Female - gender of student

The variable was a recode of item SD01A01 – Gender which asked students to indicate if they were male or female. Students who were female were coded with a '1' and those who are not female (male) were coded as '0'.

```
COMPUTE FEMALE=$sysmis.
IF (SD01A01=1) FEMALE=1.
IF (SD01A01=2) FEMALE=0.
Execute.
```

GEOLOC - geographic location of the school

Geographic location was based on the information regarding school location that was included in the ACWP sampling frame and consisted of eight categories. These were classified to match closely the three geographic location categories defined in the PISA, PIRLS and TIMSS Australian national reports, namely:

- Metropolitan – Major urban Statistical Districts (100,000 or more population) and Mainland State Capital City regions;
- Provincial – Provincial City Statistical Districts and Darwin (50,000 to 99,999 population), Provincial Zone Provincial City Statistical Districts (25,000 to 49,000), Inner provincial areas and Outer provincial areas; and,
- Remote/regional – Remote areas and Very remote areas.

In order to maintain confidentiality, the original geographic location variable from the sampling frame from which GEOLOC was derived is not included in the public data file.

```
Compute GEOLOC=$sysmis.
If (geolocation=1 or geolocation=2) GEOLOC=1.
If (geolocation=3 or geolocation=4 or geolocation=5 or geolocation=6) GEOLOC=2.
If (geolocation=7 or geolocation=8) GEOLOC=3.
Execute.
```

SEIFA - measure of socioeconomic status (SES) of the student's school

The national 'Socio-Economic Indexes for Areas' (SEIFA) index is a product developed by the ABS that ranks areas in Australia according to relative socio-economic advantage and disadvantage. The indexes are based on information from the five-yearly Census.

In the ACWP, the SEIFA index called the Index of Relative Socio-economic Disadvantage (IRSD) was used which ranks Australian geographic areas by also taking into account access to material and social resources and ability to participate in society. A low national SEIFA score (e.g. 1) indicates relatively

greater disadvantage, and a high national SEIFA score (e.g. 10) indicates a relative lack of disadvantage. Student SES is based on the national SEIFA scores by school location that were included in the ACWP sampling frame, which incorporated scores of 1 through to 10. Due to confidentiality obligations, the original SEIFA values are not provided as a variable in the data file. Instead, the computed SEIFA variable used for reporting, classified schools into the following and is provided in the data file:

- Low = SEIFA values of 1, 2 and 3
- Middle = SEIFA values of 4, 5, 6 or 7
- High = SEIFA values of 8, 9 and 10

```
Compute SEIFA=$sysmis.
If (seifanational=1 or seifanational=2 or seifanational=3) SEIFA=1.
If (seifanational=4 or seifanational=5 or seifanational=6 or seifanational=7) SEIFA=2.
If (seifanational=8 or seifanational=9 or seifanational=10) SEIFA=3.
EXECUTE.
```

ATSI - Aboriginal or Torres Strait Islander status of the student

Student indigenous status was based on self-identification in the ACWP survey from student responses to a question indicating if they are Aboriginal, Torres Strait Islander, both Aboriginal and Torres Strait Islander, or neither (SD02A02, SD02A03). Students indicating that they are neither were classified as non-indigenous whereas the other two categories were classified as indigenous, or ATSI.

```
Compute ATSI=$sysmis.
RECODE SD02A01 (96=96) INTO ATSI.
RECODE SD02A01 (99=99) INTO ATSI.
MISSING VALUES ATSI (96 THRU 99).
IF (SD02A01=1) ATSI=0.
IF (SD02A02=1 OR SD02A03=1) ATSI=1.
EXECUTE.
```

CALD - Culturally and linguistically diverse status of students

Culturally and linguistically diverse status is based on self-identification in the ACWP survey from student responses to a question indicating how frequently they speak English at home.

Year 4 students were classified as CALD if they selected either 'I sometimes speak English and sometimes speak another language at home' or 'I never speak English at home'. Students who selected 'I always or almost always speak English at home' were classified as not CALD.

Year 6 and 8, students were identified as CALD if they indicated 'Sometimes' or 'Never' speak English at home. If they selected either 'Always' or 'Almost always' speak English at home, they were identified as not CALD.

```
Compute CALD=$sysmis.
RECODE SD03F01 (96=96) (97=97) (99=99) INTO CALD.
RECODE SD04O01 (96=96) (97=97) (99=99) INTO CALD.
MISSING VALUES CALD (96 THRU 99).
IF (SD03F01=1) CALD=0.
IF (SD03F01=2 OR SD03F01=3) CALD=1.
IF (SD04O01=1 or SD04O01=2) CALD=0.
IF (SD04O01=3 OR SD04O01=4) CALD=1.
EXECUTE.
```

OOHC - Out of home care

In the ACWP, out of home care was defined based on responses to the question 'Which of the following best describes the home you live in most of the time?'. If a student responded 'I live with members of my family' then they were assigned to the at home care group. For those students who selected 'I live in a foster home', 'I live in residential care or a family group home' or 'I live in another type of home', they were assigned to the out of home care grouping.

```
Compute OOHC=$sysmis.
RECODE FA19A01 (1=0) (2=1) (3=1) (4=1) (96=99) (99=99) INTO OOHC.
MISSING VALUES OOHC (96 THRU 99).
EXECUTE.
```

DISABIL - if the student has a disability

In the ACWP, disability was defined based on a combination of responses to two questions.

Students were first asked the question 'Have you had a disability for a long time (more than 6 months) (such as, hearing difficulties, visual difficulties, using a wheelchair, mental illness)?' For students who indicated 'Yes' to this question they were classified as having a disability. If they selected 'No' they were coded as not having a disability.

If students selected 'I don't know' they were further asked if their disability made it hard (or stopped them) doing certain activities (SD06A01 to SD06A04). If these students confirmed that they had an issue with any of the activities, they were defined as having a disability. In the case were a student selected 'I don't know' to the first question and they indicated having no issues with the activities, they were defined as not having a disability.

```
COMPUTE DISABIL=$sysmis.
RECODE SD05A01 (96=99) (99=99) INTO DISABIL.
RECODE SD06A01 (96=99) (99=99) INTO DISABIL.
MISSING VALUES DISABIL (96 THRU 99).
IF (SD05A01=0) DISABIL=0.
IF (SD05A01=1) DISABIL=1.
IF (SD05A01=2) & (SD06A01=1 OR SD06A02=1 OR SD06A03=1) DISABIL=1.
IF (SD05A01=2) & (SD06A04=1) DISABIL=0.
EXECUTE.
```

7. Scales

This section continues with the discussion of preparing the raw data for subsequent analyses by examining the scaling of items. In addition to the individual items that were administered in the ACWP survey, the ACWP public data file contains a total of 14 attitudinal scales that were created by combining individual main survey ACWP items.

In general, the results of the analyses reported in this section supported the attitudinal scales that had been developed for the purposes of the ACWP. While some goodness-of-fit indices were higher than desired, factor loadings were generally high, the direction of correlations between scales was as expected, item parameter estimates were meaningful, and reliabilities were high.

Scales included in the ACWP data file

As a result of the scale analyses and validation discussed later in this section, five plausible values were computed for 12 scales, as well as two additional scales which each combined items from two of these 12 scales. Table 15 provides information about the scales that are included on the public ACWP main survey data file, their constituent variables and the Year levels at which they were administered. Scales are listed in the order in which they fit into the questionnaire framework (see Table 1).

Table 15. Attitudinal scales included in the ACWP data file, constituent items and Year levels

Domain	Scale label	Scale name	Constituent variables	Year level
Family	Family cohesion	FAMCOPV1-5	FA06A01, FA06A02, FA06A03	4,6,8
	Family monitoring	FAMMOPV1-5	FA08E02, FA08E04, FA08E05	8
	Vulnerability significant other	VULNBPV1-5	FA05A07, FA05A08, FA05A09	4,6,8
	Harm significant other	HARMFPV1-5	FA05A04, FA05A05, FA05A10	4,6,8
	Harm and Vulnerability*	HARVUPV1-5	FA05A04, FA05A05, FA05A07, FA05A08, FA05A09, FA05A10	4,6,8
Friends	Support closest friend	FRDSUPV1-5	FR02A01, FR02A02, FR02A03, FR02A04	4,6,8
	Conflict closest friend	FRDCFPV1-5	FR03O01, FR03O03, FR03O04, FR03O05	6,8
School	Teacher support	TCHSUPV1-5	SC02A01, SC02A02, SC02A03	4,6,8
	School satisfaction	SCHSAPV1-5	SC06A01, SC06A02, SC06A03, SC06A04, SC06A05	4,6,8
Health	Psychological wellbeing	PSYWBPV1-5	HE05A04 HE05A05, HE05A06	4,6,8
	Somatic wellbeing	SOMWBPV1-5	HE05A01, HE05A02, HE05A03, HE05A07, HE05A08	4,6,8
	Psychosomatic*	PSYSOPV1-5	HE05A01, HE05A02, HE05A03, HE05A04 HE05A05, HE05A06, HE05A07, HE05A08	4,6,8
Cross-cutting	Bullying	BULLYPV1-5	BU01A01, BU01A02, BU01A03, BU01A04, BU01A05, BU01A06	4,6,8
	Life satisfaction	LSSPV1-5	WB01A01, WB01A02, WB01A03, WB01A04, WB01A05	4,6,8

* Scale combines items from two other scales.

Attitudinal scales were administered to all Year levels, except for the *Conflict closest friend* scale which was administered to Years 6 and 8, and the *Family monitoring scale* which was administered to Year 8 students only.

Two additional scales are included on the ACWP main survey public data file. *Harm & Vulnerability* (HARVUPV1 – HARVUPV5) combines the *Harm significant other* and *Vulnerability significant other* scales while *Psychosomatic* (PSYSOPV1 – PSYSOPV5), combines the *Psychological wellbeing* and *Somatic wellbeing* scales. Conceptually, the scales were designed as separate indicators. Empirically, however, the constituent items grouped together suggesting one single underlying factor.

Building on the results of the ACWP field trial (Lietz et al., 2014), the validity and dimensionality of scales were examined using confirmatory factor analyses, correlation analyses and Item Response Theory (IRT) analyses.

Confirmatory factor analyses

Confirmatory factor analysis (CFA) was used to confirm the scales that were developed during the field trial of the ACWP. To this end, the CFAs reported here provide information on the appropriateness of the scales that were included in the ACWP data set. They were not designed to identify the model which reflected the data best.

For each scale, one substantive construct was assumed to underlie the constituent variables with each scale consisting of between three and six variables.

The overall goodness of fit of the models was assessed using a range of fit statistics, namely the constituent items' factor loadings, a number of goodness of fit indexes - the normed comparative fit index (CFI; a comparison of the examined model with the baseline or null model that assumes no covariances between the variables), the Tucker Lewis Index (TLI) and the residual (WRMR) - and the reliability of each scale. While the CFI and TLI are more appropriate for continuous data, the WRMR is more appropriate for the ordinal data in the ACWP. Still, multiple fit statistics were used to provide more comprehensive information as no one index can take into account all model characteristics (e.g. model parsimony, type of model, number of cases in the analyses). In line with Hu and Bentler (1999) and Yu (2002) the following values were considered to reflect an acceptable fit, namely the CFI of greater than 0.95, the TLI of greater than 0.90 and WRMR of lower than 0.90. For the RMSEA Browne and Cudeck (1993) suggest that values of ≤0.05 indicate close approximate fit, 0.05 to 0.08 indicate reasonable fit and a value of >0.1 indicates poor fit.

Analyses were undertaken in Mplus using the 'type=complex' option in the 'analysis' command combined with the 'cluster' (schoolid) and 'stratification' (STIDSTRT) in the 'variable' command to take into account the ACWP sampling design which first stratified schools by jurisdiction and sector (=8*3=24 strata) and then sampled schools within each of these strata. However, in one stratum no school participated, leading to the data file containing schools in 23 strata. As all constituent variables consisted of ordered categorical (=ordinal) data, the default robust weighted least squares estimator for this type of data using polychoric correlations was chosen. An example Mplus input file for the *Life satisfaction* scale is given below, which consists of five items.

```
TITLE: ACWP CFA one factor model with 'dont know' set to missing overall analysis combining Year 4, 6, 8;
DATA:  FILE IS ACWP_scales_All.dat;
VARIABLE: NAMES = IDSCHOOL IDUNIQUE YRSURVEY WB01A01 WB01A02 WB01A03 WB01A04 WB01A05
        FA06A01 FA06A02 FA06A03 FA05A04 FA05A05 FA05A07 FA05A08 FA05A09 FA05A10 FR02A01
        FR02A02 FR02A03 FR02A04 SC06A01 SC06A02 SC06A03 SC06A04 SC06A05 SC06A06 SC02A01
        SC02A02 SC02A03 SC08A01 SC08A02 SC08A03 SC08A04 SC08A06 SC08A08 SC08A10 BU01A01
        BU01A02 BU01A03 BU01A04 BU01A05 BU01A06 ATSI OOHC SEIFA GEOLOC CALD HE05A01
        HE05A02 HE05A03 HE05A04 HE05A05 HE05A06 HE05A07 HE05A08 IDSTRT_DEL FEMALE DISABIL;
    USEVARIABLES=IDSCHOOL WB01A01 WB01A02 WB01A03 WB01A04 WB01A05 STIDSTRT IDUNIQUE; a)
    MISSING = WB01A01 WB01A02 WB01A03 WB01A04 WB01A05 (6 96 97 98 99);
    CATEGORICAL ARE WB01A01 WB01A02 WB01A03 WB01A04 WB01A05;
    IDVARIABLE = IDUNIQUE;
    CLUSTER= IDSCHOOL;
    STRATIFICATION= IDSTRT_DEL;
ANALYSIS: TYPE=COMPLEX;
MODEL: f1 BY WB01A01 WB01A02 WB01A03 WB01A04 WB01A05;
OUTPUT: SAMPSTAT RESIDUALS STANDARDIZED;
```

a) To undertake analyses by Year level (e.g. Year 4), the following syntax line was added here:
SUBPOPULATION= YRSURVEY EQ 4;

The example MPlus model tested, is a one-factor model with the 'don't know' response option set to missing. Indeed, for the three scales which included items with a 'don't know' or 'doesn't apply to me' response, namely *Family Cohesion*, *Family Monitoring* and *Life Satisfaction*, this response was set to missing. No weights were applied as the intention of these analyses was to examine the validity of the scales, not to arrive at population estimates.

Table 16 to Table 27 show the results of the CFAs in terms of the factor loadings (FL) and goodness-of-fit indexes for each scale, in the order in which they were given in Table 15 above.

Family cohesion scale (Table 16). The factor loadings are consistent across the three Year levels and overall with 'Talking together' reflecting the underlying construct less than Learning together' or 'Having fun together'. The goodness-of-fit indices suggest a good model fit, particularly for the Year 4 data.

Table 16. Results of CFA - Family cohesion scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5369	S.E.	FL Yr 4 n=691	S.E.	FL Yr 6 n=811	S.E.	FL Yr 8 n=3867	S.E.
FA06	**How often in the past week have you spent time doing the following things with your family?** *Not at all last week; Once or twice last week; Most days last week; Every day last week; Don't know**								
FA06A01	Talking together	0.67	0.01	0.59	0.04	0.61	0.04	0.71	0.01
FA06A02	Having fun together	0.91	0.01	0.79	0.05	0.92	0.04	0.92	0.01
FA06A03	Learning together	0.77	0.01	0.71	0.05	0.73	0.04	0.79	0.02

*Don't know set to missing. All analyses unweighted. CFI 0.99 for all models; TLI ranges from 0.98 (Yr8) to 0.99 (others); RMSEA ranges from 0.03 (Yr4) to 0.13 (Yr8); WRMR ranges from 0.35 (Yr4) to 0.13 (Yr8).

Family monitoring scale (Table 17). As described earlier, the three items forming the family monitoring scale were administered at Year 8 only. The factor loadings are similarly high for the three items. While TLI and CFI have acceptable values, RMSEA and WRMR are somewhat higher than desirable.

Table 17. Results of CFA - Family monitoring scale (Year 8)

Constituent variables	Item wording							FL Yr 8 n=3803	S.E.
FA08	**These questions ask you about your family. When we ask about your mother and father we want you to think about whom you live with most of the time. This includes step-parents, foster parents or guardians.** *YES!; yes; no; NO!; This doesn't apply to me**								
FA08E02	My parents would know if I didn't come home on time							0.74	0.02
FA08E04	When I am not at home, one of my parents knows where I am and who I am with.							0.73	0.01
FA08E05	My parents want me to call if I'm going to be late getting home							0.85	0.01

*Response 'This doesn't apply to me' set to missing. All analyses unweighted. CFI = 0.99; TLI = 0.99; RMSEA=0.65; WRMR=1.068.

Vulnerability significant other scale (Table 18). The two items asking about whether a young person worried that someone close wouldn't have a place to live or enough to eat showed similarly high factor loadings across all analyses. All goodness-of-fit indices were highly acceptable.

Table 18. Results of CFA - Vulnerability significant other scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5321	S.E.	FL Yr 4 n=688	S.E.	FL Yr 6 n=804	S.E.	FL Yr 8 n=3824	S.E.
FA05	**How much do you worry that someone close to you:** *Not at all / A little / Somewhat / A lot*								
FA05A07	Won't have a place to live?	0.98	0.00	0.97	0.01	0.98	0.01	0.98	0.00
FA05A08	Won't have enough to eat?	0.98	0.00	0.96	0.01	0.96	0.02	0.99	0.00
FA05A09	Will move away?	0.81	0.01	0.76	0.02	0.77	0.02	0.83	0.01

All analyses unweighted. CFI = 1.00; TLI = 1.00; RMSEA=0.00; WRMR=0.00.

Harm significant other scale (Table 19). All three items forming the 'Harm significant other' scale showed high loadings on the underlying factor. Goodness-of-fit indices demonstrated that the data fit the model well.

Table 19. Results of CFA - Harm significant other scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5338	S.E.	FL Yr 4 n=692	S.E.	FL Yr 6 n=809	S.E.	FL Yr 8 n=3837	S.E.
FA05	**How much do you worry that someone close to you:** *Not at all / A little / Somewhat / A lot*								
FA05A04	Will get arrested?	0.95	0.00	0.93	0.01	0.94	0.01	0.96	0.00
FA05A05	Will be fighting?	0.90	0.01	0.85	0.02	0.87	0.02	0.91	0.01
FA05A10	Will hurt somebody?	0.93	0.00	0.89	0.01	0.91	0.01	0.94	0.01

All analyses unweighted. CFI = 1.00; TLI = 1.00; RMSEA=0.00; WRMR=0.00.

Support closest friend scale (Table 20). The four items forming the 'Support closest friend' scale all had similar loadings on the underlying construct across all analyses. The goodness-of-fit indices suggested that the Year 4 data fit the model best.

Table 20. Results of CFA - Support closest friend scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5269	S.E.	FL Yr 4 n=703	S.E.	FL Yr 6 n=809	S.E.	FL Yr 8 n=3757	S.E.
FR02	**For the following questions, please think about your closest friend.** *Never / Hardly ever / Always / Almost always*								
FR02A01	I spend fun time with this person	0.70	0.01	0.74	0.03	0.70	0.03	0.68	0.01
FR02A02	I share private thoughts and feelings with this person	0.78	0.01	0.64	0.03	0.75	0.03	0.83	0.01
FR02A03	I depend on this person for help, advice, and support	0.84	0.01	0.74	0.03	0.84	0.02	0.88	0.01
FR02A04	This person sticks up for me	0.75	0.01	0.78	0.02	0.76	0.03	0.74	0.01

All analyses unweighted. CFI ranges from 0.97 (Yr8) to 1.0 (Yr4); TLI ranges from 0.92 (Yr8) to 1.00 (Yr4); RMSEA ranges from 0.00 (Yr4) to 0.18 (Yr8); WRMR ranges from 0.22 (Yr4) to 1.83 (Yr8).

Conflict closest friend scale (Table 21). The factor loadings for the four items forming the 'Conflict closest friend' scale were similar across the different analyses. Only the loading for the item 'My friend and I argue' was slightly lower in Year 6 than in the Year 8 or combined analysis (0.76 compared with 0.86 and 0.87). CFI and TLI were high and while the other goodness-of-fit indices were a bit higher than desirable the value for WRMR was acceptable at Year 6.

Table 21. Results of CFA - Conflict closest friend scale (Year 6, 8)

Constituent variables	Item wording			FL Yr 6&8 n=4557	S.E.	FL Yr 6 n=808	S.E.	FL Yr 8 n=3749	S.E.
FR03	**Still thinking about the same closest friend:** *Never / Hardly ever / Always / Almost always*								
FR03O01	I get into fights with my friend			0.85	0.01	0.87	0.03	0.85	0.01
FR03O03	My friend bugs me or annoys me even though I ask him/her not to			0.78	0.01	0.73	0.05	0.78	0.01
FR03O04	My friend and I argue			0.86	0.01	0.76	0.03	0.87	0.01
FR03O05	My friend and I disagree about many things			0.74	0.01	0.71	0.04	0.75	0.01

All analyses unweighted. CFI = 0.99 all models; TLI= 0.98 all models; RMSEA ranges from 0.08 (Yr6) to 0.09 (others); WRMR ranges from 0.46 (Yr6) to 1.03 (Yr6&8combined).

Teacher support scale (Table 22). All factor loading were above 0.80 except at Year 4 for the item 'At my school, there is a teacher or another adult who really cares about me' where the factor loading was slightly lower (0.77). Goodness-of-fit indices demonstrated that the data fit the model well.

Table 22. Results of CFA - Teacher support scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5238	S.E.	FL Yr 4 n=703	S.E.	FL Yr 6 n=808	S.E.	FL Yr 8 n=3727	S.E.
SC02	**How true is each statement for you? At my school, there is a teacher or another adult …** *Not at all true / A little true / Pretty much true / Very much true*								
SC02A01	… who really cares about me	0.85	0.01	0.77	0.02	0.85	0.02	0.86	0.01
SC02A02	… who believes that I will be a success	0.88	0.01	0.85	0.02	0.84	0.02	0.89	0.01
SC02A03	… who listens to me when I have something to say	0.82	0.01	0.81	0.02	0.79	0.02	0.83	0.01

All analyses unweighted. CFI = 1.00; TLI = 1.00; RMSEA=0.00; WRMR=0.00 for all models.

School satisfaction scale (Table 23). While the factor loadings of most items in the school satisfaction scale were quite high, the item "My school is a place where I feel safe and secure" had consistently lower factor loadings. This was probably due to the fact that the other five items were about the extent to which students liked learning and school whereas this item was more about a sense of safety. While the WRMR and RMSEA were higher than desirable, the CFI, TLI indicated a good model fit.

Table 23. Results of CFA - School satisfaction scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5257	S.E.	FL Yr 4 n=700	S.E.	FL Yr 6 n=808	S.E.	FL Yr 8 n=3749	S.E.
SC06	**My school is a place where…** *Strongly disagree / Disagree / Agree / Strongly Agree*								
SC06A01	…I feel happy	0.88	0.00	0.88	0.01	0.89	0.01	0.88	0.01
SC06A02	…I really like to go to each day	0.88	0.00	0.86	0.01	0.88	0.01	0.87	0.01
SC06A03	…I find that learning is a lot of fun	0.90	0.00	0.91	0.01	0.90	0.01	0.90	0.01
SC06A04	…I feel safe and secure	0.71	0.01	0.73	0.02	0.73	0.03	0.69	0.01
SC06A05	…I like learning	0.88	0.01	0.87	0.01	0.87	0.01	0.88	0.01
SC06A06	…I get enjoyment from being there	0.88	0.00	0.85	0.01	0.89	0.01	0.89	0.01

All analyses unweighted. CFI ranges from 0.96 (Yr6) to 0.98 (Yr6, Yr8); TLI ranges from 0.93 (Yr6) to 0.97 (Yr4); RMSEA ranges from 0.15 (Yr4) to 0.21 (Yr8); WRMR ranges from 1.81 (Yr4) to 5.96 (overall).

Somatic wellbeing scale (Table 24). Factor loadings of items in the somatic scale range from 0.65 to 0.80 with the item indicating that students have difficulties in getting to sleep showing the lowest loadings across all analyses. This is probably due to the fact that the other four items are concrete physical symptoms whereas difficulties in getting to sleep can have many reasons other than feeling unwell physically. All goodness-of-fit indexes are within the acceptable ranges.

Table 24. Results of CFA - Somatic wellbeing scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5128	S.E.	FL Yr 4 n=697	S.E.	FL Yr 6 n=803	S.E.	FL Yr 8 n=3628	S.E.
HE05	**In the last 6 months: how often have you had the following...?** *About every day / More than once a week / About every week / About every month / Rarely or never*								
HE05A01R	Headache	0.79	0.01	0.79	0.02	0.79	0.02	0.80	0.01
HE05A02R	Stomach-ache	0.76	0.01	0.68	0.03	0.77	0.03	0.78	0.01
HE05A03R	Backache	0.69	0.01	0.62	0.04	0.73	0.03	0.70	0.02
HE05A07R	Difficulties in getting to sleep	0.65	0.01	0.60	0.03	0.69	0.02	0.66	0.01
HE05A08R	Feeling dizzy	0.77	0.01	0.73	0.03	0.76	0.03	0.78	0.02

All analyses unweighted. CFI is 0.99 for all models; TLI ranges from 0.98 (Yr8) to 0.99 (all others); RMSEA ranges from 0.03 (Yr6) to 0.06 (Yr8); WRMR ranges from 0.34 (Yr6) to 0.87 (overall).

Psychological wellbeing scale (Table 25). Factor loadings for the three items forming the psychological wellbeing scale were reasonable, except for the item "Irritability or bad temper" (0.55) at Year 4. All goodness-of-fit indices suggested a good fit of the data to the model.

Table 25. Results of CFA - Psychological wellbeing scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5113	S.E.	FL Yr 4 n=688	S.E.	FL Yr 6 n=799	S.E.	FL Yr 8 n=3626	S.E.
HE05	**In the last 6 months: how often have you had the following...?** *About every day / More than once a week / About every week / About every month / Rarely or never*								
HE05A04R	Feeling low	0.87	0.01	0.84	0.05	0.85	0.02	0.88	0.01
HE05A05R	Irritability or bad temper	0.74	0.01	0.55	0.04	0.71	0.02	0.78	0.01
HE05A06R	Feeling nervous	0.74	0.01	0.62	0.05	0.73	0.03	0.76	0.01

All analyses unweighted. CFI and TLI are 1.00 for all models; RMSEA is 0.00 for all models; WRMR ranges from 0.00 (Overall and Yr 8) to 0.01 (Yr4, Yr6).

Bullying scale (Table 26). Factor loadings of the six items in the bullying scale ranged from 0.81 to 0.93 and were hence very high. The RMSEA indicated a reasonable fit at Year 6 but a poor fit at Year 4. Likewise, values for the WRMR were higher than desirable.

Life satisfaction scale (Table 27). While factor loadings for the three items indicating that students' lives were "going well", "just right" and "good" were 0.80 or above, factor loadings for wishing for a different kind of life or having what students wanted were a bit lower. While TLI and CFI were high for all models, RMSEA and WRMR indicated a good fit of the data to the model at Year 4 but not at 8.

Table 26. Results of CFA - Bullying scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5128	S.E.	FL Yr 4 n=697	S.E.	FL Yr 6 n=803	S.E.	FL Yr 8 n=3628	S.E.
BU01	**THIS TERM how often did these things happen to you?** *This did not happen to me this term / Once or twice this term / Every few weeks this term / About once a week this term / Several times a week or more this term*								
BU01A01	Students deliberately ignored or left me out of a group to hurt me	0.82	0.01	0.81	0.02	0.81	0.02	0.81	0.01
BU01A02	I was teased in nasty ways	0.84	0.01	0.82	0.02	0.86	0.01	0.84	0.01
BU01A03	I had a student tell lies about me behind my back, to make other students not like me	0.91	0.01	0.88	0.01	0.90	0.01	0.91	0.01
BU01A04	I've been made to feel afraid I would get hurt	0.84	0.01	0.82	0.02	0.85	0.02	0.85	0.01
BU01A05	I had secrets told about me to others behind my back, to hurt me	0.92	0.01	0.92	0.01	0.91	0.01	0.93	0.01
BU01A06	A group decided to hurt me by ganging up on me	0.87	0.01	0.85	0.02	0.86	0.02	0.88	0.01

All analyses unweighted. CFI ranges from 0.98 (Yr8) to 0.99 (others); TLI ranges from 0.97 (Yr8) to 0.99 (Yr6); RMSEA ranges from 0.08 (Yr6) to 0.12 (Yr4); WRMR ranges from 0.96 (Yr6) to 2.21 (overall).

Table 27. Results of CFA - Life satisfaction scale (Year 4, 6, 8)

Constituent variables	Item wording	FL Overall n=5369	S.E.	FL Yr 4 n=691	S.E.	FL Yr 6 n=811	S.E.	FL Yr 8 n=3867	S.E.
WB01	**How much do you agree or disagree with each of these sentences:** *Strongly disagree / Disagree / Neither agree nor disagree / Agree / Strongly Agree / Don't know*								
WB01A01	My life is going well	0.89	0.01	0.83	0.02	0.89	0.02	0.90	0.01
WB01A02	My life is just right	0.80	0.01	0.78	0.02	0.79	0.02	0.82	0.01
WB01A03	I wish I had a different kind of life (Recoded)	0.69	0.01	0.59	0.04	0.66	0.02	0.64	0.01
WB01A04	I have a good life	0.87	0.01	0.84	0.02	0.90	0.02	0.90	0.01
WB01A05	I have what I want in life	0.69	0.01	0.63	0.03	0.69	0.02	0.70	0.01

All analyses unweighted. CFI =0.99 (all models); TLI ranges from 0.98 (Yr8) to 0.99 (others); RMSEA ranges from 0.03 (Yr4) to 0.15 (Yr8); WRMR ranges from 0.35 (Yr4) to 1.82 (Yr8).

Reliability analyses

Reliability analyses were performed on all ACWP scales by using Cronbach's alpha as a measure of internal consistency. Table 28 presents the scale reliabilities, tested overall, and at each Year level. The Year 4 analyses performed on *Family cohesion* and *Psychological WB* had the lowest alpha values, just below the 'acceptable' score of 0.7 (George & Mallery, 2003).

Table 28. Scale reliabilities (Cronbach's alpha (α))

	Family cohesion	Family monitoring (Yr8)	Vulnerability significant other	Harm significant other	Harm& Vulnerability (combined)	Support closest friend	Conflict closest friend (Yr6&8)	Teacher support	School satisfaction	Psychological WB	Somatic WB	Psychosomatic WB (combined)	Bullying	Life satisfaction
Overall	0.74	0.71	0.91	0.91	0.95	0.79	0.83	0.84	0.91	0.78	0.8	0.87	0.91	0.84
Year 4	0.65	NA	0.88	0.88	0.92	0.75	NA	0.78	0.90	0.64	0.75	0.81	0.90	0.79
Year 6	0.71	NA	0.88	0.89	0.93	0.79	0.78	0.81	0.90	0.76	0.81	0.89	0.91	0.84
Year 8	0.76	0.71	0.91	0.92	0.95	0.8	0.83	0.85	0.90	0.81	0.81	0.88	0.90	0.84

Correlation analyses

All scales were correlated with each other to examine the extent to which expected relationships would be confirmed. Thus, for example, it was expected that more worry about a close person getting harmed or being vulnerable would be linked to lower overall life satisfaction. Table 29 shows the results of the correlation analyses. It can be seen that results supported expected relationships. For example, as indicated by the negative correlations more worry about a close person getting harmed or being vulnerable were linked to lower overall life satisfaction (r=-0.20 and r=-0.18 respectively). The *School satisfaction* and *Teacher support* scales showed a medium positive correlation (r=0.61) indicating that students who felt greater support from teachers were more satisfied with school.

Table 29. Correlations between scales - Year levels combined

	Family cohesion	Family monitoring (Yr8)	Vulnerability significant other	Harm significant other	Support closest friend	Conflict closest friend (Yr6&8)	Teacher support	School satisfaction	Psychological WB	Somatic WB	Bullying
Family monitoring	**0.40** (0.02)	**1**									
Vulnerability significant other	**-0.13** (0.02)	**-0.08** (0.02)	**1**								
Harm significant other	**-0.14** (0.02)	**-0.08** (0.02)	**0.95** (0.00)	**1**							
Support closest friend	**0.25** (0.02)	**0.10** (0.02)	**0.01** (0.02)	**0.01** (0.02)	**1**						
Conflict closest friend	**-0.21** (0.02)	**-0.22** (0.02)	**0.16** (0.02)	**0.18** (0.02)	**-0.15** (0.02)	**1**					
Teacher support	**0.41** (0.02)	**0.23** (0.02)	**-0.07** (0.02)	**-0.09** (0.02)	**0.26** (0.02)	**-0.17** (0.02)	**1**				
School satisfaction	**0.44** (0.01)	**0.31** (0.02)	**-0.08** (0.02)	**-0.09** (0.02)	**0.19** (0.02)	**-0.25** (0.02)	**0.61** (0.01)	**1**			
Psychological WB	**-0.39** (0.02)	**-0.21** (0.03)	**0.18** (0.02)	**0.20** (0.02)	**-0.12** (0.02)	**0.32** (0.02)	**-0.30** (0.02)	**-0.39** (0.02)	**1**		
Somatic WB	**-0.32** (0.02)	**-0.20** (0.02)	**0.17** (0.02)	**0.18** (0.02)	**-0.04** (0.01)	**0.26** (0.02)	**-0.28** (0.02)	**-0.37** (0.02)	**0.89** (0.01)	**1**	
Bullying	**-0.16** (0.02)	**-0.11** (0.03)	**0.18** (0.02)	**0.19** (0.02)	**-0.09** (0.02)	**0.26** (0.02)	**-0.16** (0.02)	**-0.24** (0.02)	**0.54** (0.01)	**0.48** (0.01)	**1**
Life satisfaction	**0.53** (0.01)	**0.31** (0.02)	**-0.18** (0.02)	**-0.20** (0.01)	**0.20** (0.02)	**-0.23** (0.02)	**0.42** (0.02)	**0.48** (0.01)	**-0.52** (0.01)	**-0.42** (0.01)	**-0.36** (0.02)

Note: Values reported are correlation coefficients in MPlus between factor latent variables. Standard errors in brackets.

Item Response Theory (IRT) analyses

Scaling procedures

The ACWP scale items were then scaled using IRT scaling methodology. With the One-Parameter (Rasch) model (Rasch, 1960) for dichotomous items, the probability of selecting category 1 instead of 0 is modelled as

$$P_i(\theta) = \frac{\exp(\theta_n - \delta_i)}{1 + \exp(\theta_n - \delta_i)} \quad (1)$$

where $P_i(\theta_n)$ is the probability of person *n* to score 1 on item *i*. θ_n is the estimated latent trait of person *n* and δ_i the estimated location of item *i* on this dimension. For each item, item responses are modelled as a function of the latent trait θ_n.

In the case of items with more than two (*k*) categories (as for example with Likert-type items) this model can be generalised to the Partial credit model (Masters & Wright, 1997), which takes the form

$$P_{x_i}(\theta) = \frac{\exp \sum_{k=0}^{x} (\theta_n - \delta_i + \tau_{ij})}{\sum_{h=0}^{m_i} \exp \sum_{k=0}^{h} (\theta_n - \delta_i + \tau_{ik})} \qquad x_i = 0,1,\ldots,m_i \quad (2)$$

where Pxi(θn) denotes the probability of person n to score x on item i out of the mi possible scores on the item. θn denotes the person's latent trait, the item parameter δi gives the location of the item on the latent continuum and τij denotes an additional step parameter.

Item parameters for the ACWP questionnaire scales were obtained using the ConQuest software (Adams, Wu, and Wilson, 2012a) using the entire data set consisting of Years 4, 6 and 8. Items on one scale, *namely Conflict - closest friend* (FRDCF), were not available for Year 4 students, and items on the *Family monitoring scale* (FAMMO) were only available for Year 8 students. One set of item parameters was obtained for each scale, but regression variables indicating student Year level were included to allow for differences in responses by the three Year levels, except as noted for FAMMO and FRDCF.

As the focus was on overall results and not results for individual students, five plausible values rather than Weighted Likelihood Estimators (WLEs) were obtained, separately for the three Year levels, for each scale. Conditioning was also used, as comparisons of subgroups were of interest. The regression variables used in the conditioning were strata indicator variables, the school mean of the scale and indicator variables for the subgroups of interest. These subgroups included gender and the six subgroups of interest to the ACWP:

FEMALE =student gender
GEOLOC =geographic school location, three groups, 1=Metro, 2=Provincial, 3=Rural/Remote
SEIFA =school socio-economic status, 3 levels ,1=Low, 2=Medium, 3=High
ATSI = whether student is Aboriginal and/or Torres Strait Islander
CALD =whether student is from non-English speaking background
OOHC =whether student has out of home care background
DISABIL =whether student has a disability

The set of five plausible values for each scale was standardised to have a weighted mean of ten and a standard deviation of two. The program SURVEYREG in the software package SAS was used to compute means and differences of the scale plausible values taking account of the complex structure of the dataset. Where differences in the attitudinal scales for the six subgroups of interest in the ACWP emerged, these are discussed in the main study's final report.

Description of IRT scales

Item wording and item parameters for the scales are described below and presented in the corresponding tables. The item parameters reported in this section are values for Delta (δ) and Tau (τ). The value for Delta provides information about the overall difficulty level of an item whereby negative values denote easier items while positive values indicate more difficult items. In the context of attitude measurement, an easier item is a statement with which respondents find it easier to agree, easier to support or that a respondents do more often. Tau denotes the distance between the overall difficulty level of an item (i.e. Delta) and the point where the probabilities that respondents of a certain ability (here attitude) choose one or the next response option are the same. In other words, after this point respondents of the same attitude level are more likely to choose the next response category (e.g. select "disagree" rather than "strongly disagree").

Family cohesion (Table 30)**.** Three items measuring family cohesion (*FAMCO*) were used in the ACWP main survey. The response categories were “Not at all last week”, “Once or twice last week”, “Most days last week”, “Every day last week” and “Don’t know”. The “Don’t know” category was set to missing prior to the IRT analyses which resulted in four response categories for the items in that scale. Looking at the items, “Talking together” was common (δ= -1.366) whereas “Learning together” was infrequent (δ= 1.244). Hence, there appears to be widespread family communication but not necessarily about learning.

Table 30. Family cohesion item parameter estimates

Variable	How often in the past week have you spent time doing the following things with your family?	Delta	tau_1	tau_2	tau_3
FA06A01	Talking together	-1.366	-1.188	-0.145	1.333
FA06A02	Having fun together	0.142	-2.027	-0.067	2.094
FA06A03	Learning together	1.224	-1.902	0.218	1.684

Vulnerability of a significant other (Table 31). Three items measuring vulnerability of a significant other (*VULNB*) were used. Table 31 shows the item wording and the item parameters for this scale. The response categories were “Not at all”, “A little”, “Somewhat” and “A lot”. Worrying about someone moving away was slightly more frequent (δ= -0.271) than not having a place to live (δ= 0.103) or enough to eat (δ= 0.168).

Table 31. Vulnerability significant other item parameter estimates

Variable	How much do you worry that someone close to you:	Delta	tau_1	tau_2	tau_3
FA05A07	Won’t have a place to live?	0.103	-0.058	0.478	-0.420
FA05A08	Won’t have enough to eat?	0.168	-0.232	0.475	-0.243
FA05A09	Will move away?	-0.271	-1.122	0.202	0.920

Family monitoring (Table 32). For Year 8 only, three items were used for a scale (*FAMMO*) about family monitoring. The category “this doesn’t apply to me" was set to missing. The four response categories were “YES!”, “yes”, ”no” and “NO!”. Higher values on this scale indicated greater monitoring of a student's comings and goings by the family. There are only small differences in the difficulty parameters of the items.

Harm significant other (Table 33). Three items measuring harm concerning a significant other (*HARMF*) were used to create this scale. The response categories are as for (*VULNB*). That someone close to students would be fighting was slightly more of a worry (δ= -0.255) than getting arrested or hurting someone.

Table 32. Family monitoring item parameter estimates

Variable	These questions ask you about your family. When we ask about your mother and father we want you to think about whom you live with most of the time. This includes step-parents, foster parents or guardians.	Delta	tau_1	tau_2	tau_3
FA08E02	My parents would know if I didn't come home on time	-0.014	1.11	0.703	-1.813
FA08E04	When I am not at home, one of my parents knows where I am and who I am with.	-0.089	0.807	1.086	-1.893
FA08E05	My parents want me to call if I'm going to be late getting home	0.103	0.997	0.751	-1.748

Table 33. Harm significant other item parameter estimates

Variable	How much do you worry that someone close to you:	Delta	tau_1	tau_2	tau_3
FA05A04	Will get arrested?	0.148	-0.536	0.706	-0.170
FA05A05	Will be fighting?	-0.255	-1.323	0.522	0.801
FA05A10	Will hurt somebody?	0.107	-0.721	0.250	0.471

Harm and vulnerability (Table 34). All six items of *HARMF* and *VULNB* were combined into an overall scale of harm and vulnerability concerning a significant other (*HARVU*). With all six items together moving away was the biggest concern (δ= -0.365) while the worry about someone close getting arrested occurred the least.

Table 34. Harm and vulnerability item parameter estimates

Variable	How much do you worry that someone close to you:	Delta	tau_1	tau_2	tau_3
FA05A04	Will get arrested?	0.245	-0.479	0.666	-0.187
FA05A05	Will be fighting?	-0.137	-1.252	0.489	0.763
FA05A07	Won't have a place to live?	-0.012	-0.032	0.447	-0.415
FA05A08	Won't have enough to eat?	0.057	-0.208	0.442	-0.234
FA05A09	Will move away?	-0.365	-1.099	0.177	0.922
FA05A10	Will hurt somebody?	0.212	-0.661	0.211	0.450

Support closest friend (Table 35). Four items were used in a scale (*FRDSU*) of degree of support from the closest friend. The five response categories ranged from "Never or hardly ever" to "Always or almost always". Sharing fun times with the friend had the most positive response (δ= -0.531) whereas sharing private thoughts and feelings was done least frequently (δ= 0.665).

Table 35. Support closest friend item parameter estimates

Variable	For the following questions, please think about your closest friend	Delta	tau_1	tau_2	tau_3	tau_4
FR02A01	I spend fun time with this person	-0.531	-0.570	-0.282	0.219	0.633
FR02A02	I share private thoughts and feelings with this person	0.665	-0.454	-0.216	0.133	0.537
FR02A03	I depend on this person for help, advice, and support	0.148	-0.808	-0.197	0.300	0.705
FR02A04	This person sticks up for me	-0.281	-0.472	-0.258	0.064	0.666

Conflict closest friend (Table 36). For Years 6 and 8 only, four items were used for a scale (*FRDCF*) about conflict with the student's closest friend. The five response categories ranged from "Never or

hardly ever" to "Always or almost always". The difficulties ranged from (δ = -0.304) for "My friend and I disagree about many things" to (δ = 0.37) for "I get into fights with my friend".

Table 36. Conflict closest friend item parameter estimates

Variable	Thinking about your closest friend:	Delta	tau_1	tau_2	tau_3	tau_4
FR03O01	I get into fights with my friend	0.370	-1.031	-0.332	0.375	0.988
FR03O03	My friend bugs me or annoys me even though I ask him/her not to	-0.085	-1.099	0.002	0.149	0.948
FR03O04	My friend and I argue	0.018	-1.518	0.137	0.499	0.882
FR03O05	My friend and I disagree about many things	-0.304	-1.445	-0.078	0.710	0.813

Teacher support (Table 37). Three items make up a scale (*TCHSU*) of support from a teacher or other adult at school. The four response categories were "Not at all true", "A little true", "Pretty much true" and "Very much true". Someone listening when the student had something to say was most frequent (δ= -0.236) whereas feeling that someone really cared was least frequent (δ= 0.349).

Table 37. Teacher support item parameter estimates

Variable	How true is each statement for you? At my school, there is a teacher or another adult:	Delta	tau_1	tau_2	tau_3
SC02A01	Who really cares about me	0.349	-1.958	-0.149	2.107
SC02A02	Who believes that I will be a success	-0.113	-1.977	-0.047	2.024
SC02A03	Who listens to me when I have something to say	-0.236	-1.942	-0.072	2.014

School satisfaction (Table 38). Six items were used in a scale (*SCHSA*) of students' school satisfaction. The four response categories were "Strongly disagree", "Disagree", "Agree" and "Strongly Agree". The item with which it was easiest to agree was "I feel safe and secure" (δ= -0.716) whereas students found it harder to agree with the statements that learning was a lot of fun (δ= 0.4) and school being a place where they really liked to go each day (δ= 0.493).

Table 38. School satisfaction item parameter estimates

Variable	My school is a place where:	Delta	tau_1	tau_2	tau_3
SC06A01	I feel happy	-0.200	-2.121	-1.207	3.328
SC06A02	I really like to go to each day	0.493	-2.559	-0.629	3.188
SC06A03	I find that learning is a lot of fun	0.400	-2.626	-0.653	3.279
SC06A04	I feel safe and secure	-0.716	-1.918	-1.076	2.994
SC06A05	I like learning	0.119	-2.360	-0.820	3.180
SC06A06	I get enjoyment from being there	-0.094	-1.886	-1.089	2.975

Psychological wellbeing (Table 39). Three items were used to create a scale (*PSYWB*) of psychological wellbeing. The five response categories were "Rarely or Never", "About every month", "About every week", "More than once a week" and "About every day", so higher values indicated more frequent symptoms. The items "Feeling low", "Irritability or bad temper" and "Feeling nervous" showed only small differences in their difficulty parameters.

Table 39. Psychological wellbeing item parameter estimates

Variable	In the last 6 months: how often have you had the following...?	Delta	tau_1	tau_2	tau_3	tau_4
HE05A04	Feeling low	0.075	-0.670	0.076	-0.256	0.850
HE05A05	Irritability or bad temper	0.078	-0.732	-0.060	0.08	0.712
HE05A06	Feeling nervous	-0.153	-0.976	-0.079	0.156	0.899

Somatic wellbeing (Table 40). Five items are used in a scale (*SOMWB*) of somatic wellbeing. The five response categories are as for *PSYWB.* Difficulty in getting to sleep was most commonly reported (δ= -0.463), followed by headache (δ= -0.13). The other three items all had delta values near 0.2.

Table 40. Somatic wellbeing item parameter estimates

Variable	In the last 6 months: how often have you had the following...?	Delta	tau_1	tau_2	tau_3	tau_4
HE05A01	Headache	-0.130	-0.631	0.051	-0.267	0.847
HE05A02	Stomach ache	0.163	-0.828	0.184	-0.296	0.940
HE05A03	Backache	0.220	-0.066	-0.065	-0.184	0.315
HE05A07	Difficulties in getting to sleep	-0.463	0.038	0.014	-0.157	0.105
HE05A08	Feeling dizzy	0.210	-0.059	0.008	-0.411	0.462

Psychosomatic (Table 41). All eight items from *PSYWB* and *SOMWB* were used in a scale (*PSYSO*) of overall psychosomatic wellbeing. Considered together, difficulty in getting to sleep was most commonly reported (δ= -0.396), followed by "Feeling nervous" (δ= -0.245). The three items that had the highest difficulty in *SOMWB* had the highest difficulties here also.

Table 41. Psychosomatic item parameter estimates

Variable		Delta	tau_1	tau_2	tau_3	tau_4
HE05A01	Headache	-0.064	-0.638	0.058	-0.265	0.845
HE05A02	Stomach ache	0.226	-0.830	0.192	-0.298	0.936
HE05A03	Backache	0.282	-0.067	-0.060	-0.187	0.314
HE05A04	Feeling low	-0.038	-0.532	0.119	-0.302	0.715
HE05A05	Irritability or bad temper	-0.038	-0.591	-0.016	0.032	0.575
HE05A06	Feeling nervous	-0.245	-0.838	-0.030	0.112	0.756
HE05A07	Difficulties in getting to sleep	-0.396	0.027	0.019	-0.151	0.105
HE05A08	Feeling dizzy	0.274	-0.060	0.014	-0.414	0.460

Bullying (Table 42). Six items were used in a scale (*BULLY*) of bullying. The five response categories were "This did not happen to me this term", "Once or twice this term", "Every few weeks this term", "About once a week this term" and "Several times a week or more this term". No huge differences in item difficulties emerged. The item "I had a student tell lies about me behind my back, to make other students not like me" (δ= -0.299) was the most commonly occurring whereas responses indicated that students experienced "I've been made to feel afraid I would get hurt" (δ= 0.227) the least frequently.

Table 42. Bullying item parameter estimates

Variable	THIS TERM how often did these things happen to you?	Delta	tau_1	tau_2	tau_3	tau_4
BU01A01	Students deliberately ignored or left me out of a group to hurt me	-0.039	-1.280	0.606	-0.068	0.742
BU01A02	I was teased in nasty ways	-0.058	-1.143	0.343	0.357	0.443
BU01A03	I had a student tell lies about me behind my back, to make other students not like me	-0.299	-1.139	0.255	0.437	0.447
BU01A04	I've been made to feel afraid I would get hurt	0.227	-0.596	0.152	0.281	0.163
BU01A05	I had secrets told about me to others behind my back, to hurt me	-0.102	-0.914	0.474	0.333	0.107
BU01A06	A group decided to hurt me by ganging up on me	0.271	0.163	0.256	-0.28	-0.139

Life satisfaction (Table 43). Five items were used in a scale (*LSS*) of overall life satisfaction. The coding for the third item "I wish I had a different kind of life" was reversed to fit the direction of coding for

the other items which were positive statements. With "Don't know" set to missing, the remaining valid response categories were "Strongly disagree", "Disagree", "Neither agree nor disagree", "Agree" and "Strongly Agree". The item difficulties ranged from (δ = -0.345) for "My life is going well" to (δ = 0.378) for the reversed version of "I wish I had a different kind of life".

Table 43. Life satisfaction item parameter estimates

Variable	How much do you agree or disagree with each of these sentences?	Delta	tau_1	tau_2	tau_3	tau_4
WB01A01	My life is going well	-0.345	-1.231	-1.038	-0.425	2.694
WB01A02	My life is just right	0.152	-1.916	-0.661	0.039	2.538
WB01A03	I wish I had a different kind of life (Recoded)	0.378	-1.204	-0.577	0.126	1.655
WB01A04	I have a good life	-0.430	-0.894	-0.950	-0.457	2.301
WB01A05	I have what I want in life	0.246	-1.989	-0.806	0.427	2.368

A note on plausible values

As described in the previous section, the items in the attitudinal scales in the ACWP were scaled with the Rasch Model and the results for these scales were denoted with plausible values. For each scale, five plausible values per student were included in the ACWP database. Names and labels for the PVs are given in Table 15.

The major reason for including PVs on the public database was twofold:

- For the convenience of secondary data analysts since the generation of PVs remains a fairly specialised task.
- Unlike, for example, weighted least estimates (WLEs), there are no missing data on PVs, as they have been imputed. This means that all cases can be included in the analyses.

Analyses using PVs that require the calculation of standard errors need to use appropriate procedures that take into account the nested structure of the data where students are clustered in schools:

- Where analyses involve the examination of differences by sub-groups such as Year level, gender, geographic location or SEIFA, appropriate procedures in standard analysis software packages such as SURVEYREG in SAS (Statistical Analysis Software) or Complex Survey in SPSS (Statistical Product and Service Solutions) are required.
- Where analyses involve the use of attitude scales as dependent variables - for example to predict differences in students' Life Satisfaction - software such as Hierarchical Linear Modelling (HLM) that provide for multiple PVs as outcome measures should be used.

Further details regarding the use of PVs can be found in the PISA 2006 Data Analysis Manual (available at: www.oecd.org/pisa/pisaproducts/pisadataanalysismanualspssandsassecondedition.htm)

8. New Item Types and Derived Variables

The ACWP developed two new alternative item types for the ACWP survey that intend to allow for more flexible response behaviour than traditional Likert-type items that require respondents to rate items according to an ordinal scale, with each level indicating different levels of agreement. There have been concerns raised about the use of Likert-type items particularly in cross-cultural studies, as some research argues that there are systematic response style differences in use across countries, and across subgroups within countries. For example, Likert-type items can be affected by differences in response behaviours, such as tendencies of respondents to select middle, extreme or socially desirable response options. In addition, the use of traditional Likert-type items requires respondents to work within the parameters provided by the questionnaire developer.

Using an online form of survey administration allowed the research team to design two new items that would allow for more flexible response behaviour, and support the survey's aim of developing child-centred measurements of wellbeing. The *Importance of domains* and *Closeness of relationships* items required students to drag and drop response options onto scales that allowed for more flexibility in ranking by allowing students to assign the same ranking to multiple items if desired.

Importance of domains

The *Importance of domains* item, also known as the Bookshelf item, asked students to drag and drop images of the six of the major survey domains (Health, Neighbourhood/community, Friends, School and Money/things I have) according to how important they felt these were for having a good life, onto a bookshelf with seven shelves, or a seven point scale. The design of the bookshelf allowed for students to drag up to six domains on any of the seven shelves. The question allowed students to assign the same rank to domains by allowing up to six domains to be placed on any one shelf. The question was set to mandatory, which meant that students had to place all six domains on a shelf before being allowed by the survey software to progress to the next screen. If students attempted to progress without placing all domains, then the unplaced domains were highlighted in red by the survey. Therefore students with missing values (96, 99) only have missing values for all variables in the Importance of domains.

The *Importance of domains* item how it appeared to respondents online can been seen in the Year level surveys available on the website (australianchildwellbeing.com.au).

Variables WB03A01 through WB03A06 correspond to one of the six major survey domains, and can have a corresponding value for a shelf, meaning a value on the seven point scale, one through seven. It is possible for each variable to have the same value, or in other words, to be ranked equally by a student. In this way, the Importance of domains measurement allows for flexible response behaviour, and students were able to rank domains equally if this reflected the level of importance to students. Table 44 shows the weighted proportions of students by Year level who assigned the highest priority, or a value of one, to each of the domain variables (WB03A01 to WB03A06).

Table 44. Importance of domains item

Year	Family %	Friends %	School %	Neighbourhood/Community %	Health %	Money/Things I have %
Year 4	93.3	56.2	39.3	24.6	66.5	24.3
Year 6	93.6	54.9	39.9	16.1	63.9	18.5
Year 8	89.4	52.4	36.1	7.8	56.8	13.9

An examination of Table 44 by Year level shows that similar proportions of students across the Year levels assign the same level of importance to domains, with family being the most important and with neighbourhood and community least frequently rated as important for wellbeing by students relative to the other domains. In addition, larger proportions of students in Year 4 more frequently rate domains as being equally important for their wellbeing, in comparison to older students. There is a noteworthy difference in that Year 4 students are more likely than Year 8 students to rank Health and Neighbourhood/Community as the most important domain for them having a good life.

During questionnaire development, two essential observations were made. First, the cognitive interviews showed that respondents used the whole space provided by, for example, placing 'money/the things I own' on the lowest shelf while leaving the middle shelves empty and putting other domains such as 'family' and 'health' on the top shelf. Second, data from the field trial revealed the inappropriateness of limiting the number of domains that could be put on the same shelf to three. This limit had been decided arbitrarily in order to make the bookshelf not appear too wide. However, the data from the field trial indicated, particularly for the younger children, indicated a desire to put all domains as high on the bookshelf as possible. This was evident through children filling up the top shelf first and, once they were prevented from putting more on the top shelf, filling up the second shelf (Lietz, et al., 2015). As a consequence, it was decided to enable respondents to potentially put all domains on one shelf by allowing all six domains to be dragged onto one shelf. Field trial results also confirmed that respondents did use all shelves in that every fifth respondent placed a domain on the lowest shelf but only one.

The research team derived other variables using the Importance of domains variables (WB03A01-A06). As the Importance of domains variables measure the relative ranking of wellbeing domains, DOMAIN variables were derived in order to measure the number of domains placed on each shelf, with DOMAIN 1 through DOMAIN 7 corresponding to a shelf, or order of priority on the seven point scale. The possible values one through six correspond to the number of wellbeing domains that were assigned a specific rank by the student. Table 45 shows the weighted proportion of students overall that assign ranks to numbers of domains.

Table 45. Number of domains on each shelf

Shelf	0 domains %	1 domain %	2 domains %	3 domains %	4 domains %	5 domains %	6 domains %
1 (top priority)	2.0	19.2	23.9	24.5	16.7	8.6	5.1
2	18.7	38.7	31.1	9.1	1.8	0.3	0.2
3	40.4	46.3	11.6	1.6	0.1	0	0
4	59.8	36.0	3.8	0.3	0.1	0	0
5	74.4	24.8	0.8	0.1	0	0	0
6	82.9	16.2	0.9	0	0	0	0
7 (lowest priority)	87.9	11.0	0.9	0.1	0	0	0

Table 46 shows the weighted proportion of students by Year level that assign the top rank, or highest priority, to numbers of domains.

Table 46. Number of domains on top shelf, by Year level

Year	0 domains %	1 domain %	2 domains %	3 domains %	4 domains %	5 domains %	6 domains %
Year 4	1.8	16.5	19.7	24.3	20.3	11.3	6.2
Year 6	2.3	19.1	23.4	24.9	14.8	9.6	5.9
Year 8	2.0	22.2	28.4	24.4	15.0	4.8	3.2

Results of the main survey reiterated the tendencies that had been apparent from the field trial. As can be seen in Table 46, Year 4 students put four, five or six domains on the top shelf in larger proportions than Year 8 students. In contrast, Year 8 students more often than Year 4 students put only one or two domains on the top shelf. This might reflect differences in maturity to differentiate the importance of various aspects of life: by Year 8, young people might have had more experiences that money and having things, while important, may be less important for their wellbeing than family and friends. Students in Year 4, in contrast, have had fewer experiences to determine the relative importance of various aspects and therefore rate more of them as the same, high, priority.

In summary, these alternative item types support a more flexible response behaviour. Traditionally, respondents would be asked to respond by ranking domains in order of importance. However, analyses reported here confirm that a ranking may not express respondents' attitudes accurately as they may prefer to assign similar ranks to different domains and also to have larger gaps in importance than the distances of 2 or 3 points suggested by an ordinary rating scale.

Closeness of relationships

The *Closeness of relationships* item, also known as the Ring item, asked students to drag and drop up to fifteen names of persons of reference and pets (e.g. mother, uncle, sister) into a series of five concentric rings, with an innermost circle labelled 'Me', according to how close the child felt that they were to these persons or pets. Respondents were instructed to leave names of persons that they did not know or did not have in their life (e.g. stepfather) to the side of the circle, as well as people that they did not feel close to. This item aimed to measure the proximity and quantity of close relationships that children have in their lives, which is an important aspect of wellbeing.

This item was adapted from surveys administered in face-to-face interviews with children by an interviewer (Sturgess, Dunn & Davies, 2001; Samuelsson, Thernlund & Tingström, 1996) in order to be administered online where children had to respond to this item by themselves on a computer. As children in face-to-face interviews can indicate to interviewers any number and type of close relationships, the online item had to allow for flexible response behaviour by developing a number of plausible persons of reference that they could have close relationships with according to different family types (e.g. mother, stepmother), and in the number of close relationships that they could have with multiple persons of reference (e.g. close relationships with multiple aunts or siblings, for example). The item as it was administered to young people in the online survey is contained in the Year level surveys available from the website (australianchildwellbeing.com.au).

Practically, and as a point of validity after careful cleaning of field trial data, certain maximum numbers of reference persons were set for the main survey administration of the item. These cut-offs had been set in the field trial in order to allow for flexible respondent behaviour, but to also set a limit and keep the number of resulting variables manageable and meaningful. Students had the opportunity to drag and drop between none to five identical persons of reference within any one of the five rings, and up to ten times in total across all five rings. This resulted in 75 count variables with possible values of zero to five, which indicated the number of times (zero through five) a specific person of reference (one of fifteen persons or reference) was placed into a specified ring (first ring through fifth ring). The structure of the variable naming for the Closeness of relationships variable names indicate the person of reference and ring number, while the associated value indicates the number of times the specific person of reference was dragged into a ring by the respondent. This information is also including in the variable labels on the data file. The following three examples illustrate the information contained in the variables names for these items:

RE01BR = 3

_01 = First ring
_BR = Brother
_3 = 3 brothers were dragged into the first ring

RE05FA = 2

_05 = Fifth ring

_FA = Father

_2 = 2 fathers were dragged into the fifth ring

RE02MO= 0

_02 = Second ring

_MO = Mother

_0 = Zero or no mothers were dragged into the second ring

The RE variables on the public data file enable analyses that examine the proximity of students' close relationships, as well as provide information about whom students feel close to by indicating specific persons of reference.

For example, Table 47 shows the proportion of students who put none, one and two to five of each person of reference in the first ring (i.e. closest to themselves). The results indicate that most students in all three Year levels feel closest to their mother. Around 90 per cent of students put their mother (one or more) in the ring closest to them. This was followed closely by their father with more than three quarters of students putting their father in the first ring. From Year 4 to Year 8 the tendency increased for students to omit their father from the first ring. Siblings, aunts, uncles, grandparents and pets were also commonly put in the ring closest to students with at least about one third of all students across the Year levels putting at least one of these people in the first ring. Year 4 students were more likely than Year 6 and 8 students to put a pet in the first ring.

Table 47. Closeness of relationships – Number of persons/pets in first ring by Year level

Year Level	Year 4			Year 6			Year 8		
Number of Persons/Pets	0 %	1 %	2 to 5 %	0 %	1 %	2 to 5 %	0 %	1 %	2 to 5 %
Mother	7.9	89.4	2.7	9.5	89.1	1.3	10.9	88.0	1.1
Father	18.7	81.1	0.3	18.9	81.1	0.0	24.5	75.1	0.4
Stepmother	97.0	3.0	0.0	98.1	1.9	0.0	98.4	1.6	0.0
Stepfather	95.7	4.3	0.0	97.1	2.9	0.0	96.3	3.7	0.0
Foster mother	99.1	0.9	0.0	99.6	0.4	0.0	99.8	0.2	0.0
Foster father	99.6	0.4	0.0	99.6	0.4	0.0	99.9	0.1	0.0
Sister	56.8	36.1	7.1	53.8	36.5	9.7	56.5	37.1	6.4
Brother	56.7	36.4	6.9	52.7	38.4	9.0	60.7	33.0	6.3
Aunt	72.3	24.8	3.0	78.7	17.8	3.4	81.0	17.9	1.1
Uncle	73.6	24.8	1.7	76.3	21.4	2.4	83.0	16.1	0.9
Grandmother	54.8	40.0	5.2	64.8	30.5	4.7	65.7	31.6	2.8
Grandfather	62.4	35.3	2.3	70.7	26.9	2.4	73.8	24.5	1.7
Other adult	95.8	3.9	0.2	95.7	3.4	0.9	97.0	2.8	0.2
Other child	90.7	8.3	1.0	92.2	6.4	1.4	95.4	4.0	0.6
Pet	59.0	36.5	4.6	62.0	33.3	4.8	67.5	30.5	2.1

A careful analysis of the main survey data for the *Closeness of relationships* variables (i.e. RE variables) showed that children indicated several unlikely or unusual close relationships. A frequency analysis of all RE variables showed that in a very few number of cases, children dragged an unlikely number of identical persons of reference into the rings, specifically parent figures. While it is plausible for children to have close relationships with a multiple number of siblings or aunts and uncles, such as indicating having close relationships with five sisters, for example, it is less likely, though not implausible, that children have multiple close relationships with five mothers or five fathers, for example. In the data file there are seven cases where children dragged between three to five mothers in the first ring, and one case where a child dragged five mothers into the fifth ring. This also occurred with fathers. In the data file there are five cases of children dragging between three to four fathers into the first ring.

After extensive discussion and analysis, the research team decided to not set these data to invalid during data cleaning, and to retain these data in the public data file in order to allow for more flexible response behaviour in these alternative item types and to support the aim of conducting a child-centred survey.

The research team also compared data from the Closeness of relationships variables to data from the *Organisation of the household* variables, administered in the Year 6 and 8 surveys and with the *Out of home care* variable administered in all Year level surveys. It is possible to try and validate the data from *Closeness of relationships* variables with *Organisation of household* and *Out of home care* data by comparing the specific persons of reference in close relationships with specific persons of reference that have been identified as living in the child's home, and in the home type that a child lives, either in one or two homes, and if the child lives in out of home care. However, children may indicate having close relationships with persons of reference that they do not live with or no longer with. For example, a child may indicate having a close relationship with a foster parent that they no longer live with, and indicate that they do not live in out of home care.

Therefore with new item types that allow for more flexible response behaviour, there is the possibility of unlikely data, though these are not invalid.

The research team derived five additional RING variables (RING1, RING2, RING3, RING4, RING5) from the Closeness of relationships data, which have also been included on the public data file. The derived RING variables indicate the quantity and proximity of their close relationships while combining across specific persons of reference.

These derived variables were created by summing the values of the fifteen RE variables for each ring across all persons of reference. Below are the syntax rules used to create variable RING1 to illustrate how these variables were derived from Closeness of relationships data:

```
COMPUTE RING1= SUM (RE01MO, RE01FA, RE01SF, RE01SM, RE01FM, RE01FF, RE01SI, RE01BR,
RE01UN,
RE01AU, RE01GM, RE01GF, RE01OA, RE01OC).
Recode RE01MO (96=96) (97=97) (98=98) (99=99) INTO RING1.
Missing Values RING1 (96 THRU 99).
EXECUTE.
ALTER TYPE RING1 (F2.0).
```

This was done for the second, third, fourth and fifth rings. Therefore, the mean number of close relationships can be examined across all five rings to gain an understanding of children's quantity and proximity of close relationships. Table 48 displays the mean, minimum and maximum number of people/pet for each RING variable by Year level.

Table 48. Number of persons in rings, by Year level

Year	First ring			Second ring			Third ring			Fourth ring			Fifth ring		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Year 4	4.6	0.0	15.0	1.9	0.0	12.0	1.0	0.0	13.0	0.5	0.0	9.0	0.4	0.0	17.0
Year 6	4.4	0.0	17.0	2.0	0.0	12.0	1.0	0.0	12.0	0.4	0.0	8.0	0.3	0.0	6.0
Year 8	3.8	0.0	18.0	1.8	0.0	12.0	1.0	0.0	16.0	0.5	0.0	11.0	0.3	0.0	12.0

These results showed that, on average, students had between three and five people in their life to whom they felt very close. The range varied from putting no one in the first ring to putting 18 (in the case of Year 8 students) in the first ring. Moreover, students tended to put, on average, two people in the second ring and one person in the third ring.

9. Missing Data

This evaluation primarily involved the collection of cross-sectional data from students in Years 4, 6 and 8. Catering for this age range meant that some items were not appropriate for younger age groups and resulted in missing data. Similarly, some of the items were only presented to students based on responses to previous items. For example, if a student indicated that they lived in one home most of the time they were only then asked about the composition of one home. However, if students reported regularly living in two homes, they were asked about the composition of both homes. These conditional rules and survey branching meant more efficiency in survey delivery.

Some items were mandatory and the survey would not progress until a response was entered. The number of mandatory items was minimal and only related to items that impacted on the ability to define students' membership to reporting subgroups as well as survey branching. Note that despite this, some missing data does exist for some of the reporting subgroups due to students dropping out of the survey before the relevant question was answered. These are but some examples of the nature of missing data is unavoidable in any study and, accordingly, this chapter looks at the reasons and treatment of missing data in depth.

Missing data analysis

Online administration of the survey allowed researchers the opportunity to distinguish between different types of missing data. Four values, or auxiliary codes were dedicated to denote different types of missing data as outlined in Table 49.

Table 49. Auxiliary codes for different types of missing data

Code	Indicating
96	**Item not viewed:** A student did not view any variables on a survey screen and all subsequent variables. An auxiliary code of 96 indicates dropping out of the survey and not progressing through any further screens, for whatever reason.
97	**Item not administered:** An item was not administered to a student either due to survey branching, or if a specific question was not included in a Year level survey. For example, if a student indicated not having experienced any bullying, this student was not shown the subsequent question about where the bullying occurred, and instead received a value of 97 for the subsequent variable. As all three Year levels surveys are contained in one data file, questions that were not administered in a specific Year level survey also received values of 97. For example, Year 4 students have values of 97 in the data file for puberty variables, as these questions were not asked in the Year 4 survey.
98	**Invalid data:** This code was reserved for use during data cleaning, if logical checks suggested inconsistent response behaviour. However online administration and design of survey items allowed for logical checks to be applied to some items during administration, and reduced the need to use an auxiliary code of 98 during data cleaning. For example, students were unable to simultaneously select response options about having or a disability and not having a disability, which may be possible in pencil and paper administrations. Other unlikely or implausible responses were checked during data cleaning and discussed by the research team, which if agreed, would receive a code of 98 and would be recoded by the research team.
99	**Missing data:** A student progressed to a survey screen and viewed the screen but did not give a response to an item. In the case of non-mandatory screens, students were able to progress through the survey and were allowed to skip items if they chose to. In instances where 99 is applied, valid responses may be recorded for a student on previous and subsequent variables - of course unless it is the last question in the survey. This indicates that a student chose to not answer a question and the data are indeed truly missing.

This chapter presents an analysis of 96 'Item not viewed' and 99 'Missing data' codes in the data file across the three Year levels surveys in order to examine the level of missing data in the survey.

Survey retention

A frequency analysis of Miss96 shows that 94.6 per cent of respondents had a value of 0 for Miss96. In other words, the ACWP main survey had a 94.6 per cent retention rate across the three Year levels and only 5.4 per cent of students dropped out at some during the survey. A closer examination of the distribution of values other than 0 for Miss96 shows that of students that did not complete the survey, there was a gradual rate of dropout that does not seem to be associated with any particular variable or point within the survey.

Frequencies of 96 and 99 codes were examined at both the item and student levels.

Item level analysis

An examination of frequencies at the item level suggested minimal missing data. Missing data for each item ranged from 0 to 7.3 per cent. More than half of the items had less than three per cent missing data while more than three quarters of the items had five per cent or less missing data. There was a slight tendency for items towards the end of the survey to have increased proportions of missing data however this was only by two to three per cent.

Student level analyses

To further investigate missing data at the student level, two variables were created: Miss96 and Miss99 which are described in Table 50.

Table 50. Count variables for not viewed and missing data

Variable	Indicating
Miss96	This variable counted the number of 96 auxiliary codes that were recorded for each student, indicating the total number of variables that a student did not view i.e. student dropped out. Reasons for drop out could include survey fatigue, the survey administrator telling a student to stop because most other students had finished or students getting distracted with other tasks and not returning to complete the survey.
Miss99	This variable counted the number of 99 codes that were recorded for each student, indicating the total number of variables that a student had skipped without providing a response.

Skipping items

A frequency analysis of Miss99 shows that close to two-thirds of all students did not skip any question (64.7%). Cumulatively, approximately 90 per cent of students skipped three variables or fewer, or none at all (90.7%).

Total missing data

Examining frequencies of both Miss96 and Miss99 for students shows that 81.1 per cent of students across all of the Year levels had no or only missing data for one item, either skipping an item or dropping out of the survey. Close to two-thirds of all students across the Year levels completed the survey and did not have missing data for any variable (63.8%).

Missing data by student characteristics

An examination of missing data by student characteristics: Year level, gender, geographic location, SEIFA level or socio-economic background, Indigenous students, culturally and linguistically diverse students, students in out of home care, and students with a disability, showed that for most subgroups, the proportion of missing data is not related to student characteristics. However, there seem to be some differences in the proportion of missing data by Year level and by student gender. Year 8 students had higher proportions of values for Miss96 and Miss99 than Year 4 and Year 6

students. This means that Year 8 students had a greater tendency to drop out of the survey and skip questions compared with Year 4 and 6 students, despite the effort the research team made in reducing the Year 8 survey length from the field trial to the main survey. An examination of proportions of missing data by student gender, revealed that boys had higher proportions of values for Miss96 than girls, meaning that boys had a greater tendency to drop out of the survey than girls.

A closer examination of the distribution of missing data for Year 8 students and for boys suggested that survey dropout and skipping questions was gradual and not associated with any particular survey question.

Missing data in the data file

Auxiliary codes

Data cleaning procedures included processes to check for unexpected auxiliary codes or values within surveys in all possible survey branches, as well as between surveys for unexpected values for variables that did not appear in specific Year level surveys.

Year level surveys display questions that appear in each Year level survey, branching rules and mandatory screens as well as branching pathways within surveys.

Below are general guidelines of how auxiliary codes should be interpreted when undertaking a secondary data analyses:

- 96: This variable was not viewed by the student as the student had stopped survey participation and did not progress further through the survey.
- 97: Either this variable was not administered in the student Year level survey, or the variable was not administered to the student due to their response to the filter question.
- 99: This variable did not receive a response from the student and is missing.

Multi-select variables

Some variables in the ACWP were multi-select variables with multiple response choices, allowing students to select all that apply. These variable choices had values of 0 when the choice was not ticked and a value of 1 when it was ticked. An auxiliary missing data code of 99 was applied to multi-select variables in instances when a student viewed the screen with the variable group in question, but did not provide a response to any of the variables displayed on the screen. The multi-select variables are presented in Table 51.

Student-level missing data

Students that logged into the survey but never progressed to the first question were dropped from the data file during data cleaning procedures, of which there were only a few. All students that progressed to the first question in the survey were included in the data file.

Missing data in scales

As detailed in Chapter 7, the attitudinal indices in the ACWP were scaled using IRT scaling methodology, which produced five plausible values for each student for each attitudinal scale. As such, there were no missing values for the attitudinal scales, as values were imputed for each student. However, the scales that were only administered at specific Year levels, namely FRDCF *Conflict closest friend* in Years 6 and 8 and FAMMO *Family monitoring* in Year 8, have auxiliary values of 97 indicating 'Not administered' in the data file for Year 4 and Year 4 and 6 respectively.

Table 51. Multi-select variables

Variable group	Variable
FA02 First home	FA02O01
	FA02O02
	FA02O03
	FA02O04
	FA02O05
	FA02O06
	FA02O07
	FA02O08
	FA02O09
	FA02O10
FA03 Second home	FA03O01
	FA03O02
	FA03O03
	FA03O04
	FA03O05
	FA03O06
	FA03O07
	FA03O08
	FA03O09
	FA03O10
Closeness of relationships - Rings 1st - 5th	RE01MO - RE01PE
	RE02MO - RE02PE
	RE03MO - RE03PE
	RE04MO - RE03PE
	RE05MO - RE05PE
Number of persons Ring 1 - Ring 5	RING 1
	RING 2
	RING 3
	RING 4
	RING 5

Variable group	Variable
FA21 Family Health	FA21A01
	FA21A02
	FA21A03
	FA21A04
SD02 Aboriginal and Torres Strait Islander	SD02A01
	SD02A02
	SD02A03
SD06 Disability difficulties	SD06A01
	SD06A02
	SD06A03
	SD06A04
WB03 Importance of domains	WB03A01
	WB03A02
	WB03A03
	WB03A04
	WB03A05
	WB03A06
DOMAIN Number of domains on shelf	DOMAIN1
	DOMAIN2
	DOMAIN3
	DOMAIN4
	DOMAIN5
	DOMAIN6
	DOMAIN7

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Appendix. ACWP Codebook

A more detailed overview of all individual variables administered in the survey is provided in the ACWP data file codebook. Unless otherwise stated, all items and variables used the following missing data codes of: 96=Item not viewed; 97=N/A; 98=Invalid; 99=Missing.

Variable name	Variable label	Level	File Line	Value labels
IDSTRT	Sampling strata-combination of jurisdiction & school sector	Nominal	1	
IDSCHOOL	School ID	Scale	2	
IDUNIQUE	Unique student ID	Scale	3	9999999; 9999=Missing
SCHSEX	School sex	Nominal	4	1=Co-ed; 2=Female; 3=Male
YRSURVEY	Year survey	Nominal	5	4=Year 4; 6=Year 6; 8=Year 8
BU01A01	Bullying this term-ignore	Nominal	6	1=This did not happen to me this term; 2=Once or twice this term; 3=Every few weeks this term; 4=About once a week this term; 5=Several times a week or more this term;
BU01A02	Bullying this term-teased	Nominal	7	
BU01A03	Bullying this term-lies	Nominal	8	
BU01A04	Bullying this term-afraid	Nominal	9	
BU01A05	Bullying this term-secrets	Nominal	10	
BU01A06	Bullying this term-ganging up	Nominal	11	
BU02A01	Bullying-location	Nominal	12	1=Mainly at school; 2=Mainly outside of school; 3=About the same at school and outside of school
BU03A01	Bullying-friend	Nominal	13	0=No; 1=Yes
BU04A01	Bullying-initiator	Nominal	14	
FA01A01	Organisation of household	Nominal	15	1= I always sleep in the same home; 2= I usually sleep in the same home, but sometimes sleep in other places; 3= I regularly sleep in two homes with different adults
FA02O01	First home-mother	Nominal	16	0=No tick; 1=Tick
FA02O02	First home-father	Nominal	17	
FA02O03	First home-mother partner	Nominal	18	
FA02O04	First home-father partner	Nominal	19	
FA02O05	First home-grandmother	Nominal	20	
FA02O06	First home-grandfather	Nominal	21	
FA02O07	First home-brother	Nominal	22	
FA02O08	First home-sister	Nominal	23	
FA02O09	First home-other child	Nominal	24	
FA02O10	First home-other adult	Nominal	25	
FA03O01	Second home-mother	Nominal	26	
FA03O02	Second home-father	Nominal	27	
FA03O03	Second home-mother partner	Nominal	28	
FA03O04	Second home-father partner	Nominal	29	
FA03O05	Second home-grandmother	Nominal	30	
FA03O06	Second home-grandfather	Nominal	31	
FA03O07	Second home-brother	Nominal	32	
FA03O08	Second home-sister	Nominal	33	
FA03O09	Second home-other child	Nominal	34	
FA03O10	Second home-other adult	Nominal	35	
FA04A01	Adults paid job-first home	Nominal	36	1=None; 2=One; 3=Two; 4=More than two; 5=Don't know
FA04A02	Adults paid job-second home	Nominal	37	
FA05A04	Harm-arrested	Nominal	38	1=Not at all; 2=A little; 3=Somewhat; 4=A lot
FA05A05	Harm-fighting	Nominal	39	
FA05A07	Vulnerability-home	Nominal	40	
FA05A08	Vulnerability-eat	Nominal	41	
FA05A09	Vulnerability-move	Nominal	42	
FA05A10	Harm-hurt	Nominal	43	
FA06A01	Family cohesion-talking	Nominal	44	1=Not at all last week; 2=Once or twice last week; 3=Most days last week; 4=Every day last week; 5=Don't know
FA06A02	Family cohesion-fun	Nominal	45	
FA06A03	Family cohesion-learning	Nominal	46	
FA08E02	Family monitoring-curfew	Nominal	47	1=NO!; 2=no; 3=yes; 4=YES!; 5=This doesn't apply to me
FA08E04	Family monitoring-monitor	Nominal	48	

Variable name	Variable label	Level	File Line	Value labels
FA08E05	Family monitoring-call	Nominal	49	
FA09A01	Family possessions-car	Nominal	50	0=No; 1=Yes, one; 2=Yes, two or more
FA10A01	SES deprivation-petrol	Nominal	51	0=No; 1=Yes
FA11A01	Family possessions-own bedroom	Nominal	52	
FA12A01	Family possessions-holiday	Nominal	53	0=Not at all; 1=Once; 2=Twice; 3=More than twice
FA13A01	Books in home	Nominal	54	1=None or very few (0-10 books); 2=Enough to fill one shelf (11-25 books); 3=Enough to fill one bookcase (26-100 books); 4=Enough to fill two bookcases (101-200 books); 5=Enough to fill three or more bookcases (more than 200)
FA14A01	Family possessions-computers	Nominal	55	0=None; 1=One; 2=Two; 3=More than two
FA15O01	Family possessions-dishwasher	Nominal	56	0=No; 1=Yes, one; 2=Yes, two or more
FA17O01	Family possessions-bathroom	Nominal	57	0=None; 1=One; 2=Two; 3=More than two
FA18A01	Moved house in past year	Nominal	58	0=No; 1=Yes, once; 2=Yes, more than once
FA18A02	Changed school in past year	Nominal	59	0=No; 1=Yes, once; 2=Yes, more than once
FA19A01	Out of home care	Nominal	60	1=I live with members of my family; 2=I live in a foster home; 3=I live in residential care or a family group home; 4=I live in another type of home
FA21A01	Family health-disability	Nominal	61	0=No tick; 1=Tick
FA21A02	Family health-mental illness	Nominal	62	
FA21A03	Family health-drugs	Nominal	63	
FA21A04	Family health-none	Nominal	64	
FA22A01	Caring responsibilities	Nominal	65	0=No; 1=Yes
FR01A01	Number of close friends	Nominal	66	0=None; 1=One; 2=Two; 3=Three; 4=Four; 5=Five or more
FR02A01	Support closest friend-fun	Nominal	67	1=1 Never or hardly ever; 2=2; 3=3; 4=4; 5=5 Always or almost always
FR02A02	Support closest friend-thoughts	Nominal	68	
FR02A03	Support closest friend-help	Nominal	69	
FR02A04	Support closest friend-sticks up	Nominal	70	
FR03O01	Conflict closest friend-fights	Nominal	71	
FR03O03	Conflict closest friend-annoy	Nominal	72	
FR03O04	Conflict closest friend-argue	Nominal	73	
FR03O05	Conflict closest friend-disagree	Nominal	74	
HE01A01	Overall subjective health	Nominal	75	1=Poor; 2=Fair; 3=Good; 4=Excellent
HE02A01	Hungry to bed	Nominal	76	1=Never; 2=Sometimes; 3=Often; 4=Always
HE04O01	Smoked in the last 30 days	Nominal	77	1=Never; 2=1-2 times; 3=3-5 times; 4=6-9 times; 5=10-19 times; 6=20-39 times; 7=40 or more
HE04O03	Been drunk in last 30 days	Nominal	78	
HE05A01	Psychosomatic-headache	Nominal	79	1=Rarely or never; 2=About every month; 3=About every week; 4=More than once a week; 5=About every day
HE05A02	Psychosomatic-stomach ache	Nominal	80	
HE05A03	Psychosomatic-backache	Nominal	81	
HE05A04	Psychosomatic-low	Nominal	82	
HE05A05	Psychosomatic-irritability	Nominal	83	
HE05A06	Psychosomatic-nervous	Nominal	84	
HE05A07	Psychosomatic-sleep	Nominal	85	
HE05A08	Psychosomatic-dizzy	Nominal	86	
MW01A01	Material deprivation-iPod	Nominal	87	1=I have this; 2=I don't have this but would like it; 3=I don't have this and I don't want or need it
MW01A02	Material deprivation-money	Nominal	88	
MW01A03	Material deprivation-clothes	Nominal	89	
MW01A04	Material deprivation-camp	Nominal	90	
MW01A05	Material deprivation-mobile	Nominal	91	
NE01A02	Neighbourhood resources-nothing to do	Nominal	92	1=Strongly disagree; 2=Disagree; 3=Neither agree nor disagree; 4=Agree; 5=Strongly agree
NE01A03	Neighbourhood resources-fun things to do	Nominal	93	
NE02O01	Neighbourhood safety- feel safe day	Nominal	94	
NE02O02	Neighbourhood safety- feel safe night	Nominal	95	
RE01MO	1st ring-mother	Scale	96	0=No person; 1=One person; 2=Two persons; 3=Three persons; 4=Four persons; 5=Five persons
RE01FA	1st ring-father	Scale	97	
RE01SF	1st ring-stepfather	Scale	98	
RE01SM	1st ring-stepmother	Scale	99	
RE01FM	1st ring-foster mother	Scale	100	
RE01FF	1st ring-foster father	Scale	101	

Variable name	Variable label	Level	File Line	Value labels
RE01SI	1st ring-sister	Scale	102	0=No person; 1=One person; 2=Two persons; 3=Three persons; 4=Four persons; 5=Five persons
RE01BR	1st ring-brother	Scale	103	
RE01UN	1st ring-uncle	Scale	104	
RE01AU	1st ring-aunt	Scale	105	
RE01GM	1st ring-grandmother	Scale	106	
RE01GF	1st ring-grandfather	Scale	107	
RE01OA	1st ring-other adult	Scale	108	
RE01OC	1st ring-other child	Scale	109	
RE01PE	1st ring-pet	Scale	110	
RE02MO	2nd ring-mother	Scale	111	
RE02FA	2nd ring-father	Scale	112	
RE02SF	2nd ring-stepfather	Scale	113	
RE02SM	2nd ring-stepmother	Scale	114	
RE02FM	2nd ring-foster mother	Scale	115	
RE02FF	2nd ring-foster father	Scale	116	
RE02SI	2nd ring-sister	Scale	117	
RE02BR	2nd ring-brother	Scale	118	
RE02UN	2nd ring-uncle	Scale	119	
RE02AU	2nd ring-aunt	Scale	120	
RE02GM	2nd ring-grandmother	Scale	121	
RE02GF	2nd ring-grandfather	Scale	122	
RE02OA	2nd ring-other adult	Scale	123	
RE02OC	2nd ring-other child	Scale	124	
RE02PE	2nd ring-pet	Scale	125	
RE03MO	3rd ring-mother	Scale	126	
RE03FA	3rd ring-father	Scale	127	
RE03SF	3rd ring-stepfather	Scale	128	
RE03SM	3rd ring-stepmother	Scale	129	
RE03FM	3rd ring-foster mother	Scale	130	
RE03FF	3rd ring-foster father	Scale	131	
RE03SI	3rd ring-sister	Scale	132	
RE03BR	3rd ring-brother	Scale	133	
RE03UN	3rd ring-uncle	Scale	134	
RE03AU	3rd ring-aunt	Scale	135	
RE03GM	3rd ring-grandmother	Scale	136	
RE03GF	3rd ring-grandfather	Scale	137	
RE03OA	3rd ring-other adult	Scale	138	
RE03OC	3rd ring-other child	Scale	139	
RE03PE	3rd ring-pet	Scale	140	
RE04MO	4th ring-mother	Scale	141	
RE04FA	4th ring-father	Scale	142	
RE04SF	4th ring-stepfather	Scale	143	
RE04SM	4th ring-stepmother	Scale	144	
RE04FM	4th ring-foster mother	Scale	145	
RE04FF	4th ring-foster father	Scale	146	
RE04SI	4th ring-sister	Scale	147	
RE04BR	4th ring-brother	Scale	148	
RE04UN	4th ring-uncle	Scale	149	
RE04AU	4th ring-aunt	Scale	150	
RE04GM	4th ring-grandmother	Scale	151	
RE04GF	4th ring-grandfather	Scale	152	
RE04OA	4th ring-other adult	Scale	153	
RE04OC	4th ring-other child	Scale	154	
RE04PE	4th ring-pet	Scale	155	
RE05MO	5th ring-mother	Scale	156	
RE05FA	5th ring-father	Scale	157	
RE05SF	5th ring-stepfather	Scale	158	
RE05SM	5th ring-stepmother	Scale	159	
RE05FM	5th ring-foster mother	Scale	160	
RE05FF	5th ring-foster father	Scale	161	

Variable name	Variable label	Level	File Line	Value labels
RE05SI	5th ring-sister	Scale	162	0=No person; 1=One person; 2=Two persons; 3=Three persons; 4=Four persons; 5=Five persons
RE05BR	5th ring-brother	Scale	163	
RE05UN	5th ring-uncle	Scale	164	
RE05AU	5th ring-aunt	Scale	165	
RE05GM	5th ring-grandmother	Scale	166	
RE05GF	5th ring-grandfather	Scale	167	
RE05OA	5th ring-other adult	Scale	168	
RE05OC	5th ring-other child	Scale	169	
RE05PE	5th ring-pet	Scale	170	
SC01A01	Missed school last term	Nominal	171	1=Never; 2=Hardly ever; 3=About once a week; 4=Most days; 5=Every day; 6=Don't know
SC02A01	Teacher support-cares	Nominal	172	1=Not at all true; 2=A little true; 3=Pretty much true; 4=Very much true
SC02A02	Teacher support-success	Nominal	173	
SC02A03	Teacher support-listens	Nominal	174	
SC03A01	Parental interest-schoolwork	Nominal	175	1=Never or almost never; 2=Once or twice a month; 3=Once or twice a week; 4=Every day or almost every day
SC03A02	Parental interest-homework	Nominal	176	
SC04A01	Parental interest-teacher	Nominal	177	
SC05A01	Success at school compared to classmates	Nominal	178	1=Below average; 2=Average; 3=Good; 4=Very good
SC06A01	School satisfaction-happy	Nominal	179	1=Strongly disagree; 2=Disagree; 3=Agree; 4=Strongly agree
SC06A02	School satisfaction-going	Nominal	180	
SC06A03	School satisfaction-fun	Nominal	181	
SC06A04	School satisfaction-safe	Nominal	182	
SC06A05	School satisfaction-learning	Nominal	183	
SC06A06	School satisfaction-enjoyment	Nominal	184	
SC07O01	School pressure	Nominal	185	1=Not at all; 2=A little; 3=Some; 4=A lot
SC07O02	Educational aspirations	Nominal	186	1=Year 10; 2=Year 11; 3=Year 12; 4=Trade qualification (apprenticeship); 5=TAFE certificate (or similar) University
SC08A01	Outside school activities-lessons	Nominal	187	1=Hardly ever or never; 2=Less than once a week; 3=Once or twice a week; 4=Every day or almost every day; 5=Don't know
SC08A02	Outside school activities-friends	Nominal	188	
SC08A03	Outside school activities-housework	Nominal	189	
SC08A04	Outside school activities-homework	Nominal	190	
SC08A06	Outside school activities-playing sports	Nominal	191	
SC08A08	Outside school activities-computer	Nominal	192	
SC08A10	Outside school activities-care for family	Nominal	193	
SD01A01	Gender	Nominal	194	1=Girl; 2=Boy
SD02A01	Not ATSI	Nominal	195	0=No tick; 1=Tick
SD02A02	Aboriginal	Nominal	196	
SD02A03	Torres Strait Islander	Nominal	197	
SD03F01	Language background year 4	Nominal	198	1=I never speak English at home; 2=I sometimes speak English and sometimes speak another language at home; 3=I always or almost always speak English at home
SD04O01	Language background years 6 & 8	Nominal	199	1=Never; 2=Sometimes; 3=Almost always; 4=Always
SD05A01	Disability	Nominal	200	0=No; 1=Yes; 2=I don't know
SD06A01	Disability difficulties-everyday activities	Nominal	201	0=No tick; 1=Tick
SD06A02	Disability difficulties-talking	Nominal	202	
SD06A03	Disability difficulties-other activities	Nominal	203	
SD06A04	Disability difficulties-no difficulty	Nominal	204	
SD08O01	Puberty-height	Nominal	205	1=Not yet started; 2=Barely started; 3=Definitely started; 4=Seems complete; 5=I don't know
SD08O02	Puberty-body hair	Nominal	206	
SD08O03	Puberty-acne	Nominal	207	
SD08O04	Puberty female-breasts	Nominal	208	
SD08O05	Puberty male-voice	Nominal	209	
SD08O06	Puberty male-facial hair	Nominal	210	
SD08O07	Puberty female-menstruation	Nominal	211	0=No; 1=Yes; 2=I don't know
WB01A01	Life satisfaction-life going well	Nominal	212	1=Strongly disagree; 2=Disagree; 3=Neither agree nor disagree; 4=Agree; 5=Strongly agree; 6=Don't know
WB01A02	Life satisfaction-life just right	Nominal	213	
WB01A03	Life satisfaction-wish had different life	Nominal	214	
WB01A04	Life satisfaction-good life	Nominal	215	

Variable name	Variable label	Level	File Line	Value labels
WB01A05	Life satisfaction-have what I want	Nominal	216	
WB02A01	Positive about the future	Nominal	217	
WB03A01	Importance of family	Nominal	218	1=Top Shelf-1; 2=2; 3=3; 4=4; 5=5; 6=6; 7=Bottom Shelf-7
WB03A02	Importance of friends	Nominal	219	
WB03A03	Importance of school	Nominal	220	
WB03A04	Importance of neighbourhood/community	Nominal	221	
WB03A05	Importance of health	Nominal	222	
WB03A06	Importance of money/things I have	Nominal	223	
WB04A01	Cantril ladder quality of life	Nominal	224	0=0 Worst possible life; 1=1; 2=2; 3=3; 4=4; 5=5; 6=6; 7=7; 8=8; 9=9; 10=10 Best possible life
BOTHPAR1	Lives with both mother and father - first home	Nominal	225	0=Does not live with both mother and father; 1= Lives with both mother and father
SINGPAR1	Lives in a single parent household - first home	Nominal	226	0=Does not live in a single parent household; 1=Lives in a single parent household
STEPPAR1	Lives with one parent and stepparent - first home	Nominal	227	0=Does not live with a parent and stepparent; 1=Lives with one parent and stepparent
OTHPAR1	Lives in another family type - first home	Nominal	228	0=Does not live in another family type; 1=Lives in another family type
BOTHPAR2	Lives with both mother and father - second home	Nominal	229	0=Does not live with both mother and father; 1=Lives with both mother and father
SINGPAR2	Lives in a single parent household - second home	Nominal	230	0=Does not live in a single parent household; 1=Lives in a single parent household
STEPPAR2	Lives with one parent and stepparent - second home	Nominal	231	0=Does not live with a parent and stepparent; 1=Lives with one parent and stepparent
OTHPAR2	Lives in another family type - second home	Nominal	232	0=Does not live in another family type; 1=Lives in another family type
RING1	Number of persons in ring 1	Scale	233	0=No person in ring 1; 1=70 persons in ring 1
RING2	Number of persons in ring 2	Scale	234	0=No person in ring 2; 1=70 persons in ring 2
RING3	Number of persons in ring 3	Scale	235	0=No person in ring 3; 1=70 persons in ring 3
RING4	Number of persons in ring 4	Scale	236	0=No person in ring 4; 1=70 persons in ring 4
RING5	Number of persons in ring 5	Scale	237	0=No person in ring 5; 1=70 persons in ring 5
DOMAIN1	Number of domains on top shelf	Nominal	238	0=No domains; 1=One domain; 2=Two domains; 3=Three domains; 4=Four domains; 5=Five domains; 6=Six domains
DOMAIN2	Number of domains on 2nd shelf	Nominal	239	
DOMAIN3	Number of domains on 3rd shelf	Nominal	240	
DOMAIN4	Number of domains on 4th shelf	Nominal	241	
DOMAIN5	Number of domains on 5th shelf	Nominal	242	
DOMAIN6	Number of domains on 6th shelf	Nominal	243	
DOMAIN7	Number of domains on bottom shelf	Nominal	244	
HARVUPV1	Harm & vulnerability-plaus value 1	Scale	245	Plausible Values
HARVUPV2	Harm & vulnerability-plaus value 2	Scale	246	Plausible Values
HARVUPV3	Harm & vulnerability-plaus value 3	Scale	247	Plausible Values
HARVUPV4	Harm & vulnerability-plaus value 4	Scale	248	Plausible Values
HARVUPV5	Harm & vulnerability-plaus value 5	Scale	249	Plausible Values
PSYSOPV1	Psychosomatic-plaus value 1	Scale	250	Plausible Values
PSYSOPV2	Psychosomatic-plaus value 2	Scale	251	Plausible Values
PSYSOPV3	Psychosomatic-plaus value 3	Scale	252	Plausible Values
PSYSOPV4	Psychosomatic-plaus value 4	Scale	253	Plausible Values
PSYSOPV5	Psychosomatic-plaus value 5	Scale	254	Plausible Values
BULLYPV1	Bullying-plaus value 1	Scale	255	Plausible Values
BULLYPV2	Bullying-plaus value 2	Scale	256	Plausible Values
BULLYPV3	Bullying-plaus value 3	Scale	257	Plausible Values
BULLYPV4	Bullying-plaus value 4	Scale	258	Plausible Values
BULLYPV5	Bullying-plaus value 5	Scale	259	Plausible Values
FRDCFPV1	Conflict closest friend-plaus value 1	Scale	260	Plausible Values
FRDCFPV2	Conflict closest friend-plaus value 2	Scale	261	Plausible Values
FRDCFPV3	Conflict closest friend-plaus value 3	Scale	262	Plausible Values
FRDCFPV4	Conflict closest friend-plaus value 4	Scale	263	Plausible Values
FRDCFPV5	Conflict closest friend-plaus value 5	Scale	264	Plausible Values
FRDSUPV1	Support closest friend-plaus value 1	Scale	265	Plausible Values
FRDSUPV2	Support closest friend-plaus value 2	Scale	266	Plausible Values

Variable name	Variable label	Level	File Line	Value labels
FRDSUPV3	Support closest friend-plaus value 3	Scale	267	Plausible Values
FRDSUPV4	Support closest friend-plaus value 4	Scale	268	Plausible Values
FRDSUPV5	Support closest friend-plaus value 5	Scale	269	Plausible Values
FAMCOPV1	Family cohesion-plaus value 1	Scale	270	Plausible Values
FAMCOPV2	Family cohesion-plaus value 2	Scale	271	Plausible Values
FAMCOPV3	Family cohesion-plaus value 3	Scale	272	Plausible Values
FAMCOPV4	Family cohesion-plaus value 4	Scale	273	Plausible Values
FAMCOPV5	Family cohesion-plaus value 5	Scale	274	Plausible Values
FAMMOPV1	Family monitoring-plaus value 1	Scale	275	Plausible Values
FAMMOPV2	Family monitoring-plaus value 2	Scale	276	Plausible Values
FAMMOPV3	Family monitoring-plaus value 3	Scale	277	Plausible Values
FAMMOPV4	Family monitoring-plaus value 4	Scale	278	Plausible Values
FAMMOPV5	Family monitoring-plaus value 5	Scale	279	Plausible Values
SCHSAPV1	School satisfaction-plaus value 1	Scale	280	Plausible Values
SCHSAPV2	School satisfaction-plaus value 2	Scale	281	Plausible Values
SCHSAPV3	School satisfaction-plaus value 3	Scale	282	Plausible Values
SCHSAPV4	School satisfaction-plaus value 4	Scale	283	Plausible Values
SCHSAPV5	School satisfaction-plaus value 5	Scale	284	Plausible Values
HARMFPV1	Harm significant other-plaus value 1	Scale	285	Plausible Values
HARMFPV2	Harm significant other-plaus value 2	Scale	286	Plausible Values
HARMFPV3	Harm significant other-plaus value 3	Scale	287	Plausible Values
HARMFPV4	Harm significant other-plaus value 4	Scale	288	Plausible Values
HARMFPV5	Harm significant other-plaus value 5	Scale	289	Plausible Values
LSSPV1	Life satisfaction scale-plaus value 1	Scale	290	Plausible Values
LSSPV2	Life satisfaction scale-plaus value 2	Scale	291	Plausible Values
LSSPV3	Life satisfaction scale-plaus value 3	Scale	292	Plausible Values
LSSPV4	Life satisfaction scale-plaus value 4	Scale	293	Plausible Values
LSSPV5	Life satisfaction scale-plaus value 5	Scale	294	Plausible Values
PSYWBPV1	Psychological wellbeing-plaus value 1	Scale	295	Plausible Values
PSYWBPV2	Psychological wellbeing-plaus value 2	Scale	296	Plausible Values
PSYWBPV3	Psychological wellbeing-plaus value 3	Scale	297	Plausible Values
PSYWBPV4	Psychological wellbeing-plaus value 4	Scale	298	Plausible Values
PSYWBPV5	Psychological wellbeing-plaus value 5	Scale	299	Plausible Values
SOMWBPV1	Somatic wellbeing-plaus value 1	Scale	300	Plausible Values
SOMWBPV2	Somatic wellbeing-plaus value 2	Scale	301	Plausible Values
SOMWBPV3	Somatic wellbeing-plaus value 3	Scale	302	Plausible Values
SOMWBPV4	Somatic wellbeing-plaus value 4	Scale	303	Plausible Values
SOMWBPV5	Somatic wellbeing-plaus value 5	Scale	304	Plausible Values
TCHSUPV1	Teacher support-plaus value 1	Scale	305	Plausible Values
TCHSUPV2	Teacher support-plaus value 2	Scale	306	Plausible Values
TCHSUPV3	Teacher support-plaus value 3	Scale	307	Plausible Values
TCHSUPV4	Teacher support-plaus value 4	Scale	308	Plausible Values
TCHSUPV5	Teacher support-plaus value 5	Scale	309	Plausible Values
VULNBPV1	Vulnerability significant other-plaus value 1	Scale	310	Plausible Values
VULNBPV2	Vulnerability significant other-plaus value 2	Scale	311	Plausible Values
VULNBPV3	Vulnerability significant other-plaus value 3	Scale	312	Plausible Values
VULNBPV4	Vulnerability significant other-plaus value 4	Scale	313	Plausible Values
VULNBPV5	Vulnerability significant other-plaus value 5	Scale	314	Plausible Values
CARER	Carer - looks after someone with a mental illness, disability or drug/alcohol addiction	Nominal	315	0=Does not have caring responsibilities; 1=Has caring responsibilities
FEMALE	Student gender	Nominal	316	0=Male; 1=Female
GEOLOC	Geographic location of student school	Nominal	317	1=Metro; 2=Provincial; 3=Rural/remote
SEIFA	National SEIFA level of student school	Nominal	318	1=Low; 2=Middle; 3=High
ATSI	Aboriginal and/or Torres Strait Islander	Nominal	319	0=Non-Indigenous; 1=Indigenous
CALD	Culturally and linguistically diverse	Nominal	320	0=English spoken at home; 1=Language other than English spoken at home
OOHC	Out of home care	Nominal	321	0=At home care; 1=Out of home care
DISABIL	Disability	Nominal	322	0=No disability; 1=Disability
WTFINAL	Final weight	Scale	323	Score