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## 2

# Students' well-being: What it is and how it can be measured

With student well-being increasingly incorporated into education policy, interest is growing in comparing how well different education systems promote students' development and quality of life. This chapter defines students' well-being and examines how it is measured by PISA. The chapter also discusses the aims of this volume as part of the *PISA 2015 Results*.



If parents around the world are asked what they want for their children, some might mention “achievement” or “success”, but most would reply “happiness”, “confidence”, “kindness”, “health”, “satisfaction”, and the like (Seligman et al., 2009). In short, people value well-being. Student well-being, defined as students’ overall development and quality of life, is increasingly integrated into education policy. Not surprisingly, interest is growing in comparing countries not only in terms of how well students fare academically, but also in how well education systems promote students’ skills and attitudes for well-being.

Children spend a considerable amount of time in the classroom – following lessons, socialising with classmates, and interacting with teachers and other staff members. By the time they enter school, children differ in how easily and intensely they become anxious, frustrated or positively excited. They also differ in capacities for attention and self-regulation. Some of these differences are linked to children’s genetic endowment (Rothbart et al., 2011). But children’s temperament, self-regulation and capacity for attention continue to develop throughout the school years (Rothbart and Jones, 1998). Experiences of success and failure during a child’s adjustment to the challenges of school influence the child’s representations and evaluations of self, peers and adults. What happens in school is key to understanding whether students enjoy good physical and mental health, how happy and satisfied they are with different aspects of their life, how connected to others they feel, and the aspirations they have for their future (Adamson, 2013; Bradshaw et al., 2007; Currie et al., 2012; Huebner et al., 2004; Rees and Main, 2015).

Teachers are powerful figures in the lives of most children (UNESCO, 2016). A positive class atmosphere where efforts are encouraged and rewarded and in which children are accepted and supported by their teachers, regardless of their intellect and temperament, is often associated with more positive reactions to the demands of schooling (Huebner et al., 2004), and to lower school-related stress (Torsheim et al., 2001). Even the most vulnerable child has capacities for positive experiences at school. “Accentuating the positive” in the child’s experience of school can serve to increase autonomy, motivation and resilience, essential qualities for success both in and outside of school.

While there is a growing body of research on the topic, only a few large-scale studies of adolescents have taken a comprehensive view of well-being. One important exception is the Health Behaviour in School-Aged Children (HSBC), a large cross-national study conducted every four years across Europe and North America to gain insights into young people’s well-being, health behaviours and their social context (<http://www.hbsc.org/>). National indicators on children have traditionally focused on threats to children’s mental and physical health. It is now important to develop international data that extend beyond the study of adolescents’ disorders, deficits and disabilities, and that put more emphasis on the positive attributes that define the success of students (Huebner et al., 2004). By examining students’ strengths, assets and abilities, it will be possible to identify the core elements that enable them to flourish and thrive (Pollard and Lee, 2003). Understanding how education policy shapes students’ well-being requires more data, both subjective and objective, on how students feel, what they do in and outside of school, and what they value most in life. Measuring the well-being of 15-year-old students, the target PISA population, is particularly important, as students at this age are in a key transition phase of physical and emotional development. Feeling well, and developing decision-making skills and psychological coping mechanisms at this age are the foundations for self-awareness and relationship-building – key competencies needed for self-fulfilment.

PISA offers the opportunity to produce a comprehensive set of well-being indicators for adolescents that covers both negative outcomes (e.g. anxiety, low performance) and the positive impulses that promote healthy development (e.g. interest, engagement, motivation to achieve). Most of the PISA data on well-being are based on students’ answers to a questionnaire. Self-reported data give adolescents the opportunity to express how they feel, what they think of their lives and what aspirations they have for their future. PISA holds a unique advantage over other studies in that well-being indicators can be related directly to the academic achievement of students across a large number of economies. Even if PISA 2015 was not designed to provide complete coverage of all the dimensions of students’ well-being, the student-level data in PISA can shed light on different manifestations of students’ well-being both across and within countries.

## A DEFINITION OF STUDENTS’ WELL-BEING

Well-being is a complex, multi-dimensional construct that cannot be properly measured by a sole indicator in a single domain (Borgonovi and Pál, 2016). In order to accurately monitor well-being, it is critical that measurement tools take into consideration its multi-dimensional nature.

Most of the theoretical and measurement work on well-being, such as the OECD *How’s Life* framework for measuring well-being and progress (Box III.2.1), is conceptually rooted in adult life. As such, it needs to be adapted to the PISA population of 15-year-old students and to the PISA focus on education policy. Adolescents might have priorities for their well-being that do not necessarily coincide with those of adults. A recent survey illustrates this well: when a large sample

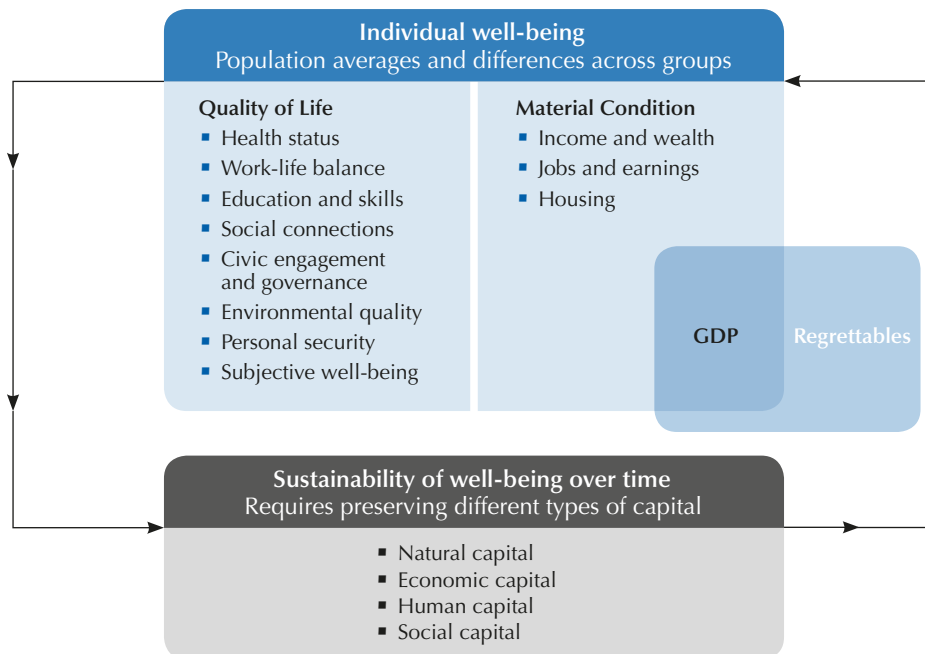


of 14- and 15-year-olds were asked what having a good life means to them, the five most commonly used terms were “friends”, “family”, “bullying”, “parents”, and “school” (The Children’s Society, 2015). Many adolescents also have limited financial autonomy and they are dependent on adults for their material well-being.

### Box III.2.1 The OECD *How’s Life* framework for measuring well-being

Although different individuals will place different weight on what aspects of life are most important to them, there is a high degree of convergence in identifying the main dimensions of well-being across different authors and using different methodologies (OECD, 2015). The OECD *How’s Life* framework for measuring well-being identifies 11 dimensions of well-being under two broad headings (Figure III.2.1). Under the heading “material conditions”, the framework groups those aspects of well-being that are grounded in market transactions: income and wealth, jobs and earnings, and housing. Higher GDP does not necessarily lead to improved material conditions, because some of the activities included in GDP actually correspond to a reduction in people’s well-being (as in the case of higher transport costs due to increased congestion and longer commuting). These activities are called “regrettables” in the figure. “Quality of life” encompasses those things that are important to people’s welfare but that lie primarily outside the market: health status, work-life balance, education and skills, social connections, civic engagement and governance, environmental quality, personal security, and subjective well-being.

Figure III.2.1 ■ The OECD framework for measuring well-being



Source: OECD (2015), *How’s Life? 2015: Measuring Well-being*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/how\\_life-2015-en](http://dx.doi.org/10.1787/how_life-2015-en).

The OECD approach to assessing the resources for future well-being focuses on the broader natural, economic, human and social systems that embed and sustain individual well-being over time. The approach thus goes beyond simply measuring “stocks” to consider how these resources are managed, maintained or threatened.

Well-being as measured in the *How’s Life* framework is concerned with individuals rather than with aggregate conditions. The indicators focus on outcomes rather than inputs or outputs. This is because the achieved well-being outcomes of a person (e.g. their health status) may be only imperfectly correlated with the relevant inputs (health expenditure) or outputs (e.g. surgical interventions). Distribution matters, since the implications for the well-being of individuals depend on what people actually experience, not just the average level achieved across society. Finally, well-being is measured through both objective and subjective indicators.

**Students’ well-being**, as defined in this report, refers to the psychological, cognitive, social and physical functioning and capabilities that students need to live a happy and fulfilling life. This definition of well-being combines a “children’s rights



approach”, that emphasises the right of all children to have a happy life “here and now”, with a “development approach”, that underscores the importance of students developing the skills to improve their well-being in the present and in the future (Ben-Arieh et al., 2013). The evaluation of students’ well-being must be sensitive to both their actual states and achievements (“functioning”) and the freedom they have (“capabilities”) to pursue what they value in life (Sen, 1999).

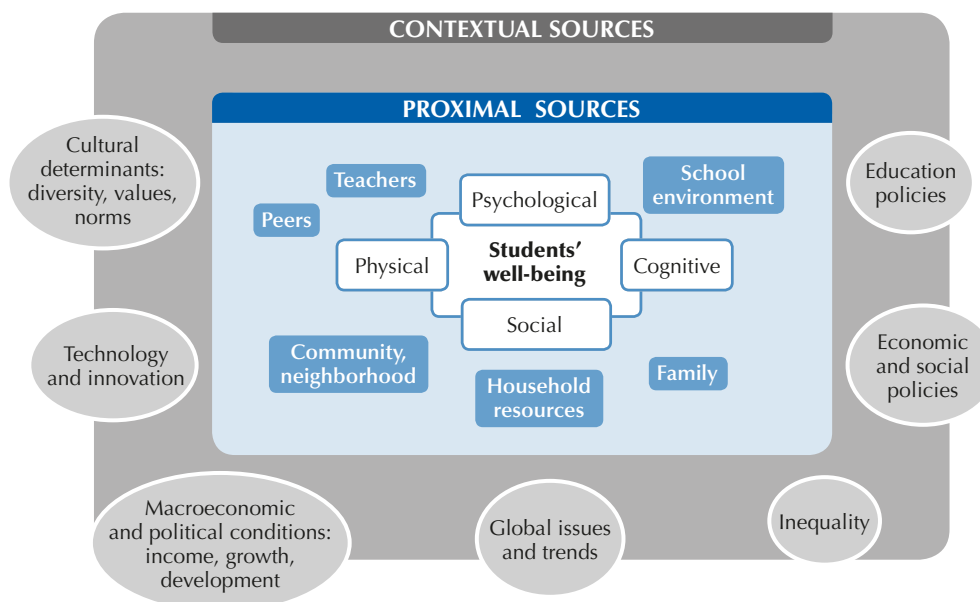
While investing in future outcomes of children and adolescents is extremely important, policy makers and educators need to pay attention to students’ well-being now, while they are students. Children and adolescents should not be reduced to “human becomings” (Ben-Arieh et al., 2013). Too much focus on developing skills for the future might, for example, mean that students spend all their waking hours studying, with no time left for socialisation and leisure. Childhood and adolescence are, in themselves, important stages of life to be lived and enjoyed.

The sustainability of students’ well-being demands investments in acquiring academic, non-cognitive and work-related skills that are necessary to function well in the present and in the future. Well-being is in fact a dynamic state: without sufficient investments to develop capabilities in the present, students are unlikely to enjoy well-being as adults. No trade-off between “being well” now and “becoming ready” for the future is necessary if the development of skills is well balanced with other essential social and leisure activities, and if such development happens in a supportive and caring environment.

### PISA INDICATORS OF WELL-BEING SOURCES AND OUTCOMES

In this report, students’ well-being is not quantified by a single measure, but is composed of various dimensions, and aspects within each dimension, that are more readily measurable. As Figure III.2.2 illustrates, students’ well-being is the result of interactions among four distinct but closely related domains: psychological, social, cognitive and physical. Each dimension can be considered both as an outcome and as an enabling condition with respect to the other dimensions, and ultimately with students’ overall quality of life.

Figure III.2.2 ■ Dimensions and sources of students’ well-being



The **psychological dimension** of students’ well-being includes students’ sense of purpose in life, self-awareness, affective states and emotional strength. Psychological well-being is supported by self-esteem, motivation, resilience, self-efficacy, hope and optimism; it is hindered by anxiety, stress, depression and distorted views of the self and others. PISA 2015 measures some aspects of psychological well-being through students’ reports of their motivation for achievement and schoolwork-related anxiety.



The **social dimension** of students' well-being refers to the quality of their social lives. It includes students' relationships with their family, their peers and their teachers, and students' feelings about their social life in and outside of school (Pollard and Lee, 2003). In PISA 2015, the main measure of students' social well-being is their self-reported sense of belonging at school. The quality of students' social relationships at school is also measured through students' self-reported exposure to bullying and perceptions of teachers' fairness.

The **cognitive dimension** of students' well-being refers to the cognitive foundations students need to participate fully in today's society, as lifelong learners, effective workers and engaged citizens. It comprises students' proficiency in using academic knowledge to solve problems alone or in collaboration with others, and high-order reasoning skills, such as critical thinking and being able to confront ideas from various perspectives. In PISA 2015, cognitive well-being is primarily measured through performance across the PISA domains (Box III.2.2).

The **physical dimension** of students' well-being refers to students' health and the adoption of a healthy lifestyle (Statham and Chase, 2010). PISA 2015 does not measure students' health status as such. However, it provides self-reported information on how much physical activity students engage in and on whether they eat regularly.

#### Box III.2.2 The measurement of cognitive skills in PISA

PISA is based on a dynamic and forward-looking model of lifelong learning, exploring the knowledge and skills students need to adapt successfully in a rapidly changing world and to apply their knowledge to real-world issues. This model reflects the fact that educators focus increasingly on what students can do with what they learn at school.

PISA also recognises that 15-year-olds cannot be expected to have learned everything they will need to know as adults, but they need to understand core processes and principles. Thus, PISA assesses students' ability to complete tasks relating to real life and not solely how well they have absorbed the content knowledge of the core subjects taught in school. The skills students have acquired up to age 15 are the product of a complex inter-relationship among their experience as students in different schools and classes, their life within their close and extended families, and their interactions with peers and acquaintances. Competency at age 15 is the sum of the infinite number of experiences that children have accumulated over the years.

International experts defined each of the competency domains that were examined in PISA 2015: science (the main domain for 2015), reading, mathematics, collaborative problem solving, and financial literacy, and drafted the assessment frameworks for each. Competency is not something that an individual either does or does not have; rather, it is measured on a continuum. There is no exact threshold that determines who is fully competent and who is not. However, it is necessary for measurement purposes to define at which level of competencies students are able to participate productively in society. In PISA, international experts set the baseline at Level 2 on the PISA proficiency scales.

In addition to assessing competencies in the three core domains of reading, mathematics and science, PISA has progressively examined competencies across disciplines and modes of delivery. For example, PISA delivered in 2012 an assessment of individual problem solving and, in 2015, an assessment of collaborative problem-solving. In 2018, PISA will include an assessment of global competence which will test students' ability to understand global issues and diverse cultural perspectives.

When analysing the relationship between the cognitive dimension of well-being and other well-being outcomes, the analysis in this volume focuses on students' performance in science, the major domain for 2015. All students were assessed in science, but only a proportion also responded to questions in the remaining domains. PISA 2015 defines scientific literacy as "the ability to engage with science-related issues, and with the ideas of science, as a reflective citizen" (OECD, 2016c). A scientifically competent person is willing to engage in reasoned discourse about science and technology. This requires the competencies to: explain phenomena scientifically (recognising, offering and evaluating explanations for a range of natural and technological phenomena); evaluate and design scientific enquiry (describing and appraising scientific investigations, and proposing ways to address questions scientifically); and interpret data and evidence scientifically (analysing and evaluating data, claims and arguments in a variety of representations, and drawing appropriate scientific conclusions).



PISA 2015 also asked students to report, on a scale from 0 to 10, how satisfied they are with their life. This scale shows the students' subjective evaluation of their own lives across all four dimensions. Even if this life satisfaction scale is a useful summary indicator, and it is used as such in this report, it is no substitute for a multi-dimensional measurement of well-being based on different indicators.

PISA data on the four dimensions of well-being can provide a description of the life of students across the world. However, a policy-relevant analysis of students' well-being also needs to examine the context of students' psychological, social, cognitive and physical functioning. While well-being is defined in this report at the "individual level" – looking at students' outcomes in the four dimensions – the development of well-being is analysed at the "environmental level" by looking at the relationship between the contexts in which the adolescent lives and his or her well-being outcomes.

Students' individual well-being is a result of their interaction with their environment, the material resources they have access to, and students' responses to external opportunities and stress factors. The student, with all of his or her personal characteristics and character strengths, interacts first and foremost with his or her family, teachers and peers, but also with a range of other actors in his or her proximal community. The material and social resources that the student obtains from the family and closer community are, in turn, influenced by the macro-economic social and cultural environment (at the local, national and global levels), and by economic, social and education policies (the external circle in Figure III.2.2). In a well-functioning system, these three levels – the student's self, his or her close networks and resources, and the macro/policy level – are interdependent and influence each other as they evolve over time. For example, students' perceptions of their quality of life at school (at the micro level) should not just be influenced by education policies (at the macro/policy level) but should also inform the design of policy reforms.

## AIMS AND ORGANISATION OF THIS REPORT

The purpose of this volume is to describe the relationships between 15-year-old students' life satisfaction, social life, learning attitudes and school performance in a large number of school systems around the world. Drawing on data from PISA 2015, this volume analyses a broad set of indicators that, collectively, paint a comparative picture of how well adolescent students in different countries and economies are learning and faring in various aspects of life. The report illustrates both the strengths and the weaknesses of the available PISA data on well-being. Although PISA 2015 contains instruments to measure several aspects of well-being, it remains first and foremost a study of adolescents' cognitive skills.

This volume does not provide a ranking that shows which countries are most successful in promoting students' well-being. For such a ranking to be useful for policy, it should be based on a complete accounting of students' functioning and capabilities across all four dimensions of well-being. PISA 2015 measures some dimensions of well-being better than others. The dataset offers an unprecedented opportunity to describe students' school environments, the way students interact with their parents, how students use the Internet, students' level of physical activity, their aspirations for further education, and their overall life satisfaction. These states, activities and capabilities can be related with each other and with cognitive skills. However, PISA 2015 provides only limited information on the physical and mental health or emotional states of students, on how students spend their time, and how satisfied they are with different aspects of their lives.

This report uses PISA data to address specific policy questions, such as: "Are highly competitive school environments compatible with students' life satisfaction?"; "How much of a problem is bullying at school?"; "What can teachers do to foster a greater sense of belonging at school with an increasingly diverse student population?"; "What type of parental engagement and support helps students derive greater satisfaction from life and perform better in school?". The report describes the interactions between outcome indicators in different dimensions of students' well-being, and analyses a selected set of relationships between sources and outcomes of well-being.

The volume is organised in four sections. The first section (Chapters 3 through 6) analyses the relationships between how students learn (at what level they perform, how much time they invest in learning, how confident they feel when they study, what shapes their learning environment, what are their motivations to learn), their own perceptions about the quality of their life, and their expectations of further education. The second section (Chapters 7 and 8) focuses on students' relationships with their peers and teachers at school, and looks at the factors that affect students' sense of belonging at school. The third section (Chapters 9 and 10) analyses the social and material resources available in students' homes, with a focus on the importance of parental support for both cognitive achievement and life satisfaction. The fourth section (Chapters 11 through 13) describes the PISA data on physical activity and eating habits, and analyses how students' well-being is related to their use of the Internet and to the work they do in or outside the home. The concluding chapter discusses the policy implications of this first analysis of PISA data on students' well-being.



This report should be read together with the first two volumes of PISA 2015 Results (OECD, 2016a; OECD, 2016c). For example, this volume includes references to analyses of student performance (a core element of students' cognitive well-being) already published in *PISA 2015 Results (Volume I): Excellence and Equity in Education*, and to indicators of school environment and education policies presented in *PISA 2015 Results (Volume II): Policies and Practices for Successful Schools*.

## MEASUREMENT ISSUES AND INTERPRETATION OF THE FINDINGS

Some caution is needed in interpreting the PISA data on well-being. While PISA aims to provide robust measures of complex constructs, it must do so while keeping the questionnaires relatively short, minimising perceived intrusiveness of the questions, and maximising cross-national and cross-cultural comparability of responses. Despite the extensive investments PISA makes in selecting questions and analysing the quality of the data, full comparability across countries and subpopulations cannot be guaranteed.

The PISA questionnaires use student self-reports to derive indices or to measure different dimensions of student well-being. Self-reported responses are informative and useful, but they are susceptible to three possible biases: social desirability (the tendency to respond in a manner that is more acceptable in one's own social and cultural context; Edwards, 1953); reference-group bias (what the comparison group is); and response-style bias (extreme responses, heaping, modesty). These biases can operate differently in different cultural contexts, thus limiting the cross-country comparability of responses (Hemert, Poortinga and Vijver, 2007). If students in different countries use different response styles or understand questions differently, empirical findings may reflect differences in reporting rather than in the underlying associations.

A number of questions based on self-reports in previous editions of PISA are used in this report to monitor trends over time. Students' and school principals' reports were designed to measure latent constructs (theoretical variables, such as life quality, that cannot be directly measured). However, the relationship between these measures and the latent constructs can vary through time, introducing a possible bias in comparisons across time.

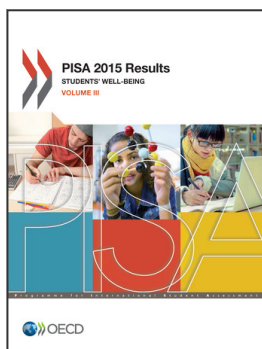
Measurement difficulties are often more evident in well-being than in other domains. Many key indicators of well-being, such as life satisfaction, involve a strong subjective component, which, by definition, can be influenced by cultural norms and by the personality of the respondent. "Culture", in particular, plays a key role in influencing how one's perception of well-being is constructed, so that self-evaluations of well-being are grounded in a specific "time" but can differ across "place". In order to minimise the risk of misleading interpretations, possible cultural explanations of country differences in scales or in responses to individual questions are explicitly mentioned in the text.



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