
Title	Designing an instrument to measure 21st century values and competencies
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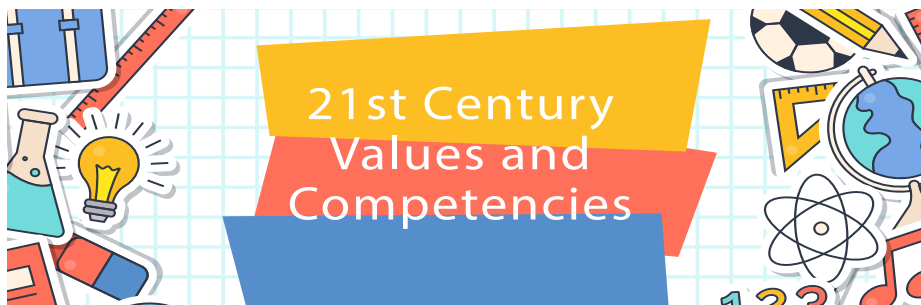
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Designing an Instrument to Measure 21st Century Values and Competencies

By ¹Chua Bee Leng, Stefanie Chye Yen Leng, Seng Bee Gek Yvonne and Gregory Arief D. Liem

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Schwartz (1994) defines values as beliefs that pertain to desirable modes of conduct which transcend specific situations. In a rapidly changing and globalised world, it is important to foster values and competencies that will allow students to thrive in a knowledge-based economy. Values shape the beliefs, attitudes and actions of an individual, and serve as an anchor for 21st century skills such as civic literacy, global awareness, cross-cultural skills and critical thinking. With this focus, there is a need to develop instruments that can evaluate the competencies of students beyond academic content mastery.

Developing a Self-Report Instrument

The objective of this project was to develop a self-report instrument to measure 21st century values and competencies of primary school students in Singapore. To this end, two studies were undertaken.

In Study 1, the international literature of character strengths and moral values were reviewed, and principals of primary schools were consulted to obtain their perspective on the necessary values for primary school education. The research team arrived at a list of 22 values and

dispositions, grouped into three different clusters (cognitive, interpersonal and intrapersonal) based on the National Research Council's 21st Century Skills framework (National Research Council, 2011). See Figure 1 below.

In Study 2, the research team developed and validated the self-report instrument to measure the values of primary school children. Each of the 22 values being measured contained 4 items and each of them was scored on a 6-point Likert scale (1–strongly disagree, 6–strongly agree). As an example, Figure 2 on the right

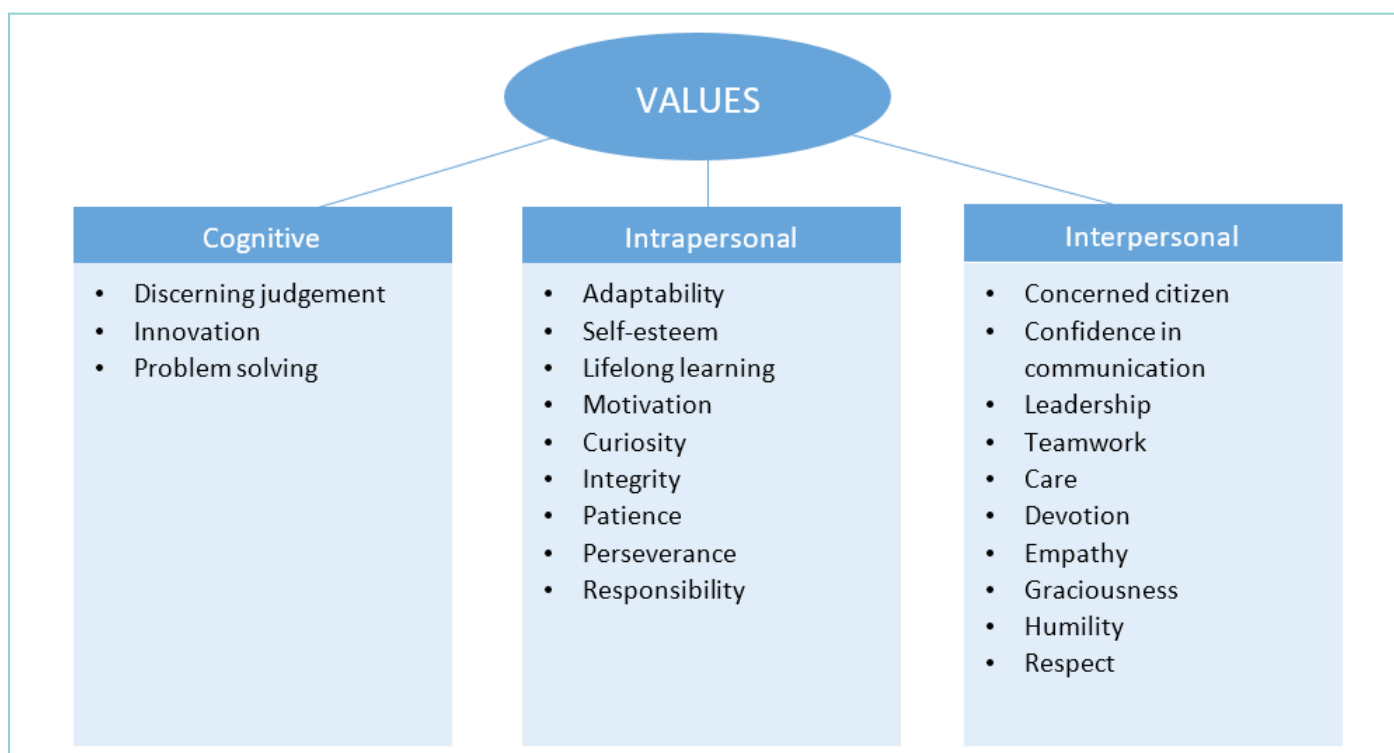


Figure 1. 22 values and dispositions grouped into 3 clusters—Cognitive, Intrapersonal and Interpersonal.

Cognitive	Intrapersonal	Interpersonal
Problem Solving	Perseverance	Teamwork
<ol style="list-style-type: none"> 1. When facing a problem, the first thing I do is to stop and think. 2. In handling problems, I try to think of as many approaches as I can. 3. When trying to solve a problem, I look at each possibility and then decide on the best way. 4. I like to get an overview of a problem before trying to solve it. 	<ol style="list-style-type: none"> 1. I can overcome difficulties. 2. Even when there are difficulties, I put all my effort into the task. 3. Even when there are difficulties, I will keep working towards my goal. 4. Even when I fail, I will keep trying. 	<ol style="list-style-type: none"> 1. I work well in a group. 2. I listen to my group members' opinions. 3. I am cooperative when working in a group. 4. I get along with my group mates.

Figure 2. Items under “Problem Solving”, “Perseverance” and “Teamwork” values.

lists items under the “Problem Solving”, “Perseverance” and “Teamwork” values.

The finalised values instrument comprised of 88 items across the three clusters of Cognitive, Intrapersonal and Interpersonal values, and was administered to 1,907 students across 4 primary schools (Primary 3 to Primary 6; 828 males and 1,079 females). The collected data was analyzed and results demonstrated that the finalised values instrument had acceptable psychometric robustness.

Benefits of the Self-Report Instrument for Teachers and Students

On an individual level, the psychometrically sound instrument will allow students to have heightened awareness of their own values and competencies. This serves to encourage them to take ownership of their own personal development, and

to work towards fostering values and developing competencies that they lack. As there are limitations to the self-report instrument’s evaluative process, results should be triangulated with assessments from teachers, peers, parents and other sources of information to build a more accurate picture of an individual’s character.

From the perspective of schools, data collected using the instrument can be analyzed at a classroom, cohort or school level to better understand students’ values and competencies. This information can then be used to inform strategies and design programmes to assist students in acquiring, fostering and strengthening their values and competencies. Teachers can also identify and group students according to their value profiles for differentiated teaching, and provide tailored instructional strategies to different student groups.

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