

2 Attitudes and values in subject-specific curriculum

This chapter explores how a subset of the OECD 2030 Learning Compass competencies, more specifically, nine constructs (**reflection, collaboration and co-operation, learning to learn, respect, responsibility, empathy, self-regulation, persistence, trust**) are defined and embedded in curriculum across different subject content areas. Research about the positive academic and social outcomes that are associated with each of these is also summarised.

How can attitudes and values be linked to subject-specific learning goals and content?

The previous chapter outlined the importance countries/jurisdictions place on students developing appropriate values and attitudes to shape their own and society's future as part of a holistic education, despite some contestation. When it comes to actual teaching and learning, attitudes may be easier to observe than underlying values and beliefs, therefore, values in the context of curriculum design need to be specified in well-defined contexts, such as subject-specific learning goals and content.

Furthermore, we need to have a clear understanding about the complex nature of some constructs, i.e. multifaceted and thus difficult to be classified into a single domain or a single sub-domain. It is technically difficult to make a clear distinction between skills (especially social and emotional skills) and attitudes and values. For example, “empathy” is generally understood as a multifaceted construct and therefore it is often categorised under different taxonomies according to different sources, different focuses, and different definitions. The Council of Europe's Competencies for Democratic Culture Framework classifies “empathy” as part of both “cognitive” and “emotional” skills (Council of Europe, 2016^[1]), while it is considered as an attitude in some research (Shapiro, 2002^[2]).

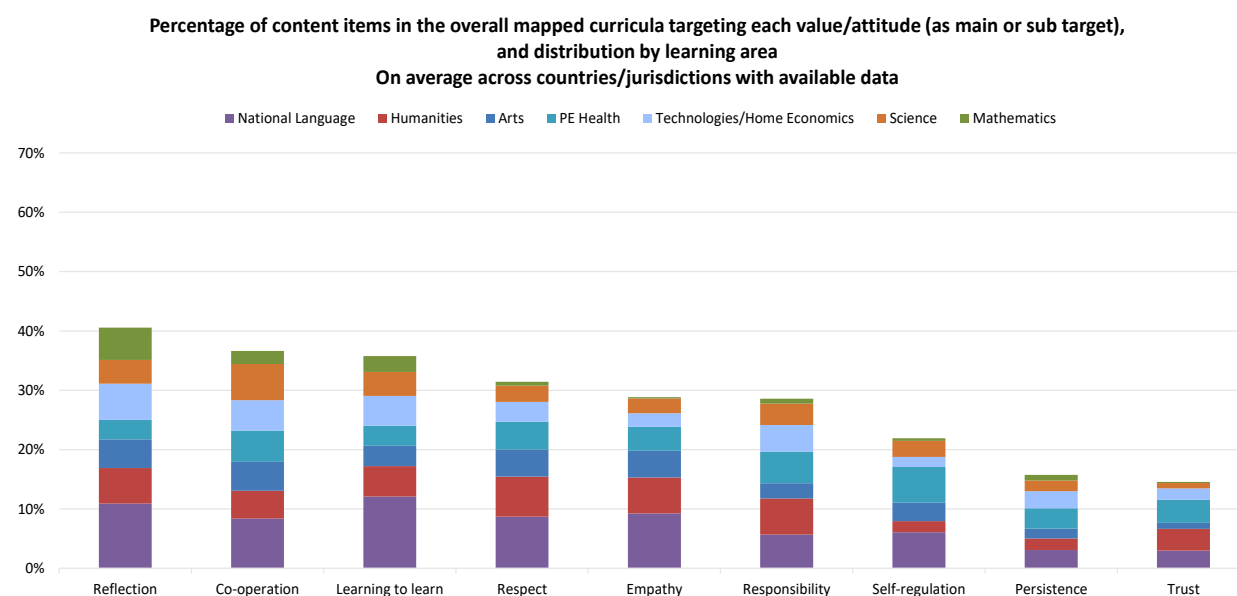
OECD E2030 participating countries/jurisdictions wished to learn from peers about how the competencies identified in the Learning Compass, privilege the types of knowledge, skills, attitudes and values that are considered most relevant for helping young people navigate, thrive and shape a better world in the future. A study mapping these competencies (Curriculum Content Mapping) was undertaken with the participation of a number of member and partner countries and jurisdictions. Of the competencies mapped in the study, some align closely with the values and attitudes identified across country/jurisdictional educational goals (OECD, 2020^[3]).

This chapter focuses on nine of the competencies – attitudes, values and skills – that are closely or directly related to the notion of values explored in Chapter 1 (e.g. **human dignity, respect, equality, justice, responsibility, global-mindedness, cultural diversity, freedom, tolerance and democracy**). An OECD 2030 Curriculum Content Mapping (CCM) study looked at nine competencies, encompassing skills, values and attitudes and the extent to which each was explicitly embedded in curriculum content.

This section illustrates the degree, in descending order, to which these skills, attitudes and values, suggested in the Learning Compass, are associated explicitly with subject goals in curriculum. It also illustrates how countries/jurisdictions' curricula associate certain skills, attitudes and/or values with different subject areas. For example, on average, the national language subject is likely to be a home for many of the attitudes and values, while mathematics is less associated with those such as respect, responsibility, empathy and trust.

1. **Reflection**
2. **Collaboration and co-operation**
3. **Learning to learn**
4. **Respect**
5. **Responsibility**
6. **Empathy**
7. **Self-regulation**
8. **Persistence**
9. **Trust**

Figure 2.1. CCM skills, values and attitudes in curricula



Notes: The percentages illustrated in this graph correspond to the percentage of content items included in a standard learning framework for each learning area¹ that explicitly targets these items (for details, see Technical Report: Curriculum Analysis of the OECD Future of Education and Skills 2030 (OECD, 2020_[4]). The averages include the OECD countries/jurisdictions and partner economies participating in the Curriculum Content Mapping exercise. OECD countries and jurisdictions: Australia, British Columbia (Canada), Saskatchewan (Canada), Estonia, Greece, Israel, Japan, Korea, Lithuania, Northern Ireland (United Kingdom), Portugal, Sweden. Partner countries: China, Kazakhstan and the Russian Federation. Coding for the data tables and narrative was done in relation to a previous version (version 8.4) of the Australian Curriculum.

Source: Data from the OECD (2020_[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

StatLink  <https://stat.link/3tmsop>

The CCM study showed that countries/jurisdictions make different choices about those subjects or learning areas with which they explicitly associate particular attitudes and values, and take account of the most relevant fit according to their own unique cultural, political and ideological contexts. There was considerable variation in terms of the percentage of subject/disciplinary content that maps to the identified skills, attitudes and values, that different subjects/disciplines reflect skills, attitudes and values to varying extents, and that there is considerable variation of the percentage of particular skills, values and attitudes explicitly embedded in learning content (Figure 2.1).

How are these specific skills, attitudes and values defined, measured for impact, and linked to subject learning?

As discussed earlier, deeper understanding of curriculum design as well as teaching and learning of specific skills, attitudes and values through peer-learning across different countries, requires sensitivities in relation to the nature of international comparison, such as comparable definitions and recognition of differences in scope of available research in local languages. Therefore, this section identifies the following dimensions for each of the nine skills, attitudes and values, to support peer-learning and better understanding of curriculum design, teaching and learning of these future-oriented skills, attitudes and values:

- **Definition:** providing internationally comparative definitions, which have been piloted and tested carefully, across different countries/ jurisdictions;

- **Relevance for 2030:** illustrating how the selected skills, attitudes and values are relevant for students to thrive in the future, referring to some of the key concepts in which underpin the OECD Learning Compass 2030;
- **Inter-relatedness:** considering how selected skills, attitudes and values develop hand in hand with other competencies, which can impact upon how teaching and learning can be designed;
- **Impact:** referencing what research exists about the impact of the selected skills, attitudes and values on students' academic and social outcomes, and which supports these constructs; and
- **Curriculum design and integration:** describing how countries embed the selected skills, attitudes and values into specific subject learning within a curriculum, which can give food for thought for curriculum designers.

Before detailing each of the constructs (whether they be skills, attitudes or values), the following cautionary considerations need to be stated:

First, some constructs can be identified within subject-specific contexts or more broadly. For instance, “self-efficacy” may be defined broadly as part of “life skills”, but PISA has measured “self-efficacy in mathematics”, and the International Civic and Citizenship Education Study has measured “students’ political internal efficacy” (Schulz et al., 2016^[5]). These measurement tools are designed differently for individual subjects/themes or for a particular scope, even though the broad construct of “self-efficacy” may be considered to be the same.

Second, some constructs are context-dependent, while others are context-independent. For example, “empathy” may be defined or understood in different ways depending upon the cultural contexts and, it is not necessarily understood that “the more you have, the better” in some cultures. By comparison, “integrity” is generally defined similarly across different cultures, and it can be expected that having more integrity is better, in scale.

Third, we need to consider the age-appropriateness of developmental trajectories of some constructs. The life-cycle approach to construct analysis revealed that the scope and selection of key constructs that are developmentally appropriate or most sensitive to brain development may vary across ages. For example, the key constructs developed in the early years that impact upon later educational attainment, employment, health, happiness and life satisfaction, include verbal skills, numeracy, social skills, locus of control and motor skills (Schoon et al., 2015^[6]); more and varied constructs in various domains, i.e. knowledge (including disciplinary; interdisciplinary; epistemic; and procedural), skills (including cognitive & metacognitive; social & emotional; practical & physical) and attitudes and values may be more salient across middle childhood or adolescence than in the early years of learning.

1. Reflection

Definition

Reflection is a systematic, rigorous, disciplined way of thinking, with its roots in scientific inquiry (OECD, 2019^[7]). It requires “attitudes that value the personal and intellectual growth of oneself and of others” (Rodgers, 2002^[8]).

In the comparative curriculum content mapping (CCM) exercise, reflection is defined as “the ability to take a critical stance before deciding, choosing and acting, such as, by stepping back from the assumed, known, apparent, and accepted, comparing a given situation from other, different perspectives, and looking beyond the immediate situation to the long-term and indirect effects of one’s decisions and actions. This enables individuals to reach a level of social maturity that allows them to adopt different perspectives, make independent judgements and take responsibility for their decisions and actions. The reflective approach is based on a model of human development in which individuals are able to integrate increasing levels of complexity into their thinking and actions” (OECD, 2020^[4]).

Reflection, or the act of **reflective thinking**, includes: thinking things through and examining them from all angles; refraining from jumping to conclusions; being able to change one's mind in light of new evidence; and being able to evaluate all evidence fairly (Peterson and Seligman, 2004^[9]). When an individual engages in reflective thinking, they also use **metacognitive skills** as they actively evaluate their own thinking and learning (Van der Schaaf et al., 2013^[10]).

Relevance for future – link to the OECD Learning Compass 2030

Building on the underlying concept of “reflection or reflective practice” in the OECD Key Competencies framework, the OECD Learning Compass further articulated its importance, in particular, when navigating in time (past, today, future) and in social and digital space (family, community, region, nation, earth and universe) (Rychen, 2016^[11]). Specifically, reflection is highly relevant to the transformative competencies of the Learning Compass, i.e. creating new values, reconciling tensions and dilemmas, and taking responsibility.

First, reflection allows individuals to **create new value, innovate or think “outside of the box”**. This requires that an individual not only reflect upon what is already known, but also consider what needs to be known, and then contemplate actions that can be taken. Individuals connect what they have learned from the past to their present situation, and use this information to plan for the future (Luhmann, 1995^[12]). Considering multiple perspectives can help create new meaning and develop innovative solutions for both old and new problems (Costa and Kallick, 2008^[13]).

Reflective thinking can also help **reconcile tensions and dilemmas**, i.e. one of the key transformative competencies of the Learning Compass. Repairing relationships and finding solutions to problems require that individuals in conflict come together to reflect upon, and identify, the problem. Next, the individuals examine the contradictions or tensions that may be present by reflecting upon different perspectives presented. Finally, possible solutions are reflected upon as individuals synthesise a solution for moving forward based on what was expressed and considered (Yost and Mosca, 2002^[14]).

Finally, reflective thinking is a foundational skill necessary to become an engaged, forward-thinking and responsible citizen (OECD, 2016^[15]). According to John Dewey, **taking responsibility**, another key transformative competency of the Learning Compass, is an integral characteristic of the reflective process. He argues that reflecting without taking action based on what was learned from the reflection is actually irresponsible. This means that to responsibly reflect requires that one have the courage to make changes or act upon what was learned throughout the reflective process (Rodgers, 2002^[8]).

Reflection is related to:

- **Conflict resolution**, which requires that individuals engage in reflective and critical thinking to carefully weigh all sides of a conflict and consider fair solutions to the conflict (Pianta and Allen, 2008^[16]). A study conducted with primary school students in Brisbane found that employing reflection strategies to assist students with conflict resolution encouraged a more perceptive, responsive and healthy classroom climate (Ayling, 2018^[17]).
- **Creativity** requires reflection as part of the creative process. A qualitative study examining the quality of reflections from primary school students during group processing when involved in science, technology, engineering, arts and mathematics (STEAM) activities. The reflective discussions of the students were analysed to identify beliefs, attitudes and emotions which revealed higher levels of critical reflection than anticipated with artistic and creative aspects of STEAM providing an increased perception of individual responsibility and a promotion of interaction (Bassachs et al., 2020^[18]).
- **Critical thinking**: thoroughly considering potential solutions to a problem requires the use of critical and reflective thinking (Hattie and Yates, 2014^[19]; Taconis, 2013^[20]). Multiple studies conducted to

examine the Reflective Judgement Model² (RJM) have found that critical thinking is related to the development of reflective judgement in that reflective thinkers use evidence and reason to support their conclusions (King and Strohm Kitchener, 2004^[21]).

- **Problem solving** also requires reflective thinking to evaluate the problem and fully weigh alternative perspectives in efforts to find a solution (Hattie and Yates, 2014^[19]; Taconis, 2013^[20]). A study conducted with elementary students (grades 3-5) found that students were better able to solve previously difficult math problems when they engaged in a reflective activity, such as talking through potential ways to approach a problem before actually solving the problem (Ross, 2002^[22]).

Impact on academic and social outcomes/well-being

Academic outcomes

Making personal decisions about one's learning, including guiding self-directed learning, requires that an individual be able to reflect upon their own thinking and learning process (Istance and Dumont, 2010^[23]). Learning is an interplay of emotion, motivation, and cognition, all of which combine to help a learner develop new understandings (Dai and Sternberg, 2004^[24]). As an individual reflects upon the role that these factors play in their own learning, they can better evaluate what types of conditions are best needed to support their learning process. Ideally, this then allows the individual to envisage a personalised learning environment that optimises learning (Istance and Dumont, 2010^[23]).

Indeed, a quantitative study involving 197 fourth-grade students undertaken by Deringol (2019^[25]) found that a positive relationship existed between reflective thinking skills and students' academic success in mathematics. Similarly, separate studies undertaken by Bas and Kivılcım (2013^[26]), Sen (2013^[27]), Aydin and Coşkun (2015^[28]) and Mason (2003^[29]) have each concluded that students' reflective thinking skills towards problem solving explained achievement in mathematics.

Findings in relation to the value of reflection on academic success are also not limited to mathematics. Bianchi (2007^[30]), for example, found that the academic achievement of students in secondary science experimental groups increased compared that of the control groups owing to the former group being trained in using and applying reflective thinking skills as part of the teaching and learning process. Moreover, Youde's (2019^[31]) meta-analysis of the impact of reflective self-assessment on student academic achievement found that overall, students exposed to self-reflection outperformed students not exposed to self-reflection on measures of academic achievement across different areas of subject-area learning.

Along with critical thinking, reflective thinking is fundamental for social, professional and ethical development (Branch and George, 2017^[32]). For example, as an individual contemplates and reflects upon their interactions within their social sphere, they may begin to see themselves, and their social situation, in a new light. Critically reflecting upon the role one plays within social environments may broaden self-understanding, as well as help individuals identify potential roles that they can adopt to help improve society (Gelerstein et al., 2016^[33]).

Social outcomes/well-being

An example of self-reflection in a social-collaborative activity is provided by Valkanova et al., (2004^[34]) who examined how primary-aged students were able to engage in self-reflection on their learning and discourse when undertaking collaborative science group activities by creating video documentaries of their learning process.

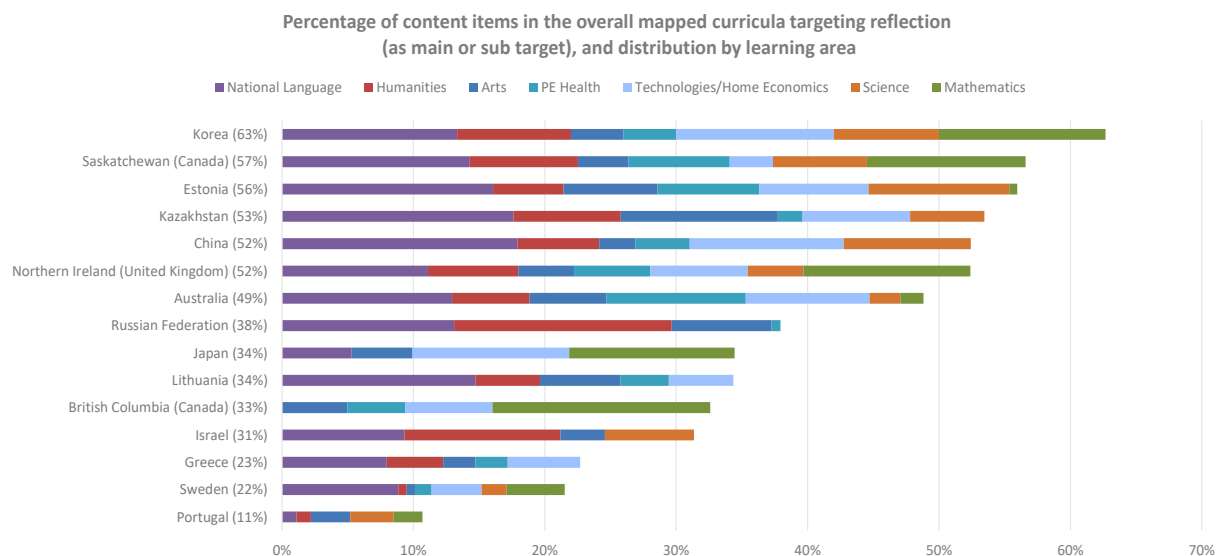
Which learning areas/subjects are most likely to embed "reflection"?

Recognising the relevance and importance of students developing the ability to reflect, it is embedded in the curricula of all countries/jurisdictions that participated in the study, and, in most curricula, its presence

is significant. It was mapped to over 50% in seven of the country/jurisdictional curricula: China, Estonia, Kazakhstan, and Northern Ireland, with it mapped to 63% of content in Korea (Figure 2.2).


Not only is reflection embedded in significant proportions of curricula, but it is also explicitly reflected across subjects. For some countries/jurisdictions, it is reflected in all subjects in their curricula such as in the curricula of Australia, Estonia, Korea, and Northern Ireland. Mathematics is mapped to reflection more than to any of the other skill/attitude in the study, from 1% in Estonia, 2% in Australia and Portugal, 4% in Sweden, 13% in Japan, Korea and Northern Ireland, and 17% in British Columbia (Canada).

Figure 2.2. Reflection in curricula



Note: The percentage bar next to the country name refers to the total percentage of the mapped curriculum that embeds the competency. Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020_[31]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

StatLink  <https://stat.link/vcq3la>

2. Collaboration and co-operation

Definition

Collaboration is a social process of knowledge and relationship-building, in which people work together towards common objectives, resulting in well-defined final products, consensus or decisions. In the CCM exercise, collaboration is defined as “the ability to work well as member of a group or team, being loyal to the group, doing one’s share. Teamwork is a strong predictor of well-being and of a fulfilled and successful life. Collaboration skills are character traits and skills (associated with attitudes such as open-mindedness)” (OECD, 2020_[4]).

In collaborative activity, “autonomous or semi-autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together; it is a process involving shared norms and mutually beneficial interactions” (Wood and Gray, 1991_[35]).

In school education, collaboration is closely associated with **co-operative learning**, **collaborative learning**, and group learning formats (Williams, 2009_[36]). Collaborative projects can help students develop

skills that are important in the professional world and in life (Lee and Bonk, 2014^[37]). **Co-operation** requires the development of communication skills as well as shared or socially negotiated skills, including learned attitudes and behaviours that involve:

- challenging assumptions;
- planning and managing time, including breaking complex tasks into parts and steps;
- communicating clearly, including refining understanding (through discussion and explanation).

Relevance for future – link to the OECD Learning Compass 2030

The shift towards an increasingly globalised and networked world often requires individuals to work with diverse teams in different locations through collaborative technology (Salas, Cooke and Rosen, 2008^[38]). Education needs to prepare students to work effectively and solve problems in groups (Griffin and Care, 2015^[39]; Rosen and Rimor, 2012^[40]).

Child and Shaw (2016^[41]) identify six facets of the collaborative process: social interdependence, introduction of new ideas, co-operation/task definition, conflict resolution, sharing of resources and communication. These facets are highly relevant to the key concepts of the Learning Compass.

Collaboration is an action-oriented construct. Collaboration plays an important role in developing **student agency, co-agency and collective agency**, the three key underlying concepts, involving individual confidence, interpersonal skills, and social capital.

Collaboration is linked with the capacity of **reconciling tensions and dilemmas**, a transformative competency in the OECD Learning Compass. Through collaboration, teams work together to find common ground as they expose discrepancies, negotiate viewpoints and organise effective group norms and processes (Clark, 1996^[42]; Lai, DiCerbo and Foltz, 2017^[43]). Establishing and maintaining team organisation can also provide real-life training in social reconciliation through role and rule definition (OECD, 2017^[44]).

The individual and social skills associated with effective collaboration include **taking personal responsibility**, another key transformative competency of the Learning Compass – for personal behaviours, group interactions and solution-oriented outcomes. Collaborative problem solving promotes positive interdependence (Johnson and Johnson, 1989^[45]) (Box 2.1).

Collaboration/co-operation is related to:

- **Adaptability:** Collaboration strengthens individuals' and groups' abilities to compromise by increasing flexibility and promoting adaptability (Rosen, 2014^[46]).
- **Conflict resolution:** Collaboration typically engages individuals and groups to regulate social processes and build consensus by understanding divergent points of view through discussion, negotiation and (possibly) resolution (Fawcett and Garton, 2005^[47]).
- **Empathy:** Empathy enables more efficient collaboration as collaboration involves acknowledging the thinking patterns and perspectives of collaborators (Young, 2015^[48]).
- **Pro-activeness:** Proactivity is fostered through collaborative activities, which can create conditions that foster mutual respect, understanding and trust; collaboration enables decision making around concrete, attainable goals and objectives and facilitates open and frequent communication and information exchange (Mattessich and Monsey, 1992^[49]; Smith-Jentsch, 2008^[50]).
- **Trust:** Trust has been described as a fundamental bond in collaboration (Child, 2001^[51]).

Impact on academic and social outcomes/well-being

Academic outcomes

Collaboration can create a virtuous cycle that fosters agency, improving both student achievement and motivation to learn (Johnson, Johnson and Stanne, 2000^[52]; Williams, 2009^[36]). It is important to note, however, that organising collaborative groups does not in itself lead to such outcomes (Domingo, 2008^[53]). Findings from several studies point to the need for students to receive guidance from their teachers in how to collaborate through scaffolding such behaviours and competencies as support each other by generating feedback, sharing group decisions, valuing group goals and actively working towards achieving the agreed goals (Frey, Fisher and Everlove, 2009^[54]; Gillies, 2016^[55]; Jadallah et al., 2011^[56]).

Social outcomes/well-being

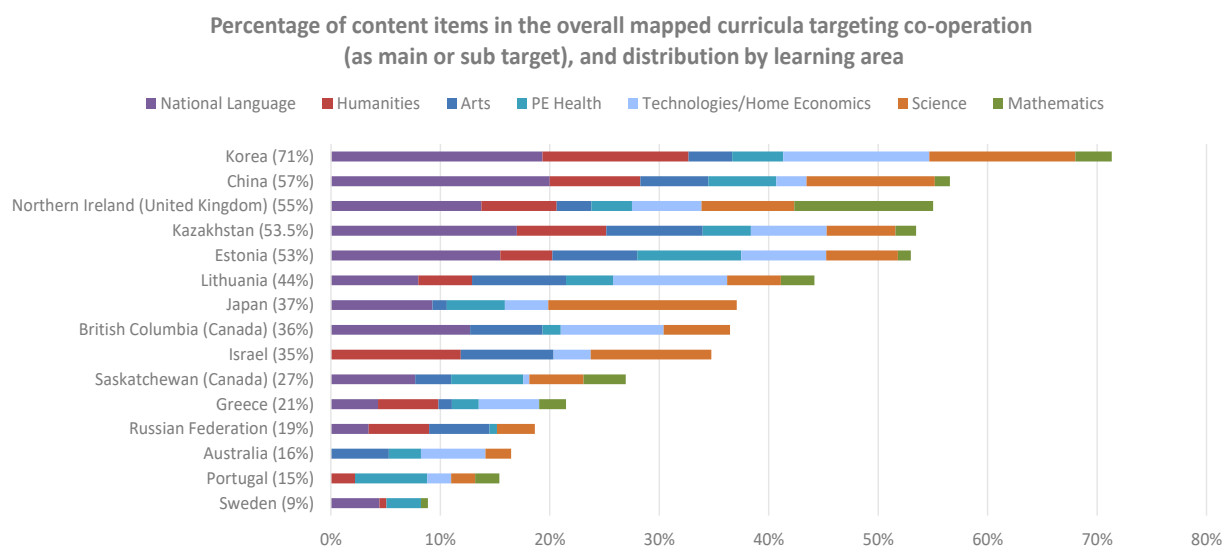
Collaborative groups are successful in addressing issues by envisioning solutions beyond the traditional, and coming up with new ideas, approaches and methods (Johnson, Johnson and Smith, 2007^[57]).

Which learning areas/subjects are likely to embed “collaboration”?

Collaboration or co-operation, the key component of successful teamwork, is embedded in all curricula of the participating countries/jurisdictions, from 9% in Sweden, 15% and 16% in Portugal and Australia respectively, to 71% in Korea. It is mapped to more than 50% of the curriculum in China, Estonia, Kazakhstan and Northern Ireland (Figure 2.3).

In a number of countries/jurisdictions, co-operation is embedded in all subjects across the curriculum: in China, Estonia, Lithuania, Kazakhstan, Korea, Northern Ireland. Co-operation is embedded in Physical Education (PE) Health in nearly all curricula, from 1% to 10%; and it is significantly embedded in national language: 20% in China and 19% in Korea.

Figure 2.3. Collaboration/co-operation in curricula



Notes: The percentage bar next to the country name refers to the total percentage of the mapped curriculum that embeds the competency. Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020^[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

3. Learning to learn

Definition

Learning to learn, or **meta-learning**, involves thinking about thinking. Meta-learning is a branch of metacognition concerned with learning about one's own learning and learning processes. More specifically, it involves "the process by which learners become aware of and increasingly in control of habits of perception, inquiry, learning, and growth that they have internalized" (Maudsley, 1979^[58]).

In the CCM study, it is defined as "the awareness and understanding of the phenomenon of learning itself, which enables students to take control of one's own learning" and explained as follows: implicit in this definition is the learner's perception of the learning context, which includes knowing what the expectations of the discipline are and, more narrowly, the demands of a given learning task. Learning to learn strategies aim to equip each student with the ability to reflect on her/his own learning; the skills required to understand, analyse and regulate her/his thinking, attitude and behaviours when engaged in learning; the ability to set goals for learning, to monitor progress, and to take steps and adjust to improve learning" (OECD, 2020^[4]).

Relevance for future – link to the OECD Learning Compass 2030

Learning to learn is foundational to the underlying concepts of the OECD Learning Compass 2030. As the world continues to shift and evolve, what is required to be an effective learner also changes. Learning to learn sets students up to succeed in lifelong, self-directed learning, in their academic progress and careers they may choose, and in the personal choices individuals make during a lifetime. It also supports students to continue to improve and thrive, as a **self-directed learner**, without teachers or parents necessarily prompting them at every step.

The OECD 2030 Learning Compass also embraces learning to learn as a component of **student agency**: meta-learning occurs when students are self-aware as active agents in the process of learning (Biggs and Telfer, 1987^[59]). It is also associated with the **Anticipation-Action-Reflection cycle**: learning to learn is both a condition for and an outcome of Anticipation-Action-Reflection (AAR), i.e. the competency develops through the tri-fold cycle (Rolheiser-Bennett, Bower and Stevahn, 2000^[60]).

Learning to learn is related to

- **Critical thinking**: Developing critical thinking is often tied closely to developing reflective or metacognitive habits of mind, as each can support and strengthen the other (Kuhn, 1999^[61]).
- **Goal orientation (e.g. grit, persistence)**: Meta-learning skills help students set their own learning goals and assess how realistically they can be achieved (Borgen and Hjordemaal, 2017^[62]).
- **Growth mindset**: Students can practice "reflection, learn about their learning, internalise a growth mindset that encourages them to strive, and learn how to adapt their learning and behaviour based on their goals" (Fadel, Trilling and Bialik, 2015^[63]).
- **Problem solving**: Metacognitive skills play a critical role in monitoring and regulating cognitive processes (Chan and Mansoor, 2007^[64]) and help students to understand when, why, where, and how to use their own knowledge to solve problems successfully (Carr and Jessup, 1995^[65]). In addition, students who are not able to notice the errors they have made in solving problems, monitor what they have done, use appropriate strategies or explain their solutions are not good at mathematics (Carlson and Bloom, 2005^[66]; Lucangeli and Cabrele, 2006^[67]). Therefore, metacognition is one of the critical issues in problem solving (Lester, 1994^[68]; Güner and Erbay, 2021^[69]).

- **Self-efficacy:** Students who have higher levels of self-efficacy (more confidence in their ability to achieve their goals) are more likely to engage in metacognition and, in turn, are more likely to perform at higher levels (Kanfer and Ackerman, 1989^[70]).
- **Self-regulation:** Several models of self-regulated learning suggest that students' goals couple with motivational beliefs and affective reactions to shape self-regulation (Bandura, 1993^[71]; Mithaug, 1993^[72]; Zimmermand, 1989^[73]; Carver and Scheier, 1990^[74]).

Impact on academic and social outcomes/well-being

Academic outcomes

Developing metacognition can improve the application of knowledge, skills, and character qualities beyond the immediate contexts in which they were learned (Schraw and Moshman, 1995^[75]) Metacognitive practices have been shown to improve academic achievement across age ranges, cognitive abilities and learning domains. This includes reading and text comprehension, writing, mathematics, reasoning and problem solving, and memory (Dignath and Buttner, 2008^[76]; Dignath, Buttner and Langfeldt, 2008^[77]).

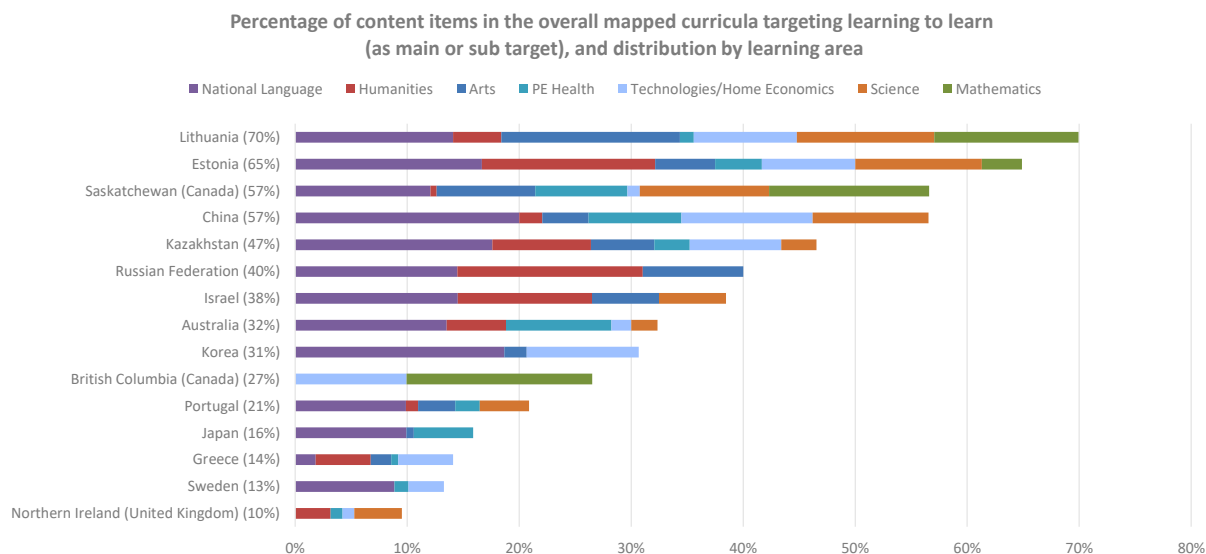
Those with good metacognitive skills are aware of their own strengths and weaknesses, are better able to evaluate their capacity in relation to tasks at hand, and have a better set of mental tools that can be deployed to achieve their goals (OECD, 2017^[78]). When self-aware, students are likely to select the learning strategies which suit their motives and purposes, and are able to adopt, adapt and apply these strategies to any problem-solving situation (Seng, Tey and Fam, 1993^[79]) This was identified by Hassan and Rahman (2017^[80]) in their study of secondary students who found the development of students' metacognitive awareness in problem solving correlated with mathematics achievement. In a primary school context Aurah et al. (2011^[81]) found that student's capacity to apply metacognition was both a good predictor of problem-solving ability and overall academic achievement. Further, in their study of primary schools across several sites Cornoldi et al. (2015^[82]) found that instruction in metacognitive skills resulted in improved capability of the participating students in both undertaking metacognitive tasks and positive-related effects on their ability to solve problems.

Which learning areas/subjects are likely to embed "learning to learn"?

Countries/jurisdictions value positive attitudes towards learning and students developing learning autonomy, and this is reflected in the CCM study. All participants indicated that learning to learn, or meta-learning, is explicitly present in at least two subjects. Four countries indicated that learning to learn is referenced in over 50% of the mapped curriculum, with both Lithuania and Estonia demonstrating significantly more, with 65% and 70% respectively and across multiple subjects (Figure 2.4).

Learning to learn is referenced across curriculum subjects, and is included in the national language subject in most curricula, from between 2% (Greece) and 20% (China) and also significantly in Technologies, from between 1% (Northern Ireland) and 12% (China). This attitude is referenced in the domain of mathematics in a number of countries/jurisdictions such as in the curricula of Estonia, Lithuania, and British Columbia (Canada) 17%.

Figure 2.4. Learning to learn in curricula



Note: The percentage bar next to the country name refers to the total percentage of the mapped curriculum that embeds the competency. Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020^[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

StatLink  <https://stat.link/6dm54s>

4. Respect

Definition

Respect is the valuing of self and others, and all living things, including the environment. Respect includes giving due regard to the feelings, wishes, or rights of the self and others (Dillon, Spring 2018 ed.^[83]). **Respect for self and others** is relevant in many contexts, including discussions of justice and equality, injustice and oppression, autonomy and agency, moral and political rights and duties, moral motivation and moral development, and cultural diversity (Dillon, Spring 2018 ed.^[83])

- **Respect for self** has long been regarded as crucial for rational human beings (Dillon, Spring 2018 ed.^[83]). For example, the philosopher Kant (1788/1996^[84]) argues that, just as we have a moral duty to respect others as persons, so we have a moral duty to respect ourselves as persons, a duty that derives from our dignity as rational beings.
- **Respect for others** is complex, and substantial thought and research has gone into understanding how to develop this effectively (Dillon, Spring 2018 ed.^[83]). One important way to respect others is to value the similarities and differences among humans, and respect and value the characteristics of members of other ethnic, cultural, LGBTQ, or religious groups (Nieto and Bode, 2017^[85]; Morrell, 2008^[86]). Respect is demonstrated through behaviour and communication, which will vary based on cultural context. Inherent is a mindset that is open to the benefits of variation and heterogeneity, but also sensitive to the social and political climates and discourses which perpetuate stereotyping, discrimination or exclusion and the need to counter these phenomena (Carretero, Haste and Bermudez, 2016^[87]; Banks, 2004^[88]; Hess and McAvoy, 2015^[89]; Bekerman and Zembylas, 2012^[90]).
- Contemporary views of respect include fostering a sense of **respect for all living things, such as the environment and the things we consume from it**. There is an entire branch of ethics

dedicated to *Respect for nature* (Taylor, 2011^[91]) which concerns the moral relations between humans and the natural world.

Relevance for future – link to the OECD Learning Compass 2030

Respect for self, others and nature is part of the attitudes and values that underpin the vision of well-being in the OECD Learning Compass, that is, to ensure not only individual well-being but also societal and planetary well-being. The growing appreciation of the importance for children and adolescents learning to respect the environment and their world is explicitly reflected in the Learning Compass.

Of particular relevance in the OECD Learning Compass 2030, are the concepts of **student agency**, **co-agency** and **collective agency** as well as the **three pillars of transformative competencies**.

Respect involves an individual cognitive challenge accompanied by affect – dealing with multiple entities, concepts and positions, which can be stimulants for action or debilitating because they are overwhelming and induce a sense of impotence (Allen and Light, 2015^[92]). Teaching students to respect diversity requires facilitating **student agency** through affirming identity – being confident with who one is and what one can accomplish. It also involves creating a sense of belonging to a group and place; creating an environment which expects the best from everyone; teaching students to be critical; and enabling individuals to recognise their own power (Morrell, 2008^[86]; Seider, 2012^[93]; Nieto and Bode, 2017^[85]).

Manifestations of respect for diversity may involve addressing the fact that other people, or groups, are acting in a manner that an individual feels a moral obligation to counter (for example based on justice or equality) or to intervene in interpersonal conflict on the grounds of empathy or compassion. To find workable solutions to complex problems, not only outcomes, but processes and relationships matter. In this regard, respect for others is essential for **reconciling tensions and dilemmas** because it includes the affective-interpersonal dimension (i.e. involving **co-agency**) of resolving conflicts between peoples in a group (i.e. involving **collective agency**) (Todd, 2008^[94]).

The ability to reconcile tensions and dilemmas requires the individual to address the range of positions and perspectives in the problem or situation, to evaluate them with respect (even if in disagreement), and to **take responsibility** for problem-solving, reconciliation and constructive management of emergent relationships, whether between ideas, values or persons. To achieve such resolutions or coexistences, it is necessary to recognise the factors that create or are manifest in conflict, not just find palliative solutions. For example, in restorative justice, attention is paid not only to the outcome, but also to maintaining a process that respects both the victim and the offender (Van Ness, 2014^[95]).

Respect requires open, continuous and deep dialogues to overcome tensions, dilemmas, contradictions, ambiguities, and trade-offs (Rychen, 2016^[11]), instead of debates which can lead opposing viewpoints into a false dichotomy or fragmentation, instead of cohesion. Dialogues that are based on respect for others and an openness to listen to opposing views or new ideas can help students see other perspectives and what is beyond their own horizon. This can help everyone to create new solutions to unsolved problems, i.e. **creating new value**.

Respect is related to

- **Conflict resolution:** In a mixed methods research study of 323 K-8 students in the United States, LaRusso (2011^[96]) found that early adolescents who reported using more co-operative and respectful conflict resolution strategies also reported engaging in fewer personal risky behaviours (e.g. substance abuse, risky sexual behaviour).
- **Equality/equity:** In its evaluation of respectful relationships pilot studies undertaken in primary schools in two different states in Australia, Our Watch found that after only six months implementing in-class and whole of school approach, Year 1 and 2 students showed signs of diminishing

stereotypical gender attitudes regarding jobs and activities and overall understandings regarding equity in relationships (Our Watch, 2020).

- **Justice:** Restorative justice, specifically, is designed to respect the humanity of both victim and offender (Van Ness, 2014^[95]).
- **Perspective taking:** Respect involves perspective taking and taking responsibility for finding out the beliefs and values of others, especially those from groups perceived as different or other to one's self (Hess and McAvoy, 2015^[89]; Damon, 2008^[97]; Moran, 2017^[98]; Bondu and Elsner, 2015^[99]; Allen and Light, 2015^[92]).
- **Compassion:** Compassion is described as a “mental attitude based on the wish for others to be free of their suffering and is associated with a sense of commitment, responsibility, and respect towards the other” (Gyatso, 2002^[100]).
- **Global mindset:** “Globally competent students are able to communicate effectively and respectfully with people who are perceived to have different cultural backgrounds. Respectful communication requires understanding the expectations and perspectives of diverse audiences and applying that understanding to meet the audience's needs” (OECD, 2018^[101]).
- **Identity:** Moral identity involves having an explicit theory of yourself as a moral agent – as one who acts on the basis of respect and/or concern for the rights and/or welfare of others' (Moshman, 2005^[102]; Hardy and Carlo, 2005^[103]).

Impact on academic and social outcomes/well-being

Academic outcomes

There is widespread agreement that schools should contribute to students' moral development and character formation (Nucci, 2014^[104]). Schools should be places where children receive support to develop honesty, respect for others, democracy, and respect for people of different races and backgrounds (Agenda, 1997^[105]). Current educational movements, such as Moral Education, Social and Emotional Learning, and Character Education (Elias, 2014^[106]) have the goal of and proposed processes for creating such school environments.

Respect is foundational for positive social interactions. Research has demonstrated the importance of respect on students' well-being and success in school (Battistich, 1997^[107]). Teachers play a significant role in creating respectful classroom climates (Jennings, 2009^[108]; LaRusso, 2008^[109]). In a study in the United States of 476 high school students (ages 14–18), LaRusso (2008^[109]) found that adolescents who reported their schools as having more supportive teachers and greater regard for student perspectives were more likely to see their schools as having respectful climates. These students also reported a greater sense of social belonging and fewer symptoms of depression. In a mixed-method study of 323 K-8th grade students also in the United States, LaRusso (2011^[96]) found that early adolescents who reported using more co-operative and respectful conflict resolution strategies were less likely to engage in risky behaviours (e.g., substance use, risky sexual behaviour).

Social outcomes/well-being

Successful academic performance has been shown to occur in the context of safe, supportive classroom and school climates that foster respectful, challenging and engaging learning communities (Zins, 2004^[110]; Thompson, 2018^[111]). During a large-scale Australian study, the importance of respect on well-being was noted consistently during interviews with teachers and students, with older students explicitly noting the importance self-respect and respect for others for core to well-being and younger students making implicit references to respect through drawing and discussion activities relating to an ideal “imaginary school” that supported well-being (Graham et al., 2016^[112]).

In a study of 233 8th-grade students in the United States, Ryan (2001^[113]) found that teacher encouragement of mutual respect among students was the strongest predictor of improvements in academic efficacy (i.e. students' views of their capability to successfully complete their work) and self-regulation in middle school students.

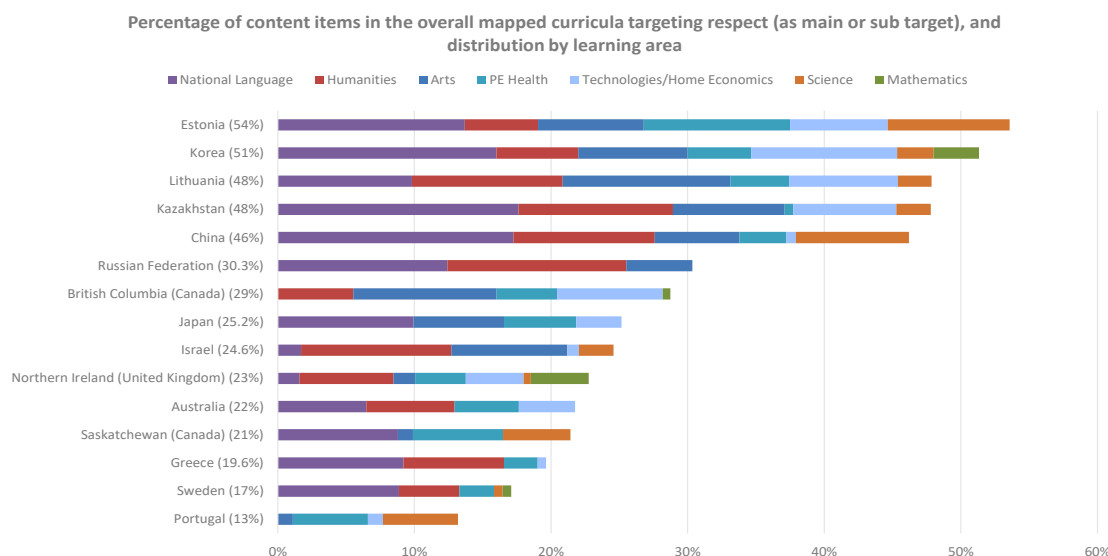
Which learning areas/subjects are most likely to embed “respect”?

Respect is the most commonly referenced value as part of the overall goals of education by countries/jurisdictions (see Table 1.3 in Chapter 1). However, in the more technical subject-specific CCM study, the degree to which respect was explicitly integrated into the descriptions of subject-specific goals ranged between 13% and 54% of curriculum content, with most countries embedding respect in around 25% of the mapped curriculum (Figure 2.5). The most frequent occurrences were in Estonia and Korea, in 54% and 51% respectively, followed by Lithuania, Kazakhstan and China, which include respect in over 40% of the mapped curriculum.

Respect is included across curriculum subjects, but most significantly included in content in the national languages and humanities subjects, in 80% of the mapped curriculum. In British Columbia (Canada), the subject where respect is most represented is the arts. In Portugal, science and physical education/health are the areas where respect is most emphasised.

Mathematics is the subject least represented in the study in relation to respect, although British Columbia (Canada), Korea, Northern Ireland (United Kingdom) and Sweden include respect within the content of mathematics curriculum.

Figure 2.5. Respect in curricula



Notes: The bar next to the country name refers to the percentage of content items included in the standard learning frameworks across learning areas (i.e. mapped curriculum) that explicitly targets this value). Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020^[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

StatLink  <https://stat.link/9vx8hu>

This, of course, needs to be interpreted with caution, as some countries/jurisdictions set out a certain set of skills, attitudes and values to be embedded into every subject of the curriculum, which is not captured

in this subject-specific mapping exercise. This being said, teachers in the E2030 project, in particular, secondary school teachers, shared that they tend to prioritise the goals specifically set out for their own subject, rather than the general goals, as they are often perceived as “too broad” or “too general” – this relates to the issue of “perceived curriculum”. Additionally, regardless of whether or not it is explicitly described in curriculum, the teaching and learning of attitudes and values are often reliant on teacher agency, school leader agency and students themselves, who create the school ethos, mirroring the attitudes and values which the school community collectively intends to cultivate in their culture (see Chapter 3).

5. Responsibility

Definition

Acting responsibly means first, recognising that individuals have obligations to others and what these are. Secondly, it means being willing to fulfil obligations oneself (either directly or indirectly) and thirdly, understanding that one’s actions have consequences, and being able to both anticipate these and to deal with the outcomes of one’s actions (Trnka and Trundle, 2017^[114]; Mergler, 2017^[115]; Haste, 2001^[116]; Haste and Bermudez, 2017^[117]; Wray-Lake and Syversten, 2011^[118]; Myers, 2010^[119]; Berkowitz, Bier and McCauley, 2017^[120]; Damon and Colby, 2015^[121]). **Responsibility** therefore includes cognitive and knowledge appraisal of a context or situation, valuing responsibility and seeing oneself as a responsible person - including being motivated to acquire the skills and knowledge necessary to be so.

In the CCM exercise, **taking responsibility** is defined as “the ability to act responsibly for a good cause, principles and integrity for individual and collective well-being. A responsible person demonstrates the willingness to accept praise, blame, reward, or punishment for an act or omission and to accept the consequences of their behaviour, they have a commitment to the group and others, they can be depended on, and they have integrity” (OECD, 2020^[4]).

Relevance for future – link to the OECD Learning Compass 2030

In a globalised world, learners are likely to have more frequent interactions with people from different cultures and with different perspectives. They will therefore need to understand how their actions affect others in a global community in order to behave ethically and take responsibility for their actions.

The OECD Learning Compass recognises the role of **responsibility** as a transformative competency. This highlights how the three pillars of transformative competencies are closely inter-linked.

Reconciling and managing value and conceptual dilemmas and tensions in areas of uncertainty and ambiguity, requires being able to **take responsibility** for one’s own beliefs, identity and perspectives and being aware of and reflect on one’s ethical stances, in order to decide where best to direct one’s responsibility and actions (Schraa-Liu and Trompenaars, 2006^[122]). **Reconciling interpersonal or social tensions and dilemmas** requires acknowledging that one has a **responsibility** to intervene in a given situation. To be responsible requires empathy, perspective taking, conflict resolution and collaboration skills, and respect for diversity.

Taking responsibility contributes to taking a leadership role in innovation, creativity and risk-taking. **Creating new value** has ethical implications of potential consequences for individuals, community, society and the environment, so acting responsibly is a crucial component to elicit positive outcomes.

Responsibility also aligns with the central function of **student agency**, a core construct in the Learning Compass. Responsibility is about **ethical agency** and having the skills, values and motives to exercise it. It also includes being critically aware and adaptable to different social and cultural contexts and being able to identify how one’s personal ethical agency should adjust to different situations and conditions.

Responsibility helps students to make effective decisions about their own life and the lives of others with whom they have connections (including personal, local, and institutional or societal); and effective, where possible, in relation to wider issues concerning general well-being and human flourishing (Mergler, 2017^[115]; Reysen and Katzarska-Miller, 2013^[123]; Bondu and Elsner, 2015^[99]; Hardy and Carlo, 2005^[103]; Myers, 2010^[119]; Haste, 2001^[116]; Allen and Light, 2015^[92]). Responsible and effective decision making includes values, skills and attributes relevant to managing interpersonal interactions, such as trust, conflict resolution, perspective taking, and to taking a wider view of the obligations arising from one's beliefs and values, for example the responsibility one might take by espousing a social or civic cause (Tausch et al., 2011^[124]; Selman, 2007^[125]; Kim et al., 2018^[126]; Diazgranados, Selman and Dionne, 2016^[127]; Schonert-Reichl, 2011^[128]; Roeser and Pinela, 2014^[129]; Flanagan, 2013^[130]).

Responsibility is related to:

- **Agency** in four domains (Haste, Lee and Omaigan, 2019^[131]). Each of the areas of agency involve different constructs
 - *Responsibility and agency in relation to innovation, uncertainty and novelty:* This area requires the exercise and development of **adaptability, critical thinking, mindfulness, open mindset, perspective taking, respect for diversity, risk management, and tolerance of ambiguity and uncertainty**. It is about being able to resist anxiety about uncertainty, fuzzy boundaries, and to go beyond the familiar. It requires consciously seeking more than one perspective, option for action or route to problem solving (Martin et al., 2012^[132]; Nijstad et al., 2010^[133]; Furnham and Marks, 2013^[134]). It is likely to be accompanied by positive, affective arousal at the idea of something unknown or innovative, including pleasure in taking risks (Kashdan, Rose and Fincham, 2004^[135]; Haste, 2001^[116]). This kind of agency requires valuing innovation and boundary-pushing and believing that this will have positive outcomes, both personally and for wider benefit. It involves being able to evaluate parallel options and being able to make effective judgements between them, knowing how to calculate the limits of useful risk (Halpern, 2007^[136]). Responsibility here means both reflecting on one's own capacities to exercise these skills in assessing a context, and being able to take action with others, as colleague or leader, in applying them (Craft, Gardner and Claxton, 2007^[137]; Schonert-Reichl and Roeser, 2016^[138])
 - *Responsibility and agency in interacting and working effectively with others:* This concerns interpersonal interaction and the capacity for taking responsibility arising from being sensitive to the perspectives and affective states of others. It requires valuing caring, taking responsibility for resolving conflict, for creating harmonious interpersonal relationships and being able to take appropriate action. Responsibility requires wanting to acquire the skills for doing this and to exercise them. These therefore involve links to **compassion, collaboration, empathy, perspective taking, and conflict resolution** (Gehlbach, 2004^[139]; Hoever et al., 2012^[140]; Kim et al., 2018^[126]; Diazgranados, Selman and Dionne, 2016^[127]; Schonert-Reichl and Weissberg, 2014^[141]; Schonert-Reichl, 2011^[128]; Roeser and Pinela, 2014^[129]; Selman, 2007^[125]; Sandy and Cochran, 2000^[142]).
 - *Responsibility and agency in taking and acting upon an ethical or civic stance:* Responsibility here involves several steps; first making an ethical or civic judgement deriving from a value position, interpreting a situation or event in light of it, then feeling personally motivated to take action, and being able to summon the appropriate skills to do so. Making an ethical judgement means drawing upon values (such as **justice** or **equality/equity**) to evaluate a situation, and exercising critical thinking skills, but it also involves believing that one is obligated to exercise such judgement. Further agency is involved to translate a judgement into feeling a personal responsibility to act in support of it, whether alone or in collaboration with others. Values that inform an ethically responsible position include **collaboration, compassion, empathy,**

equality/equity, global mindset, justice, respect for diversity; responsibility also involves **critical thinking, open mindset, perspective taking, self-efficacy** and having an **identity** as a moral agent (Wray-Lake and Syversten, 2011^[118]; Weinstein, 2014^[143]; Tausch et al., 2011^[124]; Mergler, 2017^[115]; Myers, 2010^[119]; Andreotti, 2014^[144]; Beaumont, 2010^[145]; Bondu and Elsner, 2015^[99]; Flanagan, 2013^[130]); (Carretero, Haste and Bermudez, 2016^[87]).

- *Responsibility and agency in being aware of and taking control for self-states, actions and thinking:* Responsibility here focuses on taking control of the self, managing both affective and cognitive states, and finding values and goals that give direction and purpose to identity. The key elements, values and skills relate to regulating the self's emotions, cognitions and motives, being able to be aware and reflective of one's states of being and desires, being able to identify goals and purposes that channel behaviour and skill acquisition, including the belief that self-regulation will be of collective social benefit, not just individual rewards. Responsibility here links to **goal orientation, growth mindset, identity, mindfulness, purpose, resilience, self-regulation, self-awareness, and self-efficacy** (Kashdan, Rose and Fincham, 2004^[135]; Han, 2015^[146]; Dweck and Molden, 2005^[147]; Deci and Ryan, 2000^[148]; Schonert-Reichl and Roeser, 2016^[138]; Damon and Colby, 2015^[121]; Burnette et al., 2013^[149]; Malin, Liauw and Damon, 2017^[150]; Duckworth et al., 2007^[151])

Impact on academic and social outcomes

Academic outcomes

Gough (Gough, McClosky and Meehl, 1952^[152]) shows an overlap between responsibility, trustworthiness and integrity. Individual social responsibility can increase trust among community members. In school settings, a lack of responsibility increases the likelihood to be actively engaged in bullying. Taking responsibility is as an important factor in developing a global mindset, global interconnectedness and reducing global inequalities (Andreotti, 2014^[144]).

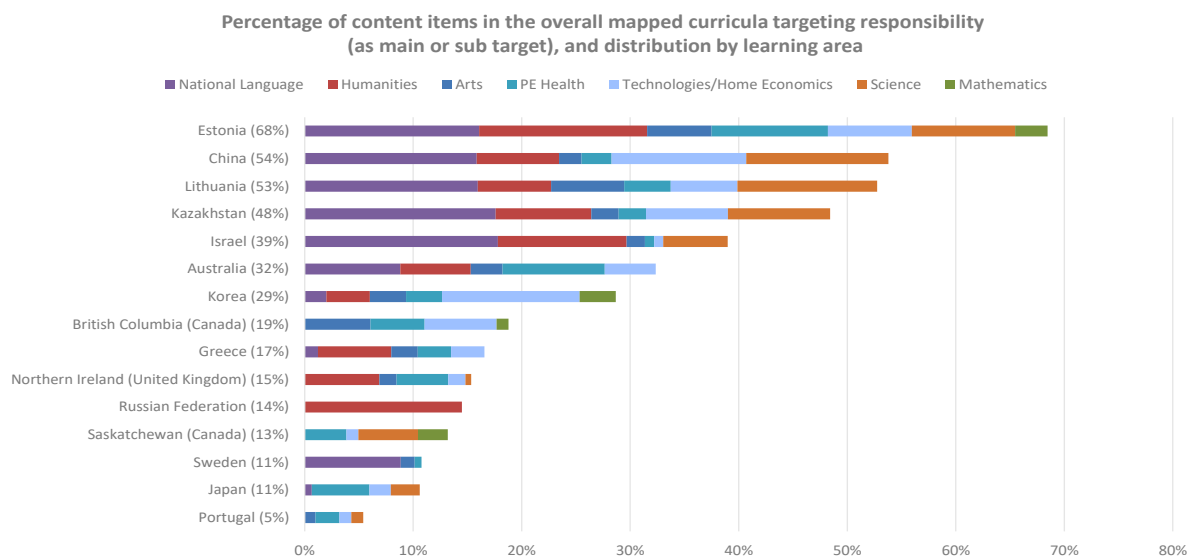
Responsibility is positively correlated with task performance and job dedication, and negatively correlated with counterproductive work behaviour (Figure 2.6; (OECD, 2018^[153])).

Which learning areas/subjects are most likely to embed “responsibility”?

Acting responsibly and taking responsibility are embedded, to a greater or lesser extent, in the curricula of all countries/jurisdictions that took part in the CCM study, from 5% in Portugal to three of the participants mapping responsibility to over 50% of their curricula: Lithuania 53%, China 54% and Estonia 68% (Figure 2.6).

The mapping demonstrates that responsibility is embedded in subjects across the curriculum, with nearly all participants indicating that responsibility is embedded in at least three subjects. In Portugal, while it only represents 5% of the curriculum, responsibility is embedded in Arts, PE/Health, Technologies and Science. In most of the curricula mapped, subjects that typically include a significant practical component, have responsibility embedded, such as Arts (between 1% and 7%), PE/Health (between 1% and 11%), and Technologies and Science (both between 1% and 13%). National language has the largest proportion of responsibility embedded: 18% in Israel and Kazakhstan and 16% in each of China, Estonia and Lithuania.

Figure 2.6. Responsibility in curricula



Notes: The percentage bar next to the country name refers to the total percentage of the mapped curriculum that embeds the competency. Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020^[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

StatLink  <https://stat.link/e1u4zv>

6. Empathy

Definition

Empathy has been defined as ‘an affective response that stems from the apprehension or comprehension of another’s emotional state or condition, and that is similar to what the other person is feeling or would be expected to feel’ (Eisenberg, Fabes and Spinrad, 2006, p. 647^[154]). Empathy is conceptualised in a three-component model comprising cognitive and affective components: (a) the ability to discriminate and label affective states in others; (b) the ability to adopt the perspective and role of another person (i.e. perspective taking); (c) the affective ability to experience emotions (i.e. emotional responsiveness) (Feshbach, 1978^[155]).

There is clear distinction between empathy and **sympathy**; while empathy is considered a mirroring or vicarious experience of another’s emotions, sympathy ‘is an affective response that frequently stems from empathy, but can derive directly from perspective taking or other cognitive processing, including retrieval of information from memory’ (Eisenberg, Fabes and Spinrad, 2006^[154]). Empathy reflects feeling as the other feels, whereas sympathy reflects feeling for the other.

Furthermore, empathy and **compassion** are closely related; empathy is an important component of compassion (Schonert-Reichl, 2011^[156]). However, unlike compassion, empathy does not involve a motivation or readiness to relieve suffering (Jazaieri, 2017^[157]). Some researchers have identified compassion as a caring motivational system that includes empathy, sympathy, perspective taking, and distress tolerance (Gilbert, 2015^[158]). Evidence shows that empathy can lead to emotional over-arousal and feelings of personal distress and this may lead to avoidance rather than compassionate action, however, when empathy leads to sympathy, children are more likely to show caring actions (Eisenberg, Fabes and Spinrad, 2006^[159]).

In the CCM study, empathy is defined as “the capacity to share, understand, and respond with care to others. People tend to have more empathy with others who are more similar (with regard to culture and living conditions) to themselves and with people with whom they are more frequently interacting. Empathy is a multifaceted construct, e.g. it involves perspective taking (cognitive skills) as well as social and emotional skills” (OECD, 2020_[4]).

Relevance for future – link to the OECD Learning Compass 2030

In the OECD Learning Compass, empathy plays a critical role in exercising **co-agency** and **collective agency**. In an increasingly globalised world, empathy is foundational for citizenship and responsibility (Hope, 2014_[160]; Wray-Lake and Syversten, 2011_[118]), learners need empathy when they consider global issues from different perspectives, such as cultural, environmental, societal. The PISA 2018 findings on global competency found that students who are willing to take action are engaged in improving living conditions in their own communities and in building a more just, peaceful, inclusive and environmentally sustainable world (OECD, 2020_[161]).

The study also showed that students were more likely to agree with statements that did not necessarily involve taking an active role (e.g. “looking after the global environment is important to me”, “I think of myself as a citizen of the world”) than with statements that imply that they need to take action (e.g. “when I see the poor conditions that some people in the world live under, I feel a responsibility to do something about it”, “It is right to boycott companies that are known to provide poor workplace conditions for their employees”, “I can do something about the problems of the world”, “I think my behaviours can impact people in other countries”). The study also indicated that there is a degree of pessimism about whether students can make a difference, that they may feel reluctant to take action or may not see themselves as responsible for solving particular issues.

This suggests that empathy is not enough on its own to solve global issues; starting with empathy, agency needs empathy as well as compassion and other attitudes and values to **reconcile tensions and dilemmas** in complex environments, to shape a better future towards **collective and planetary well-being**, part of the goals of the OECD Learning Compass.

Empathy is related to:

- **Collaboration:** Empathy contributes to communication and collaboration skills (Krasner et al., 2009_[162]).
- **Compassion:** Compassion, which is like empathy in that it is instigated by the suffering of another, is considered both a dimension of morality and an important aspect of ethical behaviour and interpersonal responsibility (Knafo, 2008_[163]). Compassion, however, is distinguished from empathy in that it moves beyond the sole concern for the well-being of someone in distress and includes a need or desire to alleviate that person’s suffering (Eisenberg, 2002_[164]). While empathy refers more generally to an individual’s ability to take the perspective of and feel the emotions of another person, compassion includes the desire to help (Welp and Brown, 2014_[165]).
- **Conflict resolution:** Stover (2005_[166]) states that “empathy, the ability to experience the values, feelings, and perceptions of another, [is] a basic element needed to understand international relations.”
- **Global mindset:** Empathy is an important aspect of a global mindset that reduces out-group derogation (United Nations Educational, 2014_[167])
- **Perspective taking:** According to Feshbach (1978_[155]), comprehension of another person’s affect – that is, cognitive ability – is an indispensable prerequisite for feeling with another. Perspective taking is an important component of empathy (Cohen, 2010_[168]; Galinsky et al., 2008_[169]).

- **Equality/equity:** Experiencing empathy is what leads an individual to see others as equals. The concept of human dignity, which entails that every human being has an equal inner worth, can be explained only through empathy. The “self-evidence” of human rights, as the historian Lynn Hunt calls it, “relies ultimately on an emotional appeal” (Hunt, 2007^[170]; Schultz, 2013^[171]). Indeed, discrimination is based on an empathy gap, which is the result of impaired empathy. Discrimination usually occurs in intergroup relations. Identification with norms and ideas of collectives can lead to a reduced empathic view and exclusion of out-group members. An out-group member is easily stereotyped, prejudiced and dehumanized (Schultz, 2013^[171]).
- **Mindfulness:** Dekeyser (2008^[172]) found that a greater tendency for mindful observation was associated with more empathy in individuals.
- **Responsibility:** A recent study conducted on a sample of 5-grade students from Turkey found that there is a positive, moderate and significant relationship between empathy and responsibility levels of students (Yontar and Yel, 2018^[173]).

Impact on academic and social outcomes/well-being

Academic outcomes

Empathy has been shown to have a variety of impacts on social dynamics, such as to motivate prosocial behaviours such as helping, co-operation, and decrease antisocial behaviours such as aggression (Schonert-Reichl, 2011^[174]; Schonert-Reichl, 2011^[156]; Eisenberg, 2006^[175]). Empathy leads to other prosocial behaviours, to improving intergroup relations, and reducing violence (Finlay and Stephan, 2000^[176]).

Students who show empathy are less likely to be instigators in bullying (Caravita, Di Blasio and Salmivalli, 2009^[177]). Research by Cohen (2010^[168]) showed that empathy “discouraged attacking opponents’ networks, misrepresentation, inappropriate information gathering, and feigning emotions to manipulate opponents.”

Social outcomes/well-being

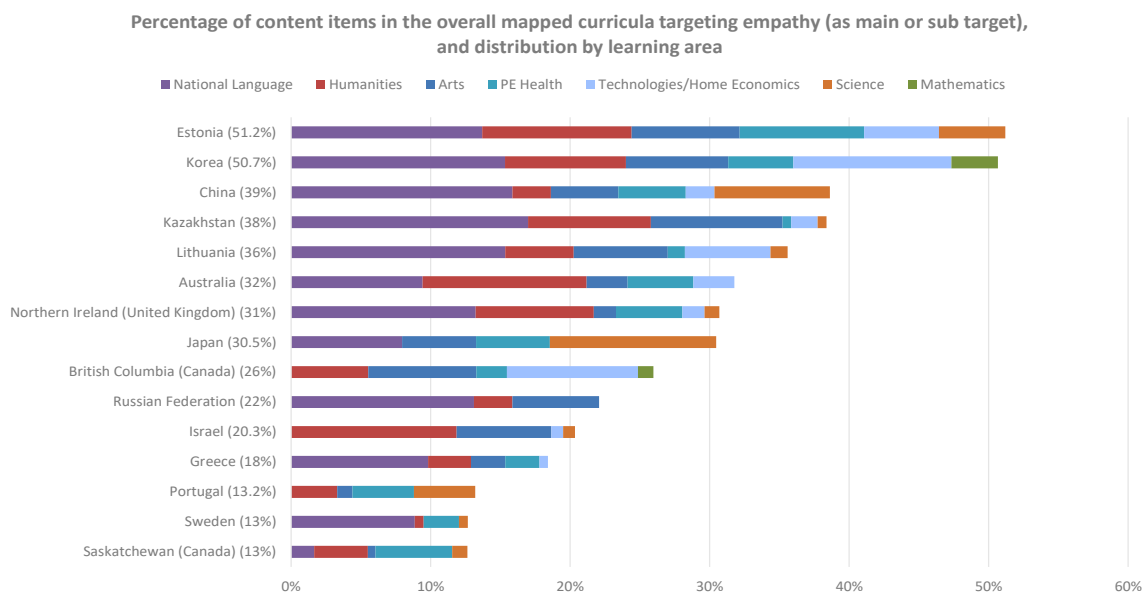
In a study of empathy-related responses by adolescents (Eisenberg, Zhou and Koller, 2001^[178]), students engaged in reasoning about moral dilemmas in which the needs of the individual conflict with those of others. Findings regarding internalised reasoning using prosocial measures were significantly related to both sympathy and empathy. Additionally, empathy and perspective taking were found to be associated with students’ self-reports of prosocial behaviours.

Which learning areas/subjects are most likely to embed “empathy”?

There is considerable variation in the explicit representation of empathy in curriculum content. Empathy is embedded in between 13% and 51% of the mapped curriculum in participating countries/jurisdictions. In Estonia and Korea, empathy is included in around 51% of their mapped curriculum, followed by China, Kazakhstan and Lithuania, with empathy in over 35% of the mapped curriculum content (Figure 2.7).

Estonia and Korea, who put the strongest emphasis on empathy in the curriculum, embed it in most learning areas. Other countries privilege a subset of learning areas, for example, in Greece and Sweden, national language provides significant content that includes empathy. In Israel, most of the content that embeds empathy is in the humanities. Only British Columbia (Canada) and Korea include empathy within the learning area of mathematics.

Figure 2.7. Empathy in curricula



Notes: The bar next to the country name refers to the percentage of content items included in the standard learning frameworks across learning areas (i.e. mapped curriculum) that explicitly targets this value). Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020^[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

StatLink  <https://stat.link/0dxjie>

7. Self-regulation

Definition

Self-regulation is a broad term, regularly defined in relation to an “internally-directed capacity to regulate affect, attention, and behaviour to respond effectively to both internal and environmental demands” (Raffaelli, Crockett and Shen, 2005^[179]) with its development beginning at around 36 months of age (Kopp, 1982^[180]). The mental processes that contribute to self-regulation are often referred to as executive functions, which include cognitive flexibility, or the ability to change perspectives or adapt flexibly to change, working memory, or the ability to retain and manipulate information, and inhibitory control, or the ability to inhibit impulsive responses (Diamond, 2013^[181]).

Self-regulation includes students’ self-initiated, strategically guided, and self-sustained efforts to learn. This construct refers to processes that learners use to activate and maintain cognitions, emotions, and behaviours to attain personal goals. These goals enable learners to create self-oriented feedback loops to monitor their effectiveness and to adapt their functioning. In order to set challenging goals and sustain self-regulatory efforts to achieve them on demanding tasks, learners need to possess or develop supportive motivational beliefs. To respond adaptively to personal feedback, learners need to control their cognition, emotions, and environments. It should be noted that “self-regulation” is similar to terms such as **self-management**, **self-directed behaviour**, and **self-discipline** (Zimmerman and Kitsantas, 2014^[182]).

A similar concept “**self-control**” can be defined as the ability to delay gratification, control impulses, and modulate emotional expression (OECD, 2018^[153]), with this development beginning at around 24 months of age (Kopp, 1982^[180]). The two terms, self-regulation and self-control, are often used interchangeably. However, some developmental psychologists subsume self-control under self-regulation and describe self-

regulation as the internalisation of self-control that enables children to adapt flexibly to the changing demands of different contexts (Kopp, 1982_[180]).

In the CCM study, the closely related concepts self-regulation/ self-control were combined and defined as “the ability to delay gratification, control impulses and modulate emotional expression. Self-control is an umbrella construct that incorporates concepts from different disciplines (e.g., impulsivity, conscientiousness, delay of gratification, inattention-hyperactivity, executive function, willpower, intertemporal choice)” (OECD, 2020_[4]). The related concept of “self-regulated learning” is defined as the process whereby students activate and sustain cognitions and behaviours systematically oriented towards the attainment of their learning goals (Zimmerman, 1986_[183]).

Relevance for future – link to the OECD Learning Compass 2030

Self-regulation/self-control is one of the key constructs of **student agency**, geared towards **one’s own well-being**, i.e. the individual well-being, which is the fundamental condition to contribute to collective and planetary well-being of the future in the Learning Compass 2030.

In the journey towards well-being, students need self-regulation **to successfully navigate – through volatility, uncertainty, complexity and ambiguity** - in time (i.e. past, present, future) as well as in social and digital spaces (e.g. family, school, community).

Self-regulation and self-control are social and emotional competencies that play a significant role in fostering the **well-being of adolescents** (Ronen et al., 2016_[184]; deBlois and Kubzansky, 2016_[185]). They are linked to physical health (deBlois and Kubzansky, 2016_[185]; Schlam et al., 2013_[186]), cognitive ability (Marsh et al., 2006_[187]), and social competencies (Miller and Byrnes, 2001_[188]; Checa, Rodriguez-Bailon and Rueda, 2008_[189]). Self-regulation and self-control are significant as individuals mature into adulthood, such as in terms of financial well-being; and when there is a lack of these competencies, there may be negative behaviours, such as substance use/abuse and dependence, or even engaging in criminal activity (Moffitt et al., 2011_[190]; Pahl, Brook and Lee, 2014_[191]).

In the rapidly changing world, learners are expected to **keep learning, unlearning, and relearning**. Self-regulated learning behaviour plays an important part in developing confident lifelong learners (Lüftenegger et al., 2012_[192]). Self-regulated learners are likely to be successful with self-directed learning. This was observed during the remote learning and hybrid learning experiences of many students around the world during the 2020/21 pandemic.

Self-regulation is related to

- **Mindfulness:** Self-control is positively associated with mindfulness. As a self-regulatory skill, mindfulness involves observing one’s own thoughts and feelings without judgement (Brown and Ryan, 2003_[193]). In research carried out with early adolescents, Oberle and colleagues (2011_[194]) found that adolescents who reported higher levels of dispositional mindfulness also had better self-control, measured using a computerised executive function task that assesses inhibitory control by the percentage of correct responses³.
- **Reflective thinking:** Self-regulation is positively connected to reflective thinking in learning (Zimmerman, 2002_[195]). If students are aware of their learning strategies and know why they use them, they will make better decisions and have more control over their learning process (Zimmerman, 2002_[195]).
- **Meta-learning:** Self-regulation skills give learners the ability to identify their strengths and weaknesses, as well as recognise their needs and monitor their progress (Fisher, 1998_[196]).

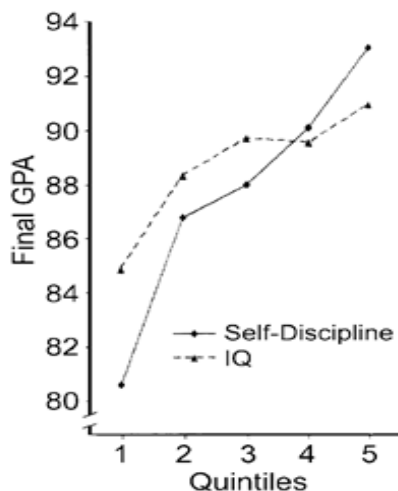
Academic outcomes

Through self-regulation and self-control, students set goals, stay focused and aim to achieve their goals. Self-regulated learning enables learners to transform their mental abilities, such as verbal aptitude, into an academic performance skill, such as writing (Zimmerman and Schunk, 2011_[197]). It is a proactive process that students use to acquire academic skills in addition to setting goals, such as selecting and deploying strategies and self-monitoring one's effectiveness. Self-regulated learners display personal initiative, perseverance and adaptive skills. These proactive qualities stem from positive motivational feelings and beliefs as well as metacognitive strategies (Zimmerman and Schunk, 2011_[197]).

Research shows a positive association between self-control/self-regulation and academic achievement. In two studies conducted by Duckworth and Seligman (2005_[198]) with 198 and 164 eighth grade students, they found that self-discipline (assessed using a battery of student-, teacher- and parent-report scales that included measures of self-control, delay of gratification, and study habits), was a better predictor of academic grades than IQ (Figure 2.8).

Duckworth, Quinn, and Tsukayama (2012_[199]) found similar results in the first of two studies conducted with 1 364 middle school students. They found that higher levels of self-control, assessed using the Social Skills Rating System⁴ (Gresham and Elliot, 1990_[200]), at the beginning of the school year was predictive of higher academic grades at the end of the school year. This study also found self-control to be a better predictor of grades than IQ. The results were replicated in a second study published in the same article conducted with a sample of 513 middle school students. Teacher ratings of homework completion and classroom behaviour provided one explanation for this association.

Figure 2.8. Student self-discipline is a better predictor of grades than IQ



Source: Figure adapted from Duckworth and Seligman (2005_[198]).

Executive functions, the cognitive aspect of self-regulation, was found to be predictive of higher academic grades in another sample of 146 elementary and secondary students (Zorza, Marino and Mesas, 2016_[201]). McClelland and colleagues (2013_[202]) found that the level of self-regulation of 4-year-old children, as rated by parents in the Colorado Child Temperament Inventory⁵ (Rowe and Plomin, 1977_[203]), was found to be positively predictive of standardised tests scores in math and reading when these children reached 21 years of age. In the same study, these self-regulation skills also predicted their rates of college graduation.

Self-regulated learning is also positively related to academic achievement. In a sample of 1 148 adolescents who were followed longitudinally between Grades 7 and 11, Wang and Eccles (2012_[204]) found that decreases in self-regulated learning over time was associated with declines in academic achievement, assessed using the combined grade point average of language arts, math, science and social studies.

Self-control is associated with financial stability. In their longitudinal study of 1 037 children from birth to age 32, Moffitt et al. (2011_[190]) found that children with poor self-control were less financially secure at age 32. They were less likely to have investments (home ownership, retirement) and more likely to have credit problems. Moreover, self-control was a better predictor of these financial issues than children's social class or IQ. These outcomes were partially explained by decisions made in adolescence, such as staying in high school, not becoming a teenage parent, and not smoking.

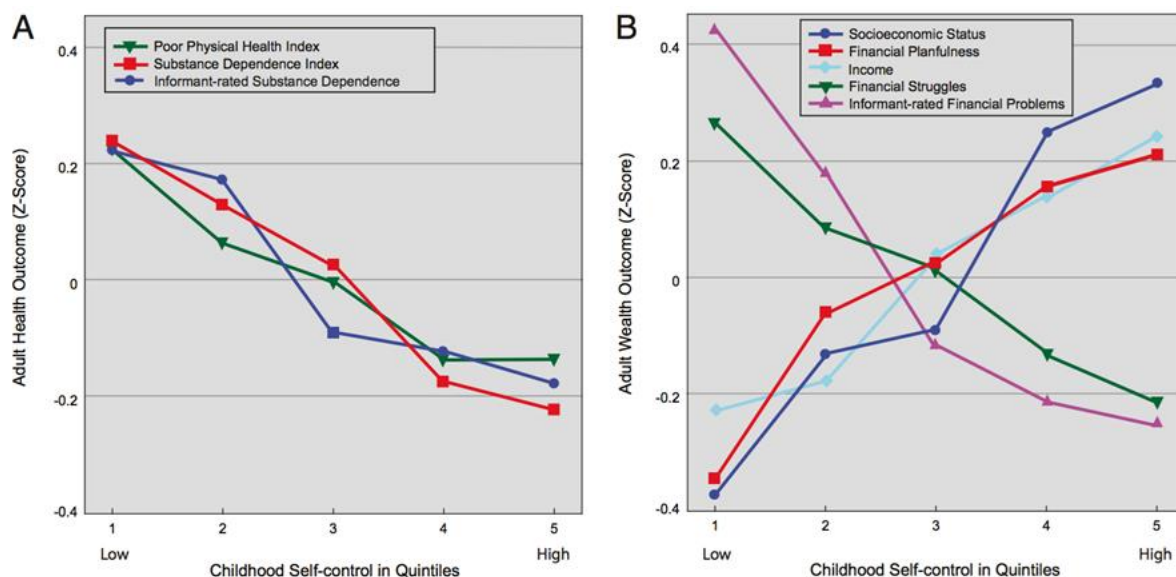
Social outcomes/well-being

Improvements in self-regulation are associated with decreases in internalising symptoms (e.g. depression, anxiety) and improvements in self-esteem (van Genugten et al., 2017_[205])

Self-control is associated with improved well-being. In a sample of 1 576 adolescents, Orkibi and Ronen (2017_[206]) found that adolescents with higher self-control skills, assessed using the Adolescents' Self-Control Scale⁶ (Rosenbaum and Ronen, 1991_[207]), perceived themselves to have had their school-related psychological needs met to a higher degree, leading them to experience higher school-related subjective well-being.

In a series of research studies carried out with middle and secondary school students, Weise and colleagues (2018_[208]) examined the association between self-control, assessed using the Doman Specific Impulsivity Scale for Children⁷ (Tsukayama, Duckworth and Kim, 2013_[209]), and subjective well-being. In all studies, the researchers found that those who self-reported higher levels of self-control also reported experiencing higher subjective well-being; i.e. the more self-control students have, the happier tend to be.

Figure 2.9. Childhood self-control predicts physical health, substance dependence and several dimensions of financial success



Source: Figure adapted from Moffitt et al., (2011_[190]).

Self-control is also associated with better health. Moffitt and colleagues (2011_[190]) report findings from a longitudinal study of a complete birth cohort of 1 037 children born in one city in a single year, whom they followed from birth to the age of 32. This study shows that children who were rated as having poor self-control (via a composite of observer-, teacher-, parent-, and self-ratings) in childhood exhibited poorer health (e.g. cardiovascular, inflammation, weight) and more substance dependence in adulthood (see Figure 2.9). In addition, children with poor self-control were also more likely to be convicted of crimes in adulthood, than children with better self-control.

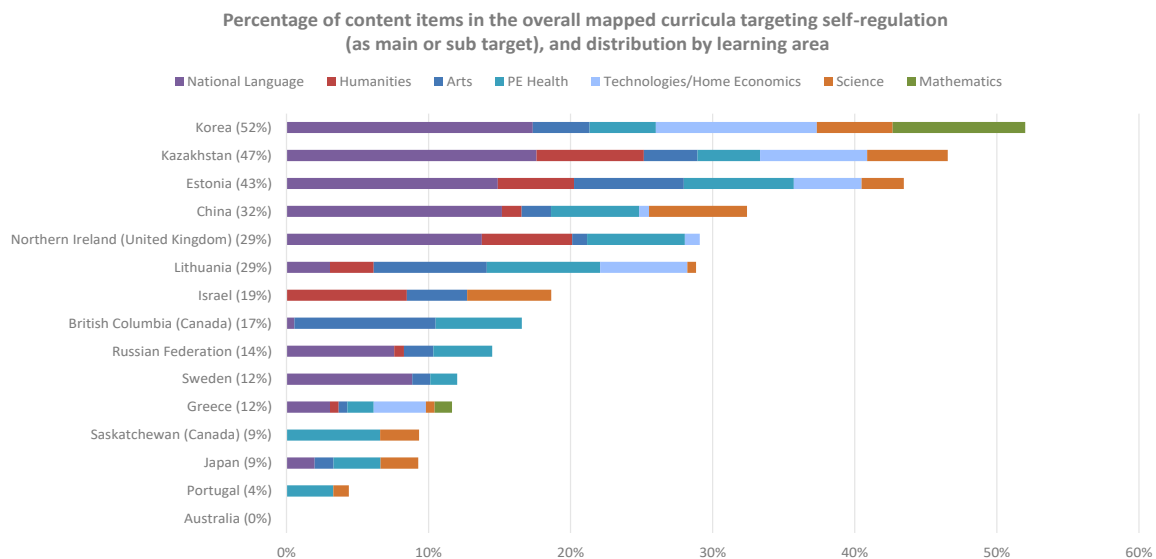
Self-regulation is associated with prosocial behaviour. Executive functions – the cognitive aspect of self-regulation – were found to be positively predictive of teacher and peer assessments of prosocial behaviours in elementary and secondary students (Zorza, Marino and Mesas, 2016_[201]). In a sample of 850 sixth grade students, Carlo and colleagues (2012_[210]) found that early adolescents' ability to self-regulate positively predicted parent ratings of their prosocial behaviours at home and with peers when the adolescents were 15 years old.

Which learning areas/subjects are most likely to embed “self-regulation”?

Self-regulation covers a disparate range of constructs that bridge concepts and measurements from different disciplines, and this is reflected in the considerable variation in responses in the CCM study. Country/jurisdictional mapping ranged from 0% in Australia and 4% in Portugal to over 50% in Korea (52%), followed by 47% in Kazakhstan and 43% in Estonia (Figure 2.10).

Self-regulation is included in Arts in a number of curricula, in Greece, Japan, Northern Ireland and Sweden (1%), China and Russia (2%), Israel, Kazakhstan and Korea (4%), Estonia and Lithuania (8%) and in British Columbia (Canada) 10%. In those countries which give greatest emphasis to self-regulation, it is in national language where it is more embedded than other subjects: Korea (17%), Kazakhstan (18%), China and Estonia (15%).

Figure 2.10. Self-regulation in curricula



Notes: The percentage bar next to the country name refers to the total percentage of the mapped curriculum that embeds the competency. Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020_[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

8. Persistence

Definition

Persistence is the capacity to engage consistently in challenging tasks without losing focus and despite distractions towards a long-term goal (Drake, Belsky and Fearon, 2014^[211]) (OECD, 2018^[153]). In the personality literature, persistence is described as an aspect of conscientiousness and related to **grit**, whereas in the motivation literature, persistence is related to **mastery goals**.

When linked to **grit**, as part of goal orientation, persistence is defined as ‘learners’ perseverance of effort and consistency of interests over a period of time on challenging activities and subjects in school and in other areas’ (Duckworth and Quinn, 2009^[212]; Duckworth, 2016^[213]). The motivation of children and adolescents is related to the choices about which tasks and activities to pursue in school and other settings, the effort and intensity with which to engage in them, and their performance on them (Wigfield et al., 2015^[214]).

There have been several different ways in which **goal orientation** has been defined in the literature, but it has most often been viewed as the *adoption and pursuit of goals in an achievement context* (DeShon and Gillespie, 2005^[215]). This approach looks at achievement of goals as either mastery or performance goals. The **mastery goal orientation** refers to an individual’s striving towards *developing* competence, whereas the **performance goal orientation** is concerned with *demonstrating* competence and receiving favourable evaluation from others (Dweck and Leggett, 1988^[216]; Wigfield and Wagner, 2005^[217]; Nicholls, 1984^[218]; Ames, 1992^[219]). Performance goals have further been categorised into performance-approach (i.e. desire to outperform others) and performance-avoidance goals (i.e. desire to avoid doing worse than others) (Hulleman and Senko, 2010^[220]; Elliot and Church, 1997^[221]). Distinct patterns of cognition, affect and behaviour emerge from different goal orientations.

In the CCM study, persistence, combined with a similar concept “**resilience**”, is defined as ‘the disposition required to maintain effort or interest in an activity in the face of difficulties encountered, the length of time or steps involved or when opposed by someone or something’ (OECD, 2020^[4]). The American Psychological Association defines resilience as the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress — such as family and relationship problems, serious health problems or workplace and financial stressors. It means “bouncing back” from difficult experiences’.

Relevance for future – link to the OECD Learning Compass 2030

Persistence, grit and mastery goals are all related to **student agency**. Students who feel that their agency is supported by their educators are more likely to engage in learning tasks for intrinsic reasons, report having a more positive experience at school and using more efficient learning strategies, and display higher levels of performance and persistence (Bonneville-Roussy, Vallerand and Bouffard, 2013^[222]).

When students set a goal with which they can feel a sense of purpose and enjoy reaching mastery in tasks towards the goal, they need to deal with complex and ambiguous demands, and this requires persistence. Persistence is a fundamental competency because it enables students to successfully handle increasing demands from society and to prepare them for future roles through sustained effort (DiCerbo, 2016^[223]). In order to support student persistence and to improve their learning, schools and communities must cultivate an environment where intrinsic motivation and grit are fostered in the pursuit of achieving long-term goals (Duckworth et al., 2007^[151]).

The Learning Compass 2030’s **Anticipation-Action-Reflection (AAR)** cycle is an iterative learning process where learners progress over time towards long-term goals that contribute to **collective well-being** (OECD, 2019^[7]). Grit and persistence help learners navigate the various stages of the AAR cycle

through first defining a goal and clarifying its purpose, then acting upon it and finally evaluating and learning from the action that is taken towards the goal.

Persistence is important for **creating new value**. According to the dual pathways to creativity model, the generation of new ideas requires cognitive flexibility and persistence; the latter involves blocking out irrelevant thoughts so that attention is fully focused on examining available ideas and arriving at new ideas (Nijstad et al., 2010^[224]).

Goal orientation (embracing persistence and grit) is related to

- **Motivation:** Research evidence highlights the positive consequences of mastery orientation for self-efficacy, the use of deeper cognitive strategies, and intrinsic motivation to learn and the strong negative consequences for student motivation and learning, as have been highlighted in the previous section, (poor academic performance, anxiety, etc.) (Elliott and Hulleman, 2017^[225]; Hulleman et al., 2008^[226]; Hulleman and Senko, 2010^[220]). The way students approach goals can be related to both grit and persistence. A study that examined the relationship between grit and motivation among high school students found that perseverance of effort was strongly related to motivation as compared to consistency of effort (Muenks, Yang and Wigfield, 2018^[227]). The researchers posited that this could be a result of the developmental stage where students are switching interests and exploring new interests rather than a lack of motivation itself (Muenks, Yang and Wigfield, 2018^[227]).
- **Responsibility:** Students' sense of school belonging and social responsibility, i.e. their adherence to social rules and structures in school (e.g. following teachers' instructions) determine whether they seek mastery or performance goals (Anderman and Anderman, 1999^[228]). Social responsibility goals represent the students' desire to adhere to the formal expectations of the school and they are more likely to focus on the importance of learning and effort in schoolwork to achieve mastery (Anderman and Anderman, 1999^[228]). In physical education settings, high school students' personal and social responsibility behaviours, such as setting goals, staying on task, co-operating, respecting classmates and teachers were positively linked to the mastery goal orientation (Agbuga, Xiang and McBride, 2015^[229]). Mastery goals are positive predictors of persistence and effort (Elliot, 1999^[230]; Guan et al., 2006^[231]).
- **Self-efficacy:** Those pursuing mastery goals typically use self-referential standards (i.e. looking at own learning and skills to improve competency) to define success versus failure, while those pursuing performance goals instead use normative standards (i.e. looking at others to improve competency) to define success versus failure (Hulleman and Senko, 2010^[220]). A study examined the transfer of problem-solving strategies to other tasks and found that elementary school students with mastery goal orientations performed better than students with performance-approach orientations (Bereby-Meyer and Kaplan, 2005^[232]). The researchers in this study (Bereby-Meyer and Kaplan, 2005^[232]) noted that a concern with social comparisons may distract students and result in employing cognitive strategies that lead to quick solutions, rather than employing higher-order thinking to solve problems.
- **Self-regulation/self-control:** Research has shown that students who adopt a mastery goal orientation are more likely to seek ways to become aware of their understanding and monitor their learning (Pintrich, 2000^[233]). Adaptive help-seeking is an important aspect of self-regulation. In a study, students who reported that they would like to seek instrumental help (e.g. by asking for hints rather than answers) were high in mastery goal orientation. According to Duckworth (2016^[213]), both grit and self-control are important in assisting individuals in turning intention into action.
- **Students' awareness of social status and their attitudes towards co-operation with peers** (Levy, Kaplan and Patrick, 2004^[234]). Students who pursue mastery goals value co-operation, show

high levels of engagement, and persist during difficult circumstances (Harackiewicz et al., 2008^[235]; Senko, Hulleman and Harackiewicz, 2011^[236]; Darnon, Butera and Harackiewicz, 2007^[237]).

- **Performance-avoidance and performance-approach goals.** While there is far more consensus on the negative effects of performance-avoidance goals in terms of low interest, help-avoidance and self-handicapping (using strategies that deflect attention away from performance, e.g. “I could have aced the test, but I put off studying until the last minute.”) (Elliot, 1999^[230]; Elliot and Church, 1997^[221]; Midgley and Urdan, 2001^[238]), the effects of performance-approach goals have been met with mixed results (Midgley, Kaplan and Middleton, 2001^[239]).

Impact on academic and social outcomes / well-being

Academic outcomes

Mastery-oriented students have high academic well-being (i.e. school value, resistance to burnout, schoolwork engagement, and satisfaction with educational choice) (Tuominen-Soini, Salmela-Aro and Niemivirta, 2012^[240]) and high interest in the subject (Harackiewicz et al., 2000^[241]). In a study with students who were transitioning to upper secondary schools in Finland, researchers noted a positive relationship between mastery-oriented students and academic well-being, characterised by high levels of perceived school value and engagement and low levels of school burnout (exhaustion from schooling) (Tuominen-Soini, Salmela-Aro and Niemivirta, 2012^[240]). Other studies show the value of performance goals in academic achievement (Harackiewicz et al., 2000^[241]; Midgley, Kaplan and Middleton, 2001^[239]), and that both performance and mastery goals together positively influence learning (Pintrich, 2000b^[242]; Luo et al., 2011^[243]).

Persistence is strongly related to situational interest (i.e. a temporary state that is triggered by the complexity or novelty of the task) during academic challenges (Tulis and Fulmer, 2013^[244]), and situational interest in turn is important for task engagement and learning (Ainley, Hidi and Berndorff, 2002^[245]).

Task persistence is positively related to academic achievement (Deater-Deckard et al., 2005^[246]). In a longitudinal study, Andersson & Bergman (2011^[247]) analysed the relationship between teachers' ratings of student persistence at age 13 and educational and occupational outcomes at age 43. Higher levels of task persistence were related to higher income and occupational level, after controlling for multiple other variables, including educational attainment for men; whereas for women, educational attainment mediated the effect of persistence on income and occupational level. For both women and men, persistence at age 13 was positively related to grades at age 16 (Andersson and Bergman, 2011^[247]).

Grit predicts students' achievement in test score gains from fourth to eighth grade (West et al., 2016^[248]), graduation from high school (Eskreis-Winkler, 2015^[249]), grades in elementary and middle school (Rojas and Usher, 2013^[250]), college grades (Duckworth et al., 2007^[151]; Strayhorn, 2014^[251]), doctoral programme grades (Cross, 2014^[252]), and years of education completed by adults (Duckworth et al., 2007^[151]; Duckworth and Quinn, 2009^[212]). Grittier individuals are better able to realise the opportunities given to them, show greater levels of engagement, and in turn attain higher levels of education (Bowman et al., 2015^[253]).

Social outcomes/well-being

Mastery goals are positively associated with not only academic learning but also psychological well-being. (Kaplan and Maehr, 1999^[254]) Students who pursue mastery goals have relatively high levels of self-esteem and low levels of depressive symptoms, and this suggests that striving towards learning and growth can lead to enhanced well-being (Tuominen-Soini, Salmela-Aro and Niemivirta, 2008^[255])

Findings for the relation between performance goals and affect have been mixed. In their study of college students, Daniels et al. (2008^[256]) highlighted the emotional vulnerability of performance students who

displayed less enjoyment, more boredom and greater anxiety than mastery students. Generally, performance-avoidance goals have been linked to negative affect. Students who are oriented to performance-avoidance goals that are concerned with appearing less able than others, show high levels of anxiety (Kaplan et al., 2002^[257]). Similarly, in a study with German and American undergraduate students, researchers found that while performance-approach goals were positive predictors of pride, performance-avoidance goals were positive predictors of anxiety, sense of hopelessness and shame (Pekrun, Elliot and Maier, 2006^[258]).

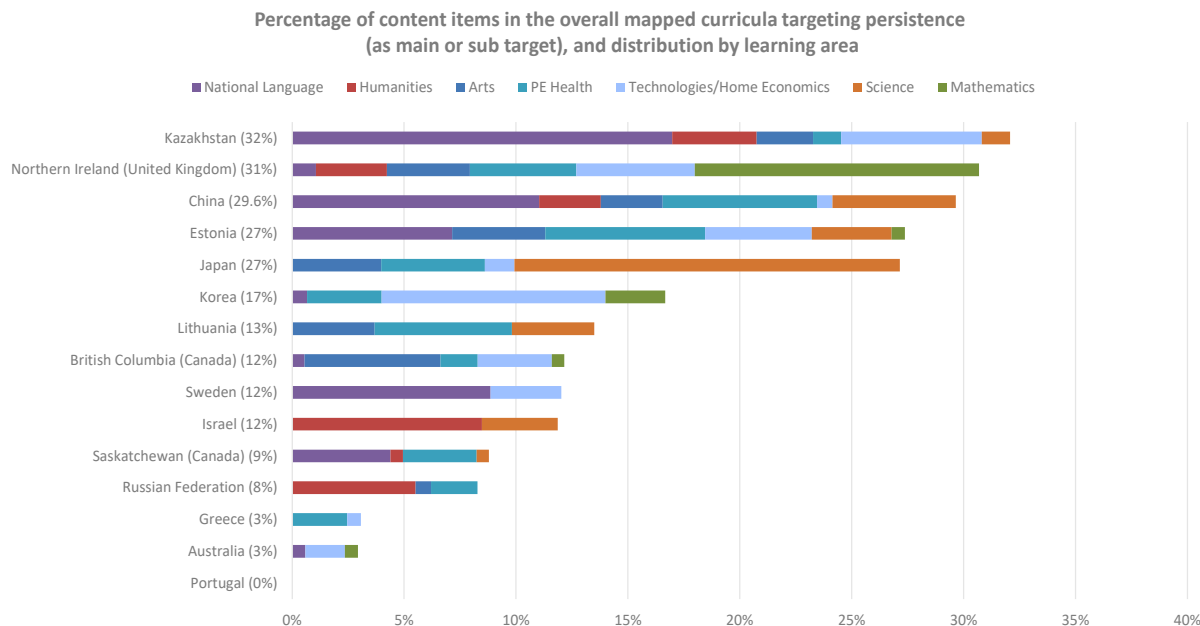
Grit is positively related to psychological well-being and life satisfaction, as it reflects a motivation to seek engagement and meaning for personal growth (Von Culin, Tsukayama and Duckworth, 2014^[259]; Vainio and Daukantaitė, 2016^[260]). Studies of college students showed that grittier students are more satisfied with college, engaged in more co-curricular activities and had a greater sense of belonging (Bowman et al., 2015^[253]).

Which learning areas/subjects are most likely to embed “persistence”?

Persistence, like learning to learn, is regarded as beneficial to promoting student agency. Despite this, persistence is not as strongly, explicitly nor as widely referenced in the CCM study (Figure 2.11). It is mapped most in Kazakhstan (32%) and in Northern Ireland (31%), with some very small percentages, in Australia, Greece and Portugal.

There is considerable variation in those subjects embedding persistence and, in those subjects where it has the highest proportion of representation: in Kazakhstan, it is national language that embeds persistence more than other subjects mapped (17%), in Northern Ireland it is Mathematics (13%), in Japan it is Science (17%), in Korea, Technologies (10%) and in Israel, it is in Humanities (8%).

Figure 2.11. Persistence in curricula



Notes: The percentage bar next to the country name refers to the total percentage of the mapped curriculum that embeds the competency. Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020^[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

9. Trust

Definition

Trust is defined as an attitude developed towards individuals and institutions/organisations based on a belief in the reliability and integrity of actions taken or planned. The OECD (2017^[261]) has categorised trust into two domains: **interpersonal trust** and **institutional trust**. Interpersonal trust, specifically, is defined as “an expectancy held by an individual or group that the word, promise, or written statement of another individual or group can be relied on” (Rotter, 1967, p. 651^[262]). For the purposes of this paper, the focus is primarily on interpersonal trust and the positive benefits it can have on learner outcomes.

Interpersonal trust is further subdivided into generalised trust, referring to trust in people who are unknown or not specified, and limited trust, which relates to trust in persons who are known, such as family, friends, and known individuals in one’s community.

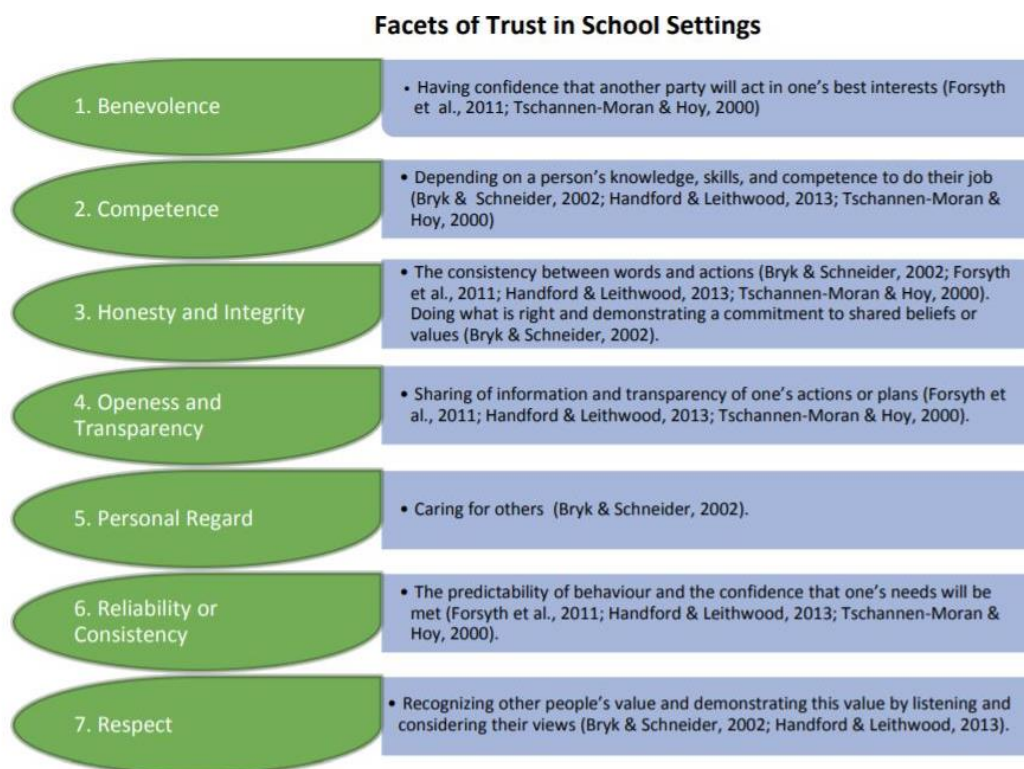
This attitude is formed when one is confident that the actions of others are primarily based on good intentions and ethical considerations, rather than being specifically aimed to negatively impact individuals or groups. Trust is a multidimensional construct relevant across numerous disciplines and domains of learning, and personal, emotional and social development (Luhmann, 2017^[263]; Bryk and Schneider, 2002^[264]; Tschannen-Moran, 2014^[265]).

Within the educational context, interpersonal trust plays a critically important role. It supports a whole-school community to successfully engage its members in the process of educating youth. For example, with interpersonal trust, school can influence whether students attend school regularly and are engaged in classroom learning, or whether school faculty members have autonomy in their teaching practice or are willing to participate in school reform (Bryk and Schneider, 2002^[264]; Van Maele, Forsyth and Van Houtte, 2014^[266]; Sinay et al., 2016^[267]).

Sinay and colleagues (2016^[267]) defined seven constructs that are important for the development of trust in school settings, as illustrated in Figure 2.12.

In the CCM study, trust is defined as “an attitude developed towards individuals and institutions/organisations based on a belief in the reliability and integrity of actions taken or planned. Trust is formed when one is confident that the actions of others are primarily based on good intentions and ethical considerations rather than being specifically aimed to impact negatively on individuals or groups. Trust is a multidimensional construct which is formed when care, competence and openness are exhibited by individuals and institutions/organisations. The degree of personal and/ or societal wellness is closely related to the level of trust held within a community” (OECD, 2020^[4]).

Figure 2.12. Seven facets important for the development of trust in school settings



Source: Sinay et al. (2016^[267]), "Fostering a 'culture of trust' within and outside a school system", Toronto District School Board.

Relevance for future – link to the OECD Learning Compass 2030

Interpersonal trust is the prerequisite for students, or any individual, to exercise their **agency** and **co-agency**, a key concept of the Learning Compass. It is a social and emotional concept that plays a significant role in fostering the well-being of individuals (Elgar, Trites and Boyce, 2010^[268]). In learning, student agency is a relational process that is developed when there is a climate of trust between students, teachers, parents and the wider community (OECD, 2019^[269]).

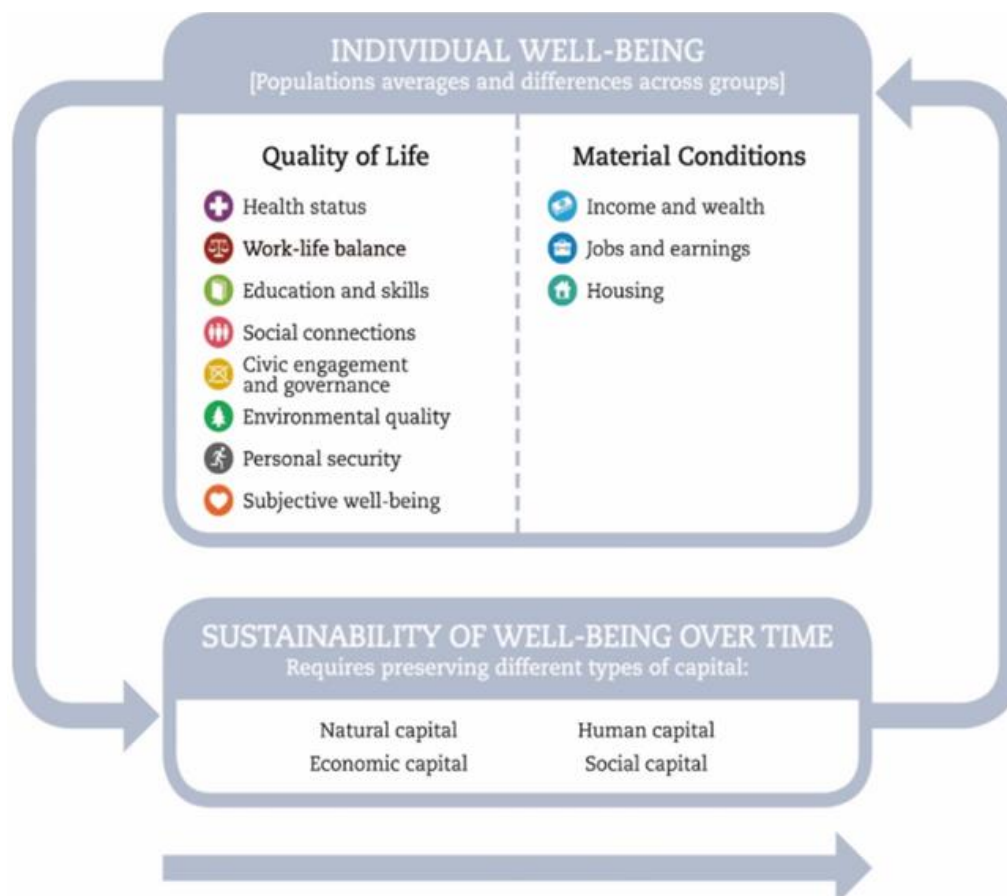
Interpersonal trust is also critical to build **collective agency** for a well-functioning society, because the development and maintenance of interpersonal relationships depends on the ability of individuals to trust one another (Rotenberg, 1991^[270]). The ability to trust others, both those who are familiar and unfamiliar, has been shown to be related to improved communication (Huff, Cooper and Jones, 2002^[271]), greater acts of altruism (Bergin and Bergin, 2009^[272]), and positive attitudes towards individuals outside of one's social circle (Turner et al., 2010^[273]). This relates to the overall goals of the Learning Compass, i.e. not only individual well-being but also **societal and planetary well-being**.

Trust and a high degree of interconnectedness are the two key components of social capital that facilitates communication among members of a social network. Both develop as a result of sustained social interactions over time (Coleman, 1988^[274]), and have been found to encourage the exchange and combination of resources among members of an organisation, leading to product innovation (Tsai and Ghoshal, 1998^[275]).

This precisely speaks to the **OECD well-being framework**, i.e. how individual well-being in 11 areas (income and wealth; jobs and earnings; housing; health; work-life balance; education and skill; social connections; civic engagement and governance; environmental quality; personal security; subjective well-

being) are related to today's and future well-being of the whole society, which can preserve human capital, economic capital, social capital and natural capital (Figure 2.13).

Figure 2.13. The OECD framework for measuring well-being and progress



Source: (Asmussen, 2017^[276]), Language, well-being and social mobility, <http://www.eif.org.uk/blog/language-wellbeing-and-social-mobility>.

Trust is related to

- **Collaboration:** Trust can be an important factor for successful communication and collaboration. When groups have a climate of trust, members of the group are more likely to be committed to ensuring attainment of group goals and have more effective communication (Huff, Cooper and Jones, 2002^[271]; De Hoyos Guevara, 2004^[277]). Clear channels of communication between group members and their instructor foster the development of trust in both in-person and virtual settings (Huff, Cooper and Jones, 2002^[271]). When there is trust, members are also more willing to engage in knowledge sharing (Staples and Webster, 2008^[278]), be more satisfied with one's group members, and have greater interest in future group work (Ennen, Stark and Lassiter, 2015^[279]).
- **Conflict resolution:** Interpersonal trust is a key element in resolving conflicts; in situations of distrust, involved parties may consider increasing their own sense of trustworthiness to increase interpersonal trust between parties (Sztompka, 2005^[280]).
- **Global mindset:** Trust in unfamiliar others may be a prerequisite for fostering a global mindset. Research carried out with a large diverse sample of adolescents and young adults of various cultures and races found that having friendships with members of a different culture or race

promoted interpersonal trust on a broader scale that extends to unknown individuals of other cultures and races (Turner et al., 2010^[273]).

- **Risk management:** Interpersonal trust also leads people to take risks in relationships (Schoorman, Mayer and Davis, 2007^[281]). Positive student-mentor relationships in work-based placements that are based on mutual trust seem to be highly influential in decreasing students' perceptions of job-related risk, and encourages students to take on greater responsibility (Clouder, 2009^[282]).

Impact on academic and social outcomes/well-being

Academic outcomes

Improvements in interpersonal trust within the school community (between teachers, teachers and parents, teachers and principal, and teacher and students) have been found to be related to improvements in academic achievement in elementary school students (Bryk and Schneider, 2002^[264]; Adams and Forsyth, 2013^[283]). Middle school students' trust in teachers has also been found to be related to students' academic adjustment, motivation and performance (Lee, 2007^[284]; Fryberg, Covarrubias and Burack, 2013^[285]).

In the OECD Early Learning and Child Well-Being Study, socio-emotional skills such as trust⁸, prosocial behaviours, non-disruptive behaviours, and emotion identification and attribution were associated with early literacy and numeracy development, and early self-regulatory skills (e.g. inhibition, mental flexibility and working memory) (OECD, 2020^[286]). Other studies that found opposing evidence: a large-scale state-wide randomised sample of elementary schools in the United States found that teachers' trust of students was related to students' performance on standardised achievement tests of reading and mathematics (Goddard, Salloum and Berebitsky, 2009^[287]). In another study, college students who had a high level of trust towards group members in collaborative work received higher grades (Ennen, Stark and Lassiter, 2015^[279]).

To create a positive school climate, faculty trust of students is required for students to feel agentic, and to ensure all students in a school community feel a sense of belonging (Clift, 2005^[288]). Positive student-teacher/mentor relationships that are based on mutual trust can be important in reducing student perceptions of potential risk and encouraging students to take on responsibility (Clouder, 2009^[282]). When learners are supported and nurtured, it encourages the development of trust and safety, which promotes learners' confidence levels, encourages them to be open about their mental processes and facilitates reflective learning, feedback and assessment (Lefevre, 2005^[289]).

Interpersonal trust among school faculty is key to school improvement and reformation (Bryk and Schneider, 2002^[264]; Seashore Louis, 2007^[290]). In combination with high parental trust of schools, it has led to enhanced school effectiveness (Forsyth, Barnes and Adams, 2006^[291]) and better communication and knowledge sharing among school faculty (Tschannen-Moran, 2014^[265]).

Social outcomes/well-being

Interpersonal trust has been linked to prosocial behaviours (e.g. helpfulness) among peers, as prosocial behaviours are often initiated when an individual feels that others have good intentions and will keep their promises (Rotenberg et al., 2005^[292]). In experimental research using the Trust Game⁹ (Berg, Dickhaut and McCabe, 1995^[293]), adolescents who were considered more prosocial (i.e. who preferred to maximise outcomes for both themselves and others) were found to be both more trusting and more trustworthy than adolescents who were more proself i.e. who preferred to maximise outcomes for themselves (Derks, Lee and Krabbendam, 2014^[294]).

Early adolescents' own trustworthiness has been found to be related to higher social status among peers (Wentzel, 1991^[295]). Moreover, adolescents who lack trust in their peers tend to experience more loneliness (Hamid and Lok, 2000^[296]) and engagement in bullying behaviours (D'Urso, 2018^[297]).

Longitudinal studies have found that adolescents' perceptions of teachers' fairness positively predict their levels of generalised trust (i.e. trust in unknown or unspecified others) in adulthood (Damico, Conway and Damico, 2000^[298]). Among those who are already in the workforce, interpersonal trust can lead to greater job satisfaction, possibly due to reductions in job stress (Guinot, Chiva and Roca-Puig, 2014^[299]). It also has important implications as individuals mature further into adulthood, affecting important outcomes such as longevity among older adults (Barefoot et al., 1998^[300]).

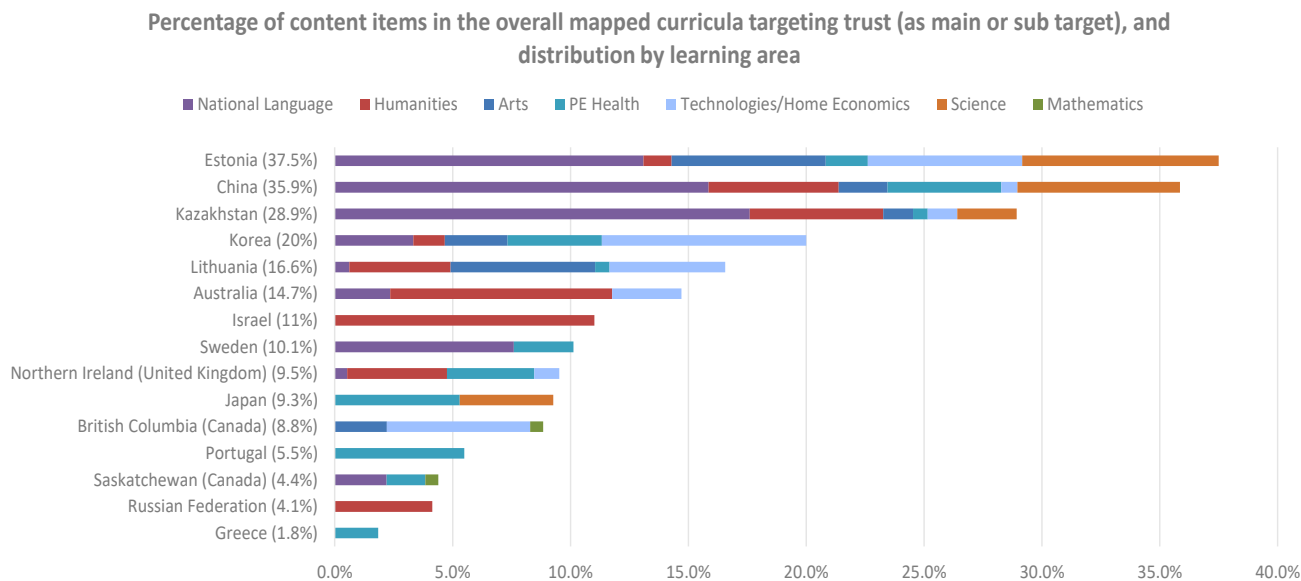
Research carried out with adults have found that greater interpersonal trust is strongly related to better quality of life (Tokuda et al., 2008^[301]). Those who trust other people tend to cope better with negative life events, and tend to feel like they have a greater sense of control of their lives and interpersonal relationships (Schill, Toves and Ramanaiah, 1980^[302]).

Which learning areas/subjects are most likely to embed “trust”?

Trust is one of the values/attitudes that demonstrates considerable variation in terms of the extent of its explicit representation in curriculum content. This variation applies both to its representation across country/jurisdictional curricula as well as the subjects within curricula. It is mapped in between 2% and 38% of the curricula, with most countries embedding trust in 15% or less of their mapped curriculum (Figure 2.14). Estonia and China embed trust in 38% and 36% respectively of their mapped curriculum, whereas in Greece it is in around 2% of their curricula.

Its limited overall curriculum inclusion is also reflected in the limited learning area representation. For example, in Greece, Israel, and Portugal, trust is embedded in one learning area, in Japan and Sweden in two. Trust is largely related to humanities and PE health. Only British Columbia (Canada) and Saskatchewan (Canada) include trust within the domain of mathematics.

Figure 2.14. Trust in curricula



Notes: The percentage bar next to the country name refers to the total percentage of the mapped curriculum that embeds the competency. Graph bars ordered by decreasing total percentage of mapped items targeting the competency across learning areas.

Source: Data from the OECD (2020^[3]) E2030 Curriculum Content Mapping (CCM) exercise, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>.

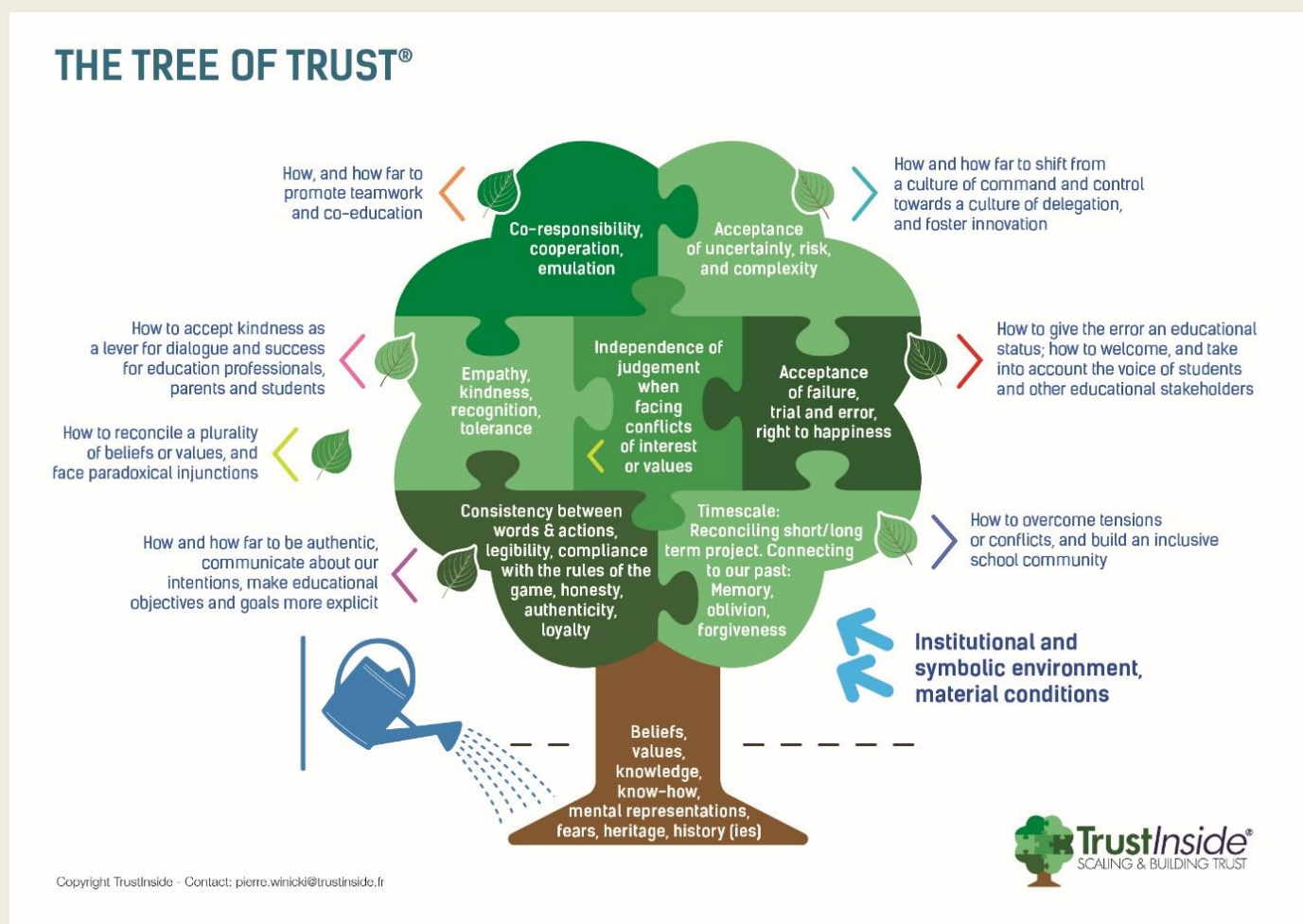
Box 2.1 illustrates an experiment of how to embed and measure “trust” in schools.

Box 2.1. The “Tree of Trust” - a school initiative in France to promote and measure trust

Fostering school climate and academic achievement by objectifying, assessing and improving trust

While a fundamental value in education¹, trust is difficult to define in terms of curriculum outcomes – how to enable it in student learning and assess it in terms of student and school community improvement. By strengthening relations between school professionals, students and parents, trust represents a lever to enhancing school climate and academic achievement. While it is [a key success factor for SDG's²](#), it remains difficult to define and assess its constituting factors, and, as a result, measure the fostering of trust. The “Tree of Trust” is the result of a three-year project initiated in 2012 by 100 multidisciplinary experts from the French think tank *InstitutConfiances*³. The project aimed to objectify and assess the factors – values, attitudes and behaviours – that constitute trust.

The Tree of Trust



“The Tree of Trust” experienced in schools

Over a period of 3 years, the Tree of Trust has been piloted in 15 schools across France. Trust barometers were designed using the project principles to assess individual trust levels among students, parents, teachers, and school principal. Teachers debriefed and coached students based on the results of the barometer assessments. One year later, further measurements were taken and an evaluation showed significant improvement in social climate, school

attractiveness, and consciousness of their potential by students (see outcomes data and [MOOC](#)). The model was then deployed in primary and secondary schools in France, as well as in a school in Ukraine. An education team within the OECD was kept in the loop of the process ([view interview with OECD's Director of Education, Andreas Schleicher](#)). Return-on-experience recognises the Tree of Trust model as instrumental in defining levers, facilitating metacognition, and fostering constructive trust culture and practices in the school system. Results from the schools involved in the pilot project showed that individual Trust barometers, while useful in terms of their link with the project's principles, were somewhat complex and therefore hard for teachers to deploy. Modifications and a new, collective Trust barometer was deployed in later schools involved in the project, and was found to be easier and faster to use in the classroom, which facilitated the deployment of the Tree of Trust in more schools. Teachers found that the Tree of Trust was instrumental in creating and reinforcing trust in their classrooms, that it positively impacted on school climate, and had the potential to improve educational outcomes.

Notes: [1] The last sentence of the Chair's concluding remarks at the 8th OECD's Informal Working Group Meetings in Paris, on 31 October 2018, was: "Participants acknowledged the importance of trust".

[2] United Nations 17 Sustainable Development Goals.

[3] In 2017, Institut Confiances became the R&D Department of TrustInside.

Source: Pierre Winicki, President of TrustInside, Founder of the think tank *Institut Confiances* <https://www.trustinside.fr/en#tm-top-d>.

Notes

¹ Note that Humanities is inclusive of the subjects: geography, history, civics/ citizenship, economics/ business studies; Arts is inclusive of the subjects: visual art/art, music, dance, drama and media arts); Technologies/ home economics is inclusive of the subjects: craft/ design and technology, ICT, home economics; Science is inclusive of the subjects: biology, physics, chemistry, earth science/ space/ astronomy (OECD, 2020^[41]).

² The *Reflective Judgement Model* (RJM) is a seven-stage model, created by K. Kitchener and P. King, that examines the processes individuals use when engaged in making reflective judgements.

³ The Hearts and Flowers task (previously known as Dots) (Davidson et al., 2006^[303]) is a computerized task that assesses the three core executive functions: inhibitory control, working memory and cognitive flexibility. In this task, hearts or flowers appear in random order across 33 trials. In congruent trials (hearts), participants are instructed to press the button on the same side as the heart. In incongruent trials (flowers), participants are instructed to press the button on the opposite side of the flower. Participants need to remember both rules and apply them according to the stimulus presented. In this study, the trials of interest were those that required the most inhibitory control skills – that is, trials that switched from the congruent to the incongruent trial (easier to harder rule).

⁴ The Social Skills Rating System is an inventory of positive child behaviors as rated by parents and teachers. In this study, researchers used a composite of 9 items from the parent-reported and 10 items from the teacher-reported social skills subscale that assesses self-control at face value (e.g., “controls temper in conflict situations”).

⁵ The Colorado Child Temperament Inventory (Rowe and Plomin, 1977^[203]) is a parent-rated instrument with six subscales. The subscale used in the study was the Attention Span-Persistence subscale.

⁶ The Adolescents’ Self-Control Scale (Rosenbaum and Ronen, 1991^[207]) is a 32-item scale that measures cognitive-behavioral self-control skills related to adolescents’ experiences.

⁷ The Doman Specific Impulsivity Scale for Children (Tsukayama, Duckworth and Kim, 2013^[209]) is an 8-item scale that assesses self-control behaviors at school and in social interactions.

⁸ In the Early Learning and Child Well-Being Study (OECD, 2020^[286]), trust was assessed using a one-item measure reported by parents and teachers, asking them often each child approaches familiar adults for comfort when upset. Response options were “never”, “rarely”, “sometimes”, “often” or “always”.

⁹ The Trust Game (Berg, Dickhaut and McCabe, 1995^[293]), also known as the Investment Game. In Phase 1, the player (referred to as the trustor), begins with a set amount of money and may choose to invest (a portion of) this amount in a second player (referred to as the trustee). This amount of money is then tripled—the trustee will receive three times the amount given by the trustor. In Phase 2, the trustee may return any amount of money received to the trustor. This amount is not multiplied. Maximum levels of cooperation are attained when the trustee returns a fair share of the amount (i.e. half) to the trustor. The trustor’s investment is considered a measure of trust, while the trustee’s decision is considered a measure of trustworthiness (also referred to as reciprocity).

References

- Adams, C. and P. Forsyth (2013), "Revisiting the trust effect in urban elementary schools", *The Elementary School Journal*, Vol. 114/1, pp. 1-21. [283]
- Agbuga, B., P. Xiang and R. McBride (2015), "Relationship between achievement goals and students' self-reported personal and social responsibility behaviors.", *The Spanish journal of psychology*, Vol. 18/e22, pp. 1-9, <http://dx.doi.org/10.1017/sjp.2015.26>. [229]
- Agenda, P. (1997), *Getting by: What American teenagers really think about their schools. A report from Public Agenda.* [105]
- Ainley, M., S. Hidi and D. Berndorff (2002), "Interest, learning, and the psychological processes that mediate their relationship", *Journal of educational psychology*, Vol. 94/3, pp. 545-561, <http://dx.doi.org/10.1037//0022-0663.94.3.545>. [245]
- Allen, D. and J. Light (2015), *From voice to influence; understanding citizenship in the digital age*, Chicago University Press. [92]
- Alon, I. and D. Bar-Tal (eds.) (2005), *Two theoretical approaches to trust; Their implications for the resolution of intergroup conflict*, Cambridge: Switzerland. [280]
- Ames, C. (1992), "Classrooms: Goals, structures, and student motivation", *Journal of Educational Psychology*, Vol. 84/3, pp. 261-271, <http://dx.doi.org/10.1037/0022-0663.84.3.261>. [219]
- Anderman, L. and E. Anderman (1999), "Social predictors of changes in students' achievement goal orientations", *Contemporary educational psychology*, Vol. 24/1, pp. 21-37, <http://dx.doi.org/10.1006/ceps.1998.0978>. [228]
- Andersson, H. and L. Bergman (2011), "The role of task persistence in young adolescence for successful educational and occupational attainment in middle adulthood.", *Developmental Psychology*, Vol. 47/4, pp. 950-960, <http://dx.doi.org/10.1037/a0023786>. [247]
- Andreotti, V. (2014), "Soft versus critical global citizenship education", *Development Education in Policy and Practice*, pp. 21-31. [144]
- Asmussen, K. (2017), *Language, wellbeing and social mobility*,, <https://www.eif.org.uk/blog/language-wellbeing-and-social-mobility>. [276]
- Aurah, C. et al. (2011), "The role of metacognition in everyday problem solving among primary students in Kenya", *Problems of Education in the 21st Century*, Vol. 30/2, pp. 9-21, http://www.scientiasocialis.lt/pec/files/pdf/vol30/9-21.Aurah_Vol.30.pdf (accessed on 20 November 2021). [81]
- Aydin, B. and Y. Coşkun (2015), *The relationship between math achievement motivation and reflective thinking skills towards problem solving of the 8th grade student*, Yeditepe University, Istanbul. [28]
- Bandura, A. (1993), "Perceived self-efficacy in cognitive development and functioning", *Educational psychologist*, Vol. 28/2, pp. 117-148. [71]
- Banks, J. (2004), *Diversity and citizenship education; global perspectives*, Jossey Bass. [88]

- Barefoot, J. et al. (1998), "Trust, Health, and Longevity", *Journal of Behavioral Medicine*, Vol. 21/6, pp. 517-526. [300]
- Bas, G. and Z. Kivılcım (2013), "The correlation between reflective thinking skills towards problem solving and academic success in mathematics and geometry courses of high school students", *Journal of Kırşehir Education Faculty*, Vol. 14/3, pp. 1-17, <http://dx.doi.org/10.1016/j.sbspro.2015.07.326>. [26]
- Bassachs, M. et al. (2020), "Fostering critical reflection in primary education through STEAM approaches", *Education Sciences*, Vol. 10/12, pp. 1-14, <http://dx.doi.org/10.3390/EDUCSCI10120384>. [18]
- Battistich, V. (1997), "Caring school communities", *Educational Psychologist*, Vol. 32, pp. 137-151. [107]
- Bekerman, Z. and M. Zembylas (2012), *Teaching contested narratives; identity, memory and reconciliation in peace education and beyond*, Cambridge University Press. [90]
- Bereby-Meyer, Y. and A. Kaplan (2005), "Motivational influences on transfer of problem-solving strategies", *Contemporary Educational Psychology*, Vol. 30/1, pp. 1-22, <http://dx.doi.org/10.1016/j.cedpsych.2004.06.003>. [232]
- Bergin, C. and D. Bergin (2009), "Attachment in the Classroom", *Educational Psychology Review*, Vol. 21/2, pp. 141-170. [272]
- Berg, J., J. Dickhaut and K. McCabe (1995), "Trust, reciprocity, and social history", *Games and Economic Behavior*, Vol. 10/1, pp. 122-142. [293]
- Berkowitz, M., M. Bier and B. McCauley (2017), "Towards a science of character education; frameworks for identifying and implementing effective practices", *Journal of Character Education*, Vol. 13/1, pp. 33-51. [120]
- Bianchi, G. (2007), *Effects of metacognitive instruction on the academic achievement of students in the secondary sciences*, Seattle Pacific University, Seattle, <https://ui.adsabs.harvard.edu/abs/2007PhDT.....128B/abstract> (accessed on 20 November 2021). [30]
- Biggs, J. and R. Telfer (1987), *The Process of Learning*, Prentice-Hall of Australia, Sydney. [59]
- Boekaerts., M., P. Pintrich and M. Zeidner (eds.) (2000), *The role of goal orientation in self-regulated learning*, Academic Press, <http://dx.doi.org/10.1016/B978-012109890-2/50043-3>. [233]
- Bondu, R. and B. Elsner (2015), "Justice sensitivity in childhood and adolescence", *Social Development*, Vol. 24, pp. 420-441. [99]
- Bonneville-Roussy, A., R. Vallerand and T. Bouffard (2013), "The roles of autonomy support and harmonious and obsessive passions in educational persistence.", *Learning and Individual Differences*, Vol. 24, pp. 22-31, <http://dx.doi.org/10.1016/j.lindif.2012.12.015>. [222]
- Borgen, J. and F. Hjordemaal (2017), "From general transfer to deep learning as argument for practical aesthetic school subjects?", *Nordic Journal of Studies in Educational Policy*, Vol. 3/3, pp. 218-229. [62]

- Bowman, N. et al. (2015), "Keep on truckin' or stay the course? Exploring grit dimensions as differential predictors of educational achievement, satisfaction, and intentions", *Social Psychological and Personality Science*, Vol. 6/6, pp. 639-645, <http://dx.doi.org/10.1177/1948550615574300>. [253]
- Branch, J. and M. George (2017), "Reflection-based learning for professional ethical formation", *AMA Journal of Ethics*, Vol. 19/4, pp. 349-356. [32]
- Brown, K. and R. Ryan (2003), "The benefits of being present: Mindfulness and its role in psychological well-being", *Journal of Personality and Social Psychology*, Vol. 84/4, pp. 822-848. [193]
- Bryk, A. and B. Schneider (2002), *Trust in Schools: A Core Resource for Improvement*, New York: Russell Sage Foundation. [264]
- Burnette, J. et al. (2013), *Mind-sets matter: A meta-analytic review of implicit theories and self-regulation*, pp. 655-701. [149]
- Caravita, S., P. Di Blasio and C. Salmivalli (2009), "Unique and interactive effects of empathy and social status on involvement in bullying", *Social Development*, Vol. 18/1, pp. 140-163, <http://dx.doi.org/10.1111/j.1467-9507.2008.00465.x>. [177]
- Carlo, G. et al. (2012), "The role of emotional reactivity, self-regulation, and puberty in adolescents' prosocial behaviors", *Social Development*, Vol. 21/4, pp. 667-685. [210]
- Carlson, M. and I. Bloom (2005), "The Cyclic Nature of Problem Solving: An Emergent Multidimensional Problem-Solving Framework", *Educational Studies in Mathematics*, Vol. 58/1, pp. 45-75, <http://dx.doi.org/10.1007/s10649-005-0808-x>. [66]
- Carr, M. and D. Jessup (1995), "Cognitive and metacognitive predictors of mathematics strategy use", *Learning and Individual Differences*, Vol. 7/3, pp. 235-247. [65]
- Carver, C. and M. Scheier (1990), *Principles of self-regulation: Action and emotion*, Guilford Press. [74]
- Chan, E. and N. Mansoor (2007), *Metacognitive behaviours of primary 6 students in mathematical problem solving in a problem-based learning setting*, <http://hdl.handle.net/10497/234>. [64]
- Checa, P., R. Rodriguez-Bailon and M. Rueda (2008), "Neurocognitive and temperamental systems of self-regulation and early adolescents' social and academic outcomes", *Mind, Brain, and Education*, Vol. 2, pp. 177-187. [189]
- Child, J. (2001), "Trust—The fundamental bond in global collaboration", *Organizational Dynamics*, Vol. 29/4, pp. 274-288. [51]
- Child, S. and S. Shaw (2016), "Collaboration in the 21st century: Implications for assessment", *Research Matters*, Vol. 22, pp. 17-22. [41]
- Clark, H. (1996), *Using language*, Cambridge University Press. [42]
- Clift, E. (2005), "A place to belong: Student agency in the social capital of a magnet high school", *Journal of Curriculum and Supervision*, Vol. 20/4, pp. 271-297. [288]

- Clouder, D. (2009), "‘Being responsible’: students’ perspectives on trust, risk and work-based learning", *Teaching in Higher Education*, Vol. 14/3, pp. 289-301, <http://dx.doi.org/10.1080/1356251090289885>. [282]
- Cohen, T. (2010), "Moral emotions and unethical bargaining: The differential effects of empathy and perspective taking in deterring deceitful negotiation", *Journal of Business Ethics*, Vol. 94/4, pp. 569-579, <http://dx.doi.org/10.1007/s10551-009-0338-z>. [168]
- Coleman, J. (1988), "Social capital in the creation of human capital", *American Journal of Sociology*, Vol. 94, pp. S95-S120. [274]
- Corno, L. and E. Anderman (eds.) (2016), *Civic education*, Routledge. [87]
- Cornoldi, C. et al. (2015), "Improving problem solving in primary school students: The effect of a training programme focusing on metacognition and working memory", *The British Journal of Educational Psychology*, Vol. 85/3, pp. 424-439. [82]
- Costa, A. and B. Kallick (eds.) (2008), *Learning and leading with habits of mind: 16 essential characteristics for success*, ASCD. [13]
- Council of Europe (2016), *Competences for Democratic Culture: Living Together as Equals in Culturally Diverse Democratic Societies*, <https://rm.coe.int/16806ccc07> (accessed on 20 November 2021). [1]
- Craft, A., H. Gardner and G. Claxton (2007), *Creativity, Wisdom and Trusteeship*, Corwin Press. [137]
- Cross, T. (2014), "The Gritty: Grit and Non-Traditional Doctoral Student Success", *Journal of Educators Online*, Vol. 11/3, <http://dx.doi.org/10.9743/JEO.2014.3.4>. [252]
- D’Urso, G. (2018), "The interplay between trust among peers and interpersonal characteristics in homophobic bullying among Italian adolescents", *Sexuality and Culture*, Vol. 22/4, pp. 1310-1320. [297]
- Dai, D. and R. Sternberg (eds.) (2004), *Motivation, emotion, and cognition: Integrative perspectives on intellectual functioning and development*, Lawrence Erlbaum Associates. [24]
- Damico, A., M. Conway and S. Damico (2000), "Patterns of political trust and mistrust: Three moments in the lives of democratic citizens", *Polity*, Vol. 32/3, pp. 377-400. [298]
- Damon, W. (2008), *The path to purpose; how young people find their calling in life*, Free Press. [97]
- Damon, W. and A. Colby (2015), *The power of ideals*, Oxford University Press. [121]
- Daniels, L. et al. (2008), "Individual differences in achievement goals: A longitudinal study of cognitive, emotional, and achievement outcomes", *Contemporary Educational Psychology*, Vol. 33/4, pp. 584-608, <http://dx.doi.org/10.1016/j.cedpsych.2007.08.002>. [256]
- Darnon, C., F. Butera and J. Harackiewicz (2007), "Achievement goals in social interactions: Learning with mastery vs. performance goals", *Motivation and Emotion*, Vol. 31/1, pp. 61-70, <http://dx.doi.org/10.1007/s11031-006-9049-2>. [237]
- Davidson, M. et al. (2006), "Development of cognitive control and executive functions from 4 to 13 years: Evidence from manipulations of memory, inhibition, and task switching", *Neuropsychologia*, Vol. 44/11, pp. 2037-2078. [303]

- De Hoyos Guevara, M. (2004), *Assessment of teamwork in higher education collaborative learning teams (Dissertation, University of Texas at Austin)*, <https://repositories.lib.utexas.edu/handle/2152/1307>. [277]
- Deater-Deckard, K. et al. (2005), "A cross-sectional behavioral genetic analysis of task persistence in the transition to middle childhood.", *Developmental science*, Vol. 8/3, pp. F21-F26, <http://dx.doi.org/10.1111/j.1467-7687.2005.00407.x>. [246]
- deBlois, M. and L. Kubzansky (2016), "Childhood self-regulatory skills predict adolescent smoking behavior", *Psychology, Health & Medicine*, Vol. 21/2, pp. 138-151. [185]
- Deci, E. and R. Ryan (2000), "The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior", *Psychological Inquiry*, Vol. 11, pp. 227-268. [148]
- Dekeyser, M. (2008), "Mindfulness skills and interpersonal behaviour", *Personality and Individual Differences*, Vol. 44/5, pp. 1235-1245. [172]
- Deringöl, Y. (2019), "The relationship between reflective thinking skills and academic achievement in mathematics in fourth-grade primary school students", *International Online Journal of Education and Teaching (IOJET)*, pp. 613-622, <http://iojet.org/index.php/IOJET/article/view/532> (accessed on 20 November 2021). [25]
- Derks, J., N. Lee and L. Krabbendam (2014), "Adolescent trust and trustworthiness: Role of gender and social value orientation", *Journal of Adolescence*, Vol. 37/8, pp. 1379-1386. [294]
- DeShon, R. and J. Gillespie (2005), "A motivated action theory account of goal orientation", *Journal of Applied Psychology*, Vol. 90/6, pp. 1096-1127, <http://dx.doi.org/10.1037/0021-9010.90.6.1096>. [215]
- Deutsch, M. and P. Coleman (eds.) (2000), *The development of conflict resolution skills in children: Preschool to adolescence*, Jossey. [142]
- Diamond, A. (2013), "2013", *Executive functions*, Vol. 64, pp. 135-168. [181]
- Diazgranados, S., R. Selman and M. Dionne (2016), "Acts of social perspective-taking; a functional construct and the validation of a performance measure for early adolescents", *Social Development*, Vol. 25/3, pp. 572-601. [127]
- Dignath, C. and G. Buttner (2008), "Components of fostering self-regulated learning among students. A meta-analysis on intervention studies at primary and secondary school level", *Metacognition and Learning*, Vol. 3, pp. 231-264. [76]
- Dillon, R. (Spring 2018 ed.), *The Stanford Encyclopedia of Philosophy*. [83]
- Domingo, J. (2008), "El aprendizaje cooperativo (Cooperative learning)", *Cuadernos de Trabajo Social (Social Work Notebooks)*, Vol. 21, pp. 231-246, <https://revistas.ucm.es/index.php/CUTS/article/view/CUTS0808110231A> (accessed on 20 November 2021). [53]
- Drake, K., J. Belsky and R. Fearon (2014), "From early attachment to engagement with learning in school: The role of self-regulation and persistence", *Developmental psychology*, Vol. 50/5, pp. 1350-1361, <http://dx.doi.org/10.1037/a0032779>. [211]

- Duckworth, A. (2016), *Grit: The power of passion and perseverance*, Scribner/Simon and Schuster. [213]
- Duckworth, A. et al. (2007), "Grit: perseverance and passion for long-term goals", *Journal of personality and social psychology*, Vol. 92/6, pp. 1087-1101, <http://dx.doi.org/10.1037/0022-3514.92.6.1087>. [151]
- Duckworth, A. and P. Quinn (2009), "Development and validation of the Short Grit Scale (GRIT–S)", *Journal of personality assessment*, Vol. 91/2, pp. 166-174, <http://dx.doi.org/10.1080/00223890802634290>. [212]
- Duckworth, A., P. Quinn and E. Tsukayama (2012), "What No Child Left Behind leaves behind: The roles of IQ and self-control in predicting standardized achievement test scores and report card grades", *Journal of Educational Psychology*, Vol. 104/2, pp. 439-451. [199]
- Duckworth, A. and M. Seligman (2005), "Self-discipline outdoes IQ in predicting academic performance of adolescents", *Psychological Science*, Vol. 16/12, pp. 939-944. [198]
- Dunlosky, J. and J. Metcalfe (eds.) (2008), *How can primary school students learn self-regulated learning strategies most effectively?*, Springer. [77]
- Dweck, C. and E. Leggett (1988), "A social-cognitive approach to motivation and personality", *Psychological review*, Vol. 95/2, pp. 256-273, <http://dx.doi.org/10.1037/0033-295X.95.2.256>. [216]
- Eisenberg, N., R. Fabes and T. Spinrad (2006), "Prosocial Development", in Eisenberg, N., W. Damon and R. Lerner (eds.), *Handbook of child psychology: Social, emotional, and personality development*, John Wiley & Sons, Ltd. [154]
- Eisenberg, N., Q. Zhou and S. Koller (2001), "Brazilian adolescents' prosocial moral judgment and behavior: Relations to sympathy, perspective taking, gender-role orientation, and demographic characteristics", *Child development*, Vol. 72/2, pp. 518-534, <http://dx.doi.org/10.1111/1467-8624.00294>. [178]
- Elgar, F., S. Trites and W. Boyce (2010), "Social capital reduces socio-economic differences in child health: Evidence from the Canadian Health Behaviour in School-Aged Children Study", *Canadian Journal of Public Health / Revue Canadienne de Sante'e Publique*, Vol. 101, pp. S23-S27. [268]
- Elliot, A. (1999), "Approach and avoidance motivation and achievement goals", *Educational Psychologist*, Vol. 34/3, pp. 169-189, http://dx.doi.org/10.1207/s15326985ep3403_3. [230]
- Elliot, A. and M. Church (1997), "A hierarchical model of approach and avoidance achievement motivation", *Journal of Personality and Social Psychology*, Vol. 72/1, pp. 218-232, <http://dx.doi.org/10.1037/0022-3514.72.1.218>. [221]
- Elliot, A. and C. Dweck (eds.) (2005), *Competence, motivation, and identity development during adolescence*, Guilford Publications. [217]
- Elliot, A. and C. Dweck (eds.) (2005), *Self-theories; their impact on competence motivation and acquisition*, Guilford. [147]
- Elliott, C., C. Dweck and D. Yeager (eds.) (2017), *Achievement goals*, Guilford Press. [225]

- Ennen, N., E. Stark and A. Lassiter (2015), "The importance of trust for satisfaction, motivation, and academic performance in student learning groups", *Social Psychology of Education*, Vol. 18/3, pp. 615-633. [279]
- Eskreis-Winkler, E. (2015), *Building Grit*, University of Pennsylvania. [249]
- Fadel, C., B. Trilling and M. Bialik (2015), *Four-Dimensional Education: The Competencies Learners Need to Succeed*, Paperback. [63]
- Fawcett, L. and A. Garton (2005), "The effect of peer collaboration on children's problem-solving ability", *British Journal of Educational Psychology*, Vol. 75/2, pp. 157-169. [47]
- Finlay, K. and W. Stephan (2000), "Improving intergroup relations: The effects of empathy on racial attitudes", *Journal of Applied Social Psychology*, Vol. 30/8, pp. 1720-1737, <http://dx.doi.org/10.1111/j.1559-1816.2000.tb02464.x>. [176]
- Fisher, R. (1998), "Thinking about thinking: Developing metacognition in children", *Early Child Development and Care*, Vol. 141/1, pp. 1-15. [196]
- Flanagan, C. (2013), *Teenage citizens*, Harvard University Press. [130]
- Forsyth, P., L. Barnes and C. Adams (2006), "Trust-effectiveness patterns in schools", *Journal of Educational Administration*, Vol. 44/2, pp. 122-141. [291]
- Frey, N., D. Fisher and S. Everlove (2009), *Productive Group Work: How to Engage Students, Build Teamwork, and Promote Understanding*, Association for Supervision and Curriculum Development. [54]
- Fryberg, S., R. Covarrubias and J. Burack (2013), "Cultural models of education and academic performance for Native American and European American students", *School Psychology International*, Vol. 34/4, pp. 439-452. [285]
- Furnham, A. and J. Marks (2013), *Tolerance of ambiguity; a review of recent literature*, pp. 717-728. [134]
- Galinsky, A. et al. (2008), "Why it pays to get inside the head of your opponent: The differential effects of perspective taking and empathy in negotiations", *Psychological Science*, Vol. 19/4, pp. 378-384, <http://dx.doi.org/10.1111/j.1467-9280.2008.02096.x>. [169]
- Gehlbach, H. (2004), *A new perspective on perspective taking: A multidimensional approach to conceptualizing an aptitude*, pp. 207-234. [139]
- Gelerstein, D. et al. (2016), "Designing and implementing a test for measuring critical thinking in primary school", *Thinking Skills and Creativity*, Vol. 20, pp. 40-49. [33]
- Gilbert, P. (2015), "The evolution and social dynamics of compassion", *Social and personality psychology compass*, Vol. 9/6, pp. 239-254, <http://dx.doi.org/10.1111/spc3.12176>. [158]
- Gillies, R. (2016), "Cooperative Learning: Review of Research and Practice", *Australian Journal of Teacher Education*, Vol. 41/3, p. 3, <http://dx.doi.org/10.14221/ajte.2016v41n3.3>. [55]
- Goddard, R., S. Salloum and D. Berebitsky (2009), "Trust as a mediator of the relationships between poverty, racial composition, and academic achievement: Evidence from Michigan's public elementary schools", *Educational Administration Quarterly*, Vol. 45/2, pp. 292-311. [287]

- Gough, H., H. McClosky and P. Meehl (1952), "A personality scale for social responsibility", *The Journal of Abnormal and Social Psychology*, Vol. 47/1, pp. 73-80. [152]
- Graham, A. et al. (2016), "Reframing 'well-being' in schools: The potential of recognition", *Cambridge Journal of Education*, Vol. 47/4, pp. 439-455, <http://dx.doi.org/10.1080/0305764X.2016.1192104>. [112]
- Gresham, F. and S. Elliot (1990), *Social Skills Rating Scale manual*, Circle Pines, MN: American Guidance Service. [200]
- Griffin, P. and E. Care (eds.) (2015), *Project Method Overview*, Springer. [39]
- Guan, J. et al. (2006), "Achievement goals, social goals, and students' reported persistence and effort in high school physical education.", *Journal of Teaching in Physical Education*, Vol. 25/1, pp. 58-74, <http://dx.doi.org/10.1123/jtpe.25.1.58>. [231]
- Guinot, J., R. Chiva and V. Roca-Puig (2014), "Interpersonal trust, stress and satisfaction at work: An empirical study", *Personnel Review*, Vol. 43/1, pp. 96-115. [299]
- Gullota, T. and M. Bloom (eds.) (2014), *Social and emotional learning during childhood*, Springer Press. [141]
- Güner, P. and H. Erbay (2021), "Metacognitive skills and problem-solving", *International Journal of Research in Education and Science (IJRES)*, Vol. 7/3, pp. 715-734, <https://doi.org/10.46328/ijres.1594>. [69]
- Gyatso, G. (2002), *Universal Compassion. Inspiring Solutions for Difficult Times*, Tharpa Publications. [100]
- Halpern, D. (2007), *The nature and nurture of critical thinking*, pp. 1-14. [136]
- Hamid, P. and D. Lok (2000), "Loneliness in Chinese adolescents: A comparison of social support and interpersonal trust in 13 to 19 year olds", *International Journal of Adolescence and Youth*, Vol. 8/1, pp. 45-63. [296]
- Han, H. (2015), *Purpose as a moral virtue for flourishing*, pp. 291-309. [146]
- Harackiewicz, J. et al. (2000), "Short-term and long-term consequences of achievement goals: Predicting interest and performance over time", *Journal of educational psychology*, Vol. 92/2, pp. 316-330, <http://dx.doi.org/10.1037/0022-0663.92.2.316>. [241]
- Harackiewicz, J. et al. (2008), "The role of achievement goals in the development of interest: Reciprocal relations between achievement goals, interest, and performance", *Journal of Educational Psychology*, Vol. 100/1, pp. 105-122, <http://dx.doi.org/10.1037/0022-0663.100.1.105>. [235]
- Hardy, S. and G. Carlo (2005), *Identity as a source of moral motivation*, pp. 232-256. [103]
- Harsthorne, R., T. Heafner and T. Petty (eds.) (2012), *Teaching and assessing problem solving in online collaborative environment.*, Information Science. [40]
- Hassan, N. and S. Rahman (2017), "Problem solving skills, metacognitive awareness, and mathematics achievement: A mediation model", *New Educational Review*, Vol. 49/3, pp. 201-212, <http://dx.doi.org/10.15804/TNER.2017.49.3.16>. [80]

- Haste, H. and A. Bermudez (2017), *The power of story; historical narratives and the construction of civic identity*, Palgrave Macmillan. [117]
- Haste, H., K. Lee and A. Omaigan (2019), *The relationship between value constructs and transformative competencies*. [131]
- Hattie, J. and E. Anderman (eds.) (2013), *Problem solving*. [20]
- Hattie, J. and G. Yates (2014), *Visible Learning and the Science of How We Learn*, Routledge. [19]
- Hess, D. and P. McAvoy (2015), *The political classroom*, Routledge. [89]
- Hoever, I. et al. (2012), *Fostering team creativity: perspective taking as key to unlocking diversity's potential*, p. 982. [140]
- Hope, E. (2014), "The role of sociopolitical attitudes and civic education in the civic engagement of black youth", *Journal of Research on Adolescence*, Vol. 24/3, pp. 460-470. [160]
- Huff, L., J. Cooper and W. Jones (2002), "The development and consequences of trust in student project groups", *Journal of Marketing Education*, Vol. 24/1, pp. 24-34. [271]
- Hulleman, C. et al. (2008), "Task values, achievement goals, and interest: An integrative analysis", *Journal of educational psychology*, Vol. 100/2, pp. 398-416, <http://dx.doi.org/10.1037/0022-0663.100.2.398>. [226]
- Hunt, L. (2007), *Inventing Human Rights: A History*, W. W. Norton & Company. [170]
- Istance, D. and H. Dumont (2010), *Future directions for learning environments in the 21st century. The Nature of Learning*, OECD. [23]
- Jadallah, M. et al. (2011), "Influence of a Teacher's Scaffolding Moves During Child-Led Small-Group Discussions", *American Educational Research Journal*, Vol. 48/1, pp. 194-230, <http://dx.doi.org/10.3102/0002831210371498>. [56]
- Jazaieri, H. (2017), "Compassionate education from preschool to graduate school.", *Journal of Research in Innovative Teaching & Learning.*, Vol. 11/1, pp. 22-66, <http://dx.doi.org/10.1108/JRIT-08-2017-0017>. [157]
- Jennings, P. (2009), "The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes.", *Review of educational research*, Vol. 79, pp. 491-525. [108]
- Johnson, D. and R. Johnson (1989), *Cooperation and competition: Theory and Research*, Interaction Book Company. [45]
- Johnson, D., R. Johnson and K. Smith (2007), "The state of cooperative learning in postsecondary settings", *Educational Psychology Review*, Vol. 19/1, pp. 15-29. [57]
- Johnson, D., R. Johnson and M. Stanne (2000), *Cooperative learning methods: A meta-analysis*, <http://www.ccsstl.com/sites/default/files/Cooperative%20Learning%20Research%20.pdf>. [52]
- Kail, R. (ed.) (2002), *Children's emotion-related regulation*, Academic Press. [164]

- Kanfer, R. and P. Ackerman (1989), "Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition", *Journal of applied psychology*, Vol. 74/4, p. 657. [70]
- Kant, I. (1788/1996), *Critique of Practical Reason.*, Chicago. [84]
- Kaplan, A. and M. Maehr (1999), "Achievement goals and student well-being", *Contemporary educational psychology*, Vol. 24/4, pp. 330-358, <http://dx.doi.org/10.1006/ceps.1999.0993>. [254]
- Kashdan, T., P. Rose and F. Fincham (2004), *Curiosity and exploration: Facilitating positive subjective experiences and personal growth opportunities*, pp. 291-305. [135]
- Kim, H. et al. (2018), "Social perspective-taking performance; construct, measurement and relations with academic performance and engagement", *J. Applied Developmental Psychology*, Vol. 57, pp. 24-41. [126]
- King, P. and K. Strohm Kitchener (2004), "Reflective judgment: Theory and research on the development of epistemic assumptions through adulthood", *Educational Psychologist*, Vol. 39, pp. 5-18. [21]
- Knafo, A. (2008), "The developmental origins of a disposition toward empathy: genetic and environmental contributions.", *Emotion*, Vol. 8/6, pp. 737–752. [163]
- Kopp, C. (1982), "Antecedents of self-regulation: A developmental perspective", *Developmental Psychology*, Vol. 18/2, pp. 199-214. [180]
- Krasner, M. et al. (2009), "Association of an educational program in mindful communication with burnout, empathy, and attitudes among primary care physicians", *JAMA*, Vol. 302/12, p. 1284, <http://dx.doi.org/10.1001/jama.2009.1384>. [162]
- Kuhn, D. (1999), "A Developmental Model of Critical Thinking", *Educational Researcher*, Vol. 28/2, pp. 16-46. [61]
- Lai, E., K. DiCerbo and P. Foltz (2017), *Skills for Today: What We Know about Teaching and Assessing Collaboration*, Pearson. [43]
- LaRusso, M. (2011), "Early adolescent health risk behaviors, conflict resolution strategies, and school climate", *Journal of Applied Developmental Psychology*, Vol. 32, pp. 354-362. [96]
- LaRusso, M. (2008), "Teachers as builders of respectful school climates: Implications for adolescent drug use norms and depressive symptoms in high school. Journal of Youth and Ad", *Journal of Youth and Adolescence*, Vol. 37, pp. 386 - 398. [109]
- Lee, H. and C. Bonk (2014), "Collaborative learning in the workplace: Practical issues and concerns", *International Journal: Advanced Corporate Learning*, Vol. 7/2, pp. 10-17. [37]
- Lee, S. (2007), "The relations between the student-teacher trust relationship and school success in the case of Korean middle schools", *Educational Studies*, Vol. 33/2, pp. 209-216. [284]
- Lefevre, M. (2005), "Facilitating practice learning and assessment: The influence of relationship", *Social Work Education*, Vol. 24/5, pp. 565-583. [289]
- Lerner, R., L. Liben and U. Mueller (eds.) (2015), *Development of achievement motivation and engagement*, John Wiley & Sons. [214]

- Lester, F. (1994), "Musings about mathematical problem-solving research: 1970-1994", *Journal for Research in Mathematics Education*, Vol. 25, pp. 660-675, <http://dx.doi.org/10.2307/749578>. [68]
- Levy, I., A. Kaplan and H. Patrick (2004), "Early adolescents' achievement goals, social status, and attitudes towards cooperation with peers", *Social Psychology of Education*, Vol. 7/2, pp. 127-159, <http://dx.doi.org/10.1023/B:SPOE.0000018547.08294.b6>. [234]
- Lucangeli, D. and S. Cabrele (2006), "Mathematical difficulties and ADHD", *Exceptionality*, Vol. 14/1, pp. 53-62, https://psycnet.apa.org/doi/10.1207/s15327035ex1401_5. [67]
- Luetz, J., T. Dowden and B. Norsworthy (eds.) (2018), *Measured reflection to assist in dealing with conflict: Can an educative approach improve reflection and cultivate a healthier classroom community?*, Springer. [17]
- Lüftenegger, M. et al. (2012), "Lifelong learning as a goal—Do autonomy and self-regulation in school result in well prepared pupils?", *Learning and Instruction*, Vol. 22/1, pp. 27-36. [192]
- Luhmann, N. (2017), *Trust and Power*, Polity Press. [263]
- Luhmann, N. (1995), *Social Systems*, Stanford University Press. [12]
- Luo, W. et al. (2011), "Do performance goals promote learning? A pattern analysis of Singapore students' achievement goals", *Contemporary Educational Psychology*, Vol. 36/2, pp. 165-176, <http://dx.doi.org/10.1016/j.cedpsych.2011.02.003>. [243]
- M. Killen, J. (ed.) (2006), *Empathy-related responding in children*, Erlbaum. [175]
- Maher, B. (ed.) (1978), *Studies of empathic behavior in children.*, Academic Press. [155]
- Malin, H., I. Liauw and W. Damon (2017), *Purpose and character development in early adolescence*, pp. 1200-1215. [150]
- Marsal, B. (ed.) (2011), *Teaching empathy to children: Theoretical and empirical considerations and implications for practice*, Lit Verlag. [174]
- Marsh, R. et al. (2006), "A Developmental fMRI Study of Self-Regulatory Control", *Human Brain Mapping*, Vol. 27, pp. 848-863. [187]
- Martin, A. et al. (2012), "Adaptability: Conceptual and Empirical Perspectives on Responses to Change, Novelty and Uncertainty", *Journal of Psychologists and Counsellors in Schools*, Vol. 22/1, pp. 58-81. [132]
- Mason, L. (2003), "High School Students' Beliefs about Maths, Mathematical Problem Solving, and their Achievement in Maths: A cross-sectional Study", *Educational Psychology*, Vol. 23/1, pp. 73-85, <http://dx.doi.org/10.1080/01443410303216>. [29]
- Mattessich, P. and B. Monsey (1992), *Collaboration: What makes it work*, Amherst H. Wilder Foundation. [49]
- Maudsley, D. (1979), *A Theory of Meta-Learning and Principles of Facilitation: An Organismic Perspective*, University of Toronto. [58]
- McClelland, M. et al. (2013), "Relations between preschool attention span-persistence and age 25 educational outcomes", *Early Childhood Research Quarterly*, Vol. 28, pp. 314-324. [202]

- Mergler, A. (2017), "Personal responsibility: an integrative review of conceptual and measurement issues of the construct", *Research Papers in Education*, Vol. 32, pp. 254-267. [115]
- Midgley, C. (ed.) (2002), *Achievement goals and goal structures*, Lawrence Erlbaum Associates, Incorporated. [257]
- Midgley, C., A. Kaplan and M. Middleton (2001), "Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost?", *Journal of Educational Psychology*, Vol. 93/1, pp. 77-86, <http://dx.doi.org/10.1037/0022-0663.93.1.77>. [239]
- Midgley, C. and T. Urdu (2001), "Academic self-handicapping and achievement goals: A further examination", *Contemporary educational psychology*, Vol. 26/1, pp. 61-75, <http://dx.doi.org/10.1006/ceps.2000.1041>. [238]
- Miller, D. and J. Byrnes (2001), "Adolescents' decision making in social situations: A self-regulation perspective", *Applied Developmental Psychology*, Vol. 22, pp. 237-256. [188]
- Mithaug, D. (1993), *Self-regulation theory: How optimal adjustment maximizes gain*, Praeger Publishers/Greenwood Publishing Group. [72]
- Moffitt, T. et al. (2011), "A gradient of childhood self-control predicts health, wealth, and public safety", *Proceedings of the National Academy of Sciences*, Vol. 26, p. 108. [190]
- Moran, S. (2017), *Youth purpose worldwide; a tapestry of possibilities*, pp. 231-244. [98]
- Morrell, E. (2008), *Critical literacy in urban youth; pedagogies of access, dissent and liberation*, Routledge. [86]
- Moshman, D. (2005), *Adolescent psychological development: Rationality, morality, and identity (2nd ed.)*, Mahwah, NJ: Erlbaum. [102]
- Muenks, K., J. Yang and A. Wigfield (2018), "Associations between grit, motivation, and achievement in high school students.", *Motivation Science*, Vol. 4/2, pp. 158-176, <http://dx.doi.org/10.1037/mot0000076>. [227]
- Myers, J. (2010), *To benefit the world by whatever means possible': Adolescents' constructed meanings for global citizenship*, pp. 483-502. [119]
- N. Eisenberg, W. (ed.) (2006), *Prosocial Development*, Wiley Online Library, <https://doi.org/10.1002/9780470147658.chpsy0311>. [159]
- Nader, K. (ed.) (2011), *Promoting empathy in school-aged children: Current approaches and implications for practice*, Routledge. [128]
- Narvaez, L. (ed.) (2014), *The complementary perspectives of social and emotional learning, moral education, and character education.*, Routledge, New York. [106]
- Nicholls, J. (1984), "Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance", *Psychological Review*, Vol. 91/3, pp. 328-346, <http://dx.doi.org/10.1037/0033-295X.91.3.328>. [218]
- Nieto, S. and P. Bode (2017), *Affirming diversity; the socio-political context of multicultural education*, Pearson. [85]

- Nijstad, B. et al. (2010), "The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence", *European Review of Social Psychology*, Vol. 21/1, pp. 34-77, <http://dx.doi.org/10.1080/10463281003765323>. [224]
- Nijstad, B. et al. (2010), *The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence*, pp. 34-77. [133]
- Nucci, L. (2014), *Handbook of moral and character education.*, Routledge. [104]
- Oberle, E. et al. (2011), "Mindfulness and inhibitory control in early adolescence", *Journal of Early Adolescence*, Vol. 32/4, pp. 565-588. [194]
- OECD (2020), *E2030 Curriculum Content Mapping exercise data*, Future of Education and Skills 2030 Curriculum Database, <https://www.oecd.org/education/2030-project/curriculum-analysis/data/Distributions-of-competencies-across-learning-areas-subjects-data.xlsx>. [3]
- OECD (2020), *Early Learning and Child Well-being: A Study of Five-year-olds in England, Estonia, and the United States*. [286]
- OECD (2020), *PISA 2018 Results (Volume VI): Are Students Ready to Thrive in an Interconnected World?*, PISA, OECD Publishing, Paris, <https://dx.doi.org/10.1787/d5f68679-en>. [161]
- OECD (2020), *Technical Report: Curriculum Analysis of the OECD Future of Education and Skills 2030*, [https://www.oecd.org/education/2030-project/contact/Technical%20Report Curriculum Analysis of the OECD Future of Education and Skills_2030.pdf](https://www.oecd.org/education/2030-project/contact/Technical%20Report%20Curriculum%20Analysis%20of%20the%20OECD%20Future%20of%20Education%20and%20Skills%202030.pdf). [4]
- OECD (2019), *OECD Future of Education Conceptual Learning Framework Concept Note: Anticipation-Action-Reflection Cycle for 2030*, http://www.oecd.org/education/2030-project/teaching-and-learning/learning/aar-cycle/AAR_Cycle_concept_note.pdf. [7]
- OECD (2019), *Student Agency for 2030*. [269]
- OECD (2018), *Preparing Our Youth For an Inclusive and Sustainable World: The OECD PISA global competence framework*. [101]
- OECD (2018), *Social and Emotional Skills: Well-being, connectedness and success*, OECD Publishing, [https://www.oecd.org/education/school/UPDATED%20Social%20and%20Emotional%20Skills%20-%20Well-being,%20connectedness%20and%20success.pdf%20\(website\).pdf](https://www.oecd.org/education/school/UPDATED%20Social%20and%20Emotional%20Skills%20-%20Well-being,%20connectedness%20and%20success.pdf%20(website).pdf). [153]
- OECD (2017), *OECD Guidelines on Measuring Trust*, OECD Publishing, <https://www.oecd.org/governance/oecd-guidelines-on-measuring-trust-9789264278219-en.htm>. [261]
- OECD (2017), *PISA 2015 Assessment and Analytical Framework: Science, Reading, Mathematics, Financial Literacy and Collaborative Problem Solving*, OECD. [44]
- OECD (2017), *Social and Emotional Skills Well-being, connectedness and success*, OECD. [78]
- OECD (2016), *PISA 2015 Results (Volume I) Excellence and Equity in Education*, OECD. [15]
- Orkibi, H. and T. Ronen (2017), "Basic psychological needs satisfaction mediates the association between self-control skills and subject well-being", *Frontiers in Psychology*, Vol. 8, p. 936. [206]

- Pahl, K., J. Brook and J. Lee (2014), "Adolescent self-control predicts joint trajectories of marijuana use and depressive mood into young adulthood among urban African Americans and Puerto Ricans", *Journal of Behavioral Medicine*, Vol. 37, pp. 675-682. [191]
- Pekrun, R., A. Elliot and M. Maier (2006), "Achievement goals and discrete achievement emotions: A theoretical model and prospective test", *Journal of Educational Psychology*, Vol. 98/3, pp. 583-597, <http://dx.doi.org/10.1037/0022-0663.98.3.583>. [258]
- Peterson, C. and M. Seligman (2004), *Character strengths and virtues: A handbook and classification*, Oxford University Press. [9]
- Pianta, R. and J. Allen (2008), *Building capacity for positive youth development in secondary school classrooms: Changing teachers' interactions with students. Toward positive youth development: Transforming schools and community programs*. [16]
- Pintrich, P. (2000b), "Multiple goals, multiple pathways: the role of goal orientation in learning and achievement", *Journal of Educational Psychology*, Vol. 92/3, pp. 544-555, <http://dx.doi.org/10.1037/0022-0663.92.3.544>. [242]
- Raffaelli, M., L. Crockett and Y. Shen (2005), "Developmental Stability and Change in Self-Regulation From Childhood to Adolescence", *The Journal of Genetic Psychology*, Vol. 166/1, pp. 54-75. [179]
- Reysen, S. and I. Katzarska-Miller (2013), "A model of global citizenship: Antecedents and outcomes", *International Journal of Psychology*, Vol. 48/5, pp. 858-870. [123]
- Rodgers, C. (2002), "Defining reflection: Another look at john dewey and reflective thinking", *Teachers College Record*, pp. 842-866. [8]
- Roeser, R. and C. Pinela (2014), *Mindfulness and compassion training in adolescence: A developmental contemplative science perspective*, pp. 9-30. [129]
- Rojas, J. and E. Usher (2013), *Exploring correlations among creativity, grit, and mathematics achievement in socioeconomically diverse schools*, University of Kentucky. [250]
- Rolheiser-Bennett, N., B. Bower and L. Stevahn (2000), *The portfolio organizer: Succeeding with portfolios in your classroom*, Association for Supervision and Curriculum Development, Alexandria, VA. [60]
- Ronen, T. et al. (2016), "Subjective well-being in adolescence: The role of self-control, social support, age, gender, and familial crisis", *Journal of Happiness Studies*, Vol. 17, pp. 81-104. [184]
- Rosenbaum, M. and T. Ronen (1991), *Self-control and education for self-control: Development of rating scale. Paper presented at the 25th Anniversary Meeting of the Association for Advancement of Behavior Therapy, New York, NY.* [207]
- Rosen, Y. (2014), "Comparability of conflict opportunities in human-to-human and human-to-agent online collaborative problem solving", *Tech Know Learn*, Vol. 19, pp. 147-164. [46]
- Rosen, Y., S. Ferrara and M. Mosharraf (eds.) (2016), *Assessment of task persistence*, IGI Global. [223]
- Ross, S. (2002), "Place value: Problem solving and written assessment", *Teaching Children Mathematics*, Vol. 8/7, pp. 419-423. [22]

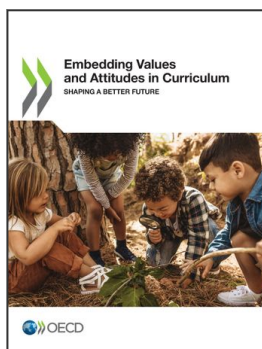
- Rotenberg, K. (ed.) (2010), *Promoting intergroup trust among adolescents and young adults*, [273]
Cambridge: Cambridge University Press.
- Rotenberg, K. (1991), *Children's Interpersonal Trust: Sensitivity to Lying, Deception and Promise Violations*, Springer: New York, NY. [270]
- Rotenberg, K. et al. (2005), "Construction and validation of a children's interpersonal trust belief scale", *British Journal of Developmental Psychology*, Vol. 23/2, pp. 271-293. [292]
- Rotter, J. (1967), "A new scale for the measurement of interpersonal trust", *Journal of Personality*, Vol. 35, pp. 651-665. [262]
- Rowe, D. and R. Plomin (1977), "Temperament in early childhood", *Journal of Personality Assessment*, Vol. 41, pp. 150-156. [203]
- Ryan, A. (2001), "The classroom social environment and changes in adolescents' motivation and engagement during middle school.", *American Educational Research Journal*, Vol. 38, pp. 437-460. [113]
- Rychen, D. (2016), *Education Conceptual Framework 2030: Key Competencies for 2030 (DeSeCo 2.0)*, OECD, <https://www.oecd.org/education/2030-project/about/documents/E2030-CONCEPTUAL-FRAMEWORK-KEY-COMPETENCIES-FOR-2030.pdf>. [11]
- Rychen, D. and L. Salganik (eds.) (2001), *Ambiguity, autonomy and agency; psychological challenges to new competence*, OECD/Huber & Hogrefe. [116]
- Salas, E., N. Cooke and M. Rosen (2008), "On teams, teamwork, and team performance: Discoveries and developments", *Human factors*, Vol. 50/3, pp. 540-547. [38]
- Schill, T., C. Toves and N. Ramanaiah (1980), "Interpersonal trust and coping with stress", *Psychological Reports*, Vol. 47/3, p. 1192. [302]
- Schlam, T. et al. (2013), "Preschoolers' delay of gratification predicts their body mass 30 years later", *Journal of Pediatrics*, Vol. 162, pp. 90-93. [186]
- Schonert-Reichl, K. (2011), *Promoting empathy in school-aged children: Current state of the field and implications for research and practice*, Routledge. [156]
- Schonert-Reichl, K. and R. Roeser (eds.) (2016), *Mindfulness in education: An introduction*, Springer. [138]
- Schoon, I. et al. (2015), *The Impact of Early Life Skills on Later Outcomes*, UCL Institute of Education. [6]
- Schoorman, F., R. Mayer and J. Davis (2007), "An integrative model of organizational trust: Past, Present, and Future", *The Academy of Management Review*, Vol. 32/2, pp. 344-354. [281]
- Schraa-Liu, T. and F. Trompenaars (2006), "Towards responsible leadership through reconciling dilemmas", *Responsible leadership*, pp. 138-154. [122]
- Schraw, G. and D. Moshman (1995), *Metacognitive Theories*. [75]

- Schultz, N. (2013), *Empathy as the Key to Equality and Human Rights - An Investigation of Empathy's Role in Inter-Group Relations and Discrimination*, Adam Mickiewicz University Poznan, [171]
<https://repository.gchumanrights.org/bitstream/handle/20.500.11825/643/Schultz.pdf?sequence=1&isAllowed=y#:~:text=Empathy%2C%20a%20universal%20human%20faculty,being%20an%20equally%20sentient%20being.>
- Schulz, W. et al. (2016), *IEA International Civic and Citizenship Education Study 2016 Assessment Framework*, <http://dx.doi.org/10.1007/978-3-319-39357-5>. [5]
- Seashore Louis, K. (2007), "Trust and improvement in schools", *Journal of Educational Change*, [290]
 Vol. 8/1, pp. 1-24.
- Seider, S. (2012), *Character compass*, Harvard Education Press. [93]
- Selman, R. (2007), *The promotion of social awareness*, Russell Sage. [125]
- Seng, A., S. Tey and A. Fam (1993), *Metacognition and metalearning essential differences: Paper presented at the Seventh Annual Conference of the Educational Research Association*, National Institute of Education, Singapore, [79]
<https://repository.nie.edu.sg/handle/10497/15461>.
- Sen, H. (2013), "Reflective thinking skills of primary school students based on problem solving ability", *International Journal of Academic Research*, Vol. 5/5, pp. 41-48, [27]
<http://dx.doi.org/10.7813/2075-4124.2013/5-5/B.6>.
- Senko, C., C. Hulleman and J. Harackiewicz (2011), "Achievement goal theory at the crossroads: Old controversies, current challenges, and new directions", *Educational psychologist*, Vol. 46/1, pp. 26-47, <http://dx.doi.org/10.1080/00461520.2011.538646>. [236]
- Shapiro, J. (2002), "How do physicians teach empathy in the primary care setting?", *Academic Medicine: Journal of the Association of American Medical Colleges*, Vol. 77/4, pp. 323-328, [2]
<http://dx.doi.org/10.1097/00001888-200204000-00012>.
- Sherrod, L., J. Torney-Purta and C. Flanagan (eds.) (2010), *Political agency and empowerment pathways for developing a sense of efficacy in young adults*, John Wiley & Sons. [145]
- Sinay, E. et al. (2016), *Fostering a "culture of trust" within and outside a school system*, Toronto District School Board. [267]
- Smith-Jentsch, K. (2008), "Guided team self-correction: Impacts on team mental models, processes and effectiveness", *Small Group Research*, Vol. 39, pp. 303-327. [50]
- Staples, D. and J. Webster (2008), "Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams", *Information Systems Journal*, Vol. 18/6, pp. 617-640. [278]
- Stover, W. (2005), "Teaching and learning empathy: An interactive, online diplomatic simulation of Middle East conflict", *Journal of Political Science Education*, Vol. 1/2, pp. 207-219, [166]
<http://dx.doi.org/10.1080/15512160590961801>.
- Strayhorn, T. (2014), "What role does grit play in the academic success of black male collegians at predominantly white institutions?", *Journal of African American Studies*, Vol. 18/1, pp. 1-10, [251]
<http://dx.doi.org/10.1007/s12111-012-9243-0>.

- Tausch, N. et al. (2011), "Explaining radical group behavior; developing emotion and efficacy routes to normative and non-normative collective action.", *Journal of Personality & Social Psychology*, Vol. 101/1, p. 129. [124]
- Taylor, P. (2011), *Respect for Nature: A theory of environmental ethics - 25th anniversary edition*, Princeton University Press. [91]
- Thompson, C. (2018), "The Construct of 'Respect' in Teacher-Student Relationships: Exploring Dimensions of Ethics of Care and Sustainable Development", *Journal of Leadership Education*, Vol. 17/3, pp. 42-60, <http://dx.doi.org/10.12806/V17/I3/R3>. [111]
- Todd, S. (2008), "Democracy, education and conflict: Rethinking respect and the place of the ethical", *Journal of Educational Controversy*, Vol. 3/1, pp. 1-11. [94]
- Tokuda, Y. et al. (2008), "Interpersonal trust and quality-of-life: A cross-sectional study in Japan", *PLOS One*, Vol. 3/12, p. e3985. [301]
- Trnka, S. and C. Trundle (2017), *Competing responsibilities; the politics and ethics of contemporary life*, Duke University Press. [114]
- Tsai, W. and S. Ghoshal (1998), "Social capital and value creation: The role of intrafirm networks", *The Academy of Management Journal*, Vol. 41/4, pp. 464-476. [275]
- Tschannen-Moran, M. (2014), *Trust matters: Leadership for successful schools*, John Wiley & Sons. [265]
- Tsukayama, E., A. Duckworth and B. Kim (2013), "Domain-specific impulsivity in school-age children", *Developmental Science*, Vol. 16/6, pp. 879-893. [209]
- Tulis, M. and S. Fulmer (2013), "Students' motivational and emotional experiences and their relationship to persistence during academic challenge in mathematics and reading.", *Learning and Individual Differences*, Vol. 27, pp. 35-46, <http://dx.doi.org/10.1016/j.lindif.2013.06.003>. [244]
- Tuominen-Soini, H., K. Salmela-Aro and M. Niemivirta (2012), "Achievement goal orientations and academic well-being across the transition to upper secondary education", *Learning and Individual Differences*, Vol. 22/3, pp. 290-305, <http://dx.doi.org/10.1016/j.lindif.2012.01.002>. [240]
- Tuominen-Soini, H., K. Salmela-Aro and M. Niemivirta (2008), "Achievement goal orientations and subjective well-being: A person-centred analysis", *Learning and Instruction*, Vol. 18/3, pp. 251-266, <http://dx.doi.org/10.1016/j.learninstruc.2007.05.003>. [255]
- United Nations Educational, S. (2014), *UNESCO roadmap for implementing the global action programme on education for sustainable development*. [167]
- Urdan, T. and S. Karabenick (eds.) (2010), *Up around the bend: Forecasts for achievement goal theory and research in 2020*, Emerald Group Publishing Limited. [220]
- Vainio, M. and D. Daukantaitė (2016), "Grit and different aspects of well-being: Direct and indirect relationships via sense of coherence and authenticity", *Journal of Happiness Studies*, Vol. 17/5, pp. 2119-2147, <http://dx.doi.org/10.1007/s10902-015-9688-7>. [260]

- Valkanova, Y., A. Jackson and D. Watts (2004), "Enhancing Self-Reflection in Children: The Use of Digital Video in the Primary Science Classroom", *Journal of eLiteracy*, https://www.researchgate.net/publication/32938296_Enhancing_Self-Reflection_in_Children_the_Use_of_Digital_Video_in_the_Primary_Science_Classroom (accessed on 20 November 2021). [34]
- Van der Schaaf, M. et al. (2013), "Feedback dialogues that stimulate students' reflective thinking", *Scandinavian Journal of Educational Research*, Vol. 57/3, pp. 227-245. [10]
- van Genugten, L. et al. (2017), "Effective self-regulation change techniques to promote mental wellbeing among adolescents: a meta-analysis", *Health Psychology Review*, Vol. 11/1, pp. 53-71. [205]
- Van Maele, D., P. Forsyth and M. Van Houtte (eds.) (2014), *Introduction: Trust as a Matter of Equity and Excellence in Education*, Springer Verlag: Dordrecht. [266]
- Van Ness, D. (2014), *Restoring justice: An introduction to restorative justice.*, Routledge. Chicago. [95]
- Von Culin, K., E. Tsukayama and A. Duckworth (2014), "Unpacking grit: Motivational correlates of perseverance and passion for long-term goals", *The Journal of Positive Psychology*, Vol. 9/4, pp. 306-312, <http://dx.doi.org/10.1080/17439760.2014.898320>. [259]
- Wang, M. and J. Eccles (2012), "Adolescent behavioural, emotional, and cognitive engagement trajectories in school and their differential relations to educational success", *Journal of Research on Adolescence*, Vol. 22/1, pp. 31-39. [204]
- Weinstein, E. (2014), *The personal is political on social media: Online civic expression patterns and pathways among civically engaged youth*, pp. 210-233. [143]
- Welp, L. and C. Brown (2014), "Self-compassion, empathy, and helping intentions", *The Journal of Positive Psychology*, Vol. 9/1, pp. 54-65, <http://dx.doi.org/10.1080/17439760.2013.831465>. [165]
- Wentzel, K. (1991), "Relations between social competence and academic achievement in early adolescence", *Child Development*, Vol. 62/5, pp. 1066-1078. [295]
- West, M. et al. (2016), "Promise and paradox: Measuring students' non-cognitive skills and the impact of schooling", *Educational Evaluation and Policy Analysis*, Vol. 38/1, pp. 148-170, <http://dx.doi.org/10.3102/0162373715597298>. [248]
- Wiese, C. et al. (2018), "Too much of a good thing? Exploring the inverted-U relationship between self-control and happiness", *Journal of Personality*, Vol. 86/3, pp. 380-396. [208]
- Williams, S. (2009), *The impact of collaborative, scaffolded learning in K-12 schools: A meta-analysis*, http://www.cisco.com/web/about/citizenship/socioeconomic/docs/Metiri_Classroom_Collaboration_Research.pdf. [36]
- Wood, D. and B. Gray (1991), "Towards a comprehensive theory of collaboration", *Journal of Applied Behavioral Science*, Vol. 27, pp. 139-162. [35]
- Wray-Lake, L. and A. Syversten (2011), *The developmental roots of social responsibility in childhood and adolescence*, pp. 11-25. [118]

- Yontar, A. and S. Yel (2018), "The Relationship between Empathy and Responsibility Levels of 5th Grade Students: A Sample from Turkey", *International Journal of Education & Literacy Studies*, Vol. 6/4, <http://www.ijels.aiac.org.au/>. [173]
- Yost, D. and F. Mosca (2002), "Beyond behavior strategies: Using reflection to manage youth in crisis", *The Clearing House*, pp. 264-267. [14]
- Youde, J. (2019), "A Meta-Analysis of the Effects of Reflective Self-Assessment on Academic Achievement in Primary and Secondary Populations", *Education Dissertations*, Vol. 48, https://digitalcommons.spu.edu/soe_etd/48 (accessed on 20 November 2021). [31]
- Young, I. (2015), *Practical empathy: For collaboration and creativity in your work.*, Rosenfeld Media. [48]
- Zimmerman, B. (2002), "Becoming a self-regulated learner: An overview", *Theory into practice*, Vol. 41/2, pp. 64-70. [195]
- Zimmerman, B. (1986), "Becoming a self-regulated learner: Which are the key subprocesses.", *Contemporary Educational Psychology*, Vol. 11, pp. 307-313. [183]
- Zimmerman, B. and A. Kitsantas (2014), "Comparing students' self-discipline and self-regulation measures and their prediction of academic achievement", *Contemporary Educational Psychology*, Vol. 39, pp. 145-155, <http://dx.doi.org/10.1016/j.cedpsych.2014.03.004>. [182]
- Zimmerman, B. and D. Schunk (2011), "Motivational sources and outcomes of self-regulated learning and performance", *Handbook of self-regulation of learning and performance*, pp. 49-64. [197]
- Zimmermand, B. (1989), "A social cognitive view of self-regulated academic learning", *Journal of educational psychology*, Vol. 81/3, p. 329. [73]
- Zins, J. (2004), *Building school success through social and emotional learning*, Teacher's College, Columbia University. [110]
- Zorza, J., J. Marino and A. Mesas (2016), "Executive functions as predictors of school performance and social relationships: Primary and secondary school students", *Spanish Journal of Psychology*, Vol. 19, p. E23. [201]



From:
Embedding Values and Attitudes in Curriculum
Shaping a Better Future

Access the complete publication at:
<https://doi.org/10.1787/ae2adcd-en>

Please cite this chapter as:

OECD (2021), "Attitudes and values in subject-specific curriculum", in *Embedding Values and Attitudes in Curriculum: Shaping a Better Future*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/52717c65-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area. Extracts from publications may be subject to additional disclaimers, which are set out in the complete version of the publication, available at the link provided.

The use of this work, whether digital or print, is governed by the Terms and Conditions to be found at <http://www.oecd.org/termsandconditions>.