ASSESSING COMPLEX COMPETENCIES IN PISA

Michael Stevenson
09 Oct 19
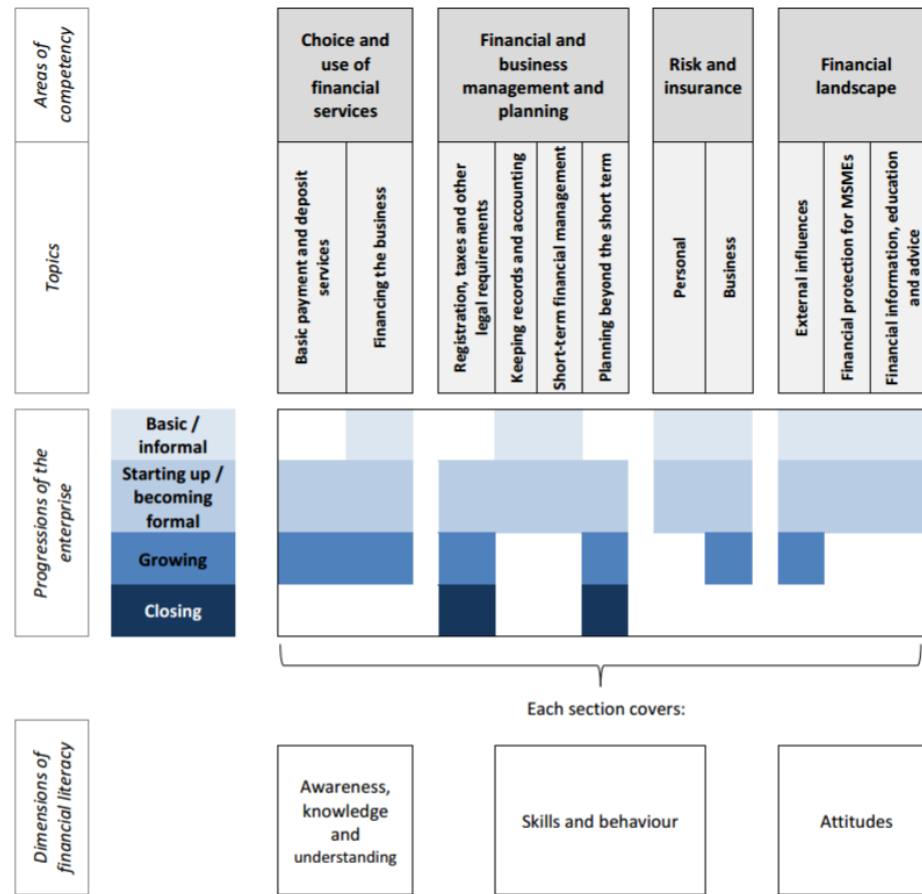
Main Survey		International Options
Science Reading Maths	Innovative Domain	Financial Literacy Questionnaires: Teachers, Parents Deep dives
Background Questionnaire Students, Schools		

Figure 1. Structure of the framework

Figure V.2.1 ■ **Skills evaluated in the PISA 2015 collaborative problem-solving assessment**

		Collaborative problem-solving competencies		
		(1) Establishing and maintaining shared understanding	**(2) Taking appropriate action to solve the problem**	**(3) Establishing and maintaining team organisation**
Problem-solving processes	**(A) Exploring and understanding**	**(A1)** Discovering perspectives and abilities of team members	**(A2)** Discovering the type of collaborative interaction to solve the problem, along with goals	**(A3)** Understanding roles to solve the problem
	(B) Representing and formulating	**(B1)** Building a shared representation and negotiating the meaning of the problem (common ground)	**(B2)** Identifying and describing tasks to be completed	**(B3)** Describing roles and team organisation (communication protocol/rules of engagement)
	(C) Planning and executing	**(C1)** Communicating with team members about the actions to be/being performed	**(C2)** Enacting plans	**(C3)** Following rules of engagement (e.g. prompting other team members to perform their tasks)
	(D) Monitoring and reflecting	**(D1)** Monitoring and repairing the shared understanding	**(D2)** Monitoring results of actions and evaluating success in solving the problem	**(D3)** Monitoring, providing feedback and adapting the team organisation and roles

Figure 6.1. The dimensions of global competence

Figure 6.2. The PISA approach to assessing global competence
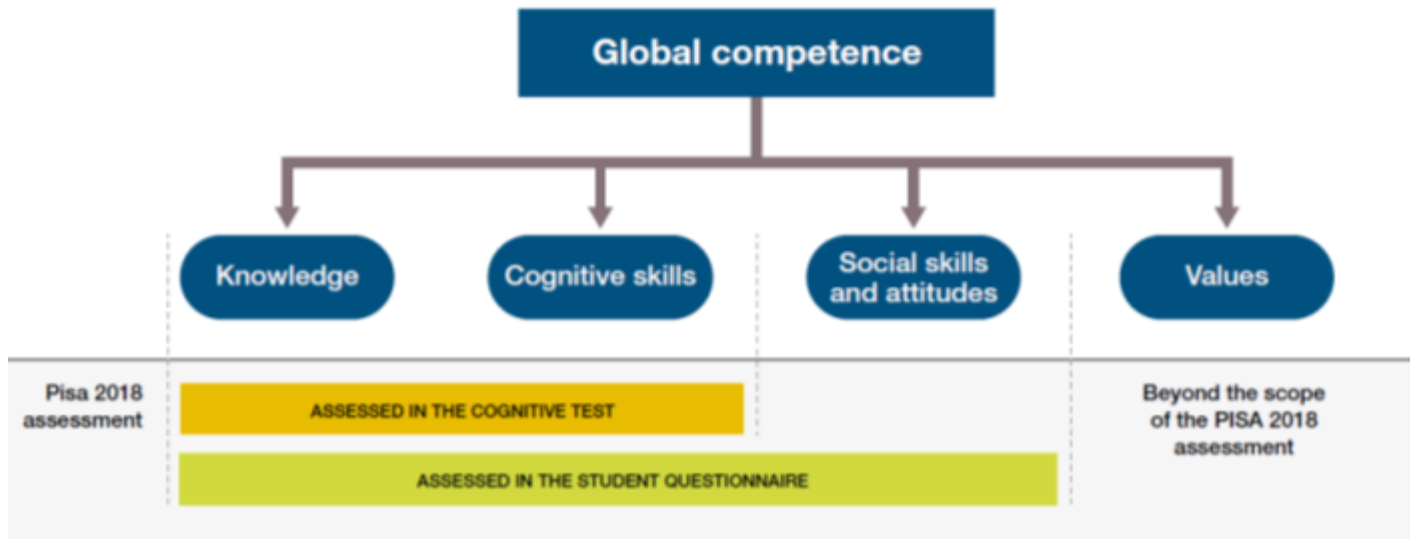
Figure 3. Competency model for the PISA test of creative thinking
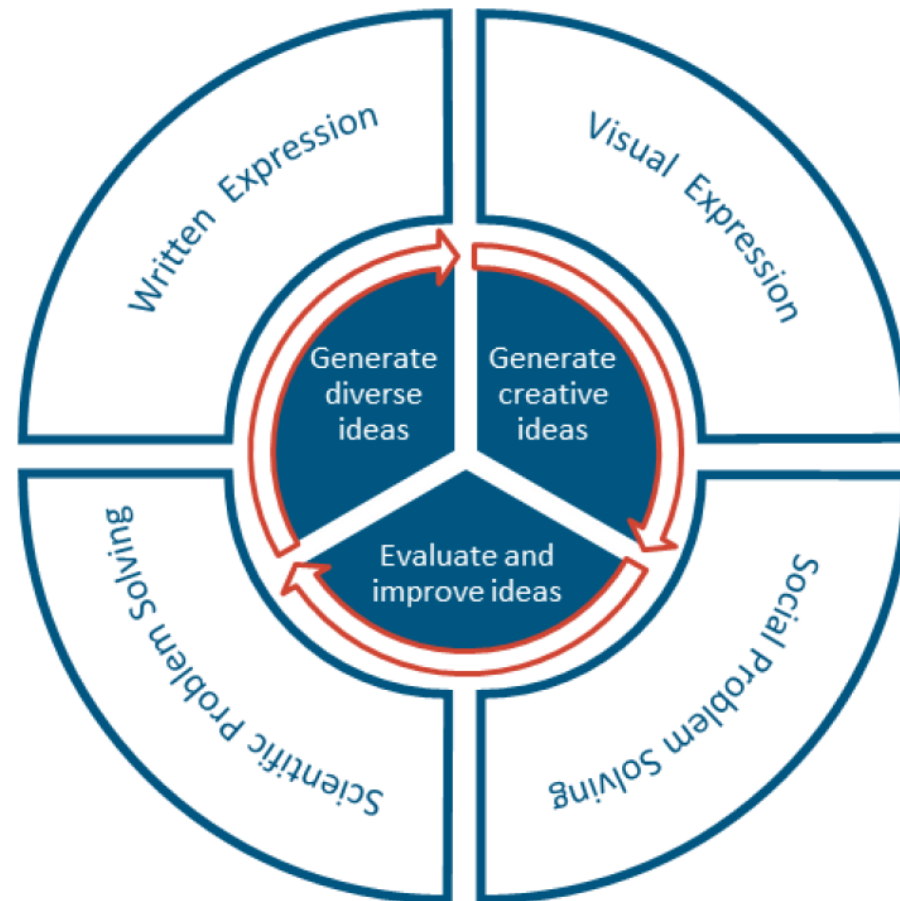
Table 1. Possible ways to measure creative thinking facets across domains

	Expressive (written and visual domains)		Knowledge creation and problem solving (scientific and social domains)	
	Written	*Visual*	*Social*	*Scientific*
Generate diverse ideas	The student writes different captions, titles or story ideas for a given stimulus (e.g. cartoon or comic strip, picture or illustration), which suggest a different interpretation of the stimulus.	The student combines given shapes or stamps in multiple ways to produce distinct visual products (e.g. logo or customisation designs), or the student visually represents data in different ways (e.g. infographics).	The student finds multiple, different solutions to a social problems (e.g. water shortage), which rely on different actors, instruments or methods to achieve the desired outcome.	The student develops multiple, different mathematical methods to solve an open problem (e.g. most consistent player on a team); or the student generates multiple, different hypotheses or experiment ideas to investigate an observation (e.g. animals that suddenly become aggressive).
Generate creative ideas	The student produces an original title for some artwork that is somehow related to the art.	The student produces an original poster for a school exhibition that effectively conveys the theme of the exhibition.	The student can think of an original strategy to effectively market a product (where effective simply requires that the strategy, if implemented properly, could result in increased awareness of the product among the target audience).	The student generates an effective and original solution to an engineering problem (where effective simply requires that the solution, if properly implemented, could represent a possible solution to the problem).
Evaluate and improve ideas	The student makes an original improvement to a title for some artwork in light of new information (e.g. the artist's inspiration behind the illustration), where the student retains elements of the given title but incorporates elements relating to the artist's inspiration in an original way.	The student makes an original improvement to a poster for an exhibition, where the student retains the images included in the given poster but makes a clearer connection to the theme of the exhibition in an original way.	The student makes an original improvement to a suggested solution (e.g. reducing the amount of household waste), where the student's solution effectively (i.e. if properly implemented, could represent a possible solution) builds upon the given solution in an original way.	The student makes an original improvement to a suggested experiment (e.g. testing properties of materials), where the student's response is a valid and original experiment idea and builds upon the given experiment.
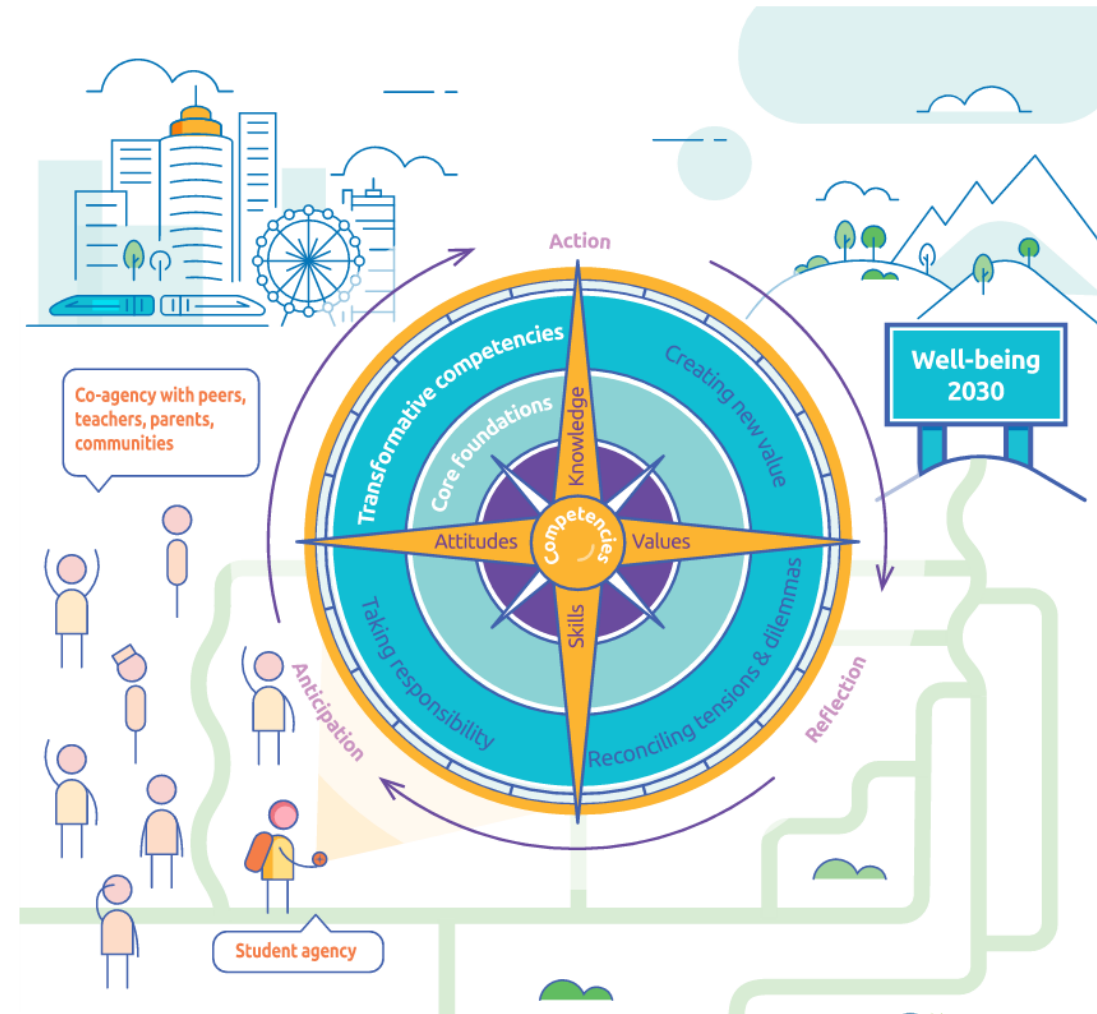
A PISA roadmap

"The OECD is developing a roadmap for the Program for International Student Assessment (PISA), to guide decisions and choices over the period ahead. The roadmap will identify medium-term directions for the period 2024 to 2033 and potential long-term trajectories for the period after that, as well as forks in the road when key decisions may be required"