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Thinking outside the box

PISA assesses students' creative thinking in 2022

dialegs

by Ana Moreno Salvo

INTERVIEW WITH NATALIE FOSTER

Every year, PISA evaluates some of what are known as the innovation competencies. Why creative thinking now? What impact does creativity have on a person's daily life in the twenty-first century?
PISA's innovative competencies assessment aims to measure important learning beyond the 'traditional' ones in each PISA cycle: reading, mathematics and science. It seeks to offer a more complete perspective of the participating students' 'preparation for life'. PISA already ventured into this area in 2012 with the assessment of creative problem-solving. That time, the main focus was on the success of the problem-solving process. The question was: Are the students able

to solve the problem? The creative aspect depended on how students explored the context of the problem. This time, the focus is on the students' ability to generate creative ideas.

For many years, the international community has considered creativity and creative thinking some of the most important skills for young people to develop in the twenty-first century. The innovation assessment for each PISA cycle is determined through a collaborative consultation process involving OECD countries and economies. The decision to

assess creative thinking in PISA reflects this international interest.

In our daily lives, we all think creatively in some situations, whether it is solving a traffic problem, preparing a meal or sketching a drawing, but we are not aware that they involve creative thinking. More generally, creative thinking is important to help us adapt to a world that is constantly and rapidly changing and to contribute to its development. Organisations and societies are increasingly dependent on innovation and knowledge creation to address emerging and

Creative thinking can have a positive effect on students' interest, academic performance and social-emotional development

Context is important. The tasks are in the areas of: writing, visual design, social and scientific problem-solving

complex challenges, especially since the digital era allows access to existing knowledge within seconds. In the case of students, research has shown that creative thinking can have a positive impact on their academic interest and performance, their identity and their socioemotional development.

On what vision or conceptual framework on creative thinking is the PISA assessment based? What data do you expect to obtain? What will be done with that data?
As in all PISA assessments, the OECD convenes a group of experts to define the construct and guide the drafting of the assessment framework. In our case, it is based on a very rich existing literature on creativity. The PISA framework identifies and focuses on creative thinking factors that are adaptable and relevant to education systems.

The PISA assessment consists of two parts: a test and a questionnaire. The data we expect to collect from the test are similar to those of the other PISA domains, that is, information on the degree to which students are able to produce creative ideas. The test unit is placed in a different domain context; we are interested in whether students' creative abilities in certain domains (e.g., creative expression in writing or visual design) are different from those in problem-solving domains. For each country, we aim to produce an overall score that summarises student performance in this realm. In the questionnaire, we ask students about a number of topics that primarily help us interpret their test performance data, including general information about their background and more specific questions related to their attitudes and beliefs about creativity or the types of activities they engage in inside and outside of school.

It must not be easy to assess creativity. What aspects are you trying to assess? Why these and not others? What type of questions or activities do the tests contain?
Assessing creativity as a broad construct is challenging. Creativity is defined in part by a given social context. Therefore, we focus on the cognitive processes associated with the performance of the creative task. This is more appropriate in the context of PISA, which assesses 15-year-olds from all over the world, as it is an individual ability that can be developed through practice and does not take into account the social value of the final result.

PISA defines creative thinking as 'the capacity to engage productively in the generation, evaluation and improvement of ideas that can result in original and effective solutions, advances in knowledge, and impactful expressions of imagination'. The definition describes
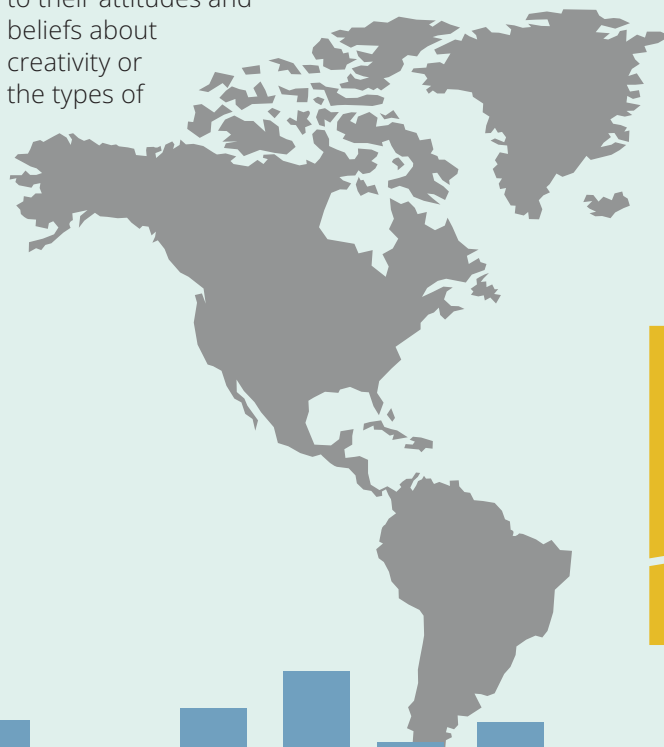
all the cognitive processes involved in creative thinking (generating, evaluating and improving ideas) and the different manifestations that 15-year-olds can perform and produce.

In each section of the test, students are presented with a brief scenario or stimulus and asked to do one of three things: think of an original idea, think of many different ideas for the same given situation or improve on a given idea in an original way. The tasks are in four different domains: writing, visual design, social problem-solving and scientific problem-solving. For example, in the course of the test, a student may be asked to write an idea for a short story with two characters, design several logos for an event, improve a given solution to a community problem and propose two hypotheses that can explain a scientific problem. It should be noted that students are not scored on how 'correct' or practically feasible their ideas are but on whether they are able to come up with qualitatively different
or original
ideas.

Another key factor in developing creativity in schools is to train teachers to be able to apply these pedagogies

What do you consider to be the keys to developing creativity at school? How should it be integrated into the curriculum?
First, I think it is important to overcome the perception that devoting time or effort to developing creative thinking is detrimental to learning important content or developing other skills. They are in no way mutually exclusive; in fact, they can be complementary. If you have to think creatively about something in particular, why not focus on relevant and meaningful content? In fact, research has also shown that creative thinking promotes learning by presenting information in an engaging and personally meaningful way, even within the context of formal learning objectives. Learning in more creative, exploratory

and inquiry-based ways can also increase students' motivation and interest in learning, especially for those who struggle with rote learning and other teacher-centred school methods.

As a general principle, creative thinking can be developed through the application of more learner-centred pedagogies (such as problem- or project-based learning), in which students have the opportunity to engage in more open-ended, iterative and personally meaningful activities, while teachers act as facilitators of the process. Of course, this type of pedagogy can be more difficult for teachers. Another key factor in developing creativity in schools is to train teachers to be able to apply these pedagogies. This relates to cultivating attitudes about developing creative thinking in teachers, which is important and achievable. It also has to do with relieving some of the
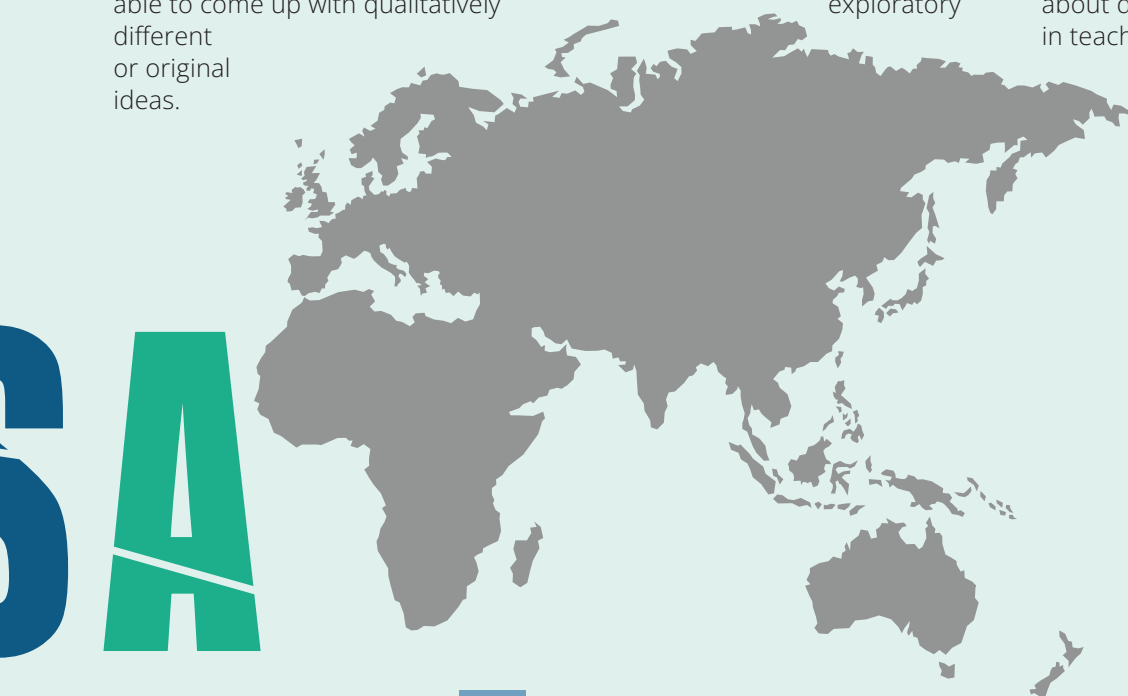
pressure on teachers that might go against the development of creative thinking. They include pressure to cover all the curriculum content, a lack of autonomy or excessive pressure on students to perform on standardised tests that focus primarily on recall of facts. Schools and school systems therefore have an important role to play in combating this pressure and could consider implementing policies and practices aimed at increasing the opportunities and benefits for students to practice creative thinking and decreasing the costs associated with it.

There is a lot of talk that creative thinking must also be cooperative to go far. Why is that? How should we work at school to develop creative thinking in all students?
Both the rationale for why the development of creative thinking in general is important and the body of literature focused on 'knowledge creation' as a particular type of creative thinking highlight that innovation is often a collaborative effort which is needed to find solutions to complex, global problems and advance our collective knowledge and understanding. That's why we also focus part of the PISA assessment on evaluating and improving others' ideas, on the fact that creative thinking is not just about having a brilliant idea but about being able to draw inspiration from existing ideas and move them forward in new and original ways to achieve something better collectively.
    The learner-centred pedagogy I mentioned earlier --project-based and problem-based learning-- lends itself well to collaborative work. Integrating knowledge creation

Play facilitates the development of skills related to creative thinking, such as improvisation and cognitive flexibility

intentionally into classroom life encourages students to contribute new ideas to their peers and the community and to work to continually improve them. This can happen by encouraging 'wonder questions', in which students are encouraged to try to express their curiosity, ask questions about the world and share their ideas about different phenomena that their peers can take advantage of.

What can teachers do to find out the degree to which their students have developed this competency?
I think one of the keys is to provide meaningful opportunities for them to participate and demonstrate their competency, such as by asking them to participate in open-ended tasks for which there is no one correct answer. Without that, it will always be very difficult if not impossible for teachers to get a sense of students' creative thinking abilities.
    It is important to clarify the fact that although we assess creativity in PISA, this does not necessarily mean that we are advocating that schools or countries should assess creative thinking similarly. In our framework, we emphasise that creative thinking is a skill that can be used in all disciplines and that what characterises the competency of creative thinking is students' ability to generate original ideas and think of many different possibilities.
    Related to this, another aspect to keep in mind is that, for twenty-first-century skills like creative

thinking, the process is as important as the end result. Even if a student ultimately develops an idea that is not the most original, has he or she engaged in an idea generation process in which he or she has considered multiple ideas and evaluated those ideas for relevance, appropriateness and quality? Do students consider multiple possibilities? Do they follow the most obvious problem-solving path or do they attempt to question their own or others' ideas? And once they have a solution, do they consider whether and how it can be improved?

Finally, how can the community and the family be involved in creativity education?
The PISA framework recognises several individual factors that can influence creative thinking, including students' attitudes and beliefs about creativity. One of the ways that family and society can help foster creative thinking is by cultivating positive attitudes about the value of creativity and supporting the idea that it is a competency that can be developed through intentional practice.
    For example, play is something that children do every day, and it's a great opportunity to exercise and develop creative thinking. Rather than thinking of play as an activity that detracts from learning, it can actually be a highly motivating, autonomous and interactive process that facilitates the development of a range of skills related to creative thinking, such as improvisation, risk-taking, imagination, cognitive flexibility and perspective-taking. And the great thing about creative play is that it can be easily replicated in diverse cultures, different age groups and abilities and high - and low-resource settings.

Creative thinking: is inspiration from existing ideas, moving them forward in an original way and achieving something better collectively