Teaching in Focus #21

What does innovation in pedagogy look like?



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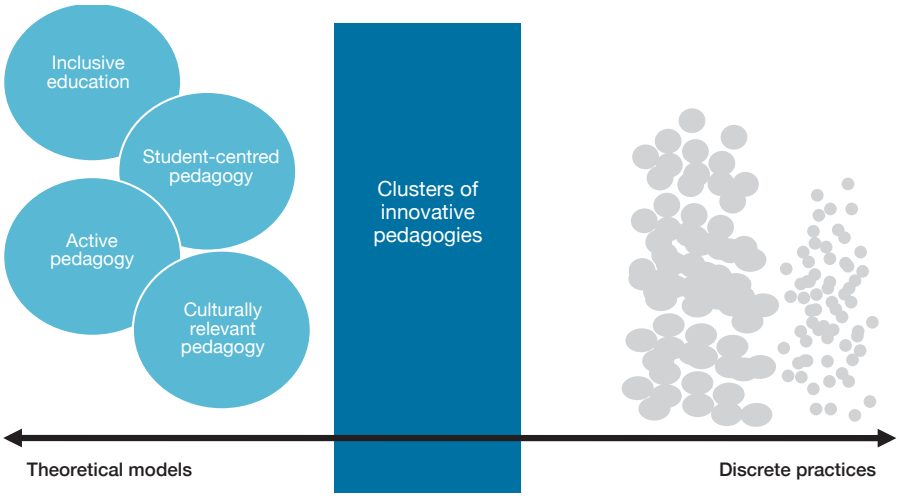
- It is generally acknowledged that the quality of an educational system depends upon the quality of its teachers. In focusing on the importance of pedagogies it is possible to argue that to help students meet new educational challenges, teachers need to reflect upon and update their repertoire of practices.
- Preparing young people to meet new contemporary challenges means reviewing and updating the pedagogies teachers use. Innovation at the level of practice must be seen as a normal response to addressing the daily challenges of a constantly changing classroom. Change is not an extra, but a pedagogical problem-solving process that builds on the creative, intuitive and personal capacities of teachers.
- The new OECD publication, *Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies*, aims to help teachers navigate the huge number of promising practices and new approaches within the innovation landscape. It builds on the analysis of six clusters of innovative pedagogies and the insights of networks of innovative schools to offer a baseline from which teachers can innovate themselves.

Mapping out innovative pedagogies

A fundamental challenge when approaching and identifying pedagogies is the diverse nature of examples of innovation. There has been increased and improved reporting of teachers and schools implementing new approaches. However, the number of experiences – such as the 2 855 innovations catalogued by researchers from the Centre for Universal Education – are commonly presented as very particular and contextualised practices. This leads to difficulties when trying to connect and scale up these innovations and adapt them to other contexts. Teachers considering the learning sciences must also deal with abstract theoretical formulations that are too wide and too removed from the classroom.

To address this challenge, *Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies* builds up a comprehensive map of innovative pedagogies using an analytical approach located between practice and theory. Figure 1 shows the middle ground where the proposed clusters of innovative pedagogies are located, which are the result of streamlining different discrete practices and establishing connections with broader theoretical models.

Figure 1. Pedagogical continuum: Looking at pedagogies both as theory and practice



Note: The labels in the theoretical models are illustrative examples, not exhaustive categories.
Source: Paniagua, A. and D. Istance (2018), *Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies*, http://dx.doi.org/10.1787/9789264085374-en, Figure 2.4, p. 38.

Six clusters of innovative pedagogies

In building up the clusters of innovative pedagogies (Figure 2), the first criterion was to look for approaches that have targeted 21st century skills,[1] student engagement and agency, and, more generally, the seven principles of learning[2] outlined in Dumont, Istance and Benavides (2010: 14-17). Approaches that focused on competences rather than content were also chosen. In this sense, innovative areas, such as

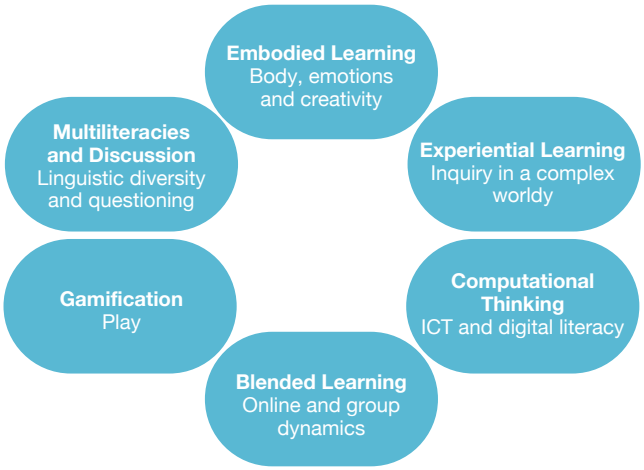
1. 21st century skills include skills such as creativity, critical thinking and problem solving, financial and economic literacy, health and digital literacy, global awareness and citizenship.
2. The principles of learning refer to: i) learner centredness and engagement; ii) the social nature of learning; iii) emotions playing a key role in learning; iv) recognising individual differences; v) stretching each learner; vi) appropriate and formative assessment; and vii) horizontal connectedness.

education for sustainable development (ESD) or citizenship, are included in some of the clusters. Similarly, well-established, innovative approaches, such as co-operative and socio-emotional learning, are considered key pillars of the "new science of learning" and underpin most of these six clusters.

Blended learning: Rethinking the purpose of the classroom and classroom time

Blended learning (BL) seeks to use the potential of new technology to offer more individualised teaching and calls for a new use of class time. It is one of the main global trends shaping education environments and has become increasingly important in higher education. Under this model, the classroom is seen as the place to apply content and deepen one-to-one interactions, whether with the teacher or through peer collaboration. There are three main forms within this cluster of pedagogies: 1) the inverted/flipped classroom, in which students work on material first and only then access the teacher(s) to practice, clarify and deepen understanding; 2) the lab-based model, in which a group of students rotates between a school lab and the classroom with the application of content through face-to-face interactions with teachers; and 3) "in-class" blending, in which individual students follow a customised schedule rotating between online and face-to-face instruction.

Figure 2. Clusters of innovative pedagogies



Source: Paniagua, A. and D. Istance (2018), *Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies*, http://dx.doi.org/10.1787/9789264085374-en, Figure 4.1, p. 79.

Gamification: Engagement through play and the pedagogies of games

The use of video games in innovation and teaching is a major new trend, partly due to how they can make learning fun and engaging. The challenge of using gamification as pedagogy comes from the generalised idea that it is a "motivational" resource to make lessons more appealing, but not a new way of thinking about teaching and learning. Gaming in education takes different forms (e.g. gamification, game-based learning, serious games), although the OECD report uses "gamification" to encompass the pedagogical core of gaming and the benefits of playful environments for engagement and well-being.

Computational thinking: Problem-solving approach through logic

Computational thinking intersects mathematics, information and communications technologies (ICT) and digital literacy. It aims to address mathematics as a coding language and looks at ICT as a platform for developing problem-solving reasoning in students. Computational thinking as pedagogy goes beyond simply adding computing science into the curriculum to better understand how scientists use computers to frame and solve real problems; it also takes programming and coding as a new form of literacy. With computers and computer science providing interfaces between students' experiences of the world and their abstract knowledge and skills, computational thinking becomes a comprehensive scientific approach and a 21st century competence.

Making the most of the unique opportunities offered by ICT is key; however, PISA 2015 data showed that the most frequent uses of technology in the classroom today tend to emulate more traditional activities that could take place without a digital device (e.g. browsing the Internet for schoolwork, chatting online), while activities such as doing simulations on computers at school once a week was reported by an average of just 15% of students (see Figure 3).

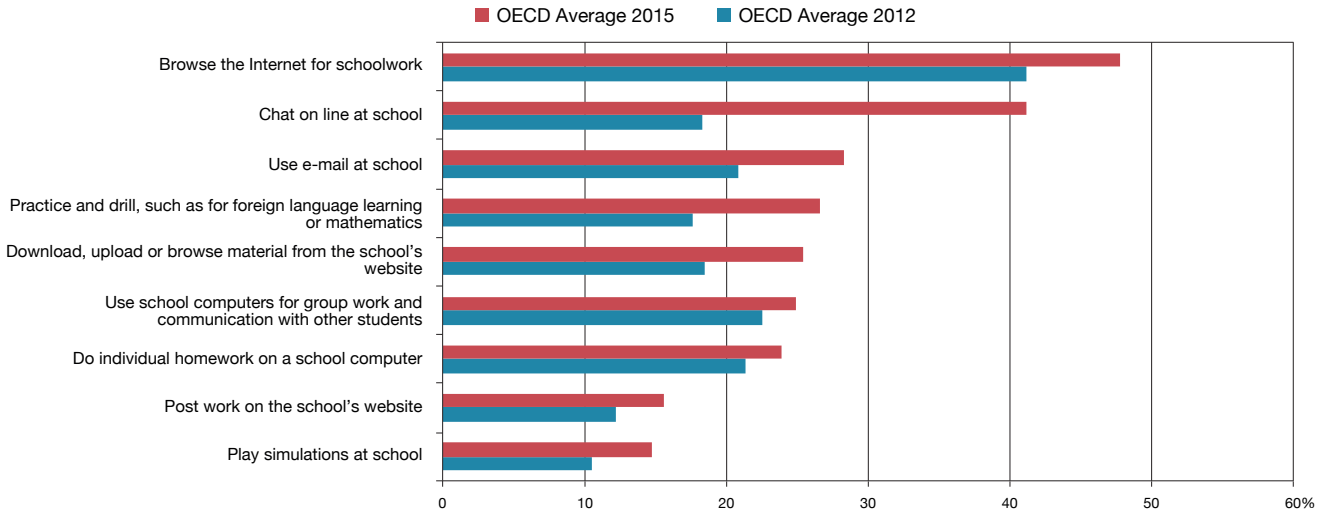
Experiential learning: Inquiry in a complex world

This cluster includes some approaches that best represent what innovation looks like in schools, since some of the ways in which experiential learning is implemented – e.g. project-based learning (PBL) – have been around for some time. In particular, this cluster revolves around inquiry-based learning, education for sustainable development, outdoor learning, service-learning, and the teaching of uncertainty competences as key skills for preparing students to address real, complex challenges. Experiential learning focuses on the

importance of the process of discovery and the value of the personal negotiation of meaning, as well as more widely on the importance of understanding and delivering learning environments as holistic experiences requiring the active experimentation of learners with their peers. As mentioned, one pedagogical practice that can be derived from experiential learning is project-based learning (PBL), which a significant number of school networks researched report to be implementing in diverse forms. However, the proportion of teachers that engage with PBL varies considerably across countries, and the OECD average from the Teaching and Learning International Survey (TALIS) shows that only about 30% of teachers report using this practice at all.

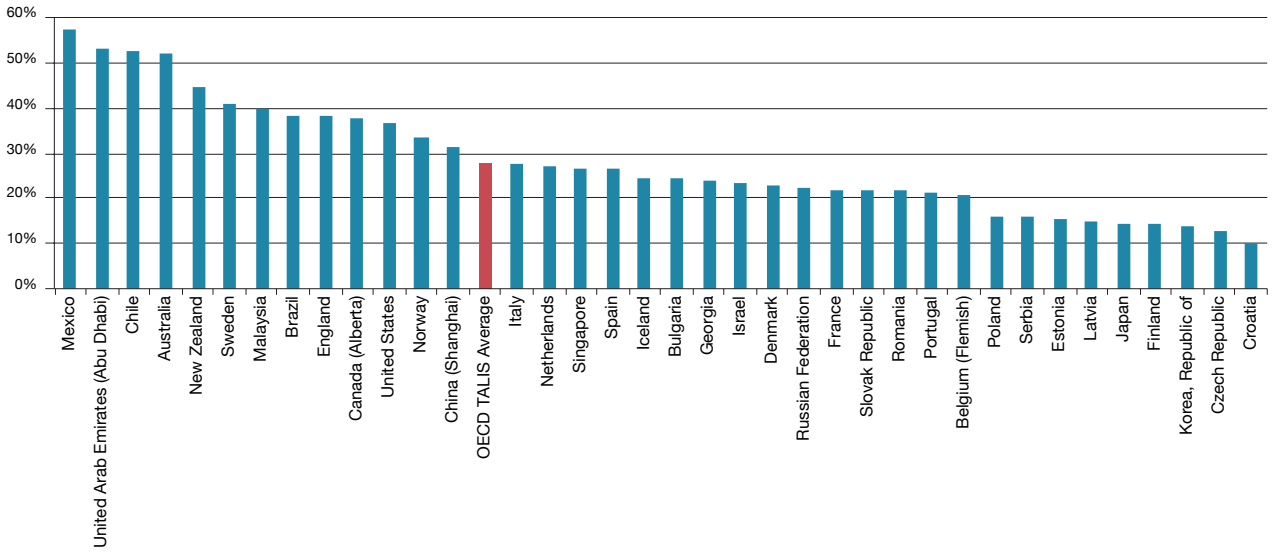
Figure 3: Change in use of digital devices at school between 2012 and 2015, by type of activity

Percentage of students who engage in each activity at least once a week, results based on students' self-reports



Source: OECD (2018), *Teaching for the Future: Effective Classroom Practices to Transform Education*, http://dx.doi.org/10.1787/9789264293243-en, Figure 4.1.

Figure 4: Proportion of lower secondary teachers that engage their students in projects that require at least one week to complete



Note: The data from the United States should be interpreted carefully. This is because the United States did not meet the international standards for participation rates.
Source: OECD (2018), *Teaching for the Future: Effective Classroom Practices to Transform Education*, http://dx.doi.org/10.1787/9789264293243-en, Figure 5.1.

Embodied learning: Capitalising on creativity and emotions

Embodied learning refers to pedagogical approaches that focus on the non-mental factors involved in learning, and that signal the importance of the body and feelings. This entails a significant shift in many education systems that have traditionally favoured abstract thinking, the individual, and passive content acquisition. Embodied pedagogies develop and exploit the idea of situated cognition, and highlight the paramount role of social, creative experiences and active student involvement in order to promote knowledge acquisition.

This cluster includes a wide conceptualisation of embodied learning that encompasses arts and design-based learning, new approaches to physical education and the maker culture movement – do-it-yourself and do-it-with-others approaches that revolve around tinkering, interaction, experimentation and design thinking in STEM subjects.

Multiliteracies and discussion-based teaching: Fostering critical thinking and questioning

This cluster combines two inter-related main approaches: multiliteracies and discussion-based teaching. While multiliteracies focuses on the number and diversity of platforms and languages that learners require to become literate, discussion-based teaching revolves around the critical and cultural variables through which learners actively construct the meaning of texts. This cluster situates knowledge in its political, cultural and authorial context, deconstructing narratives through interchange and collaboration. In addition, it builds on the lives and interests of the students, their communities, and the wider historical forces impacting on them, which favours the engagement of diverse students in the classroom.

Networks of innovative schools

Pedagogical change can be powerfully promoted through networks, which play a key role in the development of coherent pedagogical approaches, support materials, professional sharing and learning, and learning leadership. The OECD report summarises the work and approaches of 27 national and international networks of innovative schools, organised across three types:

- **Pedagogical approach networks** implement the same innovations and are defined by common pedagogical principles.
- **Innovation promotion networks** share their different innovative pedagogies.
- **Professional learning networks** focus on providing professional development to schools and teachers.

Box 1. Example of an innovative network: Amico Robot (Italy)

The network "Amico Robot" was created on the back of the Educational Robotics Festival in Lombardy in 2007, after a decade of several schools trying different experiments using robotics. The network started with a pedagogical approach based on learning-by-doing through the building and programming of robots. The network is active in projects involving diverse academic and cultural organisations. Since 2014, it has organised seminars to share and reflect on experiences, with the participation of teachers, university students and researchers. Currently, 12 middle and high schools take part and Amico Robot is working with the Ministry of Education to draft curricula that include robotics.

Robotics is used by the schools involved to meet three different goals: 1) the implementation of alternative pedagogies around constructivism and metacognition; 2) the innovative use of ICT; and 3) the development of 21st century skills. Amico Robot also seeks to emphasise lab work to promote learner participation and peer collaboration and true, deep learning. Following the six clusters of innovative pedagogies, Amico Robot illustrates how experiential learning, computational thinking and embodied learning are combined. Students not only learn how to design and programme these robots – involving design thinking and coding – but also how to collaborate and investigate with their peers to improve their creations. There is an annual competition in which schools from the network compete.

The bottom line

Identifying clusters of innovative pedagogies is the first step in developing a broad international consensus of pedagogy across the teaching profession. Such a framework needs to start with the argument that teachers are high-level professionals whose professionalism revolves around collaborative pedagogical expertise.

To call for a pedagogical framework is to recognise the key role of pedagogy, not to ask policies to dictate the best teaching methods. It is a matter of widening the skills of teachers to promote more interactive, horizontal and caring relationships with students. In focusing on the role of teachers as creative professionals, a framework for pedagogies calls for a form of teaching that retains a deliberate form of lesson planning that promotes student centredness and active participation

Finally, by starting to think about the relationships of teaching and learning around natural learning inclinations, such as play, creativity, collaboration, and inquiry, the clusters of innovative pedagogies consciously promote the engagement of learners and match the fundamentals of learning to improve the professional competences of teachers.

Visit

http://www.oecd.org/education/ceri/innovative-pedagogies-for-powerful-learning.htm

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To learn more

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