

**DIRECTORATE FOR EDUCATION AND SKILLS**

**Cancels & replaces the same document of 28 March 2018**

**UNDERSTANDING INNOVATIVE PEDAGOGIES: KEY THEMES TO  
ANALYSE NEW APPROACHES TO TEACHING AND LEARNING**

**OECD Education Working Paper No. 172**

**Amelia Peterson, Harvard University; Hanna Dumont, German Institute for International  
Educational Research; Marc Lafuente, Educational consultant; Nancy Law, University of  
Hong Kong**

*This working paper has been authorised by Andreas Schleicher, Director of the Directorate for Education and Skills, OECD.*

*Note: The chapters that appear in this working paper were commissioned by the OECD in the context of the Innovative Pedagogies for Powerful Learning project. These papers expounded on some underlying research themes which were paramount to create the project conceptual framework, named the “C’s” framework. An abridged version of these chapters is included in the publication Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies.*

Tracey Burns, Senior Analyst, [Tracey.Burns@oecd.org](mailto:Tracey.Burns@oecd.org)  
Alejandro Paniagua, Consultant, [Alejandro.Paniagua@oecd.org](mailto:Alejandro.Paniagua@oecd.org)

**JT03429629**

## OECD EDUCATION WORKING PAPERS SERIES

OECD Working Papers should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed herein are those of the author(s).

Working Papers describe preliminary results or research in progress by the author(s) and are published to stimulate discussion on a broad range of issues on which the OECD works. Comments on Working Papers are welcome, and may be sent to the Directorate for Education and Skills, OECD, 2 rue André-Pascal, 75775 Paris Cedex 16, France.

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.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgement of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to [rights@oecd.org](mailto:rights@oecd.org).

Comment on the series is welcome, and should be sent to [edu.contact@oecd.org](mailto:edu.contact@oecd.org).

This working paper has been authorised by Andreas Schleicher, Director of the Directorate for Education and Skills, OECD.

-----  
[www.oecd.org/edu/workingpapers](http://www.oecd.org/edu/workingpapers)  
-----

© OECD 2018

## ACKNOWLEDGMENTS

The chapters included in this paper were commissioned by the OECD as part of Innovative Pedagogies for Powerful Learning project which was led by David Istance until his retirement from the OECD Secretariat in mid-2017. Under this role, he edited the chapters and reviewed and commented on previous drafts. The order of the authors in the cover page reflects the way chapters have been organised in this paper for conceptual purposes, and does not reflect the importance of their contribution. Many thanks to Matthew Gill for his valuable support in both editing and preparing the working paper.

Marc Lafuente would like to thank Jaume Bofill Foundation for supporting his secondment at the OECD, and David Istance for his priceless guidance. Nancy Law wishes to thank the Humanities and Social Sciences Prestigious Fellowship Scheme #37600414 of the Hong Kong Research Grants Council for supporting her work. Hanna Dumont would like to thank Lyn Corno and Judy Randi for their valuable feedback.

## ABSTRACT

Pedagogy is at the heart of teaching and learning. Preparing young people to meet new contemporary challenges means to review and update the pedagogies teachers use. However, despite the increased reporting of teachers and schools that are innovating, schools remain largely seen as very resistant places for innovation. To address the importance and challenges of implementing new pedagogies, this paper brings together leading experts to reflect on key areas of pedagogy. In particular, each chapter addresses a pedagogical dimension that together offers a conceptual framework for action. This framework moves beyond a fragmented focus on specific innovations. In doing so, it helps explain how innovative pedagogies may be developed, applied and scaled. Amelia Peterson's first contribution shows how fundamental purpose is to pedagogy, while Hanna Dumont's section explores adaptive teaching as a cross-cutting concept over a range of different pedagogical approaches. Then the paper moves to discuss the importance of understanding pedagogies as combinations, which Amelia Peterson defines as two layers: one combining discrete teaching practices and another that combines approaches to meet long-term educational goals. Marc Lafuente looks first at content domains (mathematics, non-native languages, and socio-emotional learning) and how they relate to pedagogies. He then contributes to the thinking on "new learners" and technology, as important context influencing pedagogical choices and implementation. The final section by Nancy Law is focused on change, through the particular prism of technology-enhanced pedagogical innovations. Her analysis moves towards a theory of change that takes account of the need for alignment at the different levels of the educational system.

## RÉSUMÉ

La pédagogie est au cœur de l'enseignement et de l'apprentissage. Préparer les jeunes à affronter les nouveaux défis contemporains implique la revisite et la mise à jour des pédagogies utilisées par les enseignants. Néanmoins, malgré le nombre croissant d'enseignants et d'établissements scolaires investis dans l'innovation, l'école est encore largement perçue comme très résistante à l'innovation. Pour souligner l'importance et le défi de mettre en œuvre de nouvelles pédagogies, ce rapport réunit des experts reconnus pour réfléchir sur les domaines clés de la pédagogie. En particulier, chaque chapitre aborde une dimension pédagogique qui offre un cadre conceptuel pour la mise en pratique. Ce cadre va au-delà d'une vision fragmentée sur des innovations spécifiques. Ainsi, il contribue à expliquer comment les pédagogies innovantes peuvent être développées, appliquées et ajustées. Dans sa première contribution, Amélia Peterson

démontre l'importance fondamentale de l'objectif pour la pédagogie, alors que le chapitre d'Hanna Dumont explore l'enseignement adapté comme notion transversale pour un éventail d'approches pédagogiques différentes. Les propos du rapport se dirigent ensuite vers l'importance de comprendre les pédagogies en tant que combinaisons, qu'Amelia Peterson définit comme ayant deux niveaux : l'un combinant les pratiques pédagogiques discrètes et l'autre combinant des approches visant à répondre aux objectifs éducatifs à long terme. Marc Lafuente, quant à lui, se penche d'abord sur le contenu (les mathématiques, les langues autres que la langue maternelle, et l'apprentissage socio-émotionnel) et sa relation avec la pédagogie. Il contribue ensuite à la réflexion sur les 'nouveaux apprenants' et la technologie, en tant que contexte important influençant les choix pédagogiques et leur mise en œuvre. La partie finale, rédigée par Nancy Law, examine le changement à travers le prisme des innovations pédagogiques améliorées grâce aux technologies. Son analyse tend vers une théorie du changement prenant en considération les besoins d'harmonisation à différents niveaux du système éducatif.

## *Table of contents*

<b>ACKNOWLEDGMENTS.....</b>	<b>3</b>
<b>ABSTRACT .....</b>	<b>4</b>
<b>RÉSUMÉ.....</b>	<b>4</b>
<b>1. The purpose of pedagogy (Amelia Peterson, Harvard University).....</b>	<b>8</b>
1.1. Introduction.....	8
1.2. The functions of pedagogies .....	8
1.3. Pedagogies aim at multiple purposes .....	8
1.4. Pedagogies organise people and time .....	10
1.5. Pedagogies bundle practices .....	11
References.....	12
<b>2. Adaptive teaching: Students’ differences and productive learning (Hanna Dumont, German Institute for International Educational Research) .....</b>	<b>13</b>
2.1. Introduction.....	13
2.2. Adaptive teaching as a general pedagogical approach.....	14
2.3. Empirical evidence on the effectiveness of adaptive teaching.....	19
2.4. Adaptive teaching and equality of opportunity.....	23
2.5. Conclusions and ways forward .....	24
References.....	24
<b>3. Combinations of pedagogies, innovative and established (Amelia Peterson, Harvard University) .....</b>	<b>33</b>
3.1. Introduction.....	33
3.2. The evidence base.....	34
3.3. The context of combinations - expanded goals for education.....	35
3.4. The importance of pedagogical combinations .....	38
3.5. Examples of combinations.....	41
3.6. Creating strong combinations .....	44
Annex 3.A. Appendix: Networks with innovate pedagogical designs.....	47
References.....	57
<b>4. Pedagogies and domains focusing on mathematics, non-native languages, and socio-emotional learning (Marc Lafuente, Educational consultant) .....</b>	<b>61</b>
4.1. Introduction.....	61
4.2. Pedagogies – domain-neutral? .....	61
4.3. Competences, domains, learning goals and pedagogical priorities.....	63
4.4. Challenges for pedagogy in mathematics, non-native language and socio-emotional education.....	67
4.5. Domains and the OECD/ILE learning principles .....	69
4.6. Conclusions.....	81
References.....	82

<b>5. Attuning pedagogies to the context of ‘new learners’ and technology (Marc Lafuente, Educational consultant) .....</b>	<b>94</b>
5.1. Introduction.....	94
5.2. “New learners” .....	94
5.3. Technology use .....	95
5.4. Multimedia.....	98
5.5. Multi-tasking, non-linear and interactive environments .....	101
5.6. Active learning and gaming environments .....	104
5.7. Collaboration and social activities .....	106
5.8. Conclusions.....	108
References.....	109
<b>6. Technology-enhanced innovative pedagogy: The challenge (Nancy Law, University of Hong Kong) .....</b>	<b>116</b>
6.1. Scaling technology-enhanced innovative pedagogy: The challenge .....	116
6.2. Mechanisms of change at multiple levels for scalability .....	118
6.3. In search of multilevel interdependencies for TEPI success.....	122
6.4. A multi-level multi-scale (MLMS) model of learning for scalable TEPIs .....	125
6.5. Implications of the multi-level multi-scale model for scalable TEPI .....	129
6.6. Conclusions and discussion .....	130
References.....	131

### Tables

Table 1.1. Different approaches have different purposes .....	10
Table 1.2. Different approaches promote different ways of organising learning .....	11
Table 3.1. Different approaches create different learning experiences .....	39
Table 5.1. Pedagogical implications of technology use .....	98
Table 5.2. Pedagogical implications of multimedia materials.....	101
Table 5.3. Pedagogical implications of multi-tasking and interactive environments .....	104
Table 5.4. Pedagogical implications of gaming environments.....	106
Table 5.5. Pedagogical implications of collaborative and Web 2.0 environments.....	108

### Figures

Figure 3.1. Practices combine within approaches, which combine in a school-level pedagogical design.....	41
Figure 4.1. A highly domain-specific competence.....	64
Figure 4.2. A highly domain-transcending competence.....	65
Figure 4.3. Pedagogies for synergising specific and general competences .....	66
Figure 6.1. Conceptual framework in ICILS 2013 relating context to learning outcomes.....	123
Figure 6.2. Schematic of the constructs at different system levels included in ICILS 2013 .....	124
Figure 6.3. Schematic of the feedback loops within and across levels of the education.....	127