

Symposium

Teachers as Learning Specialists – Implications for Teachers' Pedagogical Knowledge and Professionalism

Brussels, 18 June 2014
9h00 - 18h00

Hosted by OECD's Centre for Educational Research and Innovation
and the Flemish Department of Education and Training

Background and Project Objectives

The OECD's **Innovative Teaching for Effective Learning (ITEL)** project is investigating the pedagogical knowledge base of teachers as a way of addressing the critical issue of teacher quality and its impact on student outcomes. There are many studies examining the relationship between teacher quality and student outcomes. However, most of these studies have primarily focused on factors such as certification, qualifications, or courses taken. The resulting evidence is generally mixed, since formal qualifications are not necessarily equivalent to relevant teacher knowledge.

The ITEL project focuses on the pedagogical core of the teaching profession, namely, the pedagogical knowledge base of teachers, and questions whether this knowledge base is still in tune with recent advancements in learning research and with new skills demands society expects from students. In recent years, the interdisciplinary field of the learning sciences, including the neurosciences, has made significant progress in understanding how the human brain processes and retains information. The potential of the learning sciences to inform the pedagogical knowledge base of teachers and, hence, to improve pedagogical practice is significant. We are specifically interested in the general pedagogical knowledge needed for creating effective teaching-learning situations across subjects.

In addition, the policy imperatives for the teaching and learning of '21st century' skills might entail a re-skilling of the current teacher workforce and upgrading of the profession's knowledge base. We view teaching as a knowledge-rich profession with teachers as 'learning specialists.' As professionals in their field, teachers can be expected to process and evaluate new knowledge relevant for their core professional practice and to regularly update their knowledge base to improve their practice and to meet new teaching demands. Thus, there is a need to derive evidence-based suggestions for educational policy and future research by developing an instrument to profile the status of the knowledge base of teachers, to understand the knowledge dynamics in the teaching profession, and to examine their implications for the instructional process.

In particular, findings from this research will contribute to the theoretical and empirical research base in the area of teacher knowledge. More importantly, findings will have policy implications for both teacher education and professional development (e.g., preparing new teachers with the most up-to-date scientific knowledge for effective teaching and learning, identifying potential knowledge gaps for in-service teachers, and proposing ways in which such gaps can be addressed, while acknowledging and benefiting from teachers' available expertise and their role as learning specialists).

Objectives for the Symposium

The objective of this Symposium is to engage in discussions with leading experts in order to inform our development of a conceptual framework for developing an instrument to profile the pedagogical knowledge base of teachers. The Symposium will bring together leading researchers in the field to make presentations of their conceptual and empirical work to begin exploring the following questions:

- What is the pedagogical knowledge base of the teaching profession?
 - How is teachers' general pedagogical knowledge conceptualized? For instance, is it multi-dimensional, and if so, what are the various cognitive dimensions and can these be measured?
 - How do teachers' motivations and beliefs about teaching (e.g., self-regulation, self-efficacy, professional responsibility) relate to teacher knowledge and how can these relationships be measured?
 - How does teacher pedagogical knowledge impact student learning outcomes?
 - What is the relationship between pedagogical knowledge and professionalism, and how can it be measured?

- Is teachers' pedagogical knowledge up-to-date?
 - Does the knowledge base of teachers sufficiently incorporate the latest scientific research on learning? Can neuroscience research inform teachers on how to create effective teaching-learning situations?
 - Does teachers' knowledge base meet the expectations for teaching and learning '21st century skills'? What does the research say about how these skills are learned and developed?

Invited speakers have been selected to represent a diversity of theoretical perspectives and research foci. The Symposium will be of interest to researchers, teachers, and teacher educators with expertise in teacher pedagogical knowledge and teacher professionalism. The language of the meeting is English.

Venue

The conference will take place at the Flemish Department of Education and Training's **Hadewijch Auditorium** located at:

Hendrik Consciencegebouw
Koning Albert II-laan 15
B-1210 Brussels
Belgium

Contact

Questions can be directed to Sonia Guerriero, ITEL Project Leader, at Sonia.Guerriero@oecd.org.

Programme

Symposium Chair: Sonia Guerriero		
TIME	SPEAKER	PRESENTATION TOPIC
9h00 - 9h15	WELCOME: Micheline Scheys	Welcome from the Secretary General of the Flemish Department for Education and Training
9h15 - 9h45	KEYNOTE: Dirk Van Damme	Framing the Issues: Teacher professionalism and the knowledge dynamics in the profession
9h45 - 10h15	Sigrid Blömeke	Modelling teachers' professional competence as a multi-dimensional construct
10h15 - 10h45	Thamar Voss	Teachers' general pedagogical/psychological knowledge: Conceptualization and test construction
10h45 - 11h15	COFFEE	
11h15 - 11h45	Fani Lauerermann	Teacher responsibility and its ties to pedagogical knowledge and professionalism
11h45 - 12h15	Johannes König	Motivations for teaching and relationship to general pedagogical knowledge
12h15 - 13h00	PANEL DISCUSSION: Fien Depaepe	Fien Depaepe (discussant and moderator) will lead a panel discussion with Sigrid Blömeke, Thamar Voss, Fani Lauerermann, and Johannes König
13h00 - 14h15	LUNCH	
14h15 - 14h45	Daniel Ansari	Why should teachers care about neuroscience?
14h45 - 15h15	James W. Pellegrino	What is the evidence on teaching and learning 21st century skills?
15h15 - 15h45	Kirsti Klette	Measuring teaching qualities
15h45 - 16h00	COFFEE	
16h00 - 17h00	BREAK-OUT SESSIONS Facilitators: Tracey Tokuhama-Espinosa, Fani Lauerermann, Layne Kalbfleisch, Kirsti Klette	Four parallel discussion groups: GROUP A: How is teachers' general pedagogical knowledge conceptualized? GROUP B: What elements might influence teacher knowledge? GROUP C: Does the knowledge base of teachers sufficiently incorporate the latest scientific research on learning? GROUP D: Does teachers' knowledge base meet the expectations for teaching and learning 21st century skills?
17h00 - 18h00	GROUP DISCUSSION	Workshop summaries, group discussion and wrap-up
18h00	RECEPTION	Hosted by the Flemish Department for Education and Training

Speakers from the Hosting Organisations

Dirk Van Damme (OECD, Head of Division, Innovation and Measuring Progress)

Dirk Van Damme is the head of the Innovation and Measuring Progress Division (IMEP) in the Directorate for Education at the OECD in Paris. He holds a PhD in educational sciences from Ghent University and is also professor of educational sciences in the same university (since 1995). He also was part-time professor in comparative education at the Free University of Brussels (1997-2000) and visiting professor of comparative education at Seton Hall University, NJ, USA (2001-2008). He was general director of the Flemish Rectors' Conference, the main advisory body for higher education policy in the Flemish part of Belgium between 2000 and 2003. He has been professionally involved in educational policy development between 1992 and 2008, and served as deputy chief and later chief of staff for various Flemish education ministers. His current interests are evidence-based innovation in education, comparative analyses of educational systems, statistical indicators in education, new developments in the learning sciences and knowledge management in education. As head of the IMEP Division at the OECD he is responsible for leading both the Centre for Educational Research and Innovation (CERI) and the Indicators of Educational Systems (INES) programmes.

Micheline Scheys (Flemish Ministry, Department of Education and Training)

Micheline SCHEYS is the secretary general of the Education and Training Department within the Flemish Ministry in Belgium. Micheline Scheys, a sociologist and former researcher, has been at the forefront of education and training policy-making for more than 15 years. She advises the minister, grounding strategic objectives and measures on trends in broader society, international education policy and innovative developments in relevant scientific fields. She is also responsible for the short- and long-term planning, the co-ordination, monitoring and evaluation of policies. As project manager she has been working at the crossroads of the policy areas education and training, labour and culture, she developed plans for the development and implementation of the overarching delivery strategy for lifelong learning. Her project aimed at reinforcing the gearing of education and training for the labour market and vice versa, thereby ensuring the continuity and communication across sectors regarding the development of a National Qualification Framework, the Recognition of Prior Learning, the education and training supply, the possibilities for quality workplace-based learning etc. Through her membership of the DGVT and of the GB of ETF and CEDEFOP, she assists at developing VET in an European context.

Symposium Chair

Sonia Guerriero (OECD, Centre for Educational Research and Innovation)

Sonia Guerriero is the project leader of the Innovative Teaching for Effective Learning (ITEL) project. She holds a PhD in Experimental Psychology from McGill University in Canada, specialising in cognitive child development. During her time in academia, she worked in the Department of Psychology at McGill University, where she taught undergraduate courses in psychology and directed student thesis projects. After completing her PhD, she worked as a post-doctoral researcher on a project investigating the link between language development and reading difficulties in kindergarten-aged bilingual children. She began her career in educational policy research in 2006 as a senior research analyst at the Canadian Council on Learning where she worked with governmental and non-governmental organisations. She was one of the analysts who conducted the evaluation of the renowned Ontario secondary school reform. In 2010, she became a founding member and partner of a new educational policy research firm, Directions Evidence and Policy Research Group, located in Vancouver, Canada. She joined the OECD in 2011 as a member of the project management team for development of PISA 2015 and joined CERI in 2013 to lead the ITEL project.

Speakers

Daniel Ansari (University of Western Ontario, London, Canada)

Dr. Daniel Ansari received his undergraduate degree in Psychology at the University of Sussex in 1999. From there he went on to study for his PhD at the Institute of Child Health, University College of London, UK. During his PhD studies, he became increasingly interested in Neuroscience, leading him to study for an MSc in Neuroscience at the University of Oxford. From 2003-2006 he was an Assistant Professor of Education at Dartmouth College. Since 2006, Dr. Ansari is Canada Research Chair in Developmental Cognitive Neuroscience at the University of Western Ontario in Canada, where he heads the Numerical Cognition Laboratory. He and his team explore the developmental trajectory underlying both the typical and atypical development of numerical and mathematical skills, using both behavioural and neuroimaging methods. Dr. Ansari serves as an Associate Editor of the peer-reviewed journals, PLoS ONE, Developmental Science, and Mind, Brain and Education. In 2009, he received the 'Early Career Contributions' Award from the Society for Research in Child Development and in 2011 he was awarded the Boyd McCandless Early Researcher Award from the Developmental Psychology Division of the American Psychological Association. Currently, he is the president-elect of the International Mind, Brain and Education Society (IMBES).

Sigrid Blömeke (Humboldt University of Berlin, Germany)

Prof. Dr. Sigrid Blömeke has been a Full Professor of Instructional Research at Humboldt University of Berlin since 2002. Between 2007 and 2009, she spent two years as a Visiting Professor of Competence Measurement at Michigan State University in the USA. Dr. Blömeke is the Director of the Interdisciplinary Centre of Educational Research in Berlin and a member of several national and international editorial boards. Her areas of research include the modeling and measuring of teacher competencies, international comparisons, and the effectiveness of ICT in instruction. She has received major research grants for national and international studies in these fields. Dr. Blömeke is the German head of IEA's large-scale assessment "Teacher Education and Development Study in Mathematics" (TEDS-M), the head of the federal funding initiative "Modeling and Measuring Competencies in Higher Education" (KoKoHs), and the head of the department for "Design-Based Research and Evaluation" at the German Centre of Mathematics Teacher Education (DZLM).

Fien Depaepe (Katholieke Universiteit Leuven, Belgium)

Dr. Fien Depaepe worked as a research assistant for the Fund for Scientific Research – Flanders from 2004-2009. In 2009, she obtained the degree of Doctor in Educational Sciences at the Katholieke Universiteit Leuven in Belgium. She worked for four years as a postdoctoral researcher, funded by the Katholieke Universiteit Leuven and by the Fund for Scientific Research– Flanders. Since 2013, she is Assistant Professor in Educational Sciences at the Katholieke Universiteit Leuven. Her major research interests are at the intersection of mathematics education and teacher education. She is interested in cognitive (e.g., content knowledge, pedagogical content knowledge) and affective factors (e.g., beliefs, attitudes) that influence mathematics teaching and learning. Dr. Depaepe is currently leading a research project aimed at assessing and improving pre-service teachers' content and pedagogical content knowledge in the domain of rational numbers.

Kirsti Klette (University of Oslo, Norway)

Prof. Dr. Kirsti Klette is Full Professor of Classroom Studies/Instructional Research at the University of Oslo since 2002. For the academic year 2007/2008 she was a visiting Fulbright Professor at Stanford University. Prof. Dr. Klette is the Director of the Research group Studies of Instruction across Subjects and Competences (SISCO) at the Faculty of Educational Sciences, she is the leader of the TeachingLearningVideoLab Oslo, and she is the co-director of the Nordic Centre of Excellence in Education with a special responsibility for video documentation/innovative classroom teaching. Her areas of research are teaching and learning in classrooms, video documentation of classroom learning, how to measure instructional quality, and teacher education. Prof. Dr. Klette has received major grants for national and comparative studies in these areas of research, including recent

national and Nordic funding focusing on Linking Instruction and Student Achievement (LISA). She is also the Director of the comparative cross-national study analysing teacher training programmes in five different contexts (Finland, Norway, California, Chile, and Cuba).

Johannes König (University of Cologne, Germany)

Prof. Dr. Johannes König is a Full Professor of Empirical School Research, Quantitative Methods at the University of Cologne in Germany. He previously worked as a research assistant at Humboldt University of Berlin. He received the First State Examination for Teachers at Humboldt University of Berlin in 2003, a Dr. phil. at Freie Universität Berlin in 2006, and Habilitation in 2011. His current research fields are teacher education research, teacher competencies, and teacher knowledge (with a special focus on general pedagogical knowledge), and international comparisons. In various projects such as TEDS-M, he has worked extensively on assessing teacher knowledge and teacher education quality for the purpose of international comparisons. Since 2014, he is the Director of the Interdisciplinary Center for Empirical Research on Teachers and Teaching at the University of Cologne.

Fani Laueremann (University of Michigan, USA)

Dr. Fani Laueremann is a postdoctoral research fellow at the Institute for Social Research at the University of Michigan. She obtained her doctoral degree from the Combined Program in Education and Psychology at the University of Michigan in 2013. She is interested in the motivational underpinnings of educational and professional choices and performance, including such questions as what motivates teachers to provide students with high quality education, as well as what motivates students to pursue such education. In her current work, she is particularly interested in teachers' sense of professional responsibility, and its implications for the instructional process. Dr. Laueremann's research has been distinguished with the 2013 Outstanding Author Contribution Award from the Emerald Literati Network for Excellence, the 2011 Paul R. Pintrich Outstanding Paper Award at AERA, and the 2009 Student Research Excellence Award at EARLI. More recently, she has expanded her research agenda to include a more general focus on professional choices and career aspirations.

James W. Pellegrino (University of Illinois, USA)

Dr. James W. Pellegrino is Liberal Arts and Sciences Distinguished Professor and Distinguished Professor of Education at the University of Illinois at Chicago. He also serves as Co-director of the university's interdisciplinary Learning Sciences Research Institute. His research and development interests focus on children's and adult's thinking and learning and the implications of cognitive research and theory for assessment and instructional practice and is funded by the National Science Foundation and the Institute of Education Sciences. He has published over 275 books, chapters, and articles in the areas of cognition, instruction, and assessment. He has served as the head of several U.S. National Academy of Sciences study committees, including the Committee on Learning Research and Educational Practice, the Committee on the Foundations of Assessment, the Committee on Defining Deeper Learning and 21st Century Skills, and the Committee on Developing Assessments of Science Proficiency in K-12. He is a lifetime member of the U.S. National Academy of Education.

Thamar Voss (University of Tübingen, Germany)

Dr. Thamar Voss is currently a research scientist at the Center of Educational Science and Psychology at the Institute of Education at the University of Tübingen. She completed her PhD in 2010 working with Prof. Jürgen Baumert and Prof. Mareike Kunter at the Center for Educational Research within the Max Planck Institute for Human Development in Berlin. Her research interests are primarily concerned with the professional competence of teachers, successful entry into the teaching profession, and the question of what makes good teaching. Her dissertation project focused on creating a valid and reliable assessment for teachers' pedagogical/psychological knowledge. Dr. Voss worked at the Max Planck Institute for Human Development as a pre-doctoral research fellow until 2010 and afterwards as a post-doctoral research scientist. She was a member of the German

COACTIV-study (Cognitive Activation in the Mathematics Classroom and Professional Competence of Teachers) which is a large study on teachers' professional competence.

Facilitators

Layne Kalbfleisch (George Mason University, USA)

Layne Kalbfleisch, M.Ed., Ph.D. is an Associate Professor of educational psychology and cognitive neuroscience and the founder of KIDLAB at George Mason University and on the pediatrics faculty of The George Washington School of Medicine and Health Sciences. She is the outgoing Chair of the Brain, Neuroscience, and Education special interest group and a founding associate editor of *Frontiers in Educational Psychology*. Her recent guest-edited volume of *Roeper Review* covers the topic of visual spatial talent. Kalbfleisch's research examines the relationship between talent and disability in autism and attention disorders and uses neuroimaging to study how physical aspects of the environment, emotion, and social organization influence problem solving and inform our understanding of constructivist learning, or, learning by experience. She is a former middle school teacher, tutor of twice exceptional children, and service provider for university-level students with intellectual disabilities. Dr. Kalbfleisch received the inaugural 'Scientist Idol' award in 2010 for messaging science to the public from the National Science Foundation and contributed to the 2007 OECD-CERI publication, "Understanding the Brain: The Birth of a Learning Science".

Tracey Tokuhama-Espinosa (Universidad de las Américas, Quito, Ecuador)

Dr. Tokuhama-Espinosa has taught kindergarten through university and is currently the Dean of Education at the Universidad de las Américas in Quito, Ecuador. This office seeks to improve the quality of education in Ecuador through educational research, teacher training, and student support. She is also Full Professor of Education and Neuropsychology and has extensive experience in online education. Dr. Tokuhama-Espinosa works with schools in 25 countries around the world (Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Costa Rica, Ecuador, France, Germany, Italy, Mexico, The Netherlands, Norway, Panama, Peru, Puerto Rico, Spain, Sweden, Switzerland, Thailand, the United Kingdom, and the USA). She has more than 25 years of teaching experience and is now primarily focused on educational research. Her main areas of interest have to do with the continual expansion of the Mind, Brain, and Education field, learning in the digital age and paradigm shifts using appropriate technologies, multilingualism, and the general improvement of teacher education practices.