# ASSESSMENT FOR IDENTIFYING TEACHER COMPETENCE GAP IN THE CONTEXT FOR IMPROVING TEACHING 21ST CENTURY SKILLS

I. Dudareva, D. Namsone, A. Butkevica, L. Cakane

12th Annual International Conference of Education, Research and Innovation

Seville, 11th – 13th of November, 2019

LATVIA

- Parliamentary Republic

- Population – 1 920 000 (2019)

- Area – 64 589 km^2

- Language – Latvian

- Capital city – Rīga

STARPNOZARU IZGLĪTĪBAS
INOVĀCIJU CENTRS
LATVIJAS UNIVERSITĀTE
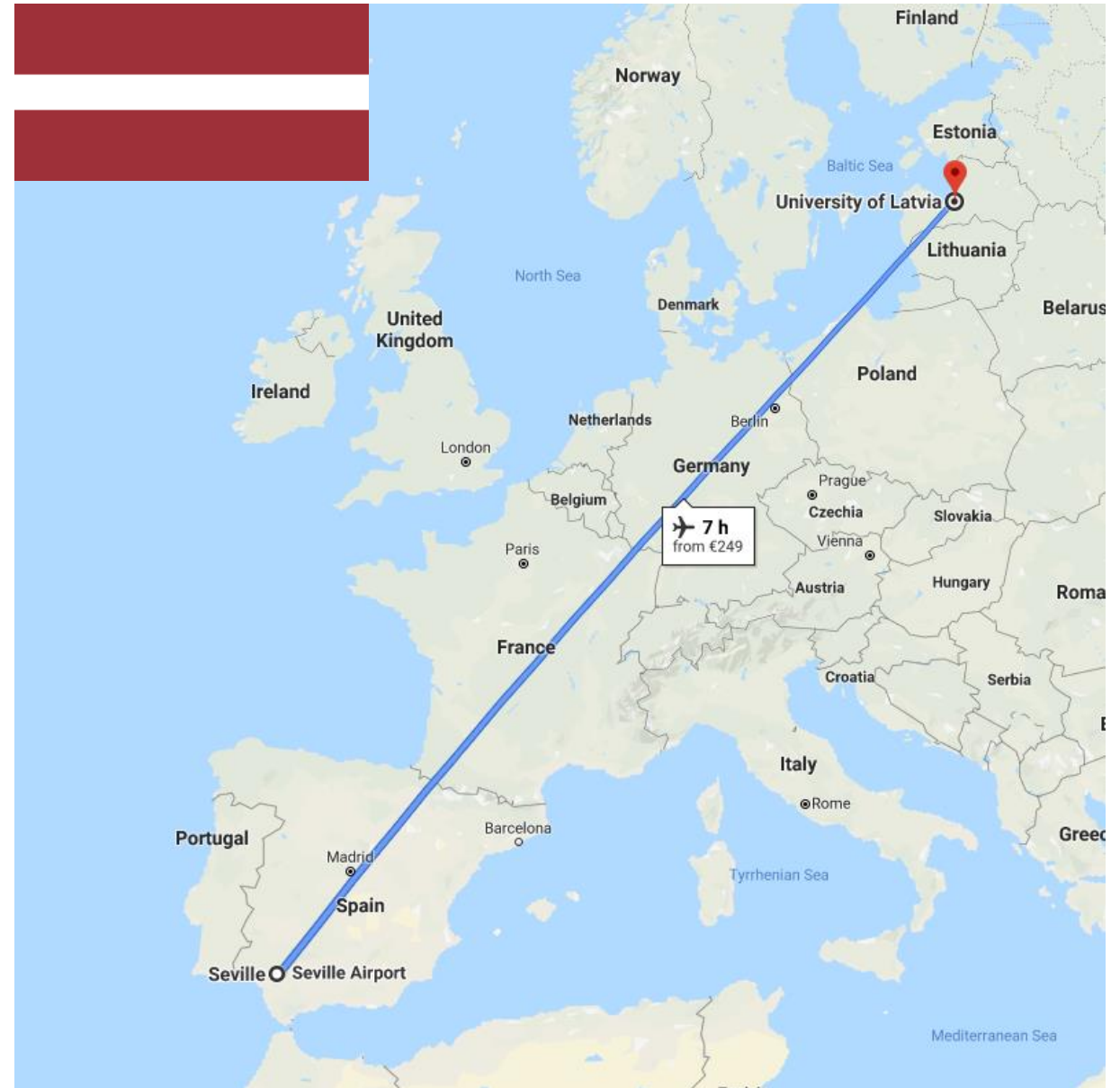
UNIVERSITY OF LATVIA

- UL was founded in 1919

- 13 faculties and more than 20 research institutes

- Number of students – 15 250 (2019)

- Located in Riga

INTRODUCTION OF 21st CENTURY TEACHING AND LEARNING

- National education reform «Competency-based Education Curriculum Development and Implementation»

- Teacher competence – set of knowledge, skills and beliefs that are integrated and manifest in a specific work situation [4, 5]

- Teachers` professional development that require to do their teaching according to the new curriculum goals

PHASES OF THE COMPETENCE MANAGEMENT PROCESS AND THEIR OUTCOMES
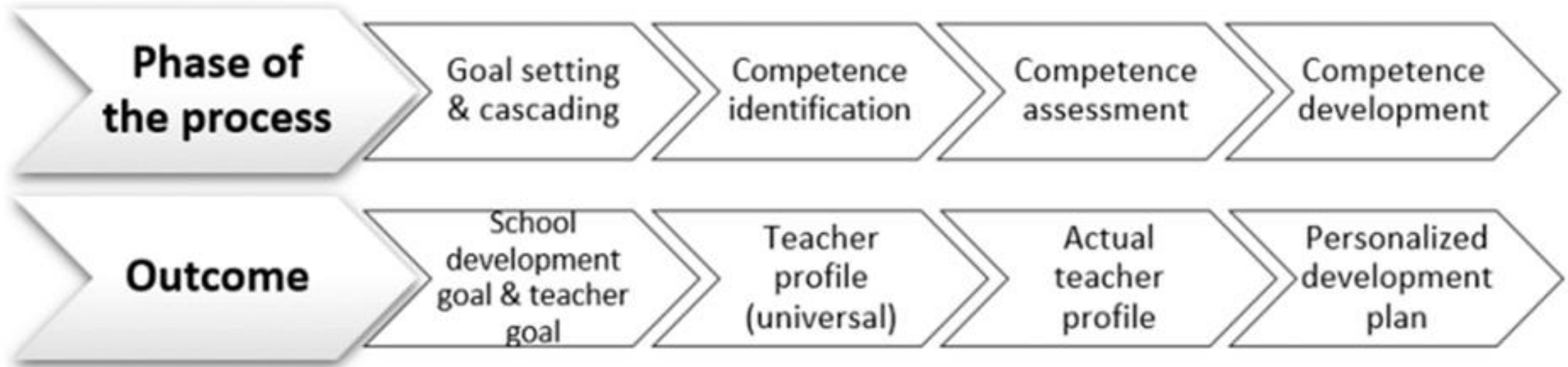
RESEARCH QUESTIONS

- How to identify teachers` *knowing-doing* gap in the context for improving teaching 21st century skills?

- How to identify teachers` *self-assessment* gap in the context for improving teaching 21st century skills?

METHODOLOGY

Assesment tools for identifying and assessing teacher competence:

- category-criteria framework

- description of teacher`s performance levels according to the framework

- online test-questionaire (TQ) for assesing knowledge

- online test-questionaire for self-assessment

[have been developed in previous stages of the larger research project]

METHODOLOGY

- Case study

- 8 pilot schools

- September 2017 to June 2019

- Lesson observations and analysis (N=135, 19 subjects, 1st-12th grade)

- Answer analysis of TQ knowledge questions and TQ self-assesment questions (N=135)

METHODOLOGY

Selected criteria from category-criteria framework for teaching performance to develop 21st century skills

Criteria	Support to students` self-directed learning		Students cognitive activation		Teacher techniques, basic skills			
	1.1. Learning goals	1.2. Metacognitive skills	2.1. Learning tasks for cognitive depth	2.2. Classroom discourse	5.1. Lesson design	5.2. Teacher techniques	5.3. Differentiation, personalization, support	6.2. Feedback to students
Lesson observation	X	X	X	X	X	X	X	X
TQ knowledge	–	–	X	X	X	–	X	X
TQ self-assessment	X	X	–	X	–	X	–	X

METHODOLOGY

Example of match between test questions and category

| Category	Criteria from framework	Test questions	Test question indicator
Support to students` self-directed learning (IA 1)	1.1. Learning goals	PR_1	How to communicate the learning goals?
	1.2. Metacognitive skills	PR_2 PR_3	How students understand what and how they learn? How students learn about self-directed learning?
Students cognitive activation (IA 2)	2.1. Learning tasks for cognitive depth	DZ_2 DZ_3	Recognizing the meaning of the task. Using knowledge in new situation.
	2.2. Classroom discourse	DZ_1 DR_1 DR_2	How to involve in thinking? What is purpose of asking questions? How to create a conversation?

RESULTS: lesson observation and TQ knowledge results

all participating teachers' average performance level and teachers` responses in selected criteria

Criteria	Support to students` self-directed learning		Students cognitive activation		Teacher techniques, basic skills			
	1.1.	1.2.	2.1.	2.2.	5.1.	5.2.	5.3.	6.2.
School code								
02_u	0.7	0.6	0.8	1.1	1.4	1.7	0.4	1.2
03_t	1.0	0.4	0.9	1.7	1.5	1.4	0.2	1.2
04_s	1.3	0.7	1.4	1.4	1.5	1.6	0.9	1.4
05_r	1.1	0.6	0.6	1.4	2.0	1.0	0.3	1.3
06_p	1.2	0.3	0.9	1.5	1.6	1.3	0.8	1.2
07_n	0.5	0.3	0.9	1.4	1.2	1.5	1.1	1.1
08_z	1.3	0.6	1.1	1.5	2.1	2.0	0.9	1.4

Criteria	Students cognitive activation		Teacher techniques, basic skills		
	2.1.	2.2.	5.1.	5.3.	6.2.
School code					
02_u	3.0	1.2	1.9	1.2	1.9
03_t	–	–	3.2	0.9	2.4
04_s	–	–	2.8	2.2	2.1
05_r	2.9	1.6	2.4	2.0	2.6
06_p	–	–	1.9	0.8	2.2
07_n	–	–	2.0	1.4	1.9
08_z	–	–	2.6	1.2	2.2

RESULTS: lesson observation and analysis
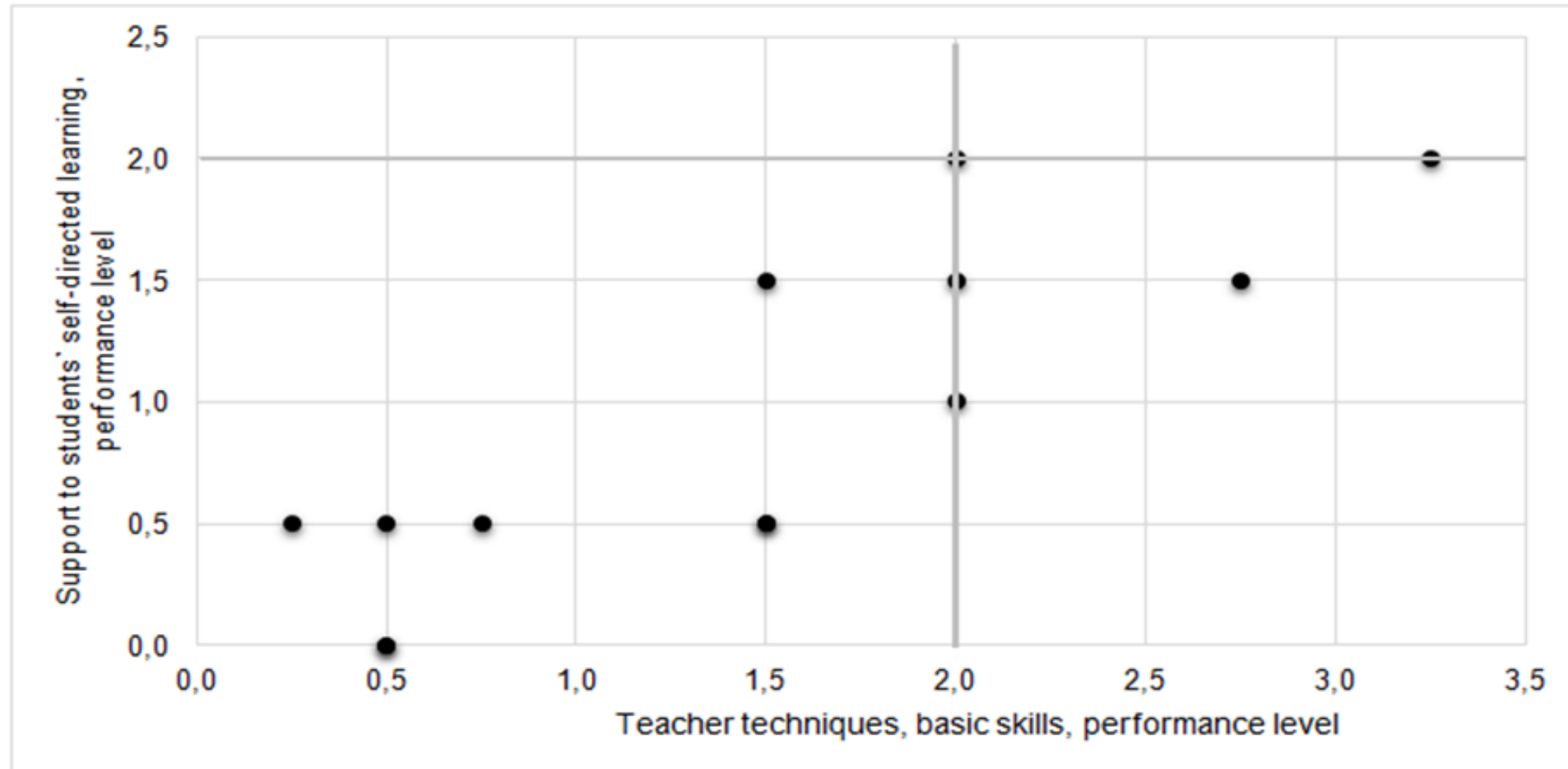
The individual teacher (N=11) performance level in school 04_S: dimensions of teacher techniques, basic skills and support for student self-directed learning
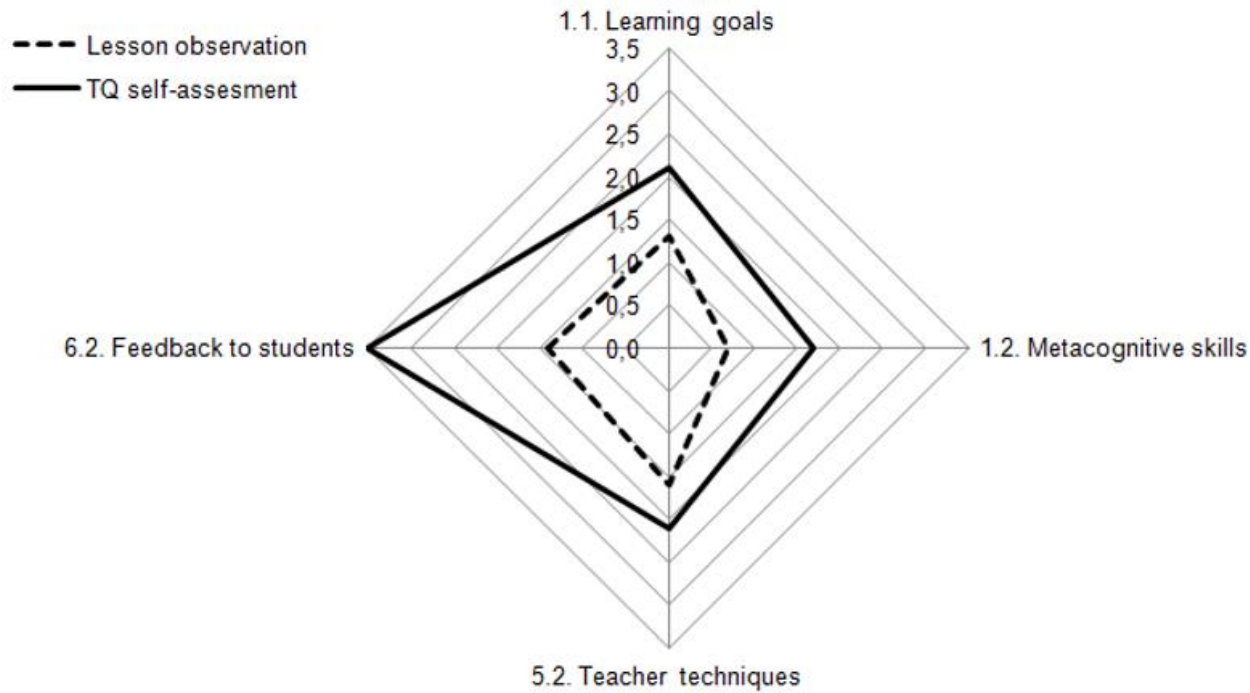
RESULTS: *knowing-doing* gap
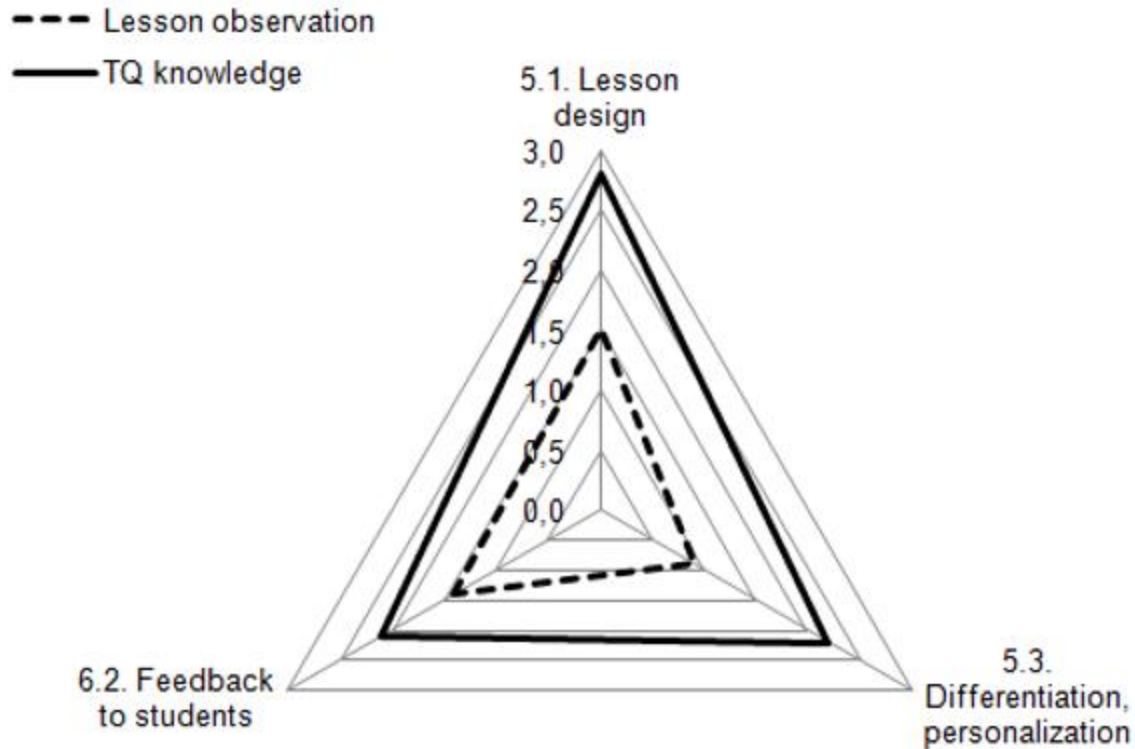
Gap between performance level in teaching/learning process and teachers` knowledge (school 04_s)

Criteria	Students cognitive activation		Teacher techniques, basic skills		
	2.1.	2.2.	5.1.	5.3.	6.2.
School code					
02_u	2.2	0.1	0.5	0.8	0.7
03_t	–	–	1.7	0.7	1.2
04_s	–	–	1.3	1.3	0.7
05_r	2.3	0.2	0.4	1.7	1.3
06_p	–	–	0.3	0.0	1.0
07_n	–	–	0.8	0.3	0.8
08_z	–	–	0.5	0.3	0.8

RESULTS: self-assessment gap

Gap between performance level in teaching/learning process and teachers` opinion about his/her typical performance level (school 04_s)

Criteria	1.1.	1.2.	2.2.	5.2.	6.2.
School code					
02_u	–	–	1.9	0.4	2.3
03_t	1.7	1.6	–	0.4	2.4
04_s	0.8	1.0	–	0.5	2.1
05_r	–	–	1.2	1.4	2.0
06_p	0.9	1.9	–	0.7	1.6
07_n	2.4	1.5	–	0.3	1.5
08_z	1.0	1.5	–	-0.1	1.8

STARPNOZARU IZGLĪTĪBAS
INOVĀCIJU CENTRS
LATVIJAS UNIVERSITĀTE

CONCLUSIONS

- By comparision individual teachers` actual performance level assessed by doing lesson observation and the test results in selected criteria were compared to identify teacher`s knowing-doing and self-assessment gaps

- The results show that teachers mostly know how to act by planning lessons, by organizing differentiated and personalized teaching/learning process, by providing feedback to students, but the size of the gap between teachers knowledge and performance in practice measures at least one level or even more in some criteria

- Obtained results can support the planning and implementing teacher professional development for the school as a whole and for personalized for each teacher in the context of an ongoing reform

STARPNOZARU IZGLĪTĪBAS INOVĀCIJU CENTRS
LATVIJAS UNIVERSITĀTE

ACKNOWLEDGEMENTS

REFERENCES

[1] F. Adamson and L. Darling-Hammond, "Policy pathways for twenty-first century skills," in *Assessment and teaching of 21st century skills* (P. Griffin and E. Care, eds.) pp. 293-310, Dordrecht: Springer, 2015.

[2] S. Bernholt, K. Neumann and P. Nentwig, *Making it tangible. Learning outcomes in science education*, Munster: Waxmann, 2012.

[3] Skola2030, *Education for contemporary competence: description of curricula and approach*
[reform document for public consultation], 2017. Retrieved from
https://docs.wixstatic.com/ugd/3e1e8c_0b2ac53576544b70a2b689edcfbef010.pdf

[4] D. Namsone, J. Volkinsteine and G. Lace, G, "Necessary competencies for teachers", in *Learning for Competence* (D. Namsone, ed.) pp. 146-157 Riga: University of Latvia Academic Publishing, 2018 https://doi.org/10.22364/ml.2018.6

[5] M. Kunter, U. Klusmann, J. Baumert, D. Richter, T. Voss and A. Hachfeld, "Professional competence of teachers: Effects on instructional quality and student development," *Journal of Educational Psychology*, vol. 105, no. 3, pp. 805–820, 2013.

[6] A. Butkēviča, I. Dudareva, D. Namsone, U. Zandbergs, L. Čakāne and D. Bērtule, "Designing and Piloting Online Tests as Part of a Teacher Competence Assesment, " in *Proceedings of the International Scientific Conference SOCIETY. INTEGRATION. EDUCATION*, pp. 333-343, 2019.

[7] D. Bērtule, I. Dudareva, D. Namsone, L. Čakāne and A. Butkēviča, "Framework of Teacher Performance Assessment to Support Teaching 21st Century Skills," in *Proceedings of the 13th annual International Technology, Education and Development Conference INTED*, pp. 5742-5752, 2019.

STARPNOZARU IZGLĪTĪBAS
INOVĀCIJU CENTRS
LATVIJAS UNIVERSITĀTE