National Level Large Scale Assessment Data for Instructional Planning in Classroom

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Percentage of top performers in OECD PISA 2015

	Science	Reading	Mathematics
Latvia, %	3.8	4.3	5.2
OECD-35, %	7.8	8.3	10.7

OECD. (2016). *PISA 2015 Results (Volume I): Excellence and Equity in Education*. Paris: OECD Publishing.

Compulsory Curriculum Framework

Learning Areas	Transversal Skills	Virtues
• Languages	• Critical Thinking and Problem Solving	• Responsibility/Diligence
• Social and Civic	• Creativity and Entrepreneurship	• Courage/Honesty
• Cultural Understanding and Artistic Self-expression	• Self-regulated Learning	• Wisdom/Kindness
• Sciences	• Collaboration	• Compassion/Moderation
• Mathematics	• Civic Participation	• Self-control/Solidarity
• Technology	• Digital	• Fairness/Tolerance
• Health and Physical Activity		

Skola2030. (2017). Izglītība mūsdienīgai lietpratībai: mācību satura un pieejas apraksts (Education for contemporary competence: description of curricula and approach) [reform document for public consultation]. Retrieved from: https://docs.wixstatic.com/ugd/3e1e8c_0b2ac53576544b70a2b689edcfbef010.pdf

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Continuous School Improvement

1

DATA ANALYSIS

- Lesson observations
- Performance assessment data
- Teacher and student questionnaires

3

LEARNING ORGANISATION

- Learning of all students
- Leadership
- Continuous professional development
- External environment

2

PLANNING

SMART goals
- Specific
- Measurable
- Achievable
- Relevant
- Time bonded

Bernhardt, V. L., & Bernhardt, V. (2013). *Data analysis for continuous school improvement*. Routledge.
Hargreaves, A., & Fullan, M. (2012). *Professional capital: Transforming teaching in every school*. Teachers College Press.

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Data-driven decision making

National Centre for Education:
- Competency based education reform
- Organization of large-scale assessment information and data reporting
- Teachers' data literacy

Skola2030. (2017). Izglītība mūsdienīgai lietpratībai: mācību satura un pieejas apraksts (Education for contemporary competence: description of curricula and approach) [reform document for public consultation]. Retrieved from: https://docs.wixstatic.com/ugd/3e1e8c_0b2ac53576544b70a2b689edcfbef010.pdf
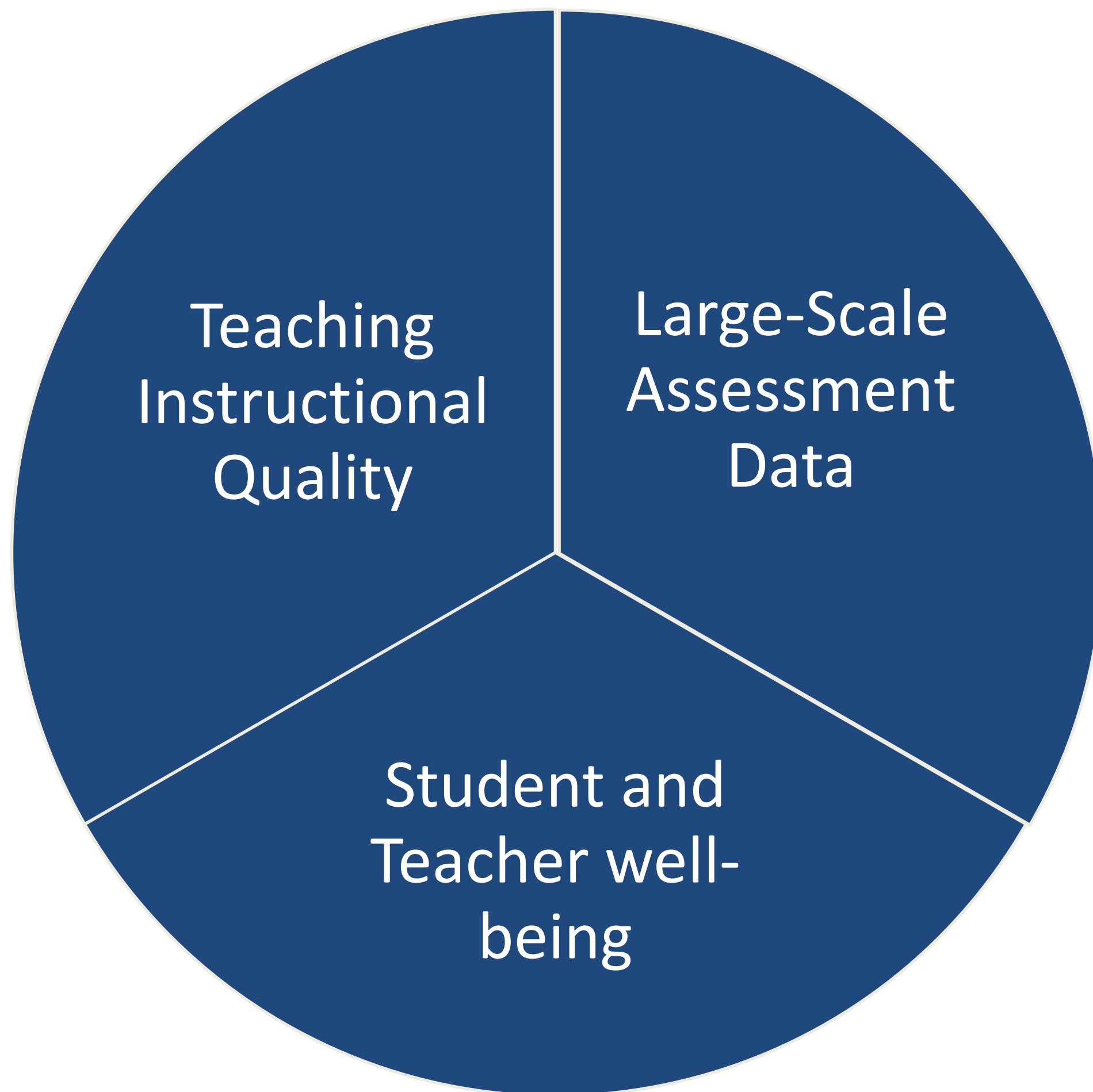
Cech, T. G., Spaulding, T. J., & Cazier, J. A. (2018). Data competence maturity: developing data-driven decision making. *Journal of Research in Innovative Teaching & Learning*, *11*(2), 139–158. https://doi.org/10.1108/JRIT-03-2018-0007

Aim of the study

To develop a model to make high quality decisions at school level, using different sources of data

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Koretz, D. M. (2017). *The testing charade: pretending to make schools better*. Chicago ; London: The University of Chicago Press.

Methodology

Large-scale assessment data analysis
Teacher instruction's quality analysis
   Expert groups
   Observations
   Modelling
   Survey

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LARGE-SCALE ASSESMENT DATA

Large-scale assessment

3rd grade: Math, Latvian language
6th grade: Math, Latvian language, Science
9th grade: Math, Latvian language, English,
History

Construct substrands

Construct	Construct substrands
Mathematics Literacy	Modeling/formulating
	Transforming/manipulating
	Inferring/drawing conclusions
	Communicating
Scientific Literacy	Explain phenomena scientifcally
	Interpret data and evidence scientifically
	Evaluate and design scientific enquiry
Language Literacy	Language conventions
	Retrieve explicitly stated information
	Interpret and integrate ideas and information
	Communicating

Pestovs, P., Namsone, D., Čakāne, L., & Saleniece, I. (2019). MAKROLĪMEŅA 6. KLAŠU VĒRTĒŠANAS KONSTRUKTU ATBILSTĪBA PILNVEIDOTĀ MĀCĪBU SATURA IETVARAM. *SABIEDRĪBA. INTEGRĀCIJA. IZGLĪTĪBA*, *387*, 387.

6ᵗʰ grade large-scale assessment alignment

Construct	Construct substrands	Cognitive Level of Complexity (SOLO)		
		I	II	III
Scientific Literacy	Explain phenomena scientifcally			
	Interpret data and evidence scientifically	3., 14., 22., 23.,	4., 8., 11., 13., 24., 27., 28., 29., 30.	16.,
	Evaluate and design scientific enquiry	1., 5., 6.,	7., 9., 25., 26.	
Mathematics Literacy	Modeling/formulating			
	Transforming/manipulating	1a., 1b., 1c., 1d., 1e., 1f., 5a., 7a., 12a., 3a., 3b., 3c., 3d.	1g., 1h., 2., 6.1., 5b., 5c., 8., 9., 11., 10., 4a., 7b., 12.b., 4.b.	6.2., 13.
	Inferring/drawing conclusions			
	Communicating			
Language Literacy	Language connotation	1.P., 2.P., 3.P., 4.P., 5.P., 6.P., 7.P., 8.1., 8.2., 8.3., 8.4., 8.5., 11.1., 11.2., 12.P.		
	Retrieve explicitly stated information	1.1., 1.2., 1.3., 6., 7.1., 2.	3.1., 3.2., 4.1., 4.2.	
	Interpret and integrate ideas and information		5., 7.2., 12.1., 12.2., 12.3., 12.4.	12.5., 9.
	Communicating			

Pestovs, P., Namsone, D., Čakāne, L., & Saleniece, I. (2019). MAKROLĪMEŅA 6. KLAŠU VĒRTĒŠANAS KONSTRUKTU ATBILSTĪBA PILNVEIDOTĀ MĀCĪBU SATURA IETVARAM. *SABIEDRĪBA. INTEGRĀCIJA. IZGLĪTĪBA*, *387*, 387.

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Student average achievement

Construct	Construct substrands	Cognitive Level of Complexity (SOLO)			
		I	II	III	IV
Scientific Literacy	Interpret data and evidence scientifically	85 %	56 %	21 %	
	Evaluate and design scientific enquiry		59 %	59 %	
Mathematics Literacy	Transforming/manipulating	78 %	54 %	38 %	
Language Literacy	Language connotation	60 %			
	Retrieve explicitly stated information	66 %	68 %		
	Interpret and integrate ideas and information		63 %	19 %	

Pestovs, P., Namsone, D., Čakāne, L., & Saleniece, I. (2019). MAKROLĪMEŅA 6. KLAŠU VĒRTĒŠANAS KONSTRUKTU ATBILSTĪBA PILNVEIDOTĀ MĀCĪBU SATURA IETVARAM. *SABIEDRĪBA. INTEGRĀCIJA. IZGLĪTĪBA*, *387*, 387.

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TEACHING INSTRUCTIONAL QUALITY

Framework for teacher performance to teach 21st century skills

Categories		II 1	II 2	II 3
		Planning	Teaching	Classroom environment
IA 1	Student self-regulation	1.1. Learning goals	1.2. Metacognitive skills	
IA 2	Student cognitive activation	2.1. Learning tasks for cognitive depth	2.2.Classroom discourse	
IA 3	Student collaboration	3.1.Learning tasks for collaboration	3.2. Student collaboration	
IA 4	Leveraging digital	4.1. ICT tools	4.2. Meaningful ICT usage	
IB 5 IB 6	Teacher techniques, basic skills	5.1. Lesson design	5.2. Teaching techniques	5.3. Differentiation, personalization, support
		6.1. Curriculum	6.2. Feedback to students	

Bertule, D., Dudareva, I., Namsone, D., Čakāne, L., & Butkēviča, A. (2019). Framework of Teacher Performance Assessment to Support Teaching 21st Century Skills. *Submitted for Proceedings for INTED*. Iesniegts 13th annual International Technology, Education and Development (INTED) Conference, Valencia.

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Performance levels according to the framework

Levels

Dimensions

Criteria	0 Not observed	1 Beginner	2 Developing	3 Proficient	4 Expert
1.2. Metacognitive skills Conducts a strategy of learning at a conscious level.	Don't organize reflection on how learning takes place.	Involves students in reflection on the purpose of the learning activity, the purpose of the task; talks on the possibilities of using knowledge, skills, strategies.	+ Make a conversation on how pupils learn, read, think, remember, discuss, compare strategies used by students.	+ Give students the task of evaluating different strategies, their effectiveness, and choosing the most appropriate for themselves and the situation.	+ Give tasks for student to justify the choice of their strategies.
Teaches to set goals, plan, assess, monitor one's learning.	Does not involve students in setting goals, monitoring their activities, assessment, etc.	Involves students in discussing goals, performance criteria; encourages students to see the linkage of learning activities.	Encourages students to personalize, adjust goals, see the roles of activities, use the criteria to give a feedback to a classmate, to use the received feedback.	Encourages students to set individual goals, plan activities to achieve the goal, formulate product, process criteria; choose a task that suits them, ask and give a qualitative feedback, using criteria, description of performance levels.	Creating a process so that pupils are guided, adjusted, plan their activities on their way to a common or individual goals.
	The pupil does not use metacognitive skills.	*Pupil understands what and why - clear sequence of activities and tasks; have the opportunity to learn some individual metacognitive skill.*	*The pupil learns to manage learning through metacognitive strategies.*	*Pupil uses, assess, learns new metacognitive strategies to guide their learning.*	*The pupil consciously, independently chooses and uses metacognitive strategies, guides their learning.*

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MODELLING

Student average achievement and difference from the national level

CATEGORY	1.1.	1.2.		1.3.		2.1.		2.2.			3.		
COGNITIVE LEVEL	II	I	II	II	III	I	II	I	II	III	I	II	III
NATIONAL	59%	85%	53%	48%	21%	60%	74%	65%	63%	19%	78%	58%	30%
SCHOOL A	+20%	+3%	+17%	+22%	-9%	+16%	+6%	+26%	+11%	+18%	+8%	+10%	-2%
SCHOOL F	+5%	-12%	-13%	-12%	-10%	-11%	-15%	-40%	-17%	-9%	-3%	-27%	-27%

1.1. Evaluate and design scientific enquiry
1.2. Access information (Science context)
1.3. Interpret data and evidence scientifically
2.1. Access information (Literature context)
2.2. Interpret data in literature context
3. Transforming/manipulating

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Number of teachers according to each PLD

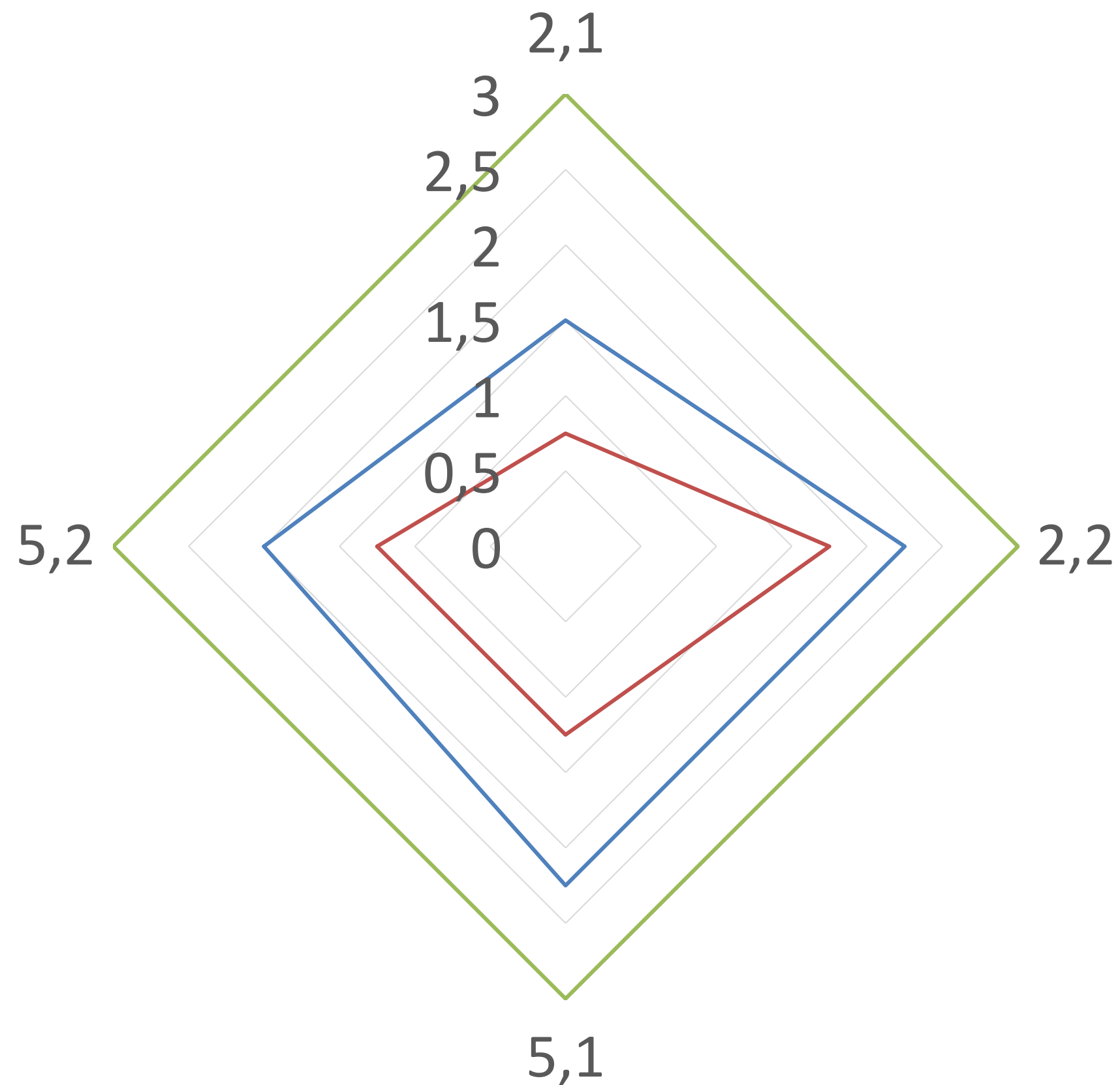| Criteria and PLDs	2.1.				2.2.				5.1.				5.2.			
	0	1	2	3+	0	1	2	3+	0	1	2	3+	0	1	2	3+
School A		2	2			1	1	2		1	1	2		2		2
School F	2	1	1			1	3			3	1		1	1	2	

2.1 Learning tasks for cognitive depth
2.2 Classroom discourse
5.1 Lesson design
5.2. Teaching techniques

Number of teachers according to each PLD

2.1 Learning tasks for cognitive depth
2.2 Classroom discourse
5.1 Lesson design
5.2. Teaching techniques

Discussion and further research

Limitation of large scale assessment data reliability

Leader Practices in Schools

Context non-education factors with major impact on student achievements

Differentiated professional development

Student and teacher well-being surveys

Questions?

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