

Developing a framework for school level data complex analysis to improve student achievements

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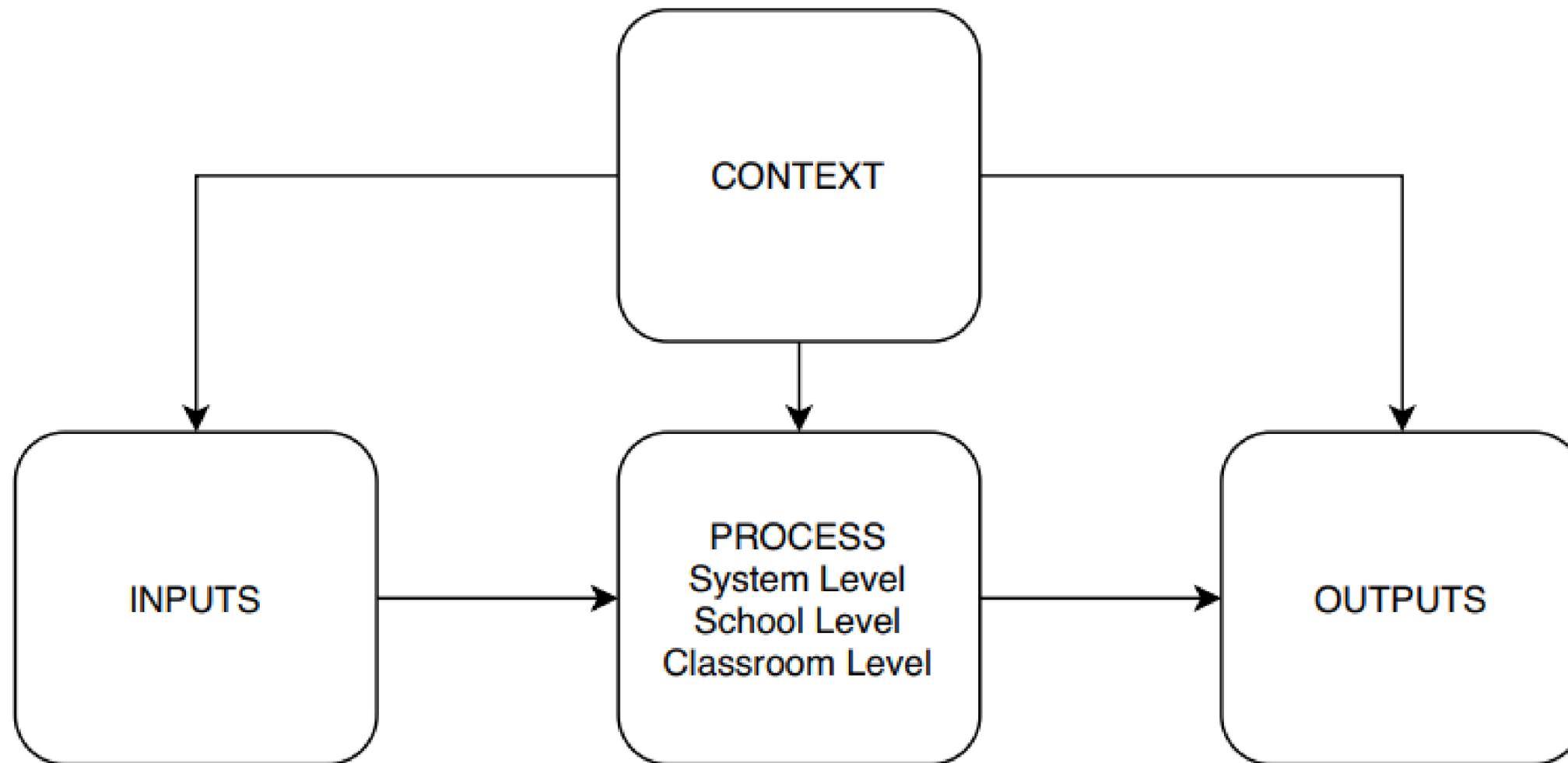
Introduction

Organisation learning capability and seeking the most effective solution in long term will be the one factors which will determine the sustainable competitive advantage.

Research questions

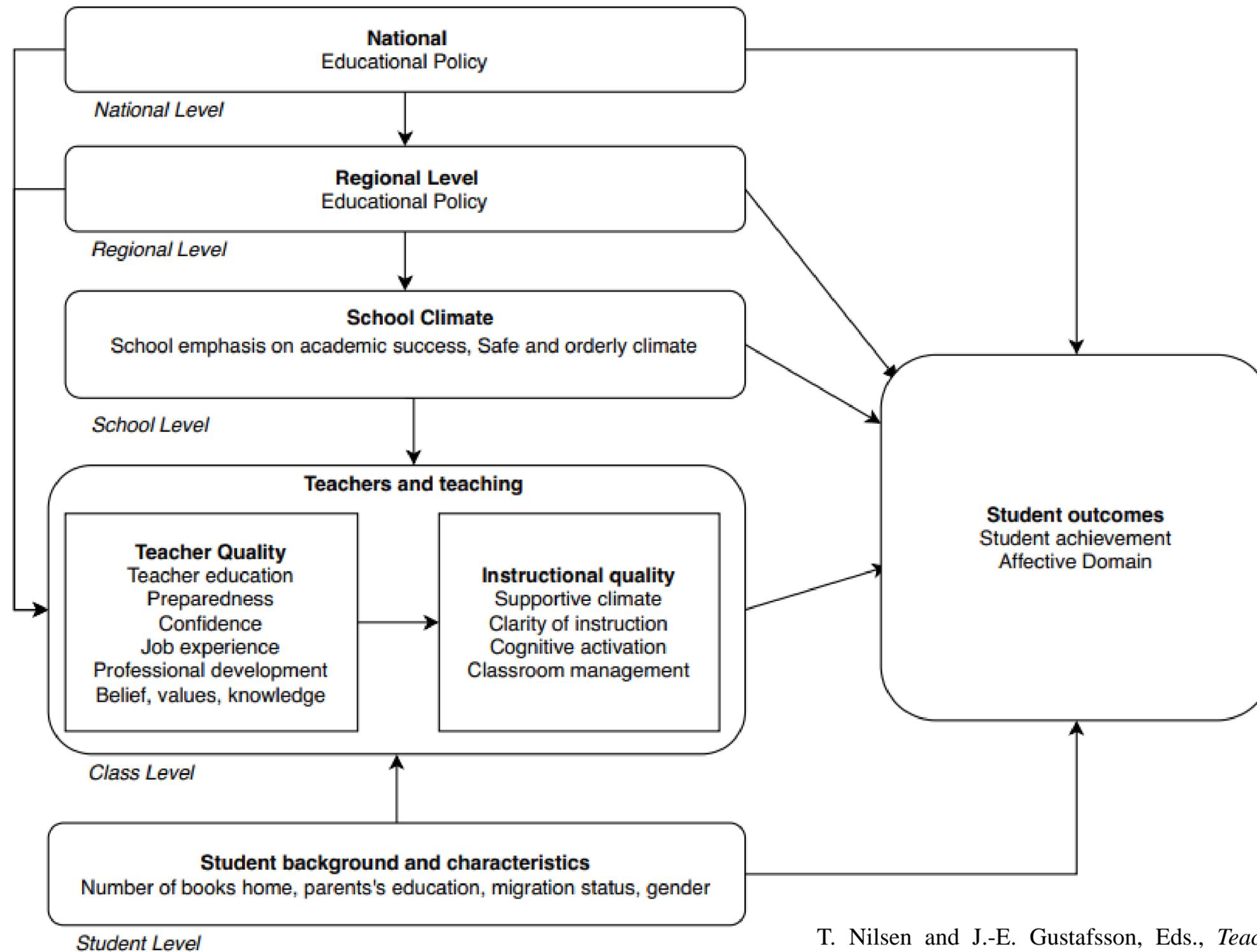
1. What is the theoretical framework for school level data complex analysis to improve students' achievements?
2. What are the results of piloting the framework in school practice?

Theoretical Background

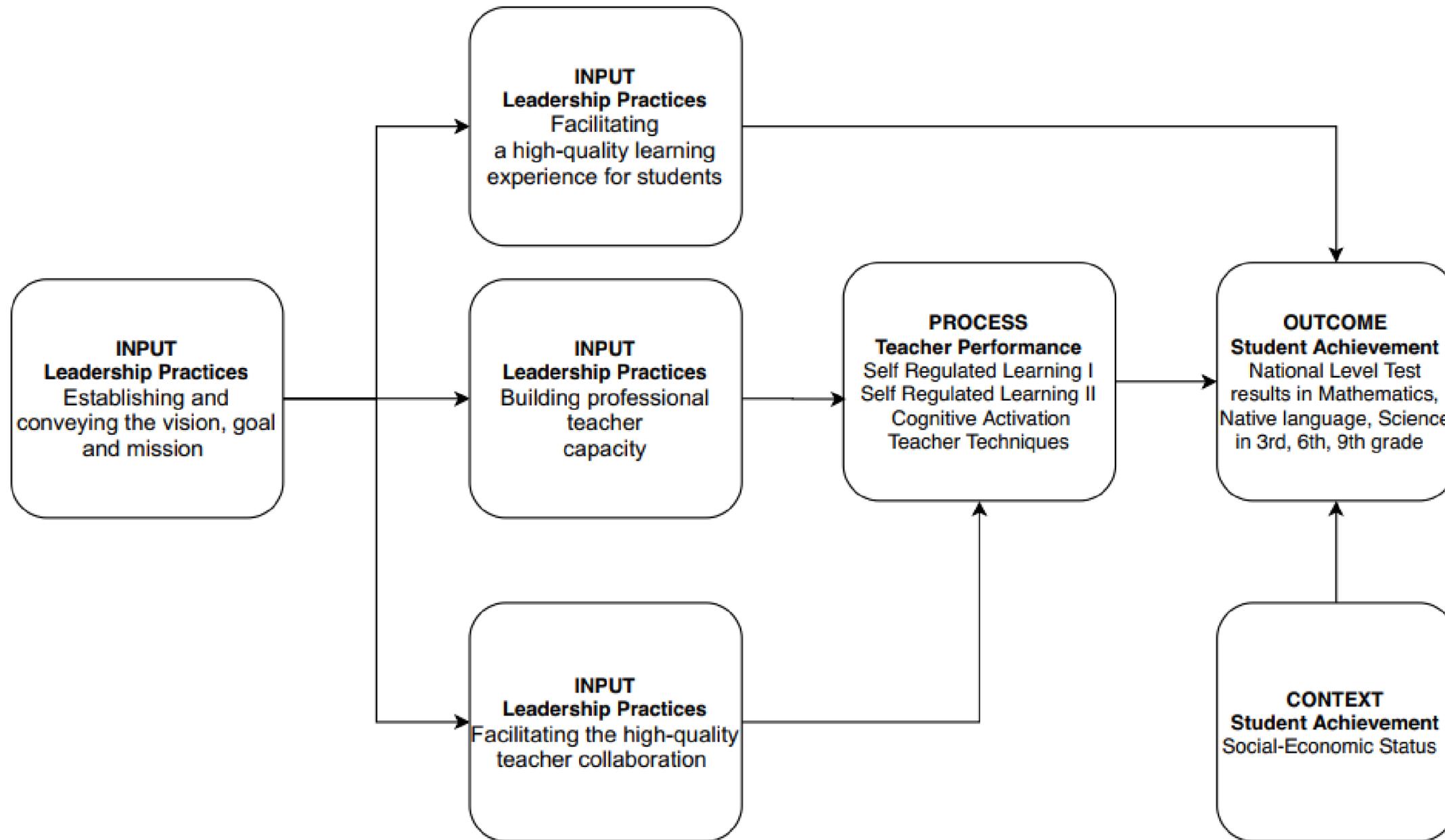


J. Scheerens, *Educational Effectiveness and Ineffectiveness*. Dordrecht: Springer Netherlands, 2016.

Theoretical Background



Theoretical framework for school level data complex analysis to improve students' achievements



Methodology

Authors have developed the framework to organise and analyse the assessment data according to Math, Language and Science subject subcomponents. For the identification of the level of complexity of item, Structure of Observed Learning Outcomes (SOLO) taxonomy has been used

Subject	Subject subcomponents	SOLO level of complexity				
		I	IIA	IIB	III	IV
Mathematics	Model/formulate					
	Transform/manipulate					
	Infare/draw conclusions					
	Communicate					
Scientific	Explain phenomena scientifically					
	Interpret data and evidence scientifically					
	Evaluate and design scientific enquiry					
Language	Language conventions					
	Retrieve explicitly stated information					
	Interpret and integrate ideas and information					
	Communicate					

Methodology

Teacher performance assessment at school level has been organized and reported, using Bertule, Dudareva, Cakane, Namsone & Butkevica developed criteria framework and performance assessment level descriptors for teaching 21st century skills at scale 1-4

Category	II 1	II 2	II 3
	Planning	Teaching	Classroom environment
IA 1 Self-Regulated learning I	1. Learning goals	6.2. Feedback	
IA 1 Self-Regulated Learning II		1.2. Metacognitive skills	5.3. Differentiation, personalization
IA 2 Cognitive Activation	2.1. Learning tasks for cognitive activation	2.2. Classroom discourse	
IB 5 Teacher techniques, teacher basic skills	5.1. Lesson design	5.2. Teaching Techniques	
IB 6	6.1. Curriculum		

D. Bertule, I. Dudareva, D. Namsone, L. Čakāne, and A. Butkēviča, 'Framework of Teacher Performance Assessment to Support Teaching 21st Century Skills', *Submitted for Proceedings for INTED*, 2019.

Methodology

Saleniece, Namsone, Cakane & Butkevica have developed context specific school leadership practices framework, identifying categories, criteria and performance descriptors according to the four different levels

No.	Category	Criteria
1.	Facilitating a high-quality learning experience for students	
1.1.		Learning organization
1.2.		Student differentiation
1.3.		High quality collaboration with family
1.4.		Safe environment
2.	Building professional teacher capacity	
2.1.		Goal operationalization
2.2.		Learning leadership
2.3.		Personalized professional development
3.	Facilitating the high-quality teacher collaboration	
3.1.		Teacher collaboration management
4.	Establishing and conveying the vision, goal and mission	
4.1.		Goal
4.2.		Values
4.3.		Leadership team

Conclusions

The framework covers such aspects student achievement, teacher performance and leadership practices, using national level student assessment data in the 3rd and 6th grade, student surveys, teacher observation, and leadership team interviews.

Authors arrive at the conclusion that the developed framework increases the likelihood of schools being able to use data in a purposeful and effective way and design an action plan for student achievement improvement, analysing the patterns between teacher performance, student achievement and leadership practices

In the case study analysis, using framework, example shows that defining the school goal as student high order skill development, but not operationalizing to teacher level, lesson observations shows low performance at this category, this results in low student achievement in SOLO III level of complexity in Science and Maths.

Limitations

Authors point out that, there have been not identified assessment items in all subject subcategories and different SOLO levels of complexity. Some subject subcomponents consist of only several assessment items, which lowers the reliability of results.

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