Symposium Title: Breaking out of silos: Using classroom videos for cross-disciplinary and cross-methodological examinations of teaching

Keywords: Classroom observation; Teaching quality; Collaborative efforts; Observation System; Instructional Practice

Abstract:

Great advances have been made in how we conceptualize, operationalize and measure aspects of teaching quality (Charalambous et al., 2021). However, this field of research is fragmented. Scholars work in silos, drawing on their own specific framework despite what are often strong commonalities in ambition, terminology, and structural features across frameworks. This symposium uses classroom videos as a common ground to break out of our silos through analyzing the same videos with a broad range of frameworks. This double symposium consists of 6 papers that use unique frameworks to investigate teaching quality. In this symposium, we examine the Protocol for Language Arts Teaching Observation (PLATO; Grossman, 2015) and the Joint Action framework in Didactics (JAD; Sensevy, 2014), International Comparative Analysis of Learning and Teaching (ICALT; van de Grift et al., 2007), the Teacher Education and Development Study-Instruct framework (TEDS-Instruct; Schlesinger & Jentsch, 2016), and the qualitatively-oriented praxeological Documentary Method (DM; Martens & Asbrand, 2022). The last paper uses a modified lens model to make fine-grained comparisons of these frameworks. This symposium's ambition is to have participants reflect on how one's framework shapes how one constructs an understanding of teaching through comparing the decompositions of the focal lessons across frameworks. Through this, we hope to build common understandings across frameworks and break out of our silos.

Great advances have been made in how we conceptualize, operationalize and measure aspects of teaching quality (Charalambous et al., 2021). However, this field of research is fragmented. Scholars work in silos, drawing on their own specific framework despite what are often strong commonalities in ambition, terminology, and structural features across frameworks. We argue that classroom video provides an avenue to work across these silos, allowing multiple frameworks to be applied to the same videos. This provides a common ground for discussions across frameworks, facilitating communication and potentially the integration of different frameworks for understanding teaching.

This symposium uses classroom videos as a common ground to break out of our silos through analyzing the same videos with a broad range of frameworks. This symposium consists of 6 papers that use unique frameworks to investigate teaching quality. The frameworks in this symposia stem from different traditions and are at different stages of development. This symposium explores the quantitatively-oriented frameworks: Protocol for Language Arts Teaching Observation (PLATO; Grossman, 2015), International Comparative Analysis of Learning and Teaching (ICALT; van de Grift et al., 2007) and the Teacher Education and Development Study-Instruct framework (TEDS-Instruct; Schlesinger & Jentsch, 2016); and the qualitatively-oriented frameworks: Joint Action framework in Didactics (JAD; Sensevy, 2014) and praxeological Documentary Method (DM; Martens & Asbrand, 2022). A last paper uses a modified lens model to make fine-grained comparisons of these frameworks. Comparison of these frameworks supports deeper understanding of the affordances and limitations of each approach.

This symposium's ambition is to have participants reflect on how one's framework shapes how one constructs an understanding of teaching and the limitations and benefits of each framework through comparing the decompositions of the focal lessons across frameworks. Through this, we hope to build common understandings across frameworks and break out of our silos. To this end, we have asked each individual paper to attend to three research questions:

1. What are key patterns of teaching quality (in the focal videos) according to this framework?
2. How are aspects of the frameworks shaping constructing decompositions of the focal videos?
3. What are benefits and challenges with using this framework in analyzing aspects of teaching quality?

The contributors provide an overview of their respective frameworks based on the following categories: purpose and the theoretical grounding of the observation framework, facets of teaching captured, specific focus, grain size (e.g., unit of analysis on time scales), and empirical evidence and use. Then, contributors analyze the same four videos of lower secondary mathematics and language arts lessons from Nordic classrooms. Each contributor presents patterns of findings derived and afforded by their respective framework. To that end, we especially discuss patterns of teaching quality and how differences in the above-mentioned categories might shape the construction of findings as well as limitations and affordances across frameworks.

The inclusion of both mathematics and language arts, as well as both quantitatively and qualitatively oriented frameworks, sets this work apart from past important efforts in this area (e.g., Charalambous & Praetorius, 2018)

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Paper 1:

Title: The PLATO observation system as a lens to teaching quality

Authors: Jennifer Luoto, Kirsti Klette, Mark White, Camilla Magnusson

Keywords: Classroom observation; teaching quality; Protocol for Language Arts Teaching Observation; Observation System

Abstract:

In this paper we use the observation system Protocol for Language Arts Teaching Observation (PLATO; Grossman, 2015) as a lens into teaching quality in Norwegian lessons from two different subjects, mathematics and language arts. PLATO was developed at Stanford University in the USA and was originally a tool for studies aiming to link English Language Arts (ELA) instruction to student learning outcomes. Since then, it has been used for different research purposes and in different subjects (e.g., Cohen, 2018) and has been the main tool to describe teaching quality in several publications from the Nordic context (Klette et al., 2017; Tengberg et al., 2022). In this paper we demonstrate PLATO's way of constructing patterns of teaching quality by focusing on aspects such as theoretical grounding, grain size, and discuss what type of information regarding teaching quality that PLATO may offer and for what purposes that might be useful.

PLATO conceptualizes teaching quality in four domains (Instructional Scaffolding, Disciplinary Demand, Representation and Use of Content, and Classroom environment) that together consist of an ensemble of specific teacher practices (e.g., elements), all considered relevant for student learning. These practices are reflected in PLATO's 12 elements and sub-elements, which are all independently rated on a 1-4 scale for every 15 minutes of a lesson. Together, the 12 elements provide a detailed and rich view of teaching patterns by pointing to whether the specific practices are present as well as the degree of quality of these practices.

The findings reveal that the mathematics lessons receive consistently high scores on all PLATO while the patterns in the language arts lessons are more mixed of high and low scores fluctuating across different parts of the lessons. Grounded in this analysis of key patterns using PLATO's lens of teaching quality, we present benefits and challenges with PLATO. Benefits include a detailed view of how different practices have different foci within and across lessons, while challenges include the way PLATO privileges some instructional formats above others and how to deal with arbitrary cut-off points. Finally, we discuss provoking questions such as whether everything we observe is equally important, and

whether we can really determine normatively what patterns of high-quality teaching looks like across different lessons and tasks.

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Paper 2:

ECER24 – SYNTEQ Symposium

Title: Teaching Quality About and Beyond Subject Specificity. Perspectives from the JAD-MTQ Model.

Authors: Florence Ligozat (florence.ligozat@unige.ch), Yoann Buyck (yoann.buyck@unige.ch)

Keywords: Teaching Quality, Joint Action in Didactics; JAD-MTQ; Subject Specificity; Generic Categories; Didactic system

Abstract (383 words):

This paper presents a model (JAD-MTQ) for observing and analyzing classroom practices based on the Joint Action framework in Didactics (JAD; Sensevy, 2014; Sensevy & Mercier, 2007). This model aims at contributing to international debates on the conceptualization of teaching quality. In the French-speaking research, classroom qualitative studies carried out with the JAD framework typically investigate *what* and *how* knowledge contents develop in the teacher and students' classroom interactions. Over the years, JAD has proved its capacity to analyze classroom practices in various subjects (mathematics, sciences, physical education, French language, etc.; e.g., Amade-Escot & Venturini, 2015; Ligozat et al., 2018). However the use of concepts from JAD is still open to different interpretations, depending on the research objectives pursued.

The Model for analysing Teaching Quality based on JAD (JAD-MTQ) presented in this paper systematizes classroom observations according to three dimensions: selection of knowledge contents and tasks, structuration of learning situations and organisation of teacher and students' interactions (Ligozat & Buyck, accepted). Each dimension is explored at a specific level of analysis, featured by a grain-size and a timescale of teaching unit (Tiberghien & Sensevy, 2012) and decomposed into a set of criteria, allowing to reduce the level of inference to be made from classroom video and transcripts.

Similarly with findings from other frameworks presented in this symposium, JAD-MTQ rates the three dimensions of the mathematics lessons as high while the dimensions of the language arts lessons range from medium to very low. However these findings may be grounded in different rationales. In this paper, *we highlight JAD-MTQ's way of constructing patterns of teaching quality as relying upon the dual generic/specific nature of its criteria:* they reflect certain aspects of teaching that are found in most classrooms (goals, instructional tasks, group

works, classroom discussions, uptakes, etc,) but these criteria are also content-specific because to say something about them it is necessary to analyse the epistemic characteristics of instructional tasks. We argue that JAD-MTQ provides a content-based analysis of teaching quality with a set of dimensions and criteria that are not subject-specific. From this perspective, JAD-MTQ offers a didactic approach to teaching quality, in exploring systemically (according to the relations featuring the didactic system; Chevallard, 1985/1991; also see Schoenfeld, 2012) the power to learn certain specific knowledge contents afforded to the students in the classroom.

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Paper 3:

Title: The value of assessing generic teaching quality using International Comparative Analysis of Learning and Teaching (ICALT) as a measure of effective teaching behaviour

Authors: Ridwan Maulana, Michelle Helms-Lorenz, and Xiangyuan Feng

Keywords: Teaching quality; effective teaching behaviour; ICALT; individual lessons

Abstract:

In the educational effectiveness research tradition, classroom observation has been recognized as a key instrument for uncovering variations in teaching quality in terms of student achievement (Muijs et al., 2018). In general, all existing observation instruments have the common goal for unravelling variations in teaching effectiveness to support teachers with valuable information that can help them develop their teaching skills.

Several classroom factors matter for student attainment, including curriculum quality, the amount of learning time, various teaching skills including the creation of a safe and stimulating learning environment, efficient classroom management, the quality of instruction, teaching students how to learn, monitoring student progress, adapting teaching to student differences, and attention for students at risk of falling behind (Creemers, 1994; Hattie, 2012; Levine & Lezotte, 1995; et al., Marzano et al., 2001; Sammons et al., 1995; Scheerens & Bosker, 1997; Walberg & Haertel, 1992). Notably, not all behaviours synthesized from the literature are easily observable in classrooms. These factors are best revealed by means of teacher interviews and -surveys, student surveys, and value-added measures (Coe et al., 2014; van de Grift et al., 2014).

The International Comparative Analysis of Learning and Teaching (ICALT, van de Grift, 2007) is a generic, non-subject specific teaching observation instrument, originally developed by the Dutch Inspectorates in cooperation with the Central Inspectorates in several European countries. This generic observation instrument focusses on capturing observable teaching behaviours of the whole lesson using high- (32 item) and low-inference (120 items) indicators. The indicators provided in the instrument are commonly observed in typical classroom practices, but are not all-inclusive. The observer can add good practices to justify his/her feedback. Although the ICALT framework is used as a formative feedback tool in teacher education and induction of early career teachers in the Netherlands (Helms-Lorenz et al., 2020), there is no research illustrating this formative potential.

Our results reveal how low inference feedback shapes and provides justification for the overall teaching quality feedback provided by trained observers, which contributes to increasing the objectiveness of ratings. This is revealed by providing a) time indicators alongside illustrative quotes from the lesson, b) examples of (lacking) good practices, c) interaction symbols to increase the clarity of the feedback, following the increasing skill complexity levels inherent in the structure of the instrument.

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Paper 4:

TITLE

Capturing generic and subject-specific aspects of teaching quality with the TEDS-Instruct observation system

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ABSTRACT

Effective teaching has been extensively researched for decades. Studies have demonstrated the significant influence of teachers' performance on student achievement in various school subjects. Theoretical frameworks and observational systems have been developed to conceptualize and measure teaching quality, often taking either generic or subject-specific perspectives. In this study, we discuss a hybrid observation system that draws on the established generic framework of Three Basic Dimensions but aims to address also subject-specific aspects of teaching quality to better explain student achievement in mathematics classrooms.

The observation system was developed in the context of the Teacher Education and Development Study-Instruct (TEDS-Instruct). It captures four dimensions of teaching quality, two of which are considered generic (classroom management, student support), and two of which are considered subject-specific (cognitive activation, and educational structuring). This means that their operationalization is informed by the norms and concepts of the subject, and teachers need substantial (pedagogical) content knowledge to perform teaching behavior that reflects high levels of cognitive activation or educational structuring (e.g., posing challenging mathematical problems, changes of representations, being precise regarding mathematical language, providing adequate explanations). In this paper, we analyze generic and subject-specific dimensions across two Norwegian double lessons employing high-inference observer ratings. This means that videotaped lessons are presented to trained observers, and after a certain amount of time (i.e., a segment of a lesson), they provide an informed judgement on teaching behaviors and teacher-student interactions on 4-6 items per dimension.

The results show that important aspects of teaching quality are captured by the observation system. For example, in the mathematics lesson, the items “teachers’ correctness” and “dealing with error” within educational structuring were assigned substantively higher scores than any other items in that dimension. Moreover, we argue that there was much variability in scores across the items assessing educational structuring. In contrast, for classroom management, all the items were assigned high scores. In the language arts lesson, different patterns emerge. There is more variability across items measuring cognitive activation. In addition, the teacher provides a lot of individual support to students but does little to support collaborative learning.

However, further adaptations are necessary to capture subject-specific teaching practices in more detail. A goal for future research on our observation system (and potentially others) could be to explore for which contexts and purposes valid conclusions can be drawn from classroom observation.

Paper 5:

Title: A Qualitative-Reconstructive Investigation of Teaching Quality through Documentary Video Analysis

Authors: Patrick Schreyer; Marte Blikstad-Balas

Keywords: classroom observation; documentary method; cognitive activation, qualitative method

Abstract:

This paper examines the role of Documentary Video Analysis (DVA; Martens & Asbrand, 2022) in research on teaching quality. It applies DVA to two different lessons from the Nordic LISA study – one in mathematics and the other in Norwegian language arts (L1). By integrating these cases into an existing typology that emphasizes cognitive activation in classroom interactions (Schreyer, 2024), the study utilizes the qualitative reconstructive capabilities of DVA to examine the intricate dynamics of subject-specific teaching and learning processes.

DVA is characterized by its ability to capture the complexity of classroom interactions and allows for uncovering the multifaceted relationships between the development of knowledge, embodied practices and the deeply rooted habitus of both teachers and students (Bohnsack, 2021; Martens & Asbrand, 2022). This methodological approach highlights the interconnected relationships between different aspects of teaching and contrasts with the more deductive methods used in previous research on teaching quality, which relied heavily on standardized observation manuals (e.g. Bell et al., 2019). This descriptive method aims to assess the quality of teaching following the empirical analysis. For this purpose, opportunity-use models (Vieluf & Klieme, 2023) are used to assess whether and how teaching stimuli are understood and used in a subject-specific context.

Analyzing classroom situations in mathematics and Norwegian language arts through the lens of DVA reveals contrasting aspects of cognitive activation. In mathematics classrooms, the focus is on the teacher's central role in creating an environment that fosters cooperative learning, metacognition, and problem solving through the presentation of challenging tasks. This practice fits seamlessly with the theoretical constructs of cognitive activation (Praetorius et al., 2018). In contrast, the language arts classroom shows a notable divergence from the teacher's pedagogical standards and objectives, especially in student presentations where important literary devices are insufficiently identified and discussed,

underscoring a discrepancy between the targeted instructional goals and actual knowledge development.

The study discusses the potential of DVA as a tool for assessing teaching quality and critically examines its limitations in evaluating this. It emphasizes the strength of DVA in providing a descriptive rather than an evaluative analysis and questions the usefulness of the method for a comprehensive understanding of teaching quality through the comparative analysis of two subject-specific lessons.

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Paper 6:

Title: Same Same but Different - Comparing two Observation Manuals' Approaches to Measure Teaching Quality

Authors: Tosca Daltoè, University of Tübingen & Alexander J. V. Selling, University of Oslo

Keywords: Classroom observation; teaching quality; Observation System; Lens Model

Abstract:

The growing interest in observationally assessing classroom instruction has lead to the proliferation of observation frameworks. In order to organize and synthesize results from studies using different observational frameworks, there is a need to understand how different frameworks decompose instruction. This paper adopts a lens model (Brunswik, 1952) to compare such frameworks. The lens model breaks down how frameworks decompose observable features of teaching into scores that are meant to characterize that instruction. Namely, each framework directs raters' attention to specific pieces of evidence (and away from other evidence) while providing guidance on interpreting evidence and assembling evidence into overall scores. This highlights three specific areas where observation frameworks can be compared: (1) what specific pieces of evidence are identified?; (2) how is each piece of evidence interpreted?; and (3) how is evidence aggregated to create summary scores?

The paper uses the lens model to compare how the Protocol for Language Arts Teaching Observation (PLATO; Grossman, 2015) and the Model for analysing Teaching Quality derived from the Joint Action framework in Didactics (JAD-MTQ; Sensevy, 2014; Ligozat & Buyck, accepted) make sense of one mathematics and one language arts lesson from Nordic lower secondary classrooms. This analysis shows how the two frameworks uniquely decompose teaching while acting as a model for comparisons of other frameworks. Overall, the two frameworks identify similar pieces of evidence and make similar interpretations of that evidence. In this way, the two frameworks are quite aligned, providing coherent understandings of instructional practice. However, the frameworks differ in scope and grain size. For example, PLATO considers only whether a teachers' statement does or does not count as uptake while JAD-MTQ codes teacher statements within several different uptake categories. The largest difference between the frameworks, however, is in how they aggregate evidence to generate overall scores. Like other formalized frameworks, PLATO summary scores are based largely on the frequency and quality of the evidence for a category while JAD-MTQ interprets specific evidence in light of the broader instructional contexts in which that evidence occurs (i.e., meso- and macro-levels).

Through demonstrating the lens model, this paper seeks to contribute a novel comparison of the PLATO and JAD-MTQ frameworks while also introducing a novel and fine-grained way to compare how observation frameworks decompose teaching. This can make an important contribution to harmonizing understandings of teaching quality across the many frameworks used in the European context. (Charalambous & Praetorius, 2020).

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