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Time* Matters – Time *Matters

- Observing Instructional Quality and the Concept of Teaching

Abstract (300 words)

The study investigates time matters in two observation systems based on the assumptions that time is underestimated for quality measurement of teaching and time *matters*. Time spans for measuring teaching quality may itself be regarded as a quality criterion. The same lessons from teaching in civic education in Denmark, collected in the Lisa Nordic project, have been coded with the well-known PLATO observation system and the observation system PLOT, developed in order to grasp project-oriented teaching in lower secondary schools in Denmark. Following our research question, how does the time unit of coding affect the coding of quality in PLATO and PLOT, we compared the two coding results by establishing synoptic displays in a timeline and searched for patterns for quality measures related to timestamps for organizational forms and learning activities. The conflicting results challenge an arbitrary metric time unit for quality measurement. Hence, and from a theoretical perspective, we ask what is the underlying concept of teaching in the two observation systems and suggest to conceptualize the phenomenon of teaching as a temporal affair based on modal time. In that way we seek to contribute to the "insufficient theoretical basis" (Praetorius & Charalambous, 2018, p. 538) of observation systems of teaching quality. We present an outline of an observation system combining didactical meaningful time units and specific and generic quality criterions.

Extended summary

In Denmark, there are only a few large scale systematic observation studies (Bundsgaard & Hansen, 2018; Graf, 2021a). Also in the Nordic Countries, quantitative observation studies of teaching quality are still new (Klette, 1998; Klette & Blikstad-Balas, 2018). From an international perspective, there is a well-established field of research and there are many different observation systems (Bell et al., 2018; Dobbelaer, 2019; Praetorius & Charalambous, 2018). In order to be able to compare studies there is a renewed search for common ground by learning from each other for the further development and use of observation systems of teaching quality (Klette & Blikstad-Balas, 2018; Praetorius & Charalambous, 2018). As identifying quality in teaching in all aspects is nearly impossible (Berliner, 2005), the quality measurement can be structured into different component of the observation systems. In order to compare observation systems Bell and

colleagues have developed a framework consisting of eight aspects ranging from issues of content, guidelines, empirical support and the system in a developmental perspective (Bell et al., 2018). Comparing and analyzing 12 observation systems, Praetorius & Charalambous focus on the purpose (why), the theoretical underpinned conceptualizations (what) and the operationalization of measurement decisions (how) as critical issues of quality observation or measurement (Praetorius & Charalambous, 2018). Operationalization and measurement decisions include not only the object of observation and questions of number and frequency of quality criterions, rater training, holistic and average scores, number of scale points, but also questions of how the captured teaching unit is framed, and the parsing of the teaching unit. The reviewed observation systems apply very different units of analysis with regard to the moment of observation, the sampling of lessons, the length of observations, the frequency of measurements and the number of measurements for reliable estimates (Bell et al., 2018; Dobbelaer, 2019; Praetorius & Charalambous, 2018). While some apply holistic ratings of whole lessons or more in order to capture interrelated practices, others parse the teaching into measured units of 30, 20, 15, 10 or 5 minutes. The grain size in relation to the rhythm and pace of teaching is often undocumented in observation systems (Bell et al., 2018, p. 7) and there is a lack of studies investigating the parsing of the teaching unit into smaller units for measuring quality (Praetorius & Charalambous, 2018, p. 540). To our knowledge, one recent study on lower secondary level in Norwegian Schools compares scoring cycle of 5 and 15 minutes with CLASS of 5 lessons in order to achieve more accurate account of teacher student interaction and the use and loss of instructional time in lessons (Vattøy & Gamlem, 2019). Nevertheless, also this study uses so to speak arbitrary time spans. Our own investigation seeks to challenge arbitrary time spans for measuring teaching quality.

On this background, our study focuses on *time* matters of observation systems and the measurement of teaching quality. We assume that time *matters*. Time spans for measuring teaching quality may itself be regarded as a quality criterion. For this purpose, we apply two observation systems on the same lessons and compare the coding results on a time line. On one side we use the Protocol for Language Arts Teaching Observations (PLATO) (Grossman et al., 2013) that is used within *QUINT*, and on the other side, we use Protocol for Learning Over Time (PLOT) (Graf, 2017, 2021b), a coding-system developed in Denmark in order to grasp project-oriented teaching and learning in lower secondary schools. PLOT is applied together with a an open source digital registrations system designed for *in situ* registration with minute time stamps related to the social organization of teaching and type of learning activity (https://observe.education/) (Bundsgaard & Hansen, 2018; Kølsen et al., 2016) and has been used in the research project *Digital projektdidaktik* (Graf, 2021a; Graf & Mikkelsen, 2021).

Our research question goes: How does the time unit of coding affect the coding of quality in PLATO and PLOT?

For the present study, we coded 29 video-recorded 15 minutes teaching sequences (12 lessons from 6 teachers) in civic education in Denmark that have been collected in the Lisa Nordic project. The coding in PLATO was done by two certified raters, and the coding in PLOT was carried out by two developers of the system. Karsten Agergaard was involved in both coding procedures. We compared the two coding results by establishing synoptic *displays* in a timeline (Lynggaard, 2015) and searched for remarkable differences in the coded teaching sequences (e.g. amount of group work, high/low PLATO code levels) in order to identify similarities and differences between the PLATO and PLOT coding.

Preliminary results of the empirical part show some interesting patterns. Certain PLATO codes seem to depend on certain types of learning activities in the segment. Certain PLATO codes seem to be connected to the beginning of a (new) task or are falling during a whole lesson. Other codes like purpose, time

management and behavior management are quite stable. In general, PLATO codes within arbitrary 15 minutes segments seem to conflict with narratives of teaching, that Vattøy called "script notion" (Vattøy & Gamlem, 2019, p. 11). We finally ask, how coding procedures and grain size may be connected to the fundamental understanding of the phenomenon of teaching as a temporal affair. As a meaningful enterprise teaching and learning are both, but differently tied to modal time (Herzog, 2002/2006). Modal time has a basic narrative structure meaning that neither the beginning, the middle nor the end can be understood without each other (Ricoeur, 1984). There are didactical theories that analogize teaching with metaphors of drama or dramaturgy (Brodersen, 2020; Hausmann, 1959; Schulze, 1995). By including such argument-based theories (Dobbelaer, 2019, p. 17) from outside the "community's view of teaching and learning" (Bell et al., 2018, p. 6) within the field of effectiveness research and research in observation systems, we touch on another desideratum of the development of observation systems of teaching quality. It seems that there is not only an "insufficient theoretical basis" of how quality criterions are underpinned in observation systems (Praetorius & Charalambous, 2018, p. 538), but also a sound definition of the phenomenon teaching to be observed. Hence, how would an observation system measuring meaningful narrative teaching units and still be able to allow for statistical analysis look like?

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