



## Measuring professional vision of inclusive classrooms in secondary education through video-based comparative judgement: An expert study

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### ABSTRACT

This article reports on the development and validation of a standardised video-based assessment instrument to measure professional vision of inclusive classrooms in general secondary education through comparative judgement. An expert study ( $n = 30$ ) was set up to (1) investigate whether the selected videoclips elicit experts' professional vision of two dimensions of effective inclusive classrooms, i.e., positive teacher-student interactions (PTSI) and differentiated instruction (DI); (2) to analyse whether experts come to a reliable consensus rank order of videoclips for PTSI and DI; (3) to explore whether the video-based assessment instrument is able to discriminate between the two dimensions of experts' professional vision of inclusive classrooms under investigation; (4) to investigate which reasoning arguments on PTSI and DI are related to videoclips' position in the rank order. Results of quantitative and qualitative analyses reveal that experts produced a valid and reliable rank order of videoclips.

### 1. Introduction

Nowadays, teachers are challenged to meet the needs of diverse learners and adapt their teaching to heterogeneous academic abilities, interests, backgrounds, and motivations (Akyeampong, 2017; Banks et al., 2007; Van Avermaet, Van Houtte, & Van den Branden, 2011; Vogt & Rogalla, 2009). This corresponds with worldwide policy initiatives towards more inclusive learning environments (OECD, 2015). We use a broad definition of 'inclusion' that refers to catering to the needs of all students for whom equal educational opportunities are challenging (Forlin, Earle, Loreman, & Sharma, 2011; UNESCO, 2015).

In the context of educational changes, research suggests it is particularly valuable for teachers to be able to examine classroom practices in new ways (Rodgers, 2002; Van Es & Sherin, 2008). Drawing on Goodwin (1994), Van Es and Sherin (2008), Seidel and Stürmer (2014), and Stürmer, Seidel, and Schäfer (2013), we refer to the ability to notice and interpret features of inclusive classrooms, as professional vision of inclusive classrooms.

There is a growing interest in measuring teachers' professional vision in a standardised way through video, as this offers more potential

for formative assessment purposes and efficient data analysis (Seidel & Stürmer, 2014). Currently available standardised video-based tools measure teachers' professional vision in a fragmented way due to the use of scoring rubrics (e.g., Kersting, 2008) or rating items (e.g., Meschede, Fiebranz, Möller, & Steffensky, 2017). These tools fail to represent the construct to be measured within all its dimensions (Lesterhuis, Verhavert, Coertjens, Donche, & De Maeyer, 2017). In this article, video-based comparative judgement is presented as an alternative to measure professional vision in a standardised and more holistic way.

In the video-based comparative judgement instrument that is presented, experts compare videoclips regarding two dimensions of effective inclusive classrooms: positive teacher-student interactions (PTSI) as indicators of a positive teacher-student relationship, and differentiated instruction (DI). This leads to two rank orders of videoclips representing experts' professional vision of PTSI and DI respectively. The current study on experts' comparisons of videoclips contributes to research on the reliability and validity of video-based comparative judgement as a method to set an expert benchmark and a method to study professional vision of inclusive classrooms in a standardised and

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holistic way.

## 2. Conceptual framework

### 2.1. Professional vision

In the field of educational research, ‘professional vision’ refers to the ability to observe what is happening in a classroom and to make sense of it from a professional perspective (Blomberg, Stürmer, & Seidel, 2011; Sherin, 2001). Definitions of professional vision generally include two main processes: ‘noticing’ and ‘reasoning’ (Seidel & Stürmer, 2014; Sherin, Russ, Sherin, & Colestock, 2008; Van Es & Sherin, 2002). *Noticing* involves the identification of classroom events that are significant for effective instructional practice (Stürmer et al., 2013; Van Es & Sherin, 2002, 2008). In other words, noticing means filtering critical elements in classroom instruction that foster or constrain learning from irrelevant events. *Reasoning* entails how noticed events in the classroom are interpreted. Put differently, it is the capacity to reason about critical events on the basis of one’s professional knowledge (Seidel & Stürmer, 2014; Van Es & Sherin, 2002). Therefore, professional vision integrates teachers’ theoretical and practical knowledge (Seidel & Stürmer, 2014).

### 2.2. Professional vision of inclusive classrooms

Professional vision of inclusive classrooms can only be considered an essential aspect of teacher competence if it is directed towards situations relevant for creating effective inclusive classrooms. Therefore, we selected two dimensions of effective inclusive classrooms to be noticed and interpreted through the instrument: positive teacher-student interactions (PTSI) as indicators of positive teacher-student relationships on the one hand, and differentiated instruction (DI) on the other. These two dimensions were selected since empirical research has demonstrated both to be essential in the context of inclusive classrooms in secondary education (De Vroey, Roelandts, Struyf, & Petry, 2016), as will be discussed below.

The relationship between positive teacher-student relationships (TSR) and students’ well-being and achievement is well-described in educational research literature (e.g., Hattie, 2009). Numerous studies show that positive TSR are important for all students (e.g., Davis, 2003; Van Petegem, Aelterman, Van Keer, & Rosseel, 2008), but especially for students at risk of academic failure, such as students with learning difficulties, ethnic minority backgrounds or low socio-economic status (e.g., Roorda, Koomen, Spilt, & Oort, 2011; Spilt, Hughes, Wu, & Kwok, 2012). This is reflected in the ‘academic risk hypothesis’ (Hamre & Pianta, 2001) stating that at-risk students are more sensitive to the quality of the TSR than others. Several studies have affirmed the phenomenon (Hamre & Pianta, 2001; Roorda et al., 2011; Spilt et al., 2012). However, as professional vision of positive TSR needs to be directed towards events that can be noticed, we will focus on positive teacher-student interactions (PTSI) as indicators of positive TSR (Allen et al., 2013; Den Brok et al., 2004). Therefore, when further referring to PTSI, we are referring to PTSI as indicators of positive TSR.

The second selected dimension of effective inclusive classrooms is differentiated instruction (DI). DI is broadly defined ‘as an approach to teaching in which teachers proactively modify curricula, teaching methods, resources, learning activities, and student products to address the diverse needs of individual students and small groups of students to maximise the learning opportunity for each student in the classroom’ (Tomlinson et al., 2003, p. 121). As the main goal of DI is to maximise each student’s learning potential (Tomlinson et al., 2003), it is a highly promising approach to create inclusive classrooms and address student diversity in learning (Broderick, Mehta-Parekh, & Reid, 2005; Coubergs, Struyven, Vanthournout, & Engels, 2017; Lawrence-Brown, 2004; Subban, 2006; Van Avermaet & Sierens, 2010). A growing number of studies show and support the enhancement of teaching and learning through differentiation, especially for at-risk students (Reis, McCoach, Little, Muller,

& Kaniskan, 2011; Valiande, Kyriakides, & Koutselini, 2011).

## 3. Methodological framework

### 3.1. Video

As videoclips give insight into real-life classroom situations, video is particularly suitable to support the theory-practice connection that is inherent in the concept of professional vision (Brophy, 2004; Koc, Peker, & Osmanoglu, 2009). This explains why the concept has been taken up in research on video-based teacher professional development (Lefstein & Snell, 2011). Several studies have shown that video analysis offers ample opportunities to study and develop teachers’ professional vision (Seidel & Stürmer, 2014; Sherin & Van Es, 2009; Sherin, 2007; Stürmer et al., 2013; Van Es & Sherin, 2008). More specifically, these studies use authentic video sequences of classroom situations as ‘prompts’ to elicit teacher knowledge (Kersting, 2008). For instance, teachers view and discuss video-recorded excerpts of classroom practice in ‘video clubs’ or similar professional development settings (e.g. Sherin & Han, 2004; Sherin et al., 2008; Sherin, 2007). By relying on learning communities and oral reflection methodologies, these studies explore teachers’ professional vision in a qualitative manner.

A growing number of educational researchers are showing interest in understanding how professional vision can be assessed using video in a standardised and quantitative way (Gold & Holodyski, 2017; Kersting, 2008; Kersting, Givvin, Sotelo, & Stigler, 2010; Seidel & Stürmer, 2014; Stürmer et al., 2013). Currently available standardised video-based assessment tools measuring professional vision generally use analytic assessment methods (e.g., Gold & Holodyski, 2017). Assessment of teachers’ professional vision is then based on criteria that make a distinction between different aspects of teachers’ knowledge. In turn, these criteria are translated into scoring rubrics (Lesterhuis et al., 2017). For example, in the instrument of Kersting and colleagues (Kersting et al., 2010; Kersting, 2008), a scoring rubric consisting of four dimensions is applied to teachers’ written responses on videoclips of mathematics classroom situations. Each dimension of the rubric describes qualitative aspects of teachers’ responses. Another example is the instrument ‘Observer: Video-based tool to diagnose teachers’ professional vision’. In this instrument, pre-service teachers’ professional vision is assessed for three ‘teaching and learning components’: (1) goal clarity and orientation, (2) teacher support and guidance, and (3) learning climate. Here, the assessment criteria for each of the components are translated in rating items – such as “The teachers clarify what the students are supposed to learn” – that are scored through a 4-point Likert scale (Seidel & Stürmer, 2014). Analytic assessment approaches like these allow a detailed focus on the different aspects of the subject under assessment. Pre-defined criteria or items provide a frame of reference to judge every subject in the same way (Lesterhuis et al., 2015).

However, some limitations of these approaches exist. A first limitation stems from the way criteria subdivide integrated knowledge into separate aspects. As assessment criteria in standardised instruments are often a selection of the whole set of criteria, they fail to represent the construct to be measured in all its dimensions (Sadler, 2009). A second limitation of analytic assessment methods is that assessors often conceptualise assessment criteria differently (Bloxham, 2009) or assess particular criteria more severely than others (Hand & Clewes, 2000). Consequently, high interrater-reliability is often difficult to achieve (Jonsson & Svingby, 2007). Lastly, assessors tend to ignore certain criteria and instead prefer to base professional judgements on their ‘connoisseurship’ (Bloxham, 2009; Hand & Clewes, 2000).

To meet the shortcomings of analytic assessment approaches Bramley (2005), Lesterhuis et al. (2017) and Pollitt (2012a) therefore propose the method of comparative judgement as a more comprehensive and reliable alternative.

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