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VIDEO-BASED COMPARATIVE JUDGEMENT AS A METHOD TO MEASURE TEACHERS' PROFESSIONAL VISION

Iris Roose, Piet Van Avermaet, Wendelien Vantieghem, Ruben Vanderlinde

ABSTRACT

Professional vision, has been identified as an important element of teacher expertise (Sherin & Van Es, 2009). Professional vision is defined as teachers' ability to recognize and interpret effective teaching strategies (Stürmer et al., 2013). Researchers have relied extensively on video to study professional vision. However, the method of comparative judgement through video has not yet been applied to study teachers' professional vision in a standardized way. The "POTENTIAL – Power to teach All!" Project is developing a video-based comparative judgement instrument to measure teachers' professional vision of inclusive classrooms in a standardized way. The first part of the paper outlines the development of the video-based comparative judgement instrument. The conceptual model of teachers' professional vision of inclusive classrooms, the method of comparative judgement and the framework for validating the instrument is described. The second part presents two studies as a first step in the validation of the instrument. The first study is an expert study (n > 45) to inquire the validity of the content of the videos and investigate whether different types of experts come to a different ranking of the videos. The second study is a pilot with teachers from secondary education (n > 30) to provide evidence for the structure of the instrument and the response processes. On the basis of these two studies, further investigation of the use of video-based comparative judgement as a method to study teachers' professional vision is discussed.

Keywords: validation, video, teacher learning, professional development

EXTENDED SUMMARY

PART1: INSTRUMENT DEVELOPMENT

Conceptual model

Professional vision is an indicator of whether teachers have acquired conceptual knowledge about teaching and learning and, at the same time, whether they are able to apply it to classroom situations (Kersting, Givvin, Sotelo, & Stigler, 2010; Stürmer, Seidel, & Schäfer, 2013). Sherin and Van Es (2009) identify two components of professional vision: noticing (i.e., identification of decisive classroom situations) and reasoning (i.e., interpretation of classroom events).

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In modeling teachers' professional vision of inclusive classrooms (cf. Figure 1), two important dimensions can be distinguished:

(a) professional vision of positive teacher-student interactions (TSI) and
(b) professional vision of differentiated instruction (DI).

Method: Adaptive comparative judgement

Although researchers rely extensively on video as a means for studying professional vision (e.g. Sherin & Van Es, 2009), the method of comparative judgement has not yet been applied to study professional vision in a standardized way.

Comparative judgement requires judges (e.g., teachers) to compare performances (e.g., videos of classroom situations) and decide which performance is best in terms of the topic under assessment (e.g., inclusive classrooms) (Thurstone, 1927). Research has shown that this assessment method leads to higher consistency in judgments over different assessors than assigning scores to performances (Pollitt, 2012). In the end, the objects under assessment are ranked from worst to best.

POTENTIAL instrument

In the POTENTIAL instrument that is being developed (cf. Figure 2a & 2b), noticing is assessed by asking teachers to select one video clip over another for both TSI and DI. With regard to the reasoning component of professional vision, participants are asked to motivate their choice by means of pre-defined arguments for each of the two dimensions of inclusive classrooms (TSI & DI). By comparing an individual's ranking of the video clips to the aggregated ranking of experts, the instrument will generate feedback on an individual teacher's professional vision of TSI & DI.

Validity framework

Validation is an ongoing process in which various sources of validity evidence are accumulated and integrated to support the appropriateness, meaningfulness and usefulness of the decisions and inferences that can be made from instrument scores (Chan, 2014; Messick, 1993). Chan (2014) distinguishes five sources of evidence, suitable for the validation of an instrument. These sources are evidence based on the:

(1) content of the instrument;
(2) response processes;
(3) internal structure;
(4) relationship to other variables;
(5) consequences.

The two studies presented, focus on the first four types of evidence.

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PART2: VALIDATION STUDIES

Objectives & method

The first study provides evidence on the content of the instrument and relationship to other variables (i.e., relationship of professional vision to type of expertise). Participants are experts in the domain of teaching diverse learners in inclusive settings. Three types of experts are distinguished: teachers with experience in diverse classrooms (n > 14), academics in the field of education (n > 14), teacher educators and pedagogic guidance counselors (n > 14). To investigate the content of the instrument, experts will be asked to compare video clips with regard to TSI and DI. Furthermore, the experts will be asked to provide written comments on the positive and negative aspects of each clip with regard to TSI and DI. To investigate whether different types of experts come to a different ranking, correlational and basic statistical tests will be used.

The second study provides evidence on the content of the instrument, the structure of the instrument and response processes. Participants are teachers from secondary education (n>30). To investigate teachers' noticing of inclusive classroom characteristics, participants have to compare the clips previously selected by experts, in terms of which one is best with regard to TSI & DI. Teachers' reasoning will be inquired by asking teachers to motivate their choice out of a list of pre-defined arguments. To investigate response processes, teachers are questioned about the cognitive load of the instrument. Data will be analyzed through correlational and basic statistical tests.

Results

Expert study. Based on expert judgements of the videos in the instrument, videos that do not represent the two dimensions of inclusive classrooms under investigation, and fail to elicit professional vision, will be detected for deletion. Furthermore, the study will provide insight whether different types of experts come to different rankings of the videos.

Pilot study. The results of teachers' comparisons (noticing) will provide evidence on the structure of the two dimensions of inclusive classrooms (TSI & DI) under investigation. The results of teachers' reasoning arguments will provide further evidence about the content of the instrument. The results of the cognitive load of the instrument will provide evidence about the response processes.

THEORETICAL & EDUCATIONAL SIGNIFICANCE

Based on the data of the two studies, future directions for the use of video-based comparative judgement as a method to study teachers' professional vision are discussed.

The two studies contribute to the validation of a video-based comparative judgement instrument that will be valuable both as an assessment tool for teachers and as a tool to foster professional development.

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FIGURES

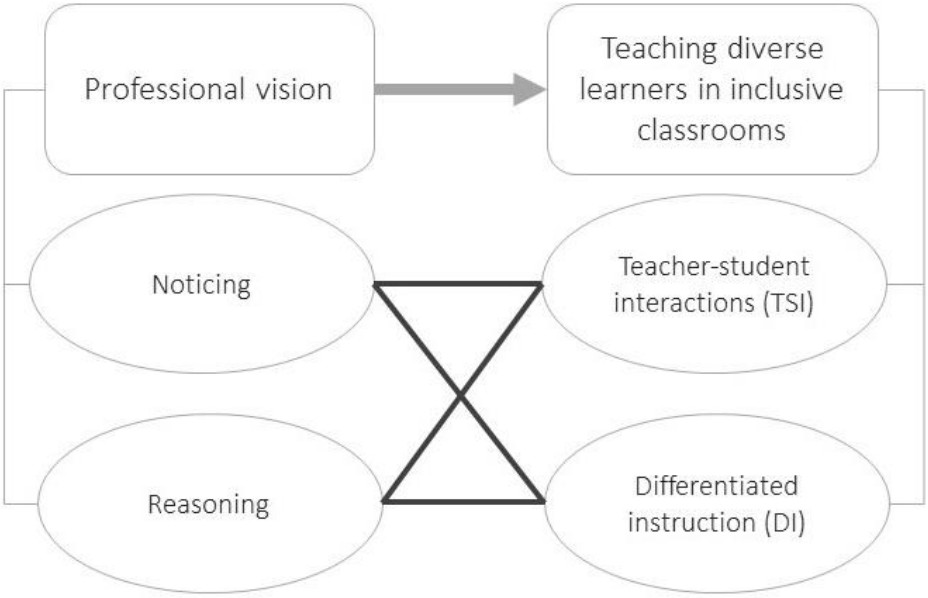

Figure 1: Conceptual model of teacher professional vision of inclusive classrooms.

Figure 2a: Visual display of the POTENTIAL comparative judgement instrument (prototype)

Figure 2b: Visual display of the POTENTIAL comparative judgement instrument (prototype)