



## Teachers' views on the use of assessment for learning and data-based decision making in classroom practice

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### H I G H L I G H T S

- Identifies top five classroom assessments teachers initiate in the classroom.
- Teachers conduct peer and self-assessment in only 10%–25% of their lessons.
- Teachers use data for instruction in only 25%–50% of their lessons.
- Identifies top five prerequisites teachers consider important for AfL and DBDM.
- Highlights the need for professional development for teachers in AfL and DBDM.

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### A B S T R A C T

This paper focuses on classroom assessments, assessment for learning (AfL), and data-based decision making (DBDM) in Dutch secondary education, as well as on prerequisites for implementing AfL and DBDM. Results show that although teachers use various kinds of classroom assessments, such as paper-and-pencil tests and asking students questions, AfL and DBDM have not yet been integrated into teacher practice. Teachers indicated that they conduct peer and self-assessment in only 10% – 25% of their lessons, and use data for instruction in only 25% – 50% of their lessons. A positive attitude towards AfL and DBDM was considered crucial.

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### 1. Introduction

Assessment is essential for improving the quality of education and learning (Black & Wiliam, 1998; OECD, 2008). In this study, assessment is defined as the use of instruments (e.g., a test or homework assignment) and processes (e.g., asking questions and classroom conversations) for gathering evidence about student learning (Van der Kleij, Vermeulen, Schildkamp, & Eggen, 2015; Stobart, 2008). If assessment has a formative purpose, it is used to support student learning. Formative assessment has the potential to enhance student achievement (Bennett, 2011; Black & Wiliam, 1998, 2009).

Formative assessment can be seen as a concept that covers

various approaches for using assessment to support student learning (Van der Kleij et al., 2015; Briggs, Ruiz-Primo, Furtak, Shepard, & Yin, 2012). Many studies have emphasized the importance of two approaches: assessment for learning (AfL) and data-based decision making (DBDM) (e.g., Wayman, Jimerson, & Cho, 2012b; Wiliam, 2011). AfL has been defined as “part of everyday practice by students, teachers and peers that seeks, reflects upon and responds to information from dialogue, demonstration and observation in ways that enhance ongoing learning” (Klenowski, 2009, p. 264). DBDM refers to the process of “systematically analyzing data sources within the school, applying outcomes of analyses to innovate teaching, curricula, and school performance, and, implementing (e.g. genuine improvement actions) and evaluating these innovations” (Schildkamp & Kuiper, 2010, p. 482). By data, we mean “information that is systematically collected and organized to represent some aspect of schools” (Lai & Schildkamp, 2013, p. 10).

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AfL and DBDM share a focus on gathering information to adapt education in order to meet student needs (Van der Kleij et al., 2015; Wiliam, 2011). Through AfL and DBDM, teachers and students utilize various ways to gain insight into student learning. Based on this insight, teachers can change the way they teach and students can change the way they learn, in turn enhancing student achievement (Lai & Schildkamp, 2013; Black & Wiliam, 1998). For example, teachers can adapt instruction, and students can distribute their study effort in several short sessions over a longer period of time (rather than practicing the task in a few long sessions over a short period of time). Examples of studies that showed positive effects of AfL and/or DBDM interventions on student achievement are, for example, the study of Lai, Wilson, McNaughton, and Hsiao (2014) in which secondary school students' reading comprehension improved, and the studies by Andersson and Palm (2017) and Keuning and van Geel (2016) in which student achievement for mathematics in primary education improved.

Generally, little attention is paid to AfL and DBDM, including in teacher training colleges, instead summative assessment is focused on (Birenbaum et al., 2015; Mandinach & Gummer, 2016). It is not clear to what extent and how teachers combine AfL and DBDM in their lessons. It is important that teachers blend AfL and DBDM in the classroom because they can complement each other, for instance, because their feedback loops differ in frequency but can be simultaneously active. With AfL, the quality of the learning process during daily everyday practice can be monitored frequently by using information from mostly qualitative assessments (e.g., asking questions and observations). With DBDM, student learning outcomes can be monitored less frequently but information from high-quality, more objective data are used, such as standardized assessments and student questionnaires, leading to less bias in teachers' interpretations (Van der Kleij et al., 2015; Bennett, 2011; Wayman et al., 2012b).

Many studies either focus on AfL or on DBDM, and are often small-scale, qualitative studies (Heitink, van der Kleij, Veldkamp, Schildkamp, & Kippers, 2016; OECD, 2008). This large-scale study tries to fill this knowledge gap by focusing on the extent to which, and how AfL and DBDM are jointly used by teachers in their lessons. Moreover, as far as we know, nobody has quantitatively analyzed differences in how much AfL and DBDM are used by teachers in different grade levels, subjects, and across genders before. Also, we try to gain further insight into which types of assessment instruments and processes are used in daily classroom practice, as various sources of information are needed to use AfL and DBDM (Black & Wiliam, 1998). Furthermore, over 20 prerequisites that may potentially influence the use of AfL and DBDM in the classroom have been identified by researchers, such as teachers' knowledge and skills and the nature of the feedback provided by assessments

(Heitink et al., 2016; Hoogland et al., 2016). To support secondary schools in benefitting from AfL and DBDM, we also aimed at gaining more in-depth insight into which of these prerequisites matter most for teachers wishing to implement AfL and DBDM with the current study. Thus, this mixed-methods study addresses the following research questions:

- Which assessment instruments and processes are most frequently used in classroom practice according to teachers?
- To what extent and how are AfL and DBDM being used in classroom practice according to teachers?
- Which prerequisites do teachers consider important for implementing AfL and DBDM in classroom practice?

## 2. Theoretical framework

### 2.1. Assessment instruments and processes

Teachers can use assessment instruments and processes to gather information about students' learning needs. This information can be used in a formative way, through AfL or DBDM. In this study, we focus on twelve assessment types teachers can use in Dutch secondary education (see Table 1). This is not an exhaustive list, but an overview of the classroom assessments most frequently mentioned in literature (Van der Kleij et al., 2015; Schildkamp & Kuiper, 2010; Ayala et al., 2008; Black & Wiliam, 1998; Newby & Winterbottom, 2011; Ruiz-Primo, 2011).

Although these twelve classroom assessments are presented in this paper as distinct, they are related to each other and even overlap to some extent. For example, the teacher can ask a student a single question which can lead to a classroom conversation if more questions are being asked and if answers are given by both the teacher and the students. In addition, the work collected in a portfolio can include the products of practical tasks and completed homework assignments. In teachers' daily classroom practice, a continuous interaction between various classroom assessments is likely.

### 2.2. Formative assessment

In Fig. 1, our broader formative assessment conceptual framework is presented. Formative assessment starts with teachers or students eliciting information through (high-quality) assessment and considering this information as a form of feedback towards the quality of their own and each other's performance. To give an example, teachers can consider that poor student results might partially be due to their poor lesson preparation, and students can

**Table 1**  
Various types of classroom assessments.

Types of assessment instruments	
Digital tests	The student answers questions and completes tasks on a computer.
Homework assignments	The student completes tasks outside of the lesson.
Oral tests	The student answers questions orally.
Paper-and-pencil tests	The student answers questions and completes tasks on paper (e.g., in the form of a multiple-choice test).
Portfolios	The student collects examples of his/her student work (student-developed artifacts) along with his/her (self)reflection.
Practical tasks	The student completes a practical assignment (e.g., a comic about a book).
Presentations	The student presents tasks he/she worked on.
Questionnaires	The student completes a questionnaire.
Types of assessment processes	
Asking questions	The teacher asks the student a question (e.g., about solving a problem).
Classroom conversations	An unplanned dialogue in the classroom between the teacher and students.
Student observations	The teacher observes a student regarding a specific aspect of behavior.
Reflective lessons	A planned activity in the classroom to evaluate students' prior knowledge (e.g., using concept maps).

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