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Teachers' decision-making: Data based or intuition driven?



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ABSTRACT

Teachers' decisions have an impact on pupils' educational trajectories, yet we know little about their decision-making. This study explored how teachers use data and intuition in the decision process in the case of grade retention. Semi-structured interviews were conducted with 17 primary teachers in Belgium. Results show that teachers use little data that are purposively collected to inform decision-making. Intuitive expertise appeared to be the most important bases of teachers' decisions. These findings stress the need for more insight in teachers' decision-making in general, and in teachers' intuition more specific. Only a full understanding of intuition and its impact on decision-making can help strengthen the positive contribution of expertise while also preventing severe bias.

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1. Introduction

Teachers' hold important decision autonomy in areas of choice such as decisions related to the progress of pupils' educational trajectories, yet little is known about the way teachers make decisions (Earl and Katz, 2006; Harteis, Koch & Morgenthaler, 2008). The last decade has seen a body of research emerge on decision-making in education, predominantly starting from a rational approach focusing on data-based decision-making. The underlying rationale for this increased attention on data use is promising evidence that collecting and analysing data, and adding it to the decision process before the decision is made, will have a positive impact on the quality of educational decisions (Earl and Louis, 2013; Marsh, 2012; Rossi, Lipsey & Freeman, 2004; Schildkamp and Ehren, 2013). As a consequence, authorities increasingly expect schools and teachers to use data to justify and support educational decisions (Schildkamp and Ehren, 2013). This appears to be in contrast with the way that decisions are often made in practice. Research has pointed out that data use in schools is still limited (Schildkamp and Ehren, 2013). Programs and materials have been designed to improve teachers' data use, assuming that resolving hindering factors (for example, the lack of data literacy) by providing training and support will lead to an enhanced level of data-based decision-making in schools. This viewpoint mainly implies that teachers use a rational straightforward approach to decision-making. However, Kahneman and Frederick (2005) demonstrated that people do not always adhere to the principles of rational choice; instead they tend to rely on intuitive strategies, even when these strategies may generate systematic deviations from optimal decisions. Studies of decision-making in naturalistic settings suggest that teachers may not consider all data or the consequences of their alternatives (March 1994; Kahneman & Frederick, 2005; Klein, 2008). Relevant information about problems is not always sought and available data is often not used. These conclusions

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notwithstanding, research that takes into account both rational and intuitive bases of teachers' decision-making is scarce (Harteis et al., 2008).

In the light of dual-process theories, we postulate that the intuitive and rational bases are concurring strategies in teachers' decision-making. Through the rational system, teachers engage in the deliberate analyses of data to search for evidence that precedes the decision. In this case data use is a cyclical process, in which phases of interpreting and diagnosing data and taking actions follow each other before the decision is made Verhaeghe, Vanhoof, Valcke, and Van Petegem (2010). However, teachers' decision-making also operates through the intuitive system that enables them to use intuitive cues and to reach feelings of knowing a decision without conscious analysis (Dane and Pratt, 2007; Hogarth, 2001). In this regard, intuition may lead to immediate action without the interpretation and diagnosis of data. Different scholars have pinpointed the possible pitfalls of confirmation bias (Harteis et al., 2008; Kahneman & Frederick, 2005). This means that teachers' attention may be drawn by cues that confirm what they believe to be true.

The complexity of the problem that initiates the decision process is expected to have an impact on the extent to which rational and/or intuitive strategies are elaborated (Blackwell, Miniard, & Engel, 2006; Dane and Pratt, 2007; Shapiro & Spence, 1997). Decision theory suggests that rational strategies are especially suited to solving well-structured problems that allow for fixed procedures (Epstein, 2010). However, a great amount of educational problems are complex, involving multiple factors in changing situations. One might ask whether the rational frameworks that are prevalent in educational research on decision-making are fit to study these ill-structured problems in changing situations. A complex problem that has received a lot of attention in national as well as international literature is the decision concerning grade retention. International comparative research shows that Belgium has high repetition rates in comparison to other European countries (Eurydice, 2011); however, there seems to be limited information regarding how these retention decisions are made (Hall and Hord, 2006). It appears that in most schools, teachers' decisions are primarily based on intuition with little use of systematic data analysis (Creighton, 2007; Earl & Katz, 2006). Students' educational trajectories are affected profoundly by retention decisions, therefore it is important to question the way teachers make these decisions.

Due to the importance of teachers' decision-making and the lack of a solid research base taking into account the intuitive and rational bases in teachers' decision making, this study will start from the premise that decision-making for grade retention is a valuable case study by which to explore the role of data and intuition in the decision-making process of teachers.

The following research questions are set forward:

1. How do teachers use data and intuition in the decision process for grade retention?
2. What is the interplay between data and intuition in teachers' decision for grade retention?

2. Theoretical framework

2.1. Decision theory

Empirical research in the field of decision-making has a long history of studying rational models of decision-making (Harteis et al., 2012). Furthermore, there is a vast amount of research in education on data-based decision-making. However, the dual-process approach has become widely accepted, describing a model of human decision-making guided by both rationality and intuition (Evans, 2008; Hammond, 1996; Kahneman and Frederick, 2005). The rational system enables people to process information deliberately and to engage in purposeful analysis, while the intuitive system involves the automatic and relatively effortless processing of information and permits individuals to reach perceptions of knowing without conscious attention (Evans, 2008; Hammond, 1996; Kahneman and Frederick, 2005). According to Epstein (2010), the intuitive system operates by the hedonic principle (what feels good), while the rational system follows the reality principle (what is supported by evidence). Although firmly established as a model of decision-making in the field of cognitive science, the dual-process approach has not yet found its way into educational research and only limited attempts have been made to study intuition in the context of teachers' decision-making (Harteis et al., 2008).

Starting from this dual-system thinking, we will draw on two lenses. Theories on data use provide us with a valuable starting point by which to study the rational bases of teachers' decision-making. Second, we will explore the intuitive bases of teachers' decision-making. According to Epstein (2010), the content of the intuitive system consists primarily of generalizations from experience and feelings of knowing.

2.2. Rational bases of decision-making

Broadly speaking, data-based decision-making is the process by which teachers collect and analyse data to guide and support educational decisions (Dane and Pratt, 2007; Ikemoto & Marsh, 2007). Data use has been described as a cyclical process, in which phases of interpreting and diagnosing data and taking actions follow each other (Verhaeghe et al., 2010). In most data use research, data that is used as input for this cyclical process need to be collected in a deliberate and systematic manner to separate purposeful data use from casual data-gathering. However, in practice teachers are often confronted with data that were not deliberately or systematically gathered, such as observations during daily practice. Although these

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