Exploring data use practices around Europe: Identifying enablers and barriers

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ABSTRACT

In this article we explore what data-based decision making use looks like in schools in five different countries (United Kingdom, Germany, Poland, Lithuania and the Netherlands). We explore for what purposes data are used in these countries and what the enablers and barriers to data use are. The case study results show that schools in all five countries use data for school development, accountability, and instructional improvement. Also, the schools in the five countries struggle with the same type of problems: e.g. lack of access to high quality data, lack of professional development in using data, and a lack of collaboration around the use of data. Finally, we discuss how some enablers can turn into barriers for effective data use.

Introduction and theoretical framework

Data-based decision making is receiving increased attention in countries around the world. An important reason for this is that some studies have found that effective data use by teachers and school leaders can lead to school improvement in terms of increased student achievement (Campbell & Levin, 2009; Carlson, Borman, & Robinson, 2011; Lai, McNaughton, Amituanai-Toloa, Turner, & Hsiao, 2009). Data can be defined as "information that is collected and represents some aspect of schools" (Schildkamp, Lai, & Earl, 2013, p. 10).

Schools have access to multiple data sources: input, process, context and output data (Ikemoto & Marsh, 2007). Input data includes, for example, data such as demographics of students. Process data refers to data such as data on the quality of instruction. Context data refers to data on policy and resources. Output data includes data such as student achievement data (Ikemoto & Marsh, 2007).

These data can be used for decision making for school improvement. Teachers and school leaders can use data, such as assessment and survey data, for different purposes: school development purposes (e.g. policy development), instructional purposes (e.g. instructional changes, such as adapting instruction to the needs of the students), and accountability purposes (e.g. communicating results to parents) (Breiter & Light, 2006; Coburn & Talbert, 2006a; Diamond & Spillane, 2004; Schildkamp & Kuiper,

2010; Schildkamp, Lai, et al., 2013; Wayman & Stringfield, 2006; Wohlstetter, Datnow, & Park, 2008; Young, 2006).

Furthermore, different data use studies (e.g. Coburn & Turner, 2011; Schildkamp & Lai, 2013; Supovitz, 2010) show that the process of data use is influenced by several factors than can either enable data use or form a barrier toward effective data use. Firstly, data use is enabled or constrained by certain school organization and context conditions. Organizational structures will influence what data are used in a school and for which purposes. A school leader can, for example, determine which data teachers have access to, they can support teachers in the use of data by means of facilitating them in time, by putting structures for data use in place, and by modeling effective data use. Furthermore, it is important that there is a shared vision in the organization, and that measurable goals exist at school, classroom, and student level. If there are no clear goals it is difficult to use data, because there are no goals to compare the data to. Moreover, if a school provides teachers with opportunities to collaborate around the use of data this can lead to more effective data use as well (Schildkamp, Poortman, & Handelzalts, 2013). The same goes for providing teachers with training and support in the use of data (Coburn & Turner, 2011; Datnow, Park, & Kennedy-Lewis, 2013; Honig & Venkateswaran, 2012; Jimerson & Wayman, 2012; Levin & Datnow, 2012; Mandinach & Honey, 2008; Marsh, 2012; Schildkamp & Kuiper, 2010; Spillane, 2012; Supovitz, 2010; Vanhoof, Verhaeghe, Van Petegem, & Valcke, 2011; Wayman, Spring, Lemke, & Lehr, 2012; Wayman, Jimerson, & Cho, 2012; Wohlstetter et al., 2008; Young, 2006).

Secondly, characteristics of data and data systems can influence whether data are used for school development accountability and

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instructional purposes. Schools that have good functioning information management systems and access to relevant, reliable and valid data are more likely to show increased level of data use. Data use is likely to be constrained if teachers have difficulties in accessing the data they need, or if they feel that there are problems with the quality of the data (Breiter & Light, 2006; Cho & Wayman, 2013; Coburn & Turner, 2011; Schildkamp & Kuiper, 2010; Wayman & Stringfield, 2006; Wohlstetter et al., 2008).

Moreover, data use is also largely dependent on characteristics of the user. School staff is made up of individual people. Some of them might have the necessary knowledge, skills and attitude to use data, whereas others may not. Several studies talk about the importance of data literacy. It takes certain knowledge and skills to analyze, interpret and take action based on data. Therefore, it is important to also look at factors at the individual data user level (Coburn & Talbert, 2006b; Earl & Katz, 2006; Jimerson & Wayman, 2012; Little, 2012; Wohlstetter et al., 2008; Young, 2006).

The use of data may lead to an effect on teacher-, school leader-, and student learning. For example, based on assessment results in combination with classroom observation results, teachers can identify the needs of students (teacher learning) and address their instruction accordingly. This may lead to increased student learning and increased student achievement (Boudett & Steele, 2007). An important question that is currently largely unanswered, however, is what types of data are used and how these data are being used or not used. A related question is which factors influence the practice of data use, as studies show that there are distinct differences in the way schools use (or not use) data, differences between schools in different countries, but also differences between schools within one country.

Therefore, this article addresses three central questions in the context of five different countries (United Kingdom, Germany, Poland, Lithuania and the Netherlands):

1. What data are used by schools in the different countries?
2. For which purposes do school leaders and teachers use data in these countries?
3. Which organizational, data and data systems and user characteristics influence the use of data?

Research context and methodology

Context description

Five countries were investigated in this study: Germany, The Netherlands, United Kingdom, Poland, and Lithuania (see also www.datauseproject.eu). In this section, we will briefly describe the policy context (in terms of autonomy, accountability, the curriculum and data available) of each country.

Germany has 16 different states and each state is responsible for providing education. The federal Ministry is mainly concerned with education research, and educational planning. Within the states, schools are centrally organized and very limited autonomy exists for schools. Decisions are mostly taken at the state, provincial/regional level and local level (OECD, 2008, 2010). Only with regard to organization of instruction the school has autonomy regarding decision making. The state designs and selects the programs that are offered and determines the range of subjects taught and the course content (OECD, 2008). Germany has a standard curriculum or partly standardized curriculum that is required, as well as mandatory national examinations and assessments (OECD, 2010). Standards are assessed by means of state-wide central tests in 9th/10th grade, as well as for Abitur (12th/13th grade). Additionally, independent state-wide central assessments are conducted in K-1, 3rd and 8th grade. Internal

evaluations are not compulsory, but school boards and other organizations offer tools and support.

Schools in the *United Kingdom* have a lot of autonomy. Almost all decisions are made at the level of the school (OECD, 2008, 2010). Schools decide which textbooks they want to use, they select the programs that they will offer, decide on the range of subjects taught and the course content of these subjects (although they have to refer to a framework at the central level) (OECD, 2008). The United Kingdom does have a standard curriculum (OECD, 2010). There are national assessments required of all state schools in the United Kingdom for all students of certain ages, and although national examinations are not compulsory, only rarely do students not take core subjects as these are needed for the majority of subsequent training, education and employment needs. Schools are inspected by Ofsted, who provides schools with inspection reports. Internal evaluations using lesson observation, perception questionnaires, attainment and achievement data are highly recommended. These evaluations are most frequently based around the Ofsted inspection framework. Inspections from external evaluation agencies are optional. Schools are likely to feel pressured to use data as they are evaluated by Ofsted and their performance will appear in League tables (Downey & Kelly, 2013). Also, the United Kingdom has a national student database, and achievement and attainment tables, which makes information available in a systematic and accessible manner.

In *Lithuania*, the Ministry of Education is responsible for developing educational policy, approving of the general content of teaching, organizing the final examinations, and determining the national standards for attained education level. The County's Manager's Administration implements the national education policy in the county, approves education plans for the county, and supervises the education providers. Municipalities execute the national education policy in the municipality, approve education plans, and ensure the context necessary for providing education. Also schools ensure the execution of the national education policy. At the end of secondary education, students participate in final examinations (e.g. mature exams) at school level and/or at national level (Ministry of Education and Science of the Republic of Lithuania, 2004). Schools are evaluated both externally and internally. External evaluations are carried out by the National Agency for School Assessment. Internal evaluations are obliged as well. Schools can use the internal audit methodology developed by the National Agency for internal evaluation or use their own system. Internal evaluations are carried out by the school administration in cooperation with teachers.

An important act in *Poland* is the Pedagogical Supervision Act passed in 2009, which lists three areas of school supervision: evaluation, control and support. The act provides also the requirements according to which all schools in Poland are externally evaluated by educational authorities. The Ministry of National Education provides curriculum standards, districts and municipalities control administration and financing, school leaders choose which teachers to hire and teachers choose a curriculum from a pre-approved list. School leaders have autonomy concerning hiring teachers, approving programs and textbooks, and conducting internal evaluations. Poland has mandatory national examinations and assessments coordinated and implemented by the Central and Regional Examination Commissions (OECD, 2010), for example the 6th (primary education), 9th (lower secondary education), and 12th grade (upper secondary education) exit exams. Schools are both (in theory) internally and externally evaluated. However, since the Act on Pedagogical Supervision is a rather new act, not all schools have been evaluated externally, nor have they conducted internal evaluations, yet.

In the *Netherlands*, schools have a lot of autonomy. Similar to the United Kingdom, almost all decisions are made at the level of the