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Version of record first published: 02 Nov 2012.

To cite this article: Jan Vanhoof, Goedele Verhaeghe, Peter Van Petegem & Martin Valcke (2012): Flemish primary teachers’ use of school performance feedback and the relationship with school characteristics, Educational Research, 54:4, 431-449

To link to this article: http://dx.doi.org/10.1080/00131881.2012.734726

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Flemish primary teachers’ use of school performance feedback and the relationship with school characteristics

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(Received 1 July 2011; resubmitted 24 July 2012; final version received 22 August 2012)

Background: Schools are increasingly confronted with the challenges that information about school performance brings with it. It is common for schools’ use of performance feedback to be limited. Equally, however, there are documented cases in which school performance feedback is meaningfully used.

Purpose: This study looks at how Flemish primary school teachers use school performance feedback and to what extent this use (or lack of use) is determined by school characteristics. Based on evidence from existing research, we focus on four school-related explanatory variables: attitude with regard to school performance feedback, the organisational functioning of the school, performance-orientation and actual pupil performances. The research questions addressed are: (1) ‘To what extent do teachers use school performance feedback?’ and (2) ‘To what extent can the use of school performance feedback by teachers be explained by school characteristics?’

Sample: The use of school performance feedback was studied in the context of a Flemish school feedback initiative; 183 primary schools were given school performance feedback at school and pupil level for mathematics, technical reading and spelling, supplemented by data with regard to pupil characteristics. A survey was conducted in this representative sample of Flemish primary schools. In each school, all teachers were asked to complete a survey on their use of the school performance feedback and on their perception of the mentioned school characteristics. The questionnaire was filled out by 2578 respondents from 183 schools. Respondents were regular teachers or teachers that were occupied as pupil welfare co-ordinators.

Design and methods: The survey results were analysed statistically. In addition to descriptive analyses, multi-level analyses were carried out to explain variation in the process and the results of school performance feedback use. The school characteristics described in the theoretical framework were included as explaining factors in both models, supplemented by the background variables on the teachers surveyed.

Results: Only a limited number of respondents stated that the available school performance feedback had made an actual contribution towards promoting critical reflection with regard to school functioning and/or their own classroom practice. The analyses confirm that the way in which school performance feedback use is approached by teachers is not independent of characteristics of the school. There is a relationship between the process and result of school feedback use and the role of the school principal as culture builder and with the professional relationships between team members.

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Conclusion: By and large, respondents reported no or only limited results of school performance feedback use. There are, however, appreciable differences between team members within schools. We conclude that the way in which school performance feedback use is implemented by teachers cannot be seen in isolation from the characteristics of the school. Given the research findings, principals with a strong focus on culture building and strong professional relationships between team members offer a slightly better chance of getting teachers to use school performance feedback in a worthwhile and productive way.

Keywords: data use; school performance feedback; survey; multi-level analysis

Problem statement and research context

Although people and organisations have been collecting data for many years, it was not until recently that the potential of data use in education became fully appreciated (Messelt 2004). Schools are encouraged to underpin their internal quality assurance activities with data (Schildkamp et al. 2011). In many educational settings, a wide range of initiatives have been undertaken to create a data-rich environment. An example is school feedback reports on pupil performances in standardised tests. Other examples are local educational authorities conducting analyses at regional level and the search for different ways of comparing performances of pupils in a manner that is conceptually and methodologically sound. More examples could be given, but the main point here is that, in diverse educational contexts, individuals and organisations are faced with challenges in terms of gathering, interpreting and using data.

Increasingly, the management of data is recognised as an important aspect of organisational knowledge (Patriotta 2004; Wayman, Cho, and Johnston 2007). Choo (1998) states that organisations are more effective when they use data management in organisational sense-making, knowledge creation, decision-making and organisational action. The expectation is that district leaders, school principals and teachers will analyse the data and then use it as a basis on which to make informed choices. The capacity to develop and apply knowledge is growingly regarded as an individual and organisational core competency (Campbell and Levin 2009; Wenger 1998). However, previous research findings – in both Flemish and international contexts – were rather pessimistic and show a different picture. They point to the limited awareness of the potential use of data, limited use of available data, and the absence of actions on data reports once read (Coe and Visscher 2002; Verhaeghe et al. 2010; Zupanc, Urank, and Bren 2009). It appears that the staff responsible for implementing data use in schools do not really know how to work with data (Earl and Fullan 2003; Earl and Katz 2006; Wayman and Stringfield 2006). In many schools, available data are hardly discussed with the teachers or other professionals involved. Van Petegem and Vanhoof (2004) report on situations in which school managements deliberately hold back school feedback reports or merely pass them on to other members of staff without even looking at them. Other research shows that teachers often fail to use the available information or do so incorrectly (Schildkamp, Visscher, and Luyten 2009).

These examples show instances of schools’ lack of effective use of performance feedback. Equally, however, there are documented cases in which school performance feedback is well used – for example, in promoting consultation, helping schools to arrive at a picture of the state of affairs, helping them set strategic priorities and increasing pupil performance (Campbell and Levin 2009;
Some schools use the available information sources effectively as a policy instrument and also actively look for data (Young 2006). Nevertheless, the general picture painted by existing studies is not a particularly positive one. Despite the value attached to making data available to schools, the use of that feedback and the results yielded are, on the whole, still limited. It appears that there is a considerable interest in informed school development, but that schools are still searching for concrete ways of converting information and data into tangible, effective actions.

**The Flemish school context**

This study sets out to look at how school performance feedback data is used in Flemish primary schools and specifically focuses on trying to arrive at a clear picture of data use among teachers. So far, only a limited number of initiatives have been undertaken with a view to developing school feedback systems in Flanders; a fact which is related to the Flemish dislike of centralised exams (Van Petegem et al. 2005) and the resulting lack of systematic data collections concerning pupil performances. Deregulation and decentralisation are an important part of Flanders educational policy. Schools are receiving more autonomy, and self-regulation of schools is expected. There is no formal obligation for schools to invest in school performance feedback, but several policy initiatives illustrate that Flemish primary schools are, in fact, expected to engage in some type of performance data use. Primary schools can receive school feedback from several sources and, as a consequence, some schools did engage in developing basic data literacy skills. However, the way schools engage in this is not specified a priori by the Government: this is seen as a school’s responsibility. Previous research showed that the use of school performance feedback based on pupil performances is at a very early stage in Flanders (Devos and Verhoeven 2003; Vanhoof, Van Petegem, and De Maeyer 2009; Verhaeghe et al. 2010). However, these studies also provided empirical evidence of substantial differences between Flemish schools in terms of use of data and in terms of attitudes towards using data. Therefore, the Flemish context is well suited to study school characteristics that facilitate school performance feedback use by teachers.

Although it is often argued that the true value of school performance feedback is use at the level of classroom practice, data use has in fact largely been documented on the basis of research focussing at school level (Schildkamp and Lai 2012). Moreover, in general terms, it has to be noted that our knowledge base concerning how school principals and teachers use data and concerning the conditions that facilitate or stand in the way of data use, is at present fairly limited (Schildkamp and Teddlie 2008). This article considers the possible impact of school-related characteristics. Theoretically, we will argue the hypothesis that there is a relationship between the use of school performance feedback and the organisational functioning of the school. As such, the point of departure is that schools – if the intention is to build in guarantees for successful school performance feedback use – must first score sufficiently highly on a number of school characteristics (Coburn and Turner 2011; Schildkamp 2007).

McBeath (1999) emphasised, for example, in this context, that internal quality assurance can only work if it is viewed positively by team members. Only when
teachers themselves are convinced of the possibilities offered by school feedback can genuine progress towards such data use in a worthwhile and productive manner be made (Bosker, Branderhorst, and Visscher 2007). Moreover, it has been suggested that general characteristics of school functioning can have an impact on the use of data relating to that functioning (Vanhoof, de Maeyer, and Van Petegem 2011). Empirical evidence shows, for example, that policy implementation processes work more effectively if they comply with a certain number of characteristics such as providing professional and personal support for team members (Sammons, Hillman, and Mortimore 1995), ensuring the input of stakeholders in decision-making processes (Mortimore et al. 1988), tailoring actions carried out within the framework of data use to activities in other policy domains (Wikeley, Stoll, and Lodge 2002), and ensuring that the team has the same objectives with regard to the use of school performance feedback (Potter, Reynolds, and Chapman 2002). These school-related characteristics are an indication of what might be described as the ‘preparedness’ or the ‘start position’ that a school needs to possess in order to be able to use school performance feedback in an effective way.

**Theoretical framework**

This study takes pupil performance feedback reports from standardised tests as a source of potential data use by teachers. Coe and Visscher (2003) define so-called School Performance Feedback Systems as external information systems that schools can use to gather reliable information on their functioning. There are a number of expectations about the assumed contribution of such school feedback reports (Schildkamp and Lai 2012; Visscher 2002). The ultimate objective of school feedback is the fulfilment of these expectations in order to make a contribution to school development (Visscher and Coe 2003). School development should become visible in, for example, improved pupil performances, improved educational processes (such as the use of better methods and the intensification of pupil care and guidance) and an improved school functioning (such as increasing the willingness to work together or strengthening cohesion in the school).

However, there may also be unintended and undesired outcomes, such as demotivation among teachers or an excessive focus on tested learning contents (e.g. teaching to the test; Hamilton, Stecher, and Yuan 2009; Ravitch 2010). Results of feedback use can also be checked against output indicators but also against school processes (Schildkamp 2007). In the context of school development, for example, both improved pupil performances and the continued professional development of school team members can be seen as possible results. In this study, with regard to the ‘results of school performance feedback use’ we have made a distinction, based on Rossi, Lipsey and Freeman’s (2004) classification of evaluation data use types, between an instrumental result (school feedback used as a basis for policy decisions at school or class level) and a conceptual result (school feedback influencing thinking without direct instrumental consequences).

It goes without saying that such results are related to the way feedback reports are used (cf. the process of school performance feedback use). However, we should not assume that the use of feedback reports is either an automatic or an easy activity for teachers. In order to use school performance feedback effectively, teachers need to go through a carefully thought out sequence of stepped phases (Vanhoof et al.
This study focuses on the start of the process that begins with the receipt of school performance feedback. That process should ideally commence with reading and discussing the school feedback in order to arrive at a correct interpretation. This means that the process of school feedback use also covers the extent to which teachers read the feedback reports thoroughly and take part in discussions within the school about those feedback reports (Ikemoto and Marsh 2007; Verhaeghe et al. 2010).

There are a number of school-related characteristics that can be expected to have an impact on the process and the results of school performance feedback use. On the basis of evidence from existing research, we suggest four (groups of) ‘school related explanatory variables’: (1) attitude towards school performance feedback, (2) the organisational functioning of the school, (3) performance-orientation, and (4) actual level of pupil performances. These concepts are explained below (see Figure 1 for overview).

(1) Attitude towards school performance feedback
Bosker, Branderhorst, and Visscher (2007) regard a negative attitude to school performance feedback as one of the principal obstacles to the use of feedback information. An attitude indicates how positive or negative an individual’s standpoint is with regard to a particular issue (Petty and Wegener 1998). Given that school performance feedback is a complex process, the attitude towards school performance feedback use can be examined with regard to several different aspects. The concept ‘attitude’ is operationalised here using pairs of opposed statements (Meuret and Morlaix 2003). Examples of these opposed statements are: school performance feedback ‘doesn’t tell us anything new’ versus ‘teaches us a great deal’; school performance feedback ‘takes up a lot of time’ versus ‘requires very little extra time’; and school performance feedback ‘only concerns a few people’ versus ‘concerns everyone’. These statements relate to themes such as whether school performance feedback is worthwhile, its feasibility/complexity, its expected effects, its systematic character and the extent to which school performance feedback yields insight. Knowledge and understanding of the attitude with regard to self-evaluation is crucially important in this context, not least because of the impact of conceptions on exhibited behaviour (Coburn and Talbert 2006; Kellgren and Wood 1986; Kraus 1995).

Figure 1. Theoretical framework: Factors influencing school performance feedback use by teachers.
(2) Organisational functioning

The organisational functioning of the school can also influence the process and the result of school performance feedback (Coburn and Turner 2011). The first relevant aspect here is the presence of ‘professional relationships between team members’ (Little 1990). A sense of being engaged in a common endeavour plays an important role in this. In a collaborative school culture, teachers see working together as a team as something positive, not as a threat to their own autonomy. By this reasoning, the use of school feedback can only be of a good quality if there is sufficient collaboration, support, trust, openness and involvement (Hargreaves and Fullan 1992).

Coming to ‘shared goals’ is also expected to have an impact on feedback use. A characteristic of goal-orientated school performance feedback use is the existence of a continuous monitoring of the relationship between the activities being undertaken and the objectives which the organisation wishes to achieve (Schildkamp, Visscher, and Luyten 2009). These objectives not only have to be clearly formulated, it is also vitally important that the people involved genuinely subscribe to the objectives. Another aspect of the organisational functioning of the school focuses on the role of the school principal, specifically in the sense of the ‘school principal as culture builder’ (Ikemoto and Marsh 2007; Staessens 1993). After all, the school principal has an important function to fulfil in establishing the strategic direction of the school and he or she needs to transmit this to others so that a shared vision is developed. Schools that want to use school performance feedback effectively need a vision on this (Sharkey and Murnane 2006; Young 2006).

(3) Performance orientation

The performance-orientation of school policy is also viewed as a relevant explanatory variable. A performance-oriented approach places the emphasis on preparing pupils for their future career in society, on order and discipline in the classroom and at school, on core subjects, on pupil performances and on helping pupils to follow the course of study leading to the highest possible diploma to they which they can realistically aspire (Denessen 1999). In more performance-oriented schools, school staff will work towards achieving the best possible pupil performances, the emphasis will be on learning the study material, and there will be a concerted effort towards directing pupils’ learning as efficiently as possible in accordance with pre-determined standards. This brings us to the hypothesis that school performance feedback will be used more intensively for shaping classroom and school policy the more the school is performance-oriented.

(4) Level of pupil performance

Finally, analyses should also look at actual pupil performances in the school. The underlying logic in this case is that there is a relationship between the use of school performance feedback and the results and findings contained in that school performance feedback. Thus, it seems that when a school’s own results are perceived as not as good or poor, schools are more likely to look for explanations than in the event of good performances (Visscher 2002). On the other hand, however, in the case of results that are perceived as too weak, there might be a danger that nothing more is done with the results. Research shows that a number of school principals have
anxieties about the possible demotivating effect of school feedback on teachers (Verhaeghe et al 2010). If the results are good or reasonably good, there is less incentive to undertake certain actions at school level. The question of whether and, if so, how teachers use school performance feedback, can therefore not be viewed in isolation from their school’s own results. This relation between actual school performances and the use of the school performance feedback is hypothesised to be non linear. This means that, by definition, better pupil performances will not automatically lead to more school performance feedback use.

Aim and research questions

With this theoretical framework in mind, the aim of this study is to understand how feedback is used by teachers and to examine the school characteristics that promote the use of school performance feedback. In this way, we want to research the pre-conditions that need to be present in the school to provide a favourable school performance feedback use environment for teachers. Given these considerations, the research questions addressed in this study are as follows: (1) ‘To what extent do teachers use school performance feedback?’ and (2) ‘To what extent can the use of school performance feedback by teachers be explained by school characteristics?’

Method: context, survey instrument, data collection and participants

Context

The use of school performance feedback was researched in the context of a specific initiative, namely the feedback that Flemish primary schools received in the SiBO study (SiBO is the acronym for Schoolloopbanen in het Basisonderwijs – ‘School careers in Primary education’). The SiBO study is a large-scale longitudinal research project investigating the school careers of children as they go through primary education. It follows a cohort of around 6000 children from a representative sample of Flemish primary schools. As a quid pro quo for their help with this project, individual schools were given feedback on their results. The test scores obtained by each child, together with an indication of how they had fared with respect to a Flemish reference sample, were sent to the schools concerned within a month after data collection. Schools also received an individualised report for each year group with the results aggregated at school level.

The present study focuses on the use of these individualised school feedback reports together with information about the performance of the pupils involved over four academic years [from year 1 (age 6) up to and including year 4 (age 10)]. These reports were sent to the schools with the request that they should be used confidentially as part of their internal quality assurance process. The school performance feedback reports included results at school and pupil level for mathematics, technical reading and spelling, supplemented by data about pupil characteristics (such as grade retention and initial level of Dutch language proficiency). The results of each school were consistently set against the average scores for the Flemish reference sample. In the report, an effort was made to explain central concepts such as learning gains and value added in a clear way so that the report could be read without any requirement for a prior knowledge of statistics. The report included a section explaining all (data) concepts used. Likewise, the formats in
which data were represented were also explained. The data were supported with graphical representations (boxplot, bar graph, pie graph, growth curve, and cross table). As such, the same data were presented numerically and graphically. The reports were customised with respect to the school in the sense that they showed their own school results, whereas the explanatory text was standardised so that the interpretation of their own school data was left to the feedback users.

**Questionnaire survey instrument**

In order to answer our research questions and to be able to test the hypotheses formulated in the study which this article reports, we opted for a quantitative approach. For this reason, we conducted a questionnaire survey of teachers in which the various concepts from the theoretical framework were operationalised using Likert scales. The questionnaire comprised approximately 50 items, which were grouped into three sections called ‘school characteristics’, ‘teacher characteristics’ and ‘school performance feedback use’.

**Questionnaire survey data collection and participants**

All schools which were part of the representative sample of Flemish primary schools belonging to the SIBO study were surveyed. All these schools had the same access to the school performance feedback. In each school, all teachers were asked to complete the paper-and-pencil survey. For further details on the random stratified sample of schools and details on data gathering in the SIBO study we refer to Verachtert et al. (2009) and Verhaeghe et al. (2010).

Respondents were regular teachers or teachers who were occupied as pupil welfare co-ordinators. A pupil welfare co-ordinator provides support, guidance and co-ordination with regard to optimising the school’s pupil welfare policy. In total, the questionnaire was completed (in part or in its entirety) by 2578 respondents from 183 schools.

Table 1 shows the seven scales in the survey and the number of items in each scale. For each scale, an example item and details on internal consistency have been given.

A multi-level analysis was carried out for the two dependent variables (the process and the results of school performance feedback use). The school characteristics described in the theoretical framework were included as explanatory factors in both models, supplemented by the following background variables on the teachers surveyed: employment level, gender, number of years’ experience in education and the position held in the school (pupil welfare co-ordinator vs teacher). All the variables were standardised before they were included in the analyses, with the exception of the number of years’ experience and the employment rate.

**Results**

Given the nature of the research questions, we divided this section into a descriptive and an explanatory part. We will start by answering the question as to what extent and in what ways teachers use school performance feedback. We will then go on to use multi-level analyses to investigate to what extent the use of school performance feedback by teachers is influenced by school characteristics.
Description of the process and the results of school performance feedback use

In order to give an answer to the question as to what extent teachers use school performance feedback, we will first look at the process and the results of school performance feedback use, which are reported at item level. We will then go on to report the results of the other variables at scale level. Respondents gave their opinions with regard to the statements using a six point scale, ranging from (1) ‘totally not applicable’ to (6) ‘totally applicable’.

The average scores for the items that indicate the intensity of the process of school performance feedback use are low (Table 2). This means that only a limited group of the team members surveyed said that they had read the reports thoroughly and that they took part in discussions of the feedback reports to a limited degree. About half the respondents said that the two process-related items were not applicable or entirely not applicable. The relatively large spread of the scores points to an appreciable variation between the teachers surveyed. It appears that there is usually a relationship between the intensity of reading and discussion, however. The

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of items</th>
<th>Number of respondents</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process of school feedback use: <em>I have read one of the feedback reports thoroughly.</em></td>
<td>2</td>
<td>2048</td>
<td>0.79</td>
</tr>
<tr>
<td>Results of school feedback use: <em>I used the feedback reports to monitor individual pupils.</em></td>
<td>8</td>
<td>2026</td>
<td>0.96</td>
</tr>
<tr>
<td>Attitude towards school feedback: <em>The use of school feedback does contribute to improved pupil performances.</em></td>
<td>8</td>
<td>1396</td>
<td>0.93</td>
</tr>
<tr>
<td>Professional relations: <em>I tell my colleagues how I have tackled a problem.</em></td>
<td>4</td>
<td>2578</td>
<td>0.82</td>
</tr>
<tr>
<td>Shared goals: <em>Teachers in our school support what we want to achieve with the school.</em></td>
<td>4</td>
<td>2578</td>
<td>0.83</td>
</tr>
<tr>
<td>Principal as culture builder: <em>Our principal clearly knows what he/she wants.</em></td>
<td>4</td>
<td>2562</td>
<td>0.87</td>
</tr>
<tr>
<td>Performance orientation: <em>In our school there is a big concern for student achievement.</em></td>
<td>10</td>
<td>1972</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Note: Text in italics gives a sample item from each scale. Differences in ‘Number of respondents’ are due to teachers that did not respond to all items of some scales.

Table 2. Survey responses for items in the ‘Process of school performance feedback use’ scale.

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have read one of the feedback reports thoroughly.</td>
<td>38</td>
<td>12</td>
<td>7</td>
<td>12</td>
<td>19</td>
<td>12</td>
<td>2.98</td>
<td>1.89</td>
<td>2069</td>
</tr>
<tr>
<td>I took part in discussions of the feedback reports in my school.</td>
<td>46</td>
<td>17</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>7</td>
<td>2.45</td>
<td>1.70</td>
<td>2048</td>
</tr>
</tbody>
</table>

Note: 1 = totally not applicable; 2 = not applicable; 3 = rather not applicable; 4 = rather applicable; 5 = applicable and 6 = totally applicable.
correlation between the two statements is 0.65 ($p < 0.01$). Nevertheless, there were also respondents who were involved in discussions without having read the report and respondents who read the report without taking part in discussions. The actual process of school performance feedback use by teachers, thus, takes a very variable form.

We find a similar picture for the results of school performance feedback use (Table 3). About half of the respondents repeatedly scored the various statements as ‘not applicable’ or ‘totally not applicable’, which translates into low item scores and a low average scale score. Only a limited number of teachers stated that the available school performance feedback had actually contributed to the pre-determined results. Nonetheless, there were teachers who stated that the school performance feedback had encouraged them, for example, to examine critically their own lessons or the school and to make changes. This involves a relatively limited group, however. These differences translate (also with regard to the variable ‘result of school performance feedback use’) into a large variation in respondents’ answers.

With regard to the explanatory variables in the analysis framework, Table 4 gives information (at scale level) on the descriptive results. The average scores for these explanatory variables are consistently higher than those for the process and the results of school performance feedback use. This applies, for example, to shared

Table 3. Survey responses for items in the ‘Results of school performance feedback use’ scale.

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>I used the feedback reports to monitor individual pupils.</td>
<td>47</td>
<td>19</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>4</td>
<td>2.31</td>
<td>1.58</td>
<td>2036</td>
</tr>
<tr>
<td>The feedback reports have encouraged me to examine my lessons critically.</td>
<td>44</td>
<td>18</td>
<td>10</td>
<td>15</td>
<td>9</td>
<td>4</td>
<td>2.36</td>
<td>1.54</td>
<td>2004</td>
</tr>
<tr>
<td>The feedback reports have encouraged me to examine the functioning of our school critically.</td>
<td>43</td>
<td>17</td>
<td>13</td>
<td>15</td>
<td>9</td>
<td>3</td>
<td>2.39</td>
<td>1.52</td>
<td>2005</td>
</tr>
<tr>
<td>The feedback reports have encouraged me to change the way I approach my lessons.</td>
<td>45</td>
<td>19</td>
<td>16</td>
<td>12</td>
<td>6</td>
<td>2</td>
<td>2.21</td>
<td>1.38</td>
<td>2003</td>
</tr>
<tr>
<td>The feedback reports have encouraged me to change our school functioning.</td>
<td>44</td>
<td>19</td>
<td>16</td>
<td>13</td>
<td>6</td>
<td>2</td>
<td>2.23</td>
<td>1.37</td>
<td>1981</td>
</tr>
</tbody>
</table>

1 = not applicable; 2 = not applicable; 3 = rather not applicable; 4 = rather applicable; 5 = applicable and 6 = totally applicable.

Table 4. Results for scales measuring ‘School characteristics’.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude towards school feedback</td>
<td>3.71</td>
<td>1.09</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Professional relationships</td>
<td>4.38</td>
<td>0.84</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Shared goals</td>
<td>4.56</td>
<td>0.81</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Principal as culture builder</td>
<td>4.33</td>
<td>1.00</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Performance orientation</td>
<td>4.51</td>
<td>0.58</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>
goals and the performance-orientation of school policy. Teachers score slightly lower only with regard to attitude towards school performance feedback. The average score thus indicates, in general terms, a somewhat positive attitude (mean = 3.71). It can be said for all the scales that the variation is smaller than for the process and the results of school performance feedback use.

We also included the actual performances of the schools in our explanatory analyses. For this reason, we used school’s added value scores as given in the school performance feedback report. Schools were divided into three groups on the basis of their value added scores (VAS) for mathematics and spelling: a group which scored above average on both measures (26% of the schools); a group which scored above average on one of them and below average on the other (48% of the schools); and a group which scored below average on both measures (26% of the schools). The use of groups – instead of a continuous variable – was chosen on the basis of the assumption in the theoretical framework that there would be a non linear relationship between actual school performances and the use of the school performance feedback.

School characteristics explaining school performance feedback use by teachers

Using explanatory analyses, we will now go on to look at to what extent the process and the results of school performance feedback use by teachers are determined by school characteristics. On Table 5, the left hand column gives an overview of the explanatory factors that were included in the multi-level analyses for (1) the process and (2) the results of school performance feedback use. The null model gives information on the division of variance over the school and respondent level for the two dependent variables (which were ‘Process of school performance feedback use’ and ‘Results of school performance feedback use’). The next column contains information about the gross model. This model shows the effect of each of the characteristics at school and respondent level without any control for other variables. The gross models gives us, for example, an idea of the differences between experienced and inexperienced team members and the differences according to employment rate. Although the results are reported together in one column, the gross model does not control for the impact of the other variables in the model. The gross model looks at all explanatory variables one by one. Finally, we come to the net model, which includes both the relevant school characteristics and the relevant respondent characteristics. This gives us a picture of the net effect, in other words: after controlling for the possible effects of the other variables in the model. Initially, all the explanatory variables were included in the net model, but the non-statistically significant variables were removed in so far as their removal did not lead to a statistically significant impoverishment of the model (Luke 2004). The final net model that results from this is shown in the right-hand column of Table 5. We also report the estimate and standard error (in brackets) for each of the regression coefficients.

The two null models show that opting for a multi-level-analysis was the correct choice. With regard to the total variance in the process and in the results of school performance feedback use, 9% and 12% of the variance, respectively, can be attributed to differences between schools. The remaining variance has to be attributed to differences between respondents within the schools, which, we suggest, is a noteworthy finding in itself. The differences within schools are thus bigger than
Table 5. Multi-level analyses: Impact of school characteristics on school performance feedback use.

<table>
<thead>
<tr>
<th></th>
<th>(1) Process of school performance feedback use</th>
<th>(2) Results of school performance feedback use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.001 (0.031)</td>
<td></td>
</tr>
<tr>
<td>Low VAS vs average VAS (REF)</td>
<td>0.006 (0.071)</td>
<td></td>
</tr>
<tr>
<td>high VAS vs average VAS (REF)</td>
<td>-0.099 (0.070)</td>
<td></td>
</tr>
<tr>
<td>Attitude towards school feedback</td>
<td>0.004 (0.028)</td>
<td></td>
</tr>
<tr>
<td>Professional relations</td>
<td>0.080 (0.023)</td>
<td>0.154 (0.028)</td>
</tr>
<tr>
<td>Shared goals</td>
<td>0.063 (0.024)</td>
<td></td>
</tr>
<tr>
<td>Principal as culture builder</td>
<td>0.111 (0.024)</td>
<td>0.091 (0.029)</td>
</tr>
<tr>
<td>Performance orientation</td>
<td>0.032 (0.025)</td>
<td></td>
</tr>
<tr>
<td>Employment rate (%)</td>
<td>0.002 (0.001)</td>
<td></td>
</tr>
<tr>
<td>Gender: male vs female (REF)</td>
<td>0.026 (0.073)</td>
<td></td>
</tr>
<tr>
<td>Number of years of teaching experience</td>
<td>0.016 (0.002)</td>
<td>0.014 (0.003)</td>
</tr>
<tr>
<td>Function: PWC vs teacher (REF)</td>
<td>0.792 (0.091)</td>
<td>0.806 (0.097)</td>
</tr>
<tr>
<td>Variance at school level</td>
<td>0.090 (0.019)</td>
<td>0.078 (0.021)</td>
</tr>
<tr>
<td>Variance at respondent level</td>
<td>0.908 (0.030)</td>
<td>0.810 (0.034)</td>
</tr>
<tr>
<td>Deviance</td>
<td>5685</td>
<td>3557</td>
</tr>
<tr>
<td>N</td>
<td>1319</td>
<td></td>
</tr>
<tr>
<td>Explained variance at school level</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Explained variance at respondent level</td>
<td>11%</td>
<td></td>
</tr>
</tbody>
</table>

VAS: added value score; PWC: pupil welfare co-ordinator; REF: reference category in analysis.
the differences between schools. Thus, the ‘stereotyped’ picture painted – of schools on the one hand where everyone makes intensive use of the available school performance feedback and schools on the other where everyone leaves the feedback unread, where the feedback is not discussed and unused – does not correspond to the evidence in this study. Within most schools, there are big differences between respondents.

When we turn our attention to the gross models, the first thing we observe is that there is no statistically significant effect of good or poor scores in the feedback reports (cf. VAS: added value score) on the dependent variables studied. Thus, according to these analyses, the added value scores which are included in the feedback report have no effect on the process and results of school performance feedback use by teachers. The position that staff hold in the school does appear to be important, however. Pupil welfare co-ordinators score 0.79 SD higher on the process of school performance feedback use and 0.28 SD higher on the results of school performance feedback use than teachers. The number of years’ experience in education also emerges as a relevant factor. It appears that teachers make more intensive use of feedback and report more results as the number of years’ experience rises. There is no relationship between gender and employment rate and the dependent variables researched, i.e. nor for the process nor for the results of school performance feedback use. We do find empirical evidence for the impact of a number of school-related predictors from the theoretical framework in the two gross models, however. Our discussion of these predictors is based on the results of the net models.

The net models improve the predictive power in comparison with the null model by 11% (at school and respondent level) for the process of school performance feedback use. For the results of school performance feedback use, this is 5% at school level and 4% at respondent level. The predictive power of both net models is thus relatively limited. The first content-related finding from the net model is that the position that staff hold in the school, after controlling for other characteristics, continues to play an important role for the process of school performance feedback use alone. Separate from the question of how they score on the other variables in the net model, pupil welfare co-ordinators score 0.81 SD higher on the scale ‘process of school performance feedback use’, but this does not apply to the results of school performance feedback use. In terms of attitude towards school performance feedback use, the reverse is true. This predictor appears not to correlate with a more intensive process, but it does do so to a limited extent with the results of school performance feedback use. Finally, there are two variables that have an effect on both the process and the results of school performance feedback use. These are variables that operationalise the organisational functioning of the school, specifically the professional relationships between team members and the role of the school principal as culture builder. Our search for facilitating school characteristics thus leads us essentially to these elements. However, the regression coefficients also point to limited effects. The hypothesis that a strong performance-orientation in schools would lead to a more intensive school performance feedback use is not confirmed. However, we have to keep in mind that the standard deviation of ‘performance-orientation’ (Table 4) indicates that there is not much variation between respondents in this regard. The impact of shared goals is present in the gross model, however only to a very limited extent and it disappears completely after controlling for the other variables in the net
Discussion and conclusion

The first question we posed at the beginning of this study was to what extent and in what way teachers use school performance feedback. Although we still have to exercise a great deal of caution in drawing generalised conclusions about the effect of school performance feedback systems at this time, the results of this study give reason for reflection. By and large, respondents report no or only limited use of school performance feedback. Only a handful of respondents state that the available school performance feedback has actually contributed to their critically examining school functioning and/or their own lessons or encouraged them to effect changes. Moreover, using available data to monitor individual pupils – a use that is reported by Schildkamp and Kuiper (2010) – appears to be limited among Flemish teachers. A similarly negative conclusion must also be drawn with regard to the process of school performance feedback use. These results are in line with those of previous research (Schildkamp, Visscher, and Luyten 2009; Verhaeghe et al. 2010; Wohlstetter, Datnow, and Park 2008). The availability of school performance feedback does not automatically imply that teachers read and discuss the information provided.

In each school, there are appreciable differences between team members. Our analyses demonstrate the dangers of thinking about schools in terms of stereotypes. Only a limited proportion of the differences in data use can be attributed to differences between schools. An interesting finding is that school performance feedback use among pupil welfare co-ordinators is noticeable higher than among teachers. This may be due, in part, to the way in which information is sent to schools. It is usually the school principal who first receives the reports. It is probably easier for school principals to pass the information on to the pupil welfare co-ordinator than to go through the more elaborate process of allowing all the teachers to have access to the school performance feedback. The differences may furthermore also be explained in some degree by the responsibilities of pupil welfare co-ordinators at school level and their expertise in relation to the content of the reports. According to Verhaeghe et al. (2010), the more intensive data use exhibited by pupil welfare co-ordinators can also be attributed to the finding that it is easier for them to free up time for this as they are less bound by the structures of the classic lesson timetable.

Our second research question focused on to what extent the use of school performance feedback by teachers is determined by characteristics of the organisational functioning of the school. Our results indicate that the way in which school performance feedback use is implemented cannot be seen in isolation from the characteristics of the school. There appears to be a correlation between the process and the result of school performance feedback and the role of the school principal as culture builder, as well as with the professional relationships between team members. Given that the school principal is the person who receives the reports, it should not be surprising that he or she plays an important role in predicting school performance feedback use by teachers. This role consists, for example, of encouraging and
facilitating data use (Sutherland 2004). Data use requires a willingness to engage in systematic reflection on one’s own functioning. Reflection is, however, still not automatically one of the strategic objectives of schools (Vanhoof et al. 2009). Individuals, groups and organisations are only able to learn provided they are prepared to reflect on their own functioning (Mitchell and Sackney 2000). Too many teachers regard the reflection that school performance feedback use requires as a form of social control (Clift, Nuttall, and McCormick 1989). There is often a lack of openness within the team and an absence of willingness to engage in critical reflection with respect to their own functioning (Mortimore and MacBeath 2001). The impact of the school principal concerns the extent to which he or she succeeds in creating an open data culture, which is a pre-condition to the facilitation of critical reflection.

The impact of professional relationships between team members also has to be understood from this perspective. It is firstly up to schools themselves to create opportunities for reflecting at regular intervals on their own responsibilities and on the way in which these are performed in the light of the available data. Again, there is also a role for the school principal in ensuring that collaboration with regard to data use is a regular and organised practice (Kelly and Downey 2011; Young 2006). Equally, it is also up to teachers to move away from insular day-to-day classroom practice and commit themselves to collaborative forms of school performance feedback use.

Given the research findings, the above-mentioned characteristics of school functioning offer a better chance of getting teachers to use school performance feedback in a worthwhile and productive way. It needs to be said, however, that the impact of the school-related predictors still appears to be limited. There are possible content-related and methodological explanations for this.

The content-related explanation concerns to what extent other predictors are sufficiently effective in the case of the school performance feedback initiative studied. When context-related conditions (e.g. incentives to use school performance feedback), user-related conditions (e.g. data literacy), school feedback system-related conditions (e.g. perceived validity and user friendliness of the system) and support-related conditions (e.g. professional development initiatives) are not in place, the use of school performance feedback maybe limited, irrespective of the characteristics of the school in question (Mingchu 2008).

With regard to context, we have already stated that Flanders has a specific policy that assumes the absence of an accountability-oriented central testing system and Flemish schools have limited experience with school feedback use. The absence of government pressure may partly explain why teachers’ growth process with regard to school performance feedback use is moving rather slowly. Previous research shows that Flemish principals and school policy staff accept the value of data use in schools (Vanhooft, Van Petegem, and De Maeyer 2009). So far, however, this has not translated itself into actual intensive data use by teachers. There is a danger that the implementation of data use, as an innovation, has received too little attention, meaning that it has hardly made any inroads into teachers’ professional practice (Earl and Fullan 2003; Güthe 1997). How teachers regard data use is, however, of major importance for the success of this innovatory process (Fullan 1991). This is in line with the finding that respondents with a positive attitude to school performance feedback use score higher on the results of school performance feedback use scale.
Other user-related characteristics may also play a role, however. One important obstacle is the lack of knowledge and skills about how to work with data. It appears that Flemish teachers have usually had no training in either conducting research or the collecting, managing and interpreting data. All too often, this lack of data-literacy means that valuable data is left unused (Vanhoof et al. 2011; Wayman et al. 2010). It is, therefore, no surprise that school principals and teachers stated that they need support both with interpreting data and with its subsequent use (Schildkamp and Teddlie 2008; Verhaeghe et al. 2010). There is also the question of whether users perceive the available results as relevant, valid and reliable. The content-related explanation thus suggests that there are other, non school functioning-related, factors causing the non-use of data and which are therefore still acting as a brake on the impact of the school characteristics studied.

From a methodological perspective, with the limitations of this study in mind, it should be observed that not all school characteristics examined were operationalised with the context of school performance feedback use in mind. We reported, for instance, in the results section that no effect was found for ‘shared goals’. It is possible that the scale ‘shared goals’ does not focus with sufficient specificity on what teachers hope to achieve with the use of school performance feedback to warrant our hypothesis that it would affect school performance feedback use. A similar reasoning can be applied to the variable ‘school principal as culture builder’. If this variable were more specifically focused on the creation and maintenance of a data-oriented culture, we would expect a stronger correlation with the process and the results of school performance feedback use. This imposes the methodological requirement of further refining the measurement instruments in order to investigate facilitating school characteristics in more depth.

Furthermore, we would like to underline the importance of using an appropriate measure to investigate the results of data use. In this study, the measure we use was based on evaluation theories. However, that gives no guarantees that the most suitable operationalisations of data use were actually applied. We suggest that a stronger focus on classroom practice and activity would be a worthwhile approach to research into school feedback use by teachers and a way of overcoming the limitations of the current study. We have in mind, for example, a focus on looking at classroom practices in the case of less able students, the inclusion of revision lessons and implementing differentiation. Exploratory qualitative research is, in our view, the best way to refine the validity of measuring instruments intended for the study of school performance feedback use and to address limitations of the quantitative approach in this study. However, the application of a survey to examine the use of school performance feedback by teachers, gave us the opportunity to test a number of hypotheses in a representative sample of Flemish schools.

At a theoretical level, we suggest a cross-validation of the results in the present study, both in a Flemish and international context. Furthermore, we think that the strong perception-based variables in the present study are worthy of reflection and indicate the need for research that links the ‘perceived’ use of school performance feedback to the ‘actual’ use of school performance feedback. Additional qualitative research would create possibilities to explore the full complexity and the variation of teachers’ use of school performance feedback further. In order to develop a robust understanding of school performance feedback, the observation of and interviews with teachers exhibiting a high or low degree of school performance feedback use would be a promising way of capturing the detail, nuance and patterns in how school
characteristics may have an impact on teachers’ use of school performance feedback (Little 2012).

References


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