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The Influence of Competences and Support on School Performance Feedback Use

Jan Vanhoof, UNIVERSITY OF ANTWERP
Goedele Verhaeghe, GHENT UNIVERSITY
Peter Van Petegem, UNIVERSITY OF ANTWERP
Martin Valcke, GHENT UNIVERSITY

Abstract

Information-rich environments are created in order to promote data use in schools for the purpose of self-evaluation and quality assurance. However, providing such (feedback) information does not guarantee that schools will actually put it to use. One of the main stumbling blocks relates to the interpretation and diagnosis of the information. This study examines the relationship between the data literacy competences of the users, the support given in interpreting the information, the use of the feedback, and the possible resulting school improvements effects. A randomised field experiment with 188 school principals from primary education was set up and a post-test was used to investigate the effects of a support initiative. The results revealed that a minority had invested significantly in the interpretation and diagnosis of the school performance feedback (SPF), despite the fact that most of the respondents showed an interest in the SPF report. The role of data competence support and the subsequent use of feedback were also found to be limited.

1. Introduction and research questions

The growing autonomy of schools is taking place simultaneously with initiatives by education authorities to call schools to account for their approach to quality control (Hofman, Dijkstra, & Hofman, 2009) and to create information-rich environments for schools. Schools are given feedback on their functioning and performance via school performance feedback systems (Visscher & Coe, 2002, 2003). The use of such systems as a policy instrument is not a matter of course for schools. School performance feedback (SPF) has turned out to be a necessary yet inadequate step; after all, both the schools and the feedback systems have to meet certain requirements in order to actually use this in practice (Visscher & Coe, 2003; Verhaeghe, Vanhoof, Valcke, & Van Petegem, forthcoming). Consequently, current research tends to be disappointing and results from school feedback use are generally limited (Coe, 2002; Saunders & Rudd, 1999; Tymms, 1995; Schildkamp, Visscher & Luyten, 2009; Van Petegem & Vanhoof, 2004; Verhaeghe et al., forthcoming; Zupanc, Urank, & Bren, 2009). One important obstacle is the lack of knowledge and skills needed to process the information. School principals do not usually receive training in the area of carrying out research, collecting data, data management or data interpretation. This lack of data literacy (Earl & Fullan, 2003) leads to valuable information often being filed away in a drawer. It is thus logical that the research reveals a need among school principals and teachers for support in both the interpretation and further use of the data (Schildkamp & Teddlie, 2008; Schildkamp, Visscher, & Luyten, 2009; Zupanc, Urank, & Bren, 2009). Researchers also want the impact of support initiatives on the use of SPF to be investigated (Zupanc, Urank, & Bren, 2009). Indeed, current support initiatives often lack empirical verification. If evaluation initiatives are nevertheless set up, they are often focused too much on the short-term effects, such as the satisfaction of participants, without examining the effects on the organisation (Mathison, 1992; Rossi, Lipsey and Freeman, 2004). This study is aimed at testing insights emerging from the current knowledge base against empirical information. Answers are sought to the following research questions: (1) How do schools use SPF (in terms of processes and results)? What are the effects of this use? (2) To what extent are variations in SPF use explained by data literacy competences? (3) To what extent does support has an impact on SPF competences, use and effects?

2. Theoretical framework

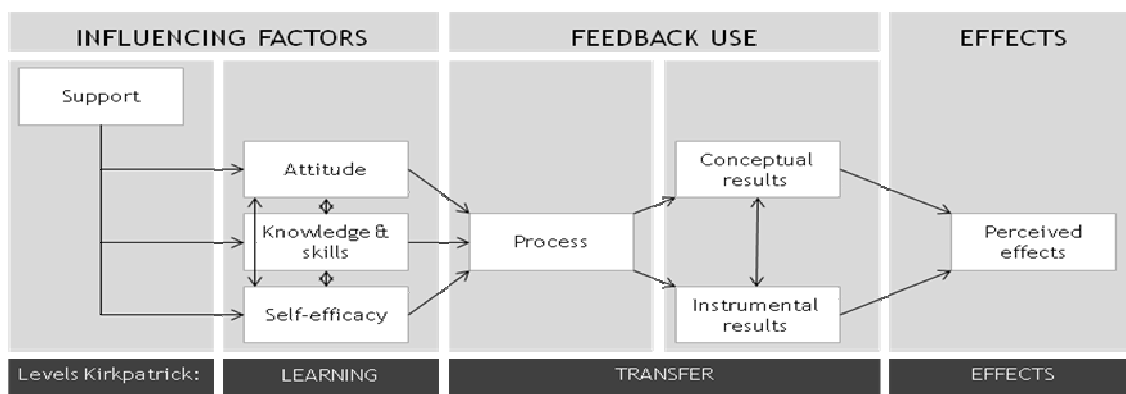
In the following paragraphs, we first provide an explanation of the framework that will be used to investigate the process and results of school feedback use. We subsequently address the question of effects. Finally, we focus on the factors that are expected to influence the use of school feedback, in particular competences in SPF use and support. A visual representation of the theoretical framework is given in Figure 1.

2.1 The process and results of SPF use

Research shows that the *process of SPF use* in schools proceeds in many different ways (e.g., Schildkamp, 2007; Schildkamp & Kuiper, forthcoming). The effective use of SPF is expected to indicate a well-considered sequence of several consecutive stages from a cyclical process (Huffman & Kalnin, 2003; Learning Point Associates, 2004). In the process of school feedback use,

Verhaeghe et al. (2009) distinguish between receiving, reading and discussing the SPF as a means to arrive at a correct interpretation. After the school has performed an analysis of its results, the next stage involves putting to use the information from the SPF, which includes diagnosing by searching for explanations for the results. *Results of SPF use* are referred to when the process of SPF use results in specific action or changes in thinking and processes. Inspired by such uses of evaluation data and previous research into SPF use (Schildkamp, 2007; Schildkamp & Teddlie, 2008; Schildkamp, Visscher & Luyten, 2009), this study focuses on instrumental and conceptual results. In the case of conceptual results, we investigate the extent to which feedback use results in a change in the thinking of the feedback users (e.g. influences thinking with regard to how the pupils perform or how the school functions). In the case of instrumental results, we examine the extent to which the report results in specific changes in school policy. The results are expected to correlated positively with the intensification with which the process has been completed.

Figure 1. Analysis framework for SPF use



2.2 Effects of SPF

It is not a given that school feedback use will result in significantly improved pupil performances (Fitz-Gibbon & Tymms, 2002; Schildkamp, Visscher & Luyten, 2009). This underlines the importance of examining effects beyond the level of educational performance and giving sufficient attention to the process of feedback use (Schildkamp, 2007; Visscher & Coe, 2002, 2003). Increasingly process-oriented effects focused on the professional development of team members, improved educational processes and improvements in the way school function are also regarded as valuable effects of data use (Zupank, Urank, & Bren, 2009; Schildkamp & Teddlie, 2008; Visscher & Coe, 2003). Unintended and undesirable effects can also occur, however; for example, reduced motivation among teachers due to extra workload (Fitz-Gibbon & Tymms, 2002; Schildkamp & Teddlie, 2008) or excessive and narrow focus on the tested curriculum (Schildkamp & Teddlie, 2008; Visscher, 2002). This study maps out the perceived effects of SPF use on the basis of self-reporting of the school improvement effects mentioned. This approach involving 'perceived effects of SPF use' has been applied in previous studies in the context of data use (Huffman & Kalnin, 2003; Schildkamp & Teddlie, 2008; Schildkamp, Visscher, & Luyten, 2009).

2.3 Influential factors: Competences and support

This study examines the influence of competences and support on the process, results and effects of school feedback use.

2.3.1 Competences

A competence is the ability to take satisfactory action through the integration of knowledge, skills and attitudes (Grit, Guit, & van der Sijde, 2004). These three elements are operationalized below in the context of school feedback use.

An *attitude* reveals how positively or negatively a person views a particular matter (Petty & Wegener, 1998). A negative attitude toward SPF is – according to Bosker, Branderhorst and Visscher (2007) – one of the main obstacles in the use of feedback information. The attitude is the most significant aspect that determines a person's willingness to invest time and energy in dealing with information (Williams & Coles, 2003) and the users' belief that they need the data in order to improve education (Schildkamp & Kuiper, 2009). The concept can be operationalized through an analogy with research into self-evaluation in schools (Meuret & Morlaix, 2003; Vanhoof, Van Petegem, & De Maeyer, 2009). An individual's attitude is situated on a continuum of semantic word pairs from negative to positive. A number of examples include: School feedback does/does not lead to better teaching, is favoured/not favoured by most team members, and so on.

The importance of *knowledge and skills* is evidenced by the impact of data literacy on the process of SPF use (Webber & Johnston, 2000). *Data literacy encompasses the strategies, skills and knowledge needed to define information needs, and to locate, evaluate, synthesize, organize, present and/or communicate information as needed* (Williams & Coles, 2007, p. 188). Data literacy is a condition for being able to convert data into valuable and usable information (Earl & Fullan, 2003). The current lack of know-how on putting to use the information is an important obstacle (Kerr, Marsh, Ikemoio, Darilek, & Barney, 2006; Saunders, 2000; Van Petegem & Vanhoof, 2004; Williams & Coles, 2007). Not only is there a lack of the capacities needed to interpret the data, there is usually also a lack of well-developed research skills such as the formulation of research questions and hypotheses (Earl & Fullan, 2003; Herman and Gribbons, 2001; Kerr et al., 2006). An important distinction concerns the actual knowledge and skills as can be measured, on the one hand; and the level at which the users estimate their skills on the other. The concept 'academic self-efficacy' is used in the context of SPF, which is a person's belief that he or she can perform certain academic tasks to certain levels (Bandura, 1977; Schunk, 1991). The process of academic self-efficacy focuses on the extent to which users think they have understood the terms, figures and tables used and the extent to which they believe they are able to find explanations for their results. It is important not only to measure the actual knowledge and skills but to also record the level of perceived self-efficacy, given that this will significantly determine a person's motivations for his or her actions (Bandura, 1977).

2.3.2 Support and effects of support

Support is essential because school principals are unsure of their ability to interpret information relating to their school. An explanation of the support referred to in this study is given in the description of the research methodology. Kirkpatrick's (1998) four levels of evaluation have been

used to create an inventory of the possible effects of this support and to integrate it into the broader theoretical framework. Table 1 describes these levels in general terms and in terms of the specific context of this study.

Table 1: Kirkpatrick's Evaluation Levels (1998)

	Description of evaluation levels	Application in this study
1. Response	Immediate response of the participants after the support. This concerns a general impression and the relevance and possibilities for application.	This level is not reported because it could logically only be obtained from the experimental group.
2. Learning	Increase in knowledge or competences and the change in attitudes as a result of the support.	In this study, this level translates as the question of whether the support has contributed to an increase in data literacy competences, specifically in relation to the feedback report used.
3. Transfer	Application of what has been learnt in the organisation and behavioural changes.	In this particular case, it concerns the question of how far schools progress in the process of SPF use and the extent to which results from SPF use are apparent.
4. Effects	Effects of the support on achieving the organisation's aims and the organisation itself.	In the context of SPF use, this evaluation level is represented in the variable 'perceived effects' of SPF.

Kirkpatrick's underlying premise (1998) that the realisation of a higher level can only be achieved once a lower level has been realised can be fitted into the theoretical framework for this study (see Figure 1); after all, the framework states that support with SPF use will only contribute to school improvement effects when there is an effect on the SPF competences first.

3. Methodology: design and data collection

A between-groups field experiment with post-test was chosen in order to investigate the impact of support on SPF use. The schools in this study are classified into two groups as regards support: a group with support (experimental group) and a group without support (control group). The design was experimental rather than quasi-experimental (Creswell, 2008; Field & Hole, 2003), given that the schools were randomly assigned the various conditions and it was possible to check the dependent variable, namely the support intervention.

The experiment was set up in the context of a project, whereby Flemish primary schools receive annual confidential feedback based on the comparison of school results with a reference group. The basis of this feedback is a project that is currently tracking approximately 6000 children from a representative sample of Flemish schools (from the time they entered nursery school to the end of primary education). Item Response Theory (IRT)-based techniques are used to construct the test scores, enabling us to estimate growth curves. Begin 2008 ca. 200 schools received feedback reports containing the results (grade 1 to grade 4) of the investigated cohort of pupils. Results were reported for mathematics, reading fluency, comprehensive reading, and orthography, supplemented with information about pupil characteristics (child factors, home factors, and Dutch language skills at the start of grade 1). The central concepts in these reports include learning gain, value added, and adjusted scores and were explained in such a way that no prior statistical

knowledge was required. The data were supported with graphical representations (i.e. pie graphs, growth curves, and cross tables). The text of each report was standardized. The school principals were required to interpret the results for their school, based on the general information made available.

Forty-five of the 188 schools involved in the project received an invitation to participate in the support. The group that received support participated in a professional development activity (a half-day workshop) that focused on the following educational aims: (1) be able to describe concepts from the report in their own words; (2) be able to interpret the figures and tables from the SPF report; (3) be able to give an explanation of why performances could be less good or better than those of the reference group and (4) be able to describe which function(s) the SPF report can fulfil in the context of their own schools. To this end, school principals met in small groups outside the own school. The feedback designers explained the feedback reports during these meetings and the participants were given the opportunity to practice using and evaluating the feedback reports interactively.

In the end, 23 of the 45 schools selected effectively participated in the support. Although the study participants were assigned to the various conditions randomly, there is a real risk of selection bias caused by the self-selection through working with volunteers (Rossi, Lipsey en Freeman, 2004). Given that this could endanger the internal validity of the experiment, previously collected data was used to investigate whether this sub-group deviated from the population of SIBO schools in relation to relevant criteria; this proved not to be the case.

Five months after receiving the SPF – and after the experimental group had participated in the support – the school principals of the SIBO schools were asked to fill in a written questionnaire. A total of 116 schools completed the questionnaire, which equates to a general response of 62%. The response for the control condition amounted to 60% ($n = 99$) and the amount for the experimental condition amounted to 74% ($n = 17$).

The various concepts from the theoretical framework were translated in the questionnaire into specific statements that the respondents were asked to evaluate on the basis of a Likert scale. Table 2 presents the results achieved by this group of respondents for the scales. The reliability analyses reveal the internal consistency of all the scales used ($\text{Alpha} > .80$).

Table 2: Psychometric features of the measurement instruments

	<i>M</i>	<i>SD</i>	Range	<i>N</i> items	Alpha
Attitude towards SF use	3.97	1.08	1-6	7	0.91
Academic self-efficacy	3.81	0.74	1-5	6	0.92
Process of SF use	3.81	0.75	1-5	6	0.86
Conceptual results of SF use	3.27	0.83	1-5	4	0.86
Instrumental results of SF use	2.85	0.97	1-5	3	0.90
Perceived effects of SF use	2.92	0.90	1-5	6	0.94

A test was used to measure the knowledge and feedback in relation to feedback interpretation. The test comprised 26 test items that mapped out both conceptual knowledge (correct conception of the terms used) and procedural knowledge (skills in reading learning gains and added value from graphs and tables) (Anderson et al., 2001). Both closed (true-untrue and multiple choice) and open (filling in digit values) questions were used in the test and it was analysed on the basis of Items Response Theory models. A good overall fit was achieved using a two-parameter model (LR = 248.4; SE = 320.0; $p = .99$) and a good empirical validity of .83 was achieved using 24 retained items. The skills scores were converted into a standard normal distribution in order to enhance the interpretability of the scores.

Path analyses were used to analyse whether theory-based relationship expectations corresponded with the empirical findings.

4. Results

4.1 Descriptive results

As regards the steps taken in relation to feedback use (process), only a minority reported having invested significant time and effort in the interpretation and diagnosis of the SPF, despite the fact that the majority of respondents indicated having an interest in the SPF report ($M = 4.37$, $SD = 0.72$). Although 70% of the respondents agreed with the statement that the report had been examined thoroughly ($M = 3.84$, $SD = 0.97$), only 43% of the respondents stated they had sought explanations for the performances in their own schools on the basis of this report ($M = 3.30$, $SD = 1.11$).

With regard to SPF use, the respondents scored significantly higher for items pertaining to conceptual results ($M = 3.27$, $SD = .83$) than for items relating to instrumental results ($M = 2.85$, $SD = .97$) ($t(114) = 4.64$, $p < .001$). Half of the respondents stated that the SPF had had an impact on the perceptions on pupils' performances and on the school in general, while only 30% of the respondents stated that the report had resulted in specific action points. It is thus unsurprising that only a limited number of respondents reported any effects of the SPF ($M = 2.92$, $SD = .90$). Between 30 and 40% stated that the SPF report has contributed to more discussions on how the school functions, more attention for professional development, better functioning of the school principal and more skills for the purpose of future SPF use. Around twenty percent of the respondents indicated that the SPF report has improved the quality of teaching.

The scale score (Likert scale 1-6) for 'the attitude toward SPF' reveals that a large majority of the respondents stated that SPF use is (to some degree) a valuable activity ($M = 3.97$, $SD = 1.08$). The most positive scores ($M > 4$) were recorded in relation to the statements proposing that SPF stimulates self-evaluation, that much can be learnt from SPF and that SPF results in better management and more involvement in school policy. The statement for which the lowest score was recorded ($M = 3.46$, $SD = 1.22$) related to school feedback being an enjoyable activity for the majority of team members.

In addition to a positive attitude, most of the respondents had a positive idea of their own knowledge and skills relating to the interpretation of and possible uses for the feedback report ($M = 3.81$, $SD = .74$). For example, 80% stated that they understand the terms, figures and tables in the report and can see connections between the terms. Only a minority (between 12 and 18%) disagreed with the statement concerning their ability to clearly grasp the objectives and possibilities for the use of SPF and describe terms from the report in their own words.

In contrast with the high self-efficacy values, the analysis of the test results reveals that only 42% of the respondents answered half of the questions correctly. Only 10% of the respondents answered more than three-quarters of the questions correctly, which suggests that the majority of school principals found the test difficult. Nevertheless, some school principals ($n = 5$) succeeded in interpreting the information from the report correctly. When we analyse the degree of difficulty of test items, we see that difficulties are experienced in particular in relation to the procedural exercises; i.e. reading the learning gains and added value from the graphs and tables. The reasonably simple conceptual questions are less difficult than the average degree of difficulty.

4.2 Path model 1: Process, results and perceived effects of feedback use

Starting from the hypotheses in the theoretical framework, which are represented in Figure 2, we will proceed on the basis of a mediation hypothesis: data literacy competences influence the perceived effects via the process and results of feedback use. In order to test this mediation hypothesis, the direct effect of the independent variables on the exogenous variable must also be investigated in the path model (Mackinnon, 2008). However, this starting model was found to include various statistically non-significant regression lines and co-variations that were removed stepwise in order to achieve the most parsimonious model possible. Figure 3 shows the results of the resulting path model in terms of standardised path coefficients and percentage of variance explained ($X^2 (df) = 8.1 (8)$, $p = 0.43$; $RMSEA = 0.01$; $AGFI = 0.92$; $GFI = 0.98$). This path model can be used to answer the second research question on the extent to which differences in use (process and results) and effects of SPF can be explained by competences in SPF use.

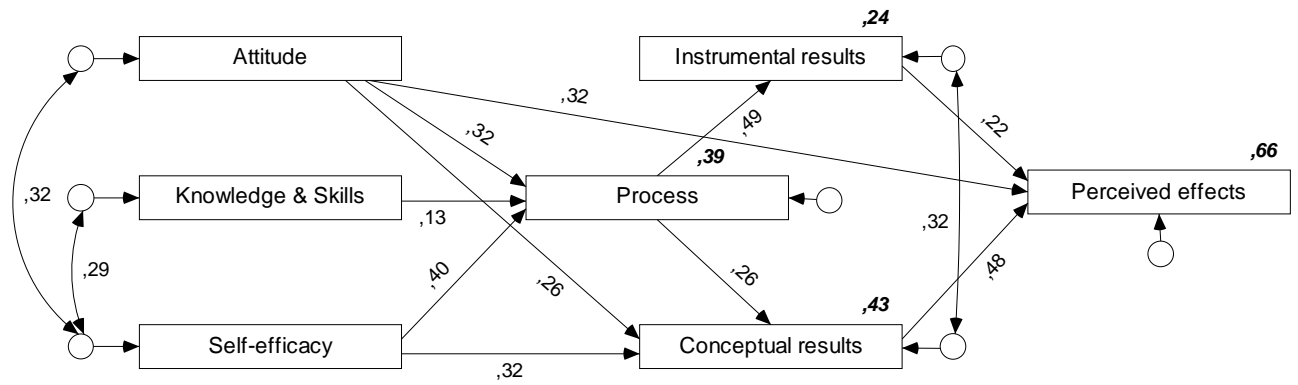


Figure 3. Results of Path-model: 'Use and perceived effects of feedback use'

The percentages of variance explained for the variables relating to SPF use (process and results) are significant. For example, 39% of the variance in the variable 'process of SF use' can be explained by the data literacy competences of the respondents. The higher the respondents' estimation of their level of knowledge and skills (cf. self-efficacy) and the more positive their attitude toward SPF, the higher they score for this variable. The additional effect of the 'actual' knowledge and skills is limited, however. The theoretical model hypothesized that the results of SPF use can only be explained directly by the process of SPF use. This only holds true in relation to instrumental results (24% of the variance explained). Besides the influence of the process, the attitude toward SPF use and self-efficacy are also important for conceptual results. Together these three variables explain 43% of the variance in conceptual results. It can also be concluded that a positive correlation (0.32) exists between the unexplained variance in the variables instrumental and conceptual results. This teaches us, after checking for the other variables in the model, that the number of instrumental and conceptual results respondents report increases concurrently.

The final aspect is the perceived effect of SPF use. The path model can explain 66% of the variance in this variable and, as expected, the forms of SPF use play an important role. The more intensively respondents report conceptual and instrumental use of the SPF, the higher their perception of the effects will be. In contrast to the theoretical hypothesis, there is also a direct effect of the attitude toward SPF on the effects of SPF. We conclude, therefore, that not all of the influence of respondents' competences in SPF use on the actual use and perceived effects thereof appears to result from the process of SPF and that the mediation hypothesis created in the theoretical model must be nuanced to a certain extent.

4.2.2 Path model 2: Impact of support on data literacy competences, feedback use and perceived effects

Building on the previous model, the following path analysis was used to test the hypothesis that the support condition scores significantly higher than the control group with regard to data literacy competences, feedback use and perceived effects. An analogous method was used, such as the analysis described above. Figure 4 displays the results of the path model with support, using the standardised path coefficient and the percentage of variance explained in the endogenous variables ($X^2 (df) = 11.3 (13), p = 0.58; RMSEA = 0.01; AGFI = 0.92; GFI = 0.97$).

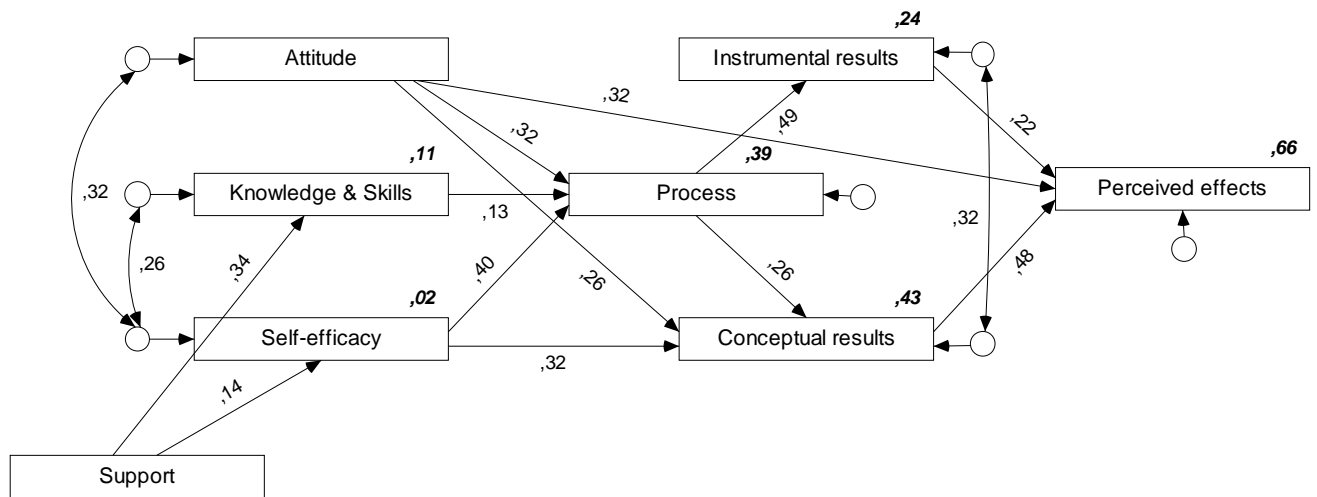


Figure 4. Results of path model: 'Impact of support'

Note: Support is included in the model as a dummy variable with the score '1' for the experimental group.

The path model immediately reveals that the direct effect of support on the process, the results and the effects of feedback use is not of statistical significance, which is consistent with the theoretical framework. However, the overview of the proportions of total variance explained shows that the impact of support on the competences in SPF use is limited. The data collection does not confirm the expectation that the support would contribute to a more positive attitude. Yet support does have a statistically significant effect on knowledge and skills: 11% of the variance in the test scores can be attributed to whether or not respondents participated in support. This effect is very limited as far as the self-efficacy is concerned. Only 2% of the variance in the variable can be attributed to whether or not support was received.

5. Conclusion and discussion

First and foremost, we asked the question of how schools use SPF in terms of processes and results and what the perceived effects of this use are. Of all the scales, the scale that mapped out the perceived effects of SPF use scored the lowest. Respondents generally report no or few effects as yet; nonetheless, the majority of respondents stated that they had thoroughly read and examined the SPF report. However, a less significant number of respondents have invested a considerable amount of time and effort in interpreting the results and seeking explanations for the results in their own schools. As theory dictates, these differences in the process of SPF use translate into differences in the results of SPF use. There is a considerably higher occurrence of conceptual results than instrumental results. This could be explained by the fact that conceptual results (control and plan-oriented) precede instrumental results (goal-oriented) in the policy cycle of a school (cf. PDCA-cycle). Research also reveals that many schools experience difficulties to use the findings of a control stage in subsequent steps of quality control (Schildkamp, 2007; Verhaeghe et al., 2009).

We have demonstrated that differences in SPF use correspond with differences in SPF competences. This study confirms the hypotheses derived from the second research question. With regard to the attitude toward SPF, we found that the effect does not only run over the process of

SPF use and, therefore, that a direct link exists with the results and perceived effects of SPF use. Another relevant finding is that the process of SPF use related more closely to the perception of one's own knowledge and skills (or academic self-efficacy) than to the knowledge and skills measured using an objective test. We learn from this that faith in one's own knowledge and skills is very important in making the transition to action (Bandura, 1977). Obviously, it should also be noted that this must not lead us to lose sight of the actual skills. School policy should be developed on the basis of correct information (Devos & Verhoeven, 2003).

The theoretical framework also gave rise to the hypothesis that support would have an impact on actual and self-estimated knowledge and skills on the one hand, and the attitude toward SPF use on the other. Schools that participated in support score higher on the test score and estimate their own knowledge and skills to be higher, which has repercussions on the process of feedback use. The indirect effect is in line with Kirkpatrick's model (1998), which implies that a higher level of evaluation can only be achieved if lower levels have been realised: when support has an effect on the transfer level, this results from an effect on the learning level. Contrary to expectations, the support had no significant effect on the attitude toward SPF. This attitude remains a crucial factor, however, and thus the question of how intensified support can nevertheless have an effect arises. Support could focus more, for example, on the fundamental basis and motives in the provision of SPF and on facilitating successful experiences with SPF. Furthermore, support initiatives that offer participants opportunities for discussion and to exchange experiences both outside and inside their schools must be set up (Huffman & Kalnin, 2003; Lachat & Smith, 2005; Wayman, Midgley, & Stringfield, 2007). It is the discussions on SPF use rather than the figures that promote school improvement results (Zupanc, Urank, & Bren, 2009).

Another striking aspect of the above findings is the conclusion that support has a greater impact on the test scores than on the academic self-efficacy. An initial explanation for this fact relates to the limited scope of the support initiative. This was a one-off activity that focused on interpretation skills, with regard to which the support proves effective. Nevertheless, support should raise awareness among the participants of the complexity of school feedback. This may explain why the support results mainly in higher test scores and less significantly in increased faith in the participants' own knowledge and skills. A third explanation is that the participants have learnt nothing from the support. It is possible that they do not estimate their own skills to be significantly higher, yet score higher in the test as a result of the extra effort they make. This hypothesis is less plausible, given that the information was processed anonymously.

In future research into the effect of support, it would be interesting to use a longitudinal approach with a pre and post-intervention measurement. This would enable, for example, the support needs of respondents to be taken into account in the selection of participants. Moreover, the effect of SPF use on pupils' actual results could be studied. In view of the impact of a previously limited support initiative, it would certainly be worthwhile to set up research into more extensive support initiatives. The importance of cross-validating the path model developed should also be emphasised, of course; this was not possible in this study. After all, various authors argue that SEM should be used for a sample size of 100 respondents (Hoyle, 1995). Finally, the low impact of actual test scores on the process of SPF use compels us to make a methodological comment. This variable is the only variable in the model that is not based on the perception of the

respondents. The stronger relationship between these perception-based variables is thought-provoking. In order to gain a complete picture of, for example, the use of SPF, research that links the 'perceived' to the 'expected' and in particular the 'actual' use is necessary. It would be worthwhile to investigate the extent to which similarities exist between the school principals' assessments of SPF use and those of inspection authorities, researchers and team members.

We finish with the conclusion that there is great interest in SPF reports and a positive attitude toward SPF among Flemish school principals. However, the availability of SPF reports has as yet resulted only in a limited degree of intensive use and significant effects. This study shows, however, that developing competences in SPF use (directly) and being able to receive support (indirectly) are linked with more intensive use and perceived effects of SPF. This is an interesting finding both from a theoretical point of view and from the point of view of practical application, whereby countless support initiatives are being set up (e.g. helpdesks, after-school information sessions, information sessions at school, and so on) without examining the effects.

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Notes on contributors

Jan Vanhoof is a postdoctoral researcher and assistant professor at the Institute of Education and Information Sciences of the University of Antwerp, Belgium. His interests are in educational quality assurance in general and in the conduct of high quality school self-evaluation in particular.

Goedele Verhaeghe is a PhD candidate in education at the Department of Educational Studies, Ghent University, Belgium. Her dissertation research concerns the use of school performance feedback, and, more specifically, the influence of content and representation modes on feedback interpretation.

Peter Van Petegem is a full professor at the Institute of Education and Information Sciences of the University of Antwerp, Belgium, and is the head of the research group EduBRON (www.edubron.be). His research and writing interests include school effectiveness, educational quality assurance, school and teacher self-evaluation, and learning and instruction.

Martin Valcke is head of the Department of Educational Studies at the Ghent University, Belgium. His research field is the innovation of higher education and performance indicator studies.