8 The interface between monitoring performance and how data are used

Striving to enhance the quality of education in schools

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Introduction

The search for quality education within the context of the emerging global village has resulted in education systems across the world sharing many characteristics. Characteristics include an economic rationale for transforming education, an emphasis on standards, the need for valid and reliable indicators of performance as well as issues relating to accountability (Smith and Ngoma-Maema, 2003). Monitoring of and feedback on learner performance provide important information to politicians and the public alike, and in the 1990s, monitoring of education systems became a major policy issue (Husén and Tuijnman, 1994). Here monitoring refers to the procedures for the collection of information about various aspects of the education system at national, regional and local levels (Husén and Tuijnman, 1994), with the main purpose of monitoring performance being to support learning or make judgements on achievement.

South Africa faces many challenges related to its quality of education whilst recovering from the apartheid past (Howie, 2008). In an attempt to contribute to the improvement of education nationally, the Centre for Evaluation and Assessment (CEA) at the University of Pretoria, in collaboration with the Curriculum, Evaluation and Management Centre (CEM), at the University of Durham in the UK, embarked on a research project in 2003. The National Research Foundation (NRF), a national funding body in South Africa, funded this project in order to investigate and develop appropriate monitoring systems via, at primary level, the South African Monitoring system for Primary schools project (SAMP); and for the secondary school component, the South African Secondary School Information System (SASSIS) (see Scherman, 2007 for more details). The aim of the monitoring systems was to provide information about the quality of education that learners receive, and more specifically the extent of academic gains made by intervening at the proper time and effectively in learner development. Additional funding was obtained by the South Africa Netherlands research Program on Alternatives in

Development (SANPAD) to further develop the feedback component of the monitoring system.

While a number of research questions are addressed as part of the broader research project, the research questions addressed in this chapter are:

- How do participants articulate recommendations for the improvement of feedback and how is this related to data literacy?
- How does information travel within the school environment and does this relate to changes in teaching and learning?

Literature review

The need for informed decision making has been on the increase, not only in South Africa, but across the globe. This could be attributed to schools being more autonomous (Bosker *et al.*, 2007), but may also be due to the vogue for accountability in education which appears to have gained momentum (Taylor, 2009). Informed decision making requires sound information for the purposes of improving educational quality. Within a developing world context, the challenge that has emerged, with increasing access to education, is to improve the quality of education, equipping pupils with skills and providing support so that the disadvantaged and poor will not remain this way (Naker, 2007). The decision-making process is typically embedded in political, cultural and economic contexts (UNICEF, 2000) which results in different types of use – instrumental, conceptual or symbolic (Beyer, 1997; Estabrooks, 1999; Harnar and Preskill, 2007; Love, 1985; King and Pechman, 1984; Visscher, 2002), depending on levels of data literacy and differing information flows.

In order for information to be used, it needs to be understood. Data literacy implies a basic understanding of how data can be used to inform instruction and also whether the validity and reliability of the data have been considered (Cradler, 2008). Schools are measured by the outcomes they achieve which results in the generation of data, but data have to be converted into useable information (The Urban Institute, 2004). Harris *et al.* (2006) argue that when schools' use of data to drive change is coupled with extensive professional development, then an increase in performance can be achieved. This is corroborated by Cradler (2008), who argues that if data are used to inform instructional planning, then the probability of attaining desired outcomes increases substantially. However, as Earl and Katz (2006: 18) state, the 'interpretation and application of data by educators, and by the public, are woefully inadequate and sometimes very wrong'. In order to become data literate, individuals need to think about the purpose of the data and their appropriate use. Data have to be seen as sound or unsound (validity and reliability), but more crucially, the data-literate individual has to be knowledgeable about statistics and measurement as data literacy cannot be divorced from statistical literacy (Schield, 2004). The problem arises when there is a discrepancy between the amount of information received and the ability to interpret and apply the information in decision making. This is exacerbated by the lack of the necessary

knowledge and skills among principals and educators to analyse, interpret and apply data meaningfully (Schildkamp and Kuiper, 2010).

The data literacy of schools and school users has an impact on how and when data travel to key role players. Information mapping refers to the charting of how information is transferred from one point to another within an organisation (Hibbert and Evatt, 2004). While it is acknowledged that the use of information is an essential part of any management activity (Orna, 1999), whether at school or classroom level, the fact remains that information should be used strategically to achieve desired goals; in this case, improving academic performance which depends on information flow within schools. How data travel in schools may be likened to data paths and is also influenced by the culture of participating schools and the leadership styles of principals and heads of department (HoDs). Salpeter (2004) states that: '[t]he most important element of an effective data-driven program[me] is not the data, the analytical tools, or even the curriculum framework . . . it is the school culture in which the data inquiry takes place'. The term *data path* originated in the field of information technology and refers to how a collection of functional units perform data-processing operations (Mano and Kime, 2004). This same concept is applied here, with the functional units – represented by the HoDs, principal teachers and other staff included in the decision making – employing data from the SAMP and SASSIS feedback systems. Of importance is not just who is included in the data processing and decision making, and the roles of the various participants, but also those who are excluded from the process.

Overview of research design and methodology

The use of a design research approach was seen as suitable for addressing complex real-world educational problems for which no solutions or clear guidelines are available (Plomp, 2009; Kelly *et al.*, 2008; Van den Akker, 1999). Design research combines research with systematic design, development, trialling and evaluation of educational interventions to address complex educational problems. This results in both a research-based intervention and knowledge about the characteristics and process of designing the intervention.

Forty-two schools, varied in characteristics and background, were purposefully selected to participate in this project. Twenty-two primary schools were selected based on their medium of instruction. The 20 secondary schools were selected based on previous Department of Education dispensation. In this chapter, the data used were drawn from primary schools where English, Afrikaans and Sepedi were variously used as the language(s) of instruction in the Tshwane region.

A variety of instruments and data collection strategies were employed. The Delphi technique was used (De Villiers *et al.*, 2005; Michigan State University Extension, 1994; Williams and Webb, 1994; Whitehead, 2008) and the open-ended questionnaire data were analysed and the results reported in this chapter. Semi-structured interviews were conducted with principals, HoDs and teachers, depending on the school and the availability of participants. Questions focused on the types of data and materials in the differing uses of feedback systems, procedures

for data use, any changes that could be attributed to the use of data and any barriers experienced in using the data. Non-participant observations were used to observe participants (teachers, HoDs and principals) and took place during regular feedback meetings. Teachers were asked to fill in a daily semi-structured journal about their use of the feedback, maintained over a 4-week period in order to learn more about the influence of the feedback on teachers' planning, practice, communication and support for individual learners. This also included the accessibility and practicality of feedback as well as barriers to its use.

Data were captured electronically with content and discourse analyses facilitated through the use of ATLAS.ti, a computer-aided qualitative data analysis program (Scientific Software Development, 1997; Henning *et al.*, 2004; Potter, 2006; Weber, 1985; Willig, 2006), identifying key themes reported in this chapter. Finally, peer debriefing and member checking were employed to ensure credibility and dependability (Babbie and Mouton, 1998; Lincoln and Guba, 1985).

Discussion on the findings

Participants' articulation of improvements and its relationship to data literacy

The first theme emerging from the discourse analysis was *'making use of language that could indicate some kind of statistical analysis'*. Schools made suggestions as to what could be included as part of additional analysis such as age, socio-economic status, districts and language at home versus language of learning. Phrases such as 'taken into account' (e.g. 'Take the fact of whether a learner is a repeat into Gr[ade] 1 into account') were included in the descriptions provided as well as 'statistics given on how certain schools compare with schools in an area or district' (originally stated in the Afrikaans language as *'Statistieke gegee kan word van hoe sekere skool vergelyk tov ander skole in bepaalde gebied/distrik'*).

There were also silences in the data in relation to statistical terms. While schools indicated what additional analyses they needed, there was lack of clarity as to what was statistically significant, what could be inferred from relationships among variables and how these impacted on results. The inclusion of confidence intervals was also not mentioned, nor was making use of a reference group to interpret whether the school was on track or not.

Two statements were particularly of interest; namely, 'minimise comparison with other schools as this can cause friction and blaming' and 'reports to be done per school as comparing may cause friction between management'. These two statements represent a broader challenge – namely that schools are compared to other schools and based on the findings, teachers, in particular, are blamed for 'not doing what they are supposed to be doing'. This pressure could come from management, but more broadly from pressures to hold schools and teachers accountable.

The second theme that emerged was the *disjunction between the results from the monitoring system and school-based assessment results*. It appeared that participants

were interpreting results as absolute values as opposed to understanding statistical artefacts and margins of error. There were statements made such as 'not all results are a true reflection of the learners' and 'in some instances the facilitator's assessment does not correspond with test results' (phrased originally in Afrikaans as *'in sommige gevalle stem fasiliteerder se assessering glad nie ooreen met toetsresultate nie'*). The second statement with the use of the term facilitator, as opposed to teacher, also shows how teachers are trying to adopt the 'jargon' prevalent in outcome-based education discourse in South Africa.

The third theme, related to levels of data literacy, was the *support that is needed*. Teachers used language such as 'understand' ('teachers to be workshopped so that they can understand the project') and 'workshop' ('workshops for teachers on the project and application to teaching and learning'). Perhaps some of the most illustrative uses of language and reflecting the lack of data literacy are phrases like 'call at the school to explain the report', 'discussion on a one on one basis' and 'schools should interact with discussions on how to assist with difficulties'. Clearly while some schools have the capacity to interpret and use information, other schools do not. It is clear that for some schools, the main challenge lies still in understanding the data as opposed to implementing and acting on it.

This is also related to a broader discourse in education with regard to the discrepancy between schools. This may be related to backlogs arising from the apartheid era still having an impact in education, but also relates to the pervasive challenge of enhancing the skills of all personnel to meet ever-changing demands. South Africa, as in many other countries globally, is steadily moving to a system of accountability. National assessments are to take place yearly at Grades 3, 6 and 9 instead of occasional cycles of assessment, as has been the case in the past. The role of assessment data for improvement purposes cannot be underestimated, but this has to be undertaken carefully if the support from all stakeholders is to be achieved. The fact that schools need support to interpret, devise and adequately implement action plans is clear, but it is also important to take into account that changes and interventions will only be reflected in performance results over time.

This theme was also substantiated by the data received from the evaluation questionnaires. Twenty-two per cent of the participants indicated that they found parts of the report difficult to understand. Furthermore, 61 per cent indicated that they questioned the results when these differed from their own experience, yet all of the participants agreed that they could trust the information. While teachers have access to the information for further analysis, it is unclear what analysis is undertaken other than comparing the results with school-based assessment. Questions are also raised as to how these comparisons have been undertaken.

The interview data showed that while the reports provided a useful management tool, facilitating discussions between heads of department and teachers, participants felt that the amount of information provided in the reports was overwhelming. They suggested that if this information was needed, it should be requested on a school-by-school basis. Principals also suggested that the feedback of school information should be clustered by school type, as this would provide a realistic picture and perhaps reflect more equitably the demographics of the schools.

The Delphi technique and interview data were complemented by observation, classroom journals and further interviews to determine how the feedback data are used in each school environment (data paths). Three schools which showed evidence of improvement and data use from the baseline to follow-up assessments were more closely analysed to establish the data paths they were employing.

Data movement within three different school environments

School A

School A is situated in a traditionally poor area with predominantly Afrikaans learners, with more African learners moving into the area recently. The school has therefore introduced English as an additional medium of instruction. The principal is committed to a group approach to addressing school issues and emphasises that all data generated should be appropriately interpreted and used. He also encourages teachers to pursue further studies. The school's greatest challenges are maintaining discipline in the class, which reduces time on task, and seeking additional funding and encouraging parental involvement.

Data path A

A minimum of two teachers from the school attended each of the feedback sessions, usually accompanied by the principal or HoD. Once reports were received by the

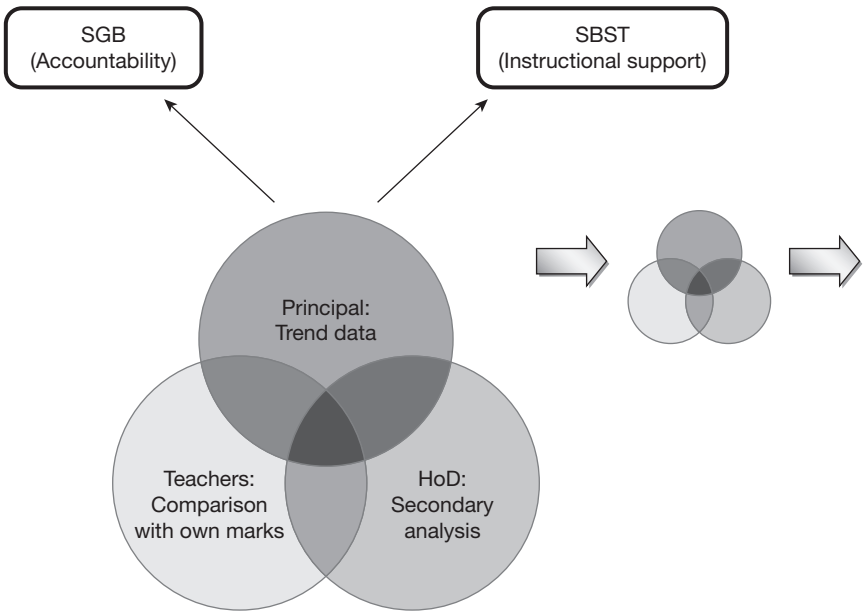

Figure 8.1 Data path A

school, a number of actions were taken, namely each teacher comparing results with their own assessment of learners. The HoD was tasked with conducting a secondary analysis to determine how learners' pre-schools influenced their performance so as to provide feedback to the pre-schools, while the principal collated school performance trend data based on all previous reports from the SAMP project.

A meeting took place between the principal, HoD and teachers (see Figure 8.1 above) in which the data were discussed and compared with the information from the school. Tasks were then allocated, measurable goals set for improvement and a date set for the next meeting. Follow-up meetings took place between the principal, HoD and teachers in order to monitor progress. The principal reported to the School Governing Body (SGB) on the school status and progress. The data were relayed to the School-Based Support Team (SBST) for planning and support purposes. Informal discussions also took place regarding the progress of individual learners and the success of changes to the curriculum and classroom activities based on the feedback and support materials.

The principal views this group approach as the most appropriate for his school. When interviewed, he said, 'If I don't drive the process, I don't think the teachers will work with the data to the extent as I wish them to . . . it is not their natural preference.'

School B

School B is situated in an area with, traditionally, a predominantly Indian population. The medium of instruction in the school is still English, but the majority of students are now African. The principal is committed to improvement and further education of his staff. The main challenge facing the school is the language development of the learners. Most learners are not first-language English learners. As Teacher 3 explained in interview, 'You will find all eleven official languages in any class in the school and a few extra for a bonus'. There is also a high mobility rate of staff as the teachers are often headhunted by more affluent schools. Parental involvement in the school is limited.

Data path B

The principal takes a strong interest in the feedback from the project; however, he rarely attends feedback sessions. Grade 1 teachers, the HoD and sometimes teachers from Grades R, 2 and 3 attend the feedback sessions. A formal route for the data in the school is in place (see Figure 8.2 above). The first step is a formal meeting between the principal and HoD about the feedback (areas of improvement and strengths are discussed). Second, the HoD presents the data at a formal meeting with teachers from Grade R to Grade 3. Third, the Grade 1 teachers continue the discussions, mostly informally, about individual learners and changes to the curriculum. The teachers also focus on evaluating whether the new intervention is proving effective. Curriculum planning for the following year is aligned with the

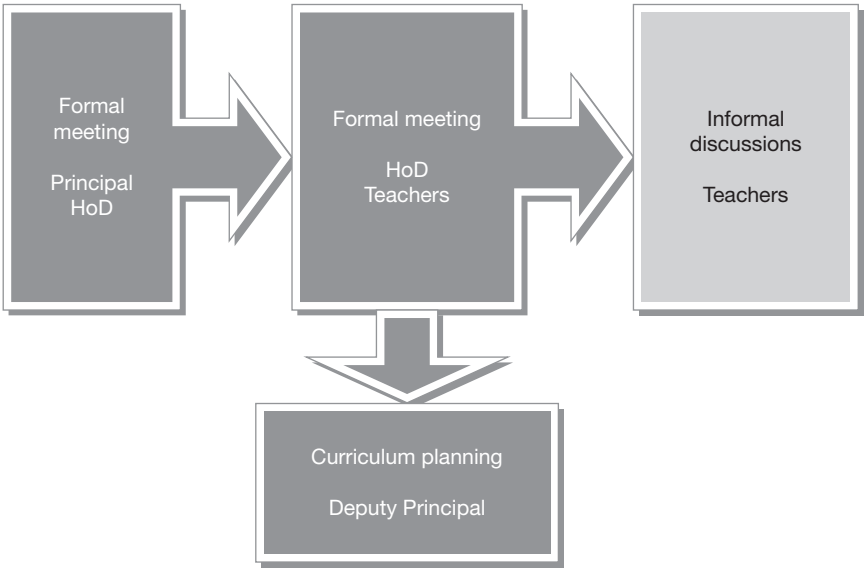

Figure 8.2 Data path B

activities recommended in the feedback provided. Finally, data are kept in the deputy principal's office for teachers to access at any time. The deputy principal is responsible for curriculum development and integrates recommendations into curriculum planning for the following year. The principal impresses on his teachers the importance of working with the data, but does not take control of the process: 'I don't get involved with the HoD's meetings with the teachers. It is development for the HoD to interpret the report.' He does, however, use the report to provide information to the School Governing Body and Department of Education officials to generate extra support and funding for the school.

School C

School C is situated in a township area with Sepedi as the medium of instruction. Learners are predominantly from the immediate area. The socio-economic status of the area is very low and many of the parents are unemployed. The school deals with many social problems and with poverty facing children in the home environment. The teachers have a low level of training that the principal is trying to address through professional development activities provided by the Department of Education. Parental involvement in the school is poor and learners have little support at home.

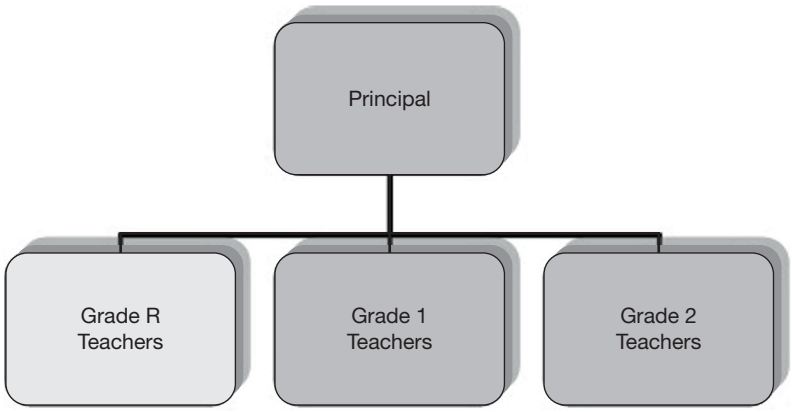

Figure 8.3 Data path C

Data path C

All the Grade 1 teachers attend and participate in feedback sessions. The principal takes responsibility for the use of the feedback and is usually in attendance. The principal reads and interprets the reports for the teachers: 'I summarise it and tell the teachers what the report says . . . informally in the hallways or on class visits, also in the meeting after we receive the reports.' The process is illustrated in Figure 8.3. above. She also communicates directly to the Grade R, Grade 1 and Grade 2 teachers about the feedback applicable to them. Teachers discuss individual learners and specific suggested activities amongst themselves informally. Grade 1 teachers mainly examine the report in terms of individual student results and the conclusion section with suggested activities.

Conclusion

The monitoring of quality education is a critical topic of discussion in the South African education system (Howie, 2008), which is facing the challenge of implementing a plethora of progressive policies, leaving the system in crisis. The levels of literacy and numeracy are very low, as evidenced not only by Grade 12 (external national school-leaving examinations) results, but also in the national Systemic Evaluations at Grades 3, 6 and 9. Poor performance in these areas is also highlighted by a number of international comparative studies such as the Progress in International Reading Literacy Study (PIRLS) and Trends in International Mathematics and Science Study (TIMSS). While the Department of Education has put initiatives in place, research has indicated that failing schools are unable to help themselves as they do not have the internal management systems in place to support teaching and learning (Taylor, 2009).

Making use of data can be complicated and time-consuming and evidence suggests that not all schools are fully equipped to use data effectively (Earl and

Katz, 2006; Love, 2005). However, failing to use data to inform decision making can be more damaging than the time it would take to become conversant with how to use it appropriately. The level of data literacy varied between primary schools and secondary schools as well as among primary and secondary schools. In secondary schools, secondary analysis tends to take place more often, but only if there is a person driving the process. From the data collected, it became clear that the general level of data literacy in schools, including statistical literacy, was higher in secondary schools than in primary schools. This may be due to the historically stronger emphasis on accountability in South Africa at secondary level as Grade 12 is the exit level either to the world of work or to further studies. The demand of the mathematics curriculum at secondary level also means that there are more teachers familiar with statistical concepts at this level.

While adequate support was provided to assist schools in interpreting and using information, the aim was to change the way feedback is presented so that it would adequately meet the needs of the schools. This is a departure from what is evident in literature, where the feedback is provided to schools and teachers are trained to interpret the feedback, but the way in which feedback is provided does not necessarily change in accordance with teacher needs. In the context of this research, it was crucial to treat the schools and teachers as experts who had valuable insights and contributions to offer to the process. However, clearly there is a need to provide adequate justification as to what information schools require in conjunction with schools' own valuable contributions, particularly as it is unclear whether schools know what information they need to effect the necessary changes. Future research will need to focus on the use of data teams in facilitating learning about data use, as opposed to relying on one person to drive the analysis, to ensure sustainability once that person leaves. This could be undertaken in the form of workshops where data coaches are taught what is needed and then return to their schools and lead their teams based on the experience they have gained (Love, 2005, 2009). Data literacy should be organised around essential questions and data which is disaggregated enough to address issues of validity and reliability. What is clear though is that purposeful and sustained data use requires a culture shift so that issues of leadership, accountably and collaboration are to the fore (Ronka *et al.*, 2009).

Three distinct scenarios of data use that appear to be effective were identified and explored in this chapter. The most appropriate and effective model will depend on the culture of the school, the nature of the school's leadership approach, levels of teacher development, the current level of functioning of the school and its local context. A more advanced, sophisticated approach may not, however, always lead to better data use and may be disheartening and inappropriate in certain circumstances.

Common themes in the effective use of data arise across differing scenarios. In all three cases, principals both valued and gave emphasis to data-based practice and planning. Formal time and space were created to work with the data. Players with many different roles were involved in data analysis, interpretation and its applications from teachers to HoDs and principals. Target setting was used to motivate teachers and monitor progress in the schools. In cases where data were used, they

were never viewed in isolation, but interpreted in the light of other sources of data; i.e. using triangulation. In all cases, data were used to facilitate conversations about curriculum and individualised support. An effective feedback system should thus try to establish or encourage these conditions for data use. Data should also be provided in such a manner that they can meet the needs of different schools at various levels of sophistication when it comes to data use.

Within the framework of educational policy, more emphasis should be placed on data literacy in terms of understanding, interpreting and applying information for evidence-based practice. This implies that while statistical literacy is important, the emphasis should be on stakeholders' ablility to identify and use sources of information appropriate for the decisions that need to be made to ensure quality. Policy on data use should not be prescriptive about school data paths, but should rather provide exemplars of different possible models in context. In South Africa, the information that schools receive from government is not always sufficient and detailed enough to meet the decision-making needs of differing school contexts. For this reason, it is important that there are layers of sophistication within the data which the schools can access as needed for their particular circumstances and stages of development.

References

Babbie, E. and Mouton, J. (2001). *The practice of social rese*arch. Cape Town: Oxford University Press.

Beyer, J. M. (1997). 'Research utilization: bridging the gap between communities', *Journal of Management Inquiry, 6*, pp. 17–22.

Bosker, R. J., Branderhorst, E. M. and Visscher, A. J. (2007). 'Improving the utilisation of management information systems in secondary schools', *School Effectiveness and School Improvement, 18*(4), pp. 451–467. doi:10.1080/09243450701712577

Cradler, J. (2008). *Data-driven decision making and the electronic learning assessment resources (ELAR)*. Retrived 12 May 2010 from: http://www.clrn.org/elar/dddm.cfm

De Villiers, M. R., De Villiers, P. J. T. and Kent, A. P. (2005). 'The Delphi technique in health sciences education research', *Medical Teacher, 27*(7), pp. 639–643.

Earl, L. M. and Katz, S. (2006). *Leading schools in a data-rich world*. London: Sage Publications.

Estabrooks, C. A. (1999). 'The conceptual structure of research utilization', *Research in Nursing & Health, 22*, pp. 203–216.

Harnar, M. A. and Preskill, H. (2007). 'Evaluators' descriptions of process use: an exploratory study', *New Directions for Evaluation, 116*, pp. 27–44.

Harris, A., Chapman, C., Muijs, D., Russ J. and Stoll, L. (2006). 'Improving schools in challenging circumstances: exploring the possible', *School Effectiveness and School Improvement, 17*(4), pp. 399–407.

Henning, E., van Rensburg, W. and Smit, B. (2004). *Finding your way in qualitative research*. Pretoria: Van Schaiks.

Hibbert, B. J. and Evatt, A. (2004). 'Mapping information flow: a practical guide', *The Information Management Journal, 1*, pp. 58–64.

Howie, S. J. (2008). 'Measuring the health of the education system: lessons from international studies for South Africa'. Keynote address, presented at the Association for the Study of Evaluation and Assessment national conference, Pretoria, 9–11 July.

Husén, T. and Tuijnman, A. (1994). 'Monitoring standards in education: why and how it came about', in A. C. Tuijnman and T. N. Postlethwaite (eds) *Monitoring standards of education: papers in honour of John. P. Keeves.* New York: Pergamon Press, pp. 1–21.

Kelly, A. E., Lesh, R. A. and Baek, J. Y. (eds) (2008). *Handbook of design research methods in education: innovations in science, technology, engineering, and mathematics learning and teaching.* New York: Routledge.

King, J. A. and Pechman, E. M. (1984). 'Pinning a wave to the shore: conceptualizing evaluation use in school systems', *Educational Evaluation and Policy Analysis, 6*(3), pp. 241–251.

Lincoln, Y. S. and Guba, E. G. (1985). *Naturalistic inquiry.* London: Sage Publications.

Love, J. M. (1985). 'Knowledge transfer and utilization in education', *Review of Research in Education, 12*, pp. 377–386.

Love, N. (2005). 'Bringing data literacy to districts', *Hands On, 28*(1), pp. 10–13.

Love, N. (2009). 'Getting organised for collaborative inquiry', in N. Love (ed.) *Using data to improve learning for all.* Thousand Oaks, CA: Corwin Press, pp. 24–44.

Mano, M. M. and Kime, C. R. (2004). *Logic and computer design fundamentals*, 3rd edition. Englewood Cliffs, NJ: Prentice Hall.

Michigan State University Extension (1994). *DELPHI technique.* Retrieved 13 August 2013 from: http://www.extension.org/pages/61541/delphi-technique

Naker, D. (2007). *What is a good school? Imagining beyond the limits of today to create a better tomorrow.* Kampala: Raising Voices.

Orna, E. (1999). *Practical information policies.* Aldershot: Gower Publishing.

Plomp, T. (2009). 'Educational design research: an introduction', in T. Plomp and N. Nieveen (eds) *An introduction to educational design research.* Enschede: SLO, pp. 9–37.

Potter, J. (2006). 'Discourse analysis', in M. Hardy and A. Bryman (eds) *Handbook of data analysis.* London: Sage Publications, pp. 607–624.

Ronka, D., Lachat, M. A., Slaughter, R. and Meltzer, J. (2009). 'Answering the questions that count', *Educational Leadership, 66* (4), pp. 18–24.

Salpeter, J. (2004). 'Data: mining with a mission', *Technology, 24*(8), pp. 30–36.

Scherman, V. (2007). *The validity of value-added measures in secondary schools.* Pretoria: University of Pretoria.

Schield, M. (2004). 'Information literacy, statistical literacy and data literacy', *IASSIST, 2*(3), pp. 6–11.

Schildkamp, K. and Kuiper, W. (2010). 'Data-informed curriculum reform: which data, what purposes, and promoting and hindering factors', *Teaching and Teacher Education, 26*(3), pp. 482–496.

Smith, W. J. and Ngoma-Maema, W. Y. (2003). 'Education for all in South Africa: developing a national system for quality assurance', *Comparative Education, 39*(3), pp. 245–365.

Taylor, N. (2009). 'Standards-based accountability in South Africa', *School Effectiveness and School Improvement, 20*(3), pp. 341–356.

The Urban Institute (2004). *Analysing outcome information: getting the most from data.* Retrieved 5 November 2009 from: http://www.urban.org/UploadedPDF/310973_OutcomeInformation.pdf

UNICEF (2000). *Defining quality in education.* New York: United Nations Children's Fund.

Van den Akker, J. (1999). 'Principles and methods of development research', in J. J. Van den Akker, R. Branch, K. Gustafson, N. M. Nieveen and T. Plomp (eds) *Design approaches and tools in education and training.* Dordrecht: Kluwer Academic Publishers, pp. 1–14.

Visscher, A. J. (2002). 'A framework for studying school performance feedback systems', in A. J. Visscher and R. Coe (eds) *School improvement through performance feedback*. Lisse, the Netherlands: Swets & Zeitlinger Publishers, pp. 41–72.

Weber, R. P. (1985). *Basic content analysis.* London: Sage Publications.

Williams, P. L. and Webb, C. (1994). 'The DELPHI technique: a methodological discussion', *Journal of Advanced Nursing, 19*(1), pp. 180–186.

Willig, C. (2006). 'Discourse analysis', in J. A. Smith (ed.) *Qualitative psychology.* London: Sage Publications, pp. 159–183.

Whitehead, D. (2008). 'An international Delphi study examining health promotion and health education in nursing practice, education and policy', *Journal of Clinical Nursing, 17*(7), pp. 891–900.