

Knowledge Assumptions amongst School Leaders: A Case Study in Selected South African Schools

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ABSTRACT Studies on school restructuring and the leadership role of the school principal in this process suggest that what has been the traditional leadership approach of the principal appears to be changing in relation to the substantial changes and school-wide reforms that are continually taking place in schools world-wide today. These school reform initiatives necessitate new and creative ways of thinking about our concept of educational leadership and its various approaches. It also became clear from the literature on leadership that a person's assumption of various types of knowledge influence his or her leadership approach. The purpose of this paper, based on a quantitative empirical study in selected South African schools, was to identify this impact of principals' assumptions of knowledge on their leadership approaches. A total of 100 questionnaires with open-ended questions were sent electronically to school principals of randomly selected schools to assess the link between principals' assumptions about the nature of knowledge and principal leadership. A variety of quantitative analysis tests were used to analyse the data. The findings confirm the relationship between core epistemological beliefs and leadership practices amongst South African school principals and provide substantial justification for using epistemological beliefs in the study of school leadership.

INTRODUCTION

Over the past 20 to 30 years there have been continuous and major educational transformation trends in educational institutions throughout the world. These include globalisation, competition, decentralisation, a shift to a knowledge-driven economy, the information technology expansion, a change from producer-driven to consumer-driven concepts of education, a shift in focus to communal views of schooling and a change from behavioural to social constructivist perspectives on teaching and learning at the core level of educational systems (Botha 2012, 2014).

One of these transformational trends, namely decentralisation, represents a shift towards increased self-management and self-governance in schools. This trend, which is evident in a number of countries (Murphy 2002; Cuban 2008; Botha 2014), reflect a move towards institutional autonomy, the so-called 'school-based management' or 'self-management' of schools (Bush and Heystek 2003; Botha 2006, 2014; Marishane and Botha 2011).

The shift towards school-based management, other modern school reform initiatives mentioned above as well as continuous political and curriculum changes that have occurred dur-

ing this period, have posed enormous challenges for role players at every level of the education system, with many of the effects felt by those at school level. School principals, as key players at this level, are at the receiving end of various impacts generated by educational reform and have to adapt to the changing world of their special business (Botha 2004, 2014; Johnston 1996).

Studies on school restructuring and the leadership approach of the school principal in this process suggest that what have been the traditional approaches to leadership appear to be changing in relation to the substantial changes and school-wide reforms in schools today. These reform initiatives require creative ways of thinking about our concept of educational leadership. The bottom-line is that school principals can simply no longer lead in the old and traditional ways. The effectiveness of the principal and the consequent efficiency of the school as an organisation depend largely on the leadership approach of the principal (Blumberg and Greenfield 1986; Botha 2010, 2013, 2014; Gunter 2011).

Varaki (2003: 224) describes a leadership approach as "the function of several inter-related factors, such as principals' levels of psychological and social maturation at work, their main

expectations as well as their assumptions.” According to this view, the principal’s assumptions about and attitudes towards others are the foundations for the behavioural modification of individuals, groups and the organisation.

Bayat (1998), in research done earlier, stated that the principal’s approach to school leadership is based on his or her assumptions about human beings, human learning and human nature. These assumptions, conscious or unconscious, are the foundation for decision making and choosing a leadership approach. Likewise, our assumptions and beliefs about human nature influence all aspects of education and therefore also leadership approaches. The more complex and difficult a person’s assumptions about and beliefs in human nature become, the more time he or she will need for the process. For cognition, a short time period is needed for an assumption, while the difficulty level of the process is low, but for a higher level of assumption such as group and organisational behaviour, the individual needs a much longer time period (Cuban 2008; Botha 2014).

Problem Statement

An individual’s assumptions on human beings, human learning and human nature also include assumptions on knowledge and the nature of various kinds of knowledge. This means that there is a definite link between these assumptions and principals’ leadership. This situation gave rise to the following main statement of the problem for this paper: *How do a principal’s assumptions and beliefs about various kinds of knowledge influence his or her leadership approach?*

Purpose of the Paper

The purpose of this paper, based on an empirical correlation study in 100 randomly selected Gauteng Province schools in South Africa was to identify the relationship or association between principals’ different assumptions or beliefs about knowledge and their respective leadership approaches.

Pilot Study

A pilot study was conducted among ten school principals by requesting the pilot group

to complete the questionnaires in order to test the validity and reliability of the various items in the questionnaire. After the pilot study was completed and the researcher satisfied with both the validity and reliability of the research instrument, the questionnaires were sent out to a sample of 100 school principals in the Gauteng Province of South Africa. Owing to the fact that the questionnaires were sent out electronically, an 80% return rate was ensured after numerous follow-ups by the researcher.

Theoretical Foundations of the Paper

Conceptualising the Assumptions of Knowledge

To clarify the aim of this paper, a brief discussion and summary of the concept of the ‘assumption of knowledge’ follows. According to Rezaeyan (1995), the study of the assumption of knowledge is known as the ‘epistemology’, which means ‘the theory or science of knowledge’, and it is mainly concerned with the nature, scope and limitations of knowledge. This science considers topics such as the nature of knowledge and how it is acquired. In more simple terms, the science of knowledge explains ‘how we know what we know’. Much of the debate in this field has focused on analysing the nature of knowledge and how it relates to connected notions such as truth, belief and justification in human beings and human nature (Rezaeyan 1995; Brownlee 2000; Botha 2014).

According to the Epistemology or the theory or science of knowledge, school principals’ epistemological beliefs (EBs) can be conceptualised according to Schommer’s taxonomy of the 1990s. Schommer (1990) sees EBs as a system of more or less independent beliefs. By system, Schommer (1993) means that there is more than one belief to consider, and by more or less independent, he means that a person may be sophisticated in some beliefs of knowledge but not necessarily in others. With this in mind, Schommer (1993) identified the following four beliefs as the most important independent beliefs of human knowledge:

- ♦ *A Belief in Simple Knowledge.* Knowledge is best characterised as isolated facts, and people perceive knowledge as separate and unrelated facts.
- ♦ *A Belief in Absolute Knowledge.* Knowledge is absolute, and people perceive knowl-

edge as a certainty and argue that there is no mistake or error in scientific discoveries.

- ♦ *A Belief in Innate Knowledge.* Learning ability is not changeable and people assume that human ability is not the product of achievement and not subject to improvement.
- ♦ *A Belief in Quick Learning.* Learning is not a gradual process, but when it happens, it happens quickly, or not at all.

In the late 1980s, Schommer (1990) and others argued for an alternative approach to conceptualising people's epistemological beliefs. She argued that epistemologies can be separated into a number of independent beliefs and consequently proposed three beliefs that would be termed epistemological beliefs, namely a belief in how 'complex knowledge' is (ranging from complex to simple), a belief in how 'certain knowledge' is (ranging from highly certain to highly uncertain) and a belief in the 'source of knowledge' (for example, knowledge coming from authority). These beliefs are, according to Schommer (1990), more or less independent from one another. For instance, a person may believe in complex but certain knowledge, complex but uncertain knowledge, simple and certain knowledge or simple but uncertain knowledge (Botha 2014).

Methodologically, Schommer (1990) proposed an influential way to measure epistemological beliefs. In contrast to developmental work, which had relied principally on interviews and, to a lesser extent, on written, open-ended questions, she consequently developed a questionnaire, widely referred to as the epistemological questionnaire (EQ) which is still regularly used today in studies on epistemological beliefs. Other researchers in this field have since developed analogous scales tapping overlapping but not identical sets of epistemological beliefs. Scholars such as Hofer (2000), for example, developed a questionnaire with items that also addressed four very similar, identical epistemological beliefs.

Hofer's questionnaire of 2000 was designed so that the questions also referred to a specific field. In other words, in contrast to the questions developed by Schommer, his questions did not refer to knowledge in general but to knowledge in a specific field such as science or mathematics. The first two epistemological beliefs in Hofer's questionnaire, namely 'certainty' and

'simplicity', were about the nature of knowledge, while the third and fourth beliefs addressed the issue of how a person comes to 'know' or 'learn' something, namely the 'source of and justification for knowledge'. These four epistemological beliefs of Hofer can be described as follows:

- ♦ *Certainty:* This belief refers to the extent to which the respondent thinks that knowledge is certain as opposed to it being fallible and subject to change.
- ♦ *Simplicity:* This refers to the extent to which the respondent believes that knowledge is structured and organised in simple ways with a single right answer rather than in more complex ways with more than one right answer.
- ♦ *The Source of Knowledge:* This belief refers to the origin of knowledge: whether it comes from oneself (and one's own experiences) or from others (such as the teacher or textbook).
- ♦ *The Justification for Knowledge:* This belief is closely related to the source of knowledge and is about the kinds of justifications that are offered in support of knowledge. These justifications may be on the basis of personal experience or the authority of experts.

Thus, while much has been theorised, researched and reported about epistemological beliefs over the past few decades, the researcher has selected and summarised a few additional and relevant conclusions about epistemological beliefs that have been drawn by various researchers on this issue, namely:

- ♦ There is a "commonsense theory of knowledge present in the average person" that develops as the person grows from child to adulthood (Kitchener 2002: 90);
- ♦ Some epistemological beliefs develop earlier than others. For example, epistemological beliefs about institutional (socially or humanly constructed) facts develop earlier than brute (physical, or scientifically tested and proven) facts (Hallett et al. 2002);
- ♦ Epistemological beliefs are context specific (Kitchener 2002);
- ♦ It appears that a tertiary education has a major influence on the development of more sophisticated epistemological beliefs (Kitchener 2002); and
- ♦ Core beliefs about knowing influence other beliefs, knowledge, and behaviour (Brownlee 2000).

Since Schommer's questionnaire is, as already mentioned, still widely being used today in studies on epistemological beliefs, it was decided to use this questionnaire as the instrument for this paper to assess the participants' EBs. Having conceptualised the assumptions of knowledge according to the work of different scholars in the field, the concept of leadership approaches in the school context will now be briefly dealt with.

Theoretical Descriptive Approaches to Educational Leadership

One of the traditional and widely accepted definitions of leadership is that of Greenberg, cited in Botha (2012: 137) as "the process whereby one person influences individuals and group members towards goal setting and goal achievement with no force or coercion". According to this definition, leadership is not a matter of passive status or of the mere possession of some combination of traits.

It appears instead to be a working relationship between members of a group in which the leader acquires status through active participation and demonstration of the capacity for carrying cooperative tasks through to completion (Bolden 2004). According to Hersey and Blanchard (2001: 9), leadership occurs "whenever one person attempts to influence the behaviour of an individual or group, regardless of the reason". In contrast, Khalili (1994) stated that leadership consists of knowledge and skills that influence and direct others' activities. According to this view, leadership can generally be defined as the process of directing the behaviour of others towards the accomplishment of goals. It involves elements such as influencing and motivating people, either as individuals or groups, managing conflict and communicating with subordinates (Botha 2013).

In addition, according to Slocum (2002), a person's leadership style or approach to leadership is the behavioural patterns he or she uses while directing others to do the job. These patterns can either be classified as a relationship-oriented approach or ROA (built upon informal, personal and social interaction and demonstrated through mutual trust, personal support and friendship) or a task-oriented approach or TOA (built upon formal interaction and demonstrated through providing direction and instructions)

or a combination of both (Greenberg and Baron 1993; Slocum 2002). In addition, Davies (2005) added that leadership behaviour also entails the leadership approach or style followed or adhered to by the leader.

This leadership view emerged from a famous series of studies on leadership that was conducted at Ohio State University in Columbus, Ohio, starting in the 1950s. During that period, there was a great deal of interest in leadership but no satisfactory theory or definition of the factors that constitute leadership. The Ohio State team, lead by Halpin and Winer (1957), found two critical leadership characteristics, namely task and relationship dependency, either of which could be high or low and were independent of each other. Their research was based on a questionnaire to leaders and subordinates, better known as the Leader Behavior Description Questionnaire (LDBQ). This initiative of the Ohio State team was one of the earliest attempts to develop an instrument that focused solely on leadership behaviour and its measurement and introduced the two above mentioned dimensions of leadership that have remained much of a constant in leadership studies throughout the years (Stagdill 2006).

Although the Ohio State questionnaire has since been modified into several different versions that have added both complexity and items, today, it is still one of the most famous of all the questionnaires that endeavours to capture the various dimensions of leadership by measuring the various dimensions of leadership approaches and behaviour. Hence, an altered and newly version of the LDBQ questionnaire, referred to as the Authentic Leadership Questionnaire (ALQ), developed by Luthan in 1989 was used in this paper to measure principals' leadership approaches.

RESEARCH METHODOLOGY

This current paper, based on earlier and similar papers by Varaki (2003) and Botha (2013), was designed to measure the impact of various assumptions about knowledge EBs on the leadership approaches among a number of randomly selected principals in Gauteng schools. Descriptive statistics were used in this paper to describe the basic features of data and to present quantitative descriptions in a manageable format. This enabled the researcher to simplify large

amounts of data in a sensible and measurable way. It was assumed, as point of departure, that EBs has already been established in school principals (see Botha 2014).

In order to measure the participants' EBs, Schommer's (1993) epistemological questionnaire (EQ), described earlier in this paper, was used. The original questionnaire of Schommer consisted of 63 items and measured people's beliefs about human nature and the processes of knowledge and learning. In order to identify and measure the leadership approaches of participants, Luthan's (1989) LDBQ version of the leadership questionnaire (ALQ), which originally consisted of 35 items, was used. The ALQ version of Luthan (1989) is a theory-driven leadership survey instrument specifically designed to measure the components that have been conceptualised as comprising authentic leadership. The four scales of Luthan's ALQ address the following questions:

- ♦ *Self-awareness*: To what degree is the leader aware of his or her strengths, limitations, how others see him or her and how the leader has an impact on others?
- ♦ *Transparency*: To what degree does the leader reinforce a level of openness with others that affords them an opportunity to be forthcoming with their ideas, challenges and opinions?
- ♦ *Ethical/Moral*: To what degree does the leader set a high standard for moral and ethical conduct?
- ♦ *Balanced Processing*: To what degree does the leader solicit sufficient opinions and viewpoints prior to making important decisions?

On completion of the pilot study, the researcher decided to use a revised version of Schommer's questionnaire for EBs with only 40 of the original 63 items, as well as a revised version of Luthan's ALQ leadership questionnaire with only 25 of the original 35 items. This was done with due consideration of the limitations of the paper because some of the original items on both the Schommer and Luthan questionnaires were not applicable to the current paper, and as a result, participants struggled to understand the meaning and applicability of these items. The reliability of both the revised Schommer EBs questionnaire with 40 items as well as the revised Luthan ALQ questionnaire with 25 items was assessed using Cronbach's alpha (α)

reliability test and re-test method. The reliability coefficient of the EBs questionnaire was 0.81 while the reliability of the ALQ leadership questionnaire was 0.78. These measurements confirmed the reliability and validity of these instruments for the purpose of this paper.

As the variables in EBs are not 'absolute', participants could only choose between two categories of options ('desirable' or 'partly desirable') in the Schommer questionnaire. In the Luthan questionnaire, participants had the option to choose between four categories of options, namely a 'low TOA' or 'high TOA' and a 'low ROA' or 'high ROA'. For both questionnaires, the options given to participants to choose from, namely the option between 'desirable' and 'partly desirable' and the option between 'low' and 'high' were defined for them as these options are not absolute or categorised and might have confused some participants.

FINDINGS AND DISCUSSION

The first phase of this paper was undertaken to analyse the relationship between the assumptions of knowledge of participants (EBs) and their respective leadership approaches (ROA or TOA). These findings indicate, inter alia, a strong positive relationship between the EBs of principals and their ability to be effective leaders. The higher the principal's EBs, the stronger approach he or she has to leadership, both in terms of TOA and ROA. The results show that more than half of the principals in the study (55%) achieved a high score in EBs.

This means that they believed in all four of Schommer's beliefs on knowledge conceptualised earlier, namely simple knowledge, absolute knowledge, innate knowledge and quick learning. In addition, the results indicates that only 7.5% of the principals have a weak or low relation-oriented approach (ROA) to leadership as well as a weak or low task-oriented approach (TOA) to leadership, while 32.5% of them have a high ROA and low scores in the TOA. In addition, the results also indicate that 55% of the principals have strong scores in both the ROA and TOA.

The Analysis of Variance model (ANOVA) was used for the next phase of the paper. ANOVA is a collection of statistical models and their associated procedures in which the observed variance in a particular variable is partitioned

into components attributable to different sources of variation. In its simplest form, ANOVA is an analysis of the variation present in a study and provides a statistical test of whether or not the means of several groups are all equal, and therefore generalises *t*-tests to more than two groups. ANOVAs are a test of the hypothesis that the variation in an experiment is no greater than that due to normal variation of individuals' characteristics and error in their measurement and thus useful in comparing two, three or more means.

In this paper, one-way balanced ANOVA was used. It has been termed as one-way as there is only one category whose effects has been studied and balanced as the same sample number has been used for each exercise, in this case for both EBs and leadership approaches amongst participants. The tests in an ANOVA are based on the *F*-ratio: the variation due to an experimental 'treatment' divided by the variation due to 'error'.

The null hypothesis in this ratio equals 1.0. If the null hypothesis is rejected, it allows us to say that 'significant differences were found'. The sums of squares (SST and SSE) previously computed for the one-way ANOVA are used to form the two mean squares (MST and MSE), one for 'treatment' and the second for 'error' and help to compute the variance estimates typically displayed in the ANOVA table. The ANOVA table also shows the statistics used to test hypotheses about the population means. Including the complete ANOVA source table is optional and was not done here.

The results show that there is a significant difference between the EBs of participants with different leadership approaches. The ANOVA test revealed that the EB scores of principals with a strong ROA and TOA are significantly lower than the EB scores of those participants who follow one of the other leadership approaches. From these findings it can be deduced that those principals who have the assumptions of all four of Schommer's (1993) knowledge beliefs (assumptions on simple, quick, certain and innate knowledge) use both strong relation-oriented and task-oriented leadership approaches, while those who have only simple and quick knowledge assumptions, use weak relation-oriented and task-oriented approaches to leadership.

It is clear from this evidence that an assumption of various knowledge types or epistemo-

logical beliefs increases the leadership ability of principals, both in terms of tasks (TOA) and relations (ROA). In the next phase of the paper, the ANOVA was used to analyse the assumptions relating to the differences in the principals' EBs. The results indicated a significant difference in the participants' EBs. Rosner's (1983) generalised ESD test was used to detect one or more outliers in a set of data that follows an approximate normal distribution. The generalised ESD test only requires an upper bound for the suspected number of outliers to be specified. Given the upper bound, *r*, the generalised ESD test essentially performs *r* separate tests: a test for one outlier, a test for two outliers, and so on, up to *r* outliers.

The generalised ESD test is defined for the following set of hypotheses: H_0 (there are no outliers in the set of data) and H_a (there are up to *r* outliers in the set of data). The ESD test of significance confirms the relationship between the EBs of principals and their leadership approaches, and indicates clearly that principals with both a strong ROA and TOA have significant differences with other respondents regarding commitment to EBs.

In the last phase of the paper, coefficient K^2 was used to examine the effects of each principal's EBs on his or her respective leadership approaches. It shows that simple knowledge explains 0.71 of the variance leadership approach, while innate knowledge can only predict 0.21 of these changes. In sum, the EBs results indicate that 0.58 of the principals' leadership approach differences in the schools sampled are related to their respective EBs. The results of this paper clearly indicate that principals use different leadership approaches in the school context. The participants use both a strong ROA and TOA, which is congruent with the situation-oriented theory of Hersey and Blanchard (2001).

According to this theory, principals will use the ROA in situations where staff members have higher levels of experience and education, while the TOA approach will be used in situations where staff members have lower levels of experience and education. The only difference between the results of this paper and those of Hersey and Blanchard's conception is that in this paper, the participants used both a strong ROA and TOA – in other words, they used both approaches. One should also bear in mind that EBs influ-

ence not only leadership approaches, but also all aspects of education. The results indicate that the principals' EBs is influential in their leadership approaches. There is a positive relationship between simple, quick, certain and innate knowledge beliefs among participants and strong approaches to both ROA and TOA.

CONCLUSION

The recent emergence of EBs as a basis for understanding what and how knowledge is used in the context of a teacher's professional practice, has also implications for the study of leadership behaviours. In this paper, the author argued that the shift from an industrial to a knowledge society will also result in a shift in our EBs (key assumptions about knowledge) and leadership behaviour in the school context. The growing importance of knowledge and EBs is changing the leadership behaviour of school principals in a globalised world. The leadership behaviour of principals was analysed in this paper in relation to various knowledge society discourses. In addition, the assumption of knowledge was discussed as an intellectual device to reflect on how changes in education are related to knowledge society discourses.

Leading a school in the knowledge society requires principals to understand this shift in focus because it will ultimately affect their leadership behaviour and approaches to leadership. Although the decentralisation of management is a new development in education, it has an established history in the private sector where it has been popularised through the implementation of a high-involvement management strategy. This high-involvement strategy has four main dimensions, namely power, information, knowledge and reward, of which knowledge is regarded as the primary dimension. Control over the dimension of knowledge is therefore critical for leadership behaviour, organisational improvement and school improvement.

The main implication of the knowledge dimension of the high-involvement management strategy for a self-managing school is that it needs to be collectively viewed and applied for the empowerment of a principal in the school. In other words, this suggests that for the active and meaningful participation of all stakeholders in efforts directed at school improvement, the dimension of knowledge needs to be conceived

as an integral part of leadership and decision-making authority. Hence this dimension should be considered in order to bring about meaningful decision making over key areas of finance, personnel, resource allocation, curriculum and assessment when such authority shifts to the school level.

The daily leadership practices of school leaders are based on making decisions and recommendations to effect change and reform in schools. Many leaders believe that change and reformation are essential to the reconstruction and future development of schools across the globe. A fundamental belief about school reform is that before substantive change can occur in schools, there must first be a major shift in our EBs and definition of educational leadership.

RECOMMENDATIONS

Educational leadership is a global discourse that has undergone several reconstructions, but most of them have left the educational leadership field without any real power to make significant changes in the delivery of education and learning that takes place in schools. To allow transformation in educational leadership and systems, we need more discussion of knowledge and EBs at a global level to bring wholeness to the global discourse as well as openness to the reality of leadership. It is therefore essential to scrutinise educational leadership from a knowledge perspective – a perspective that suggests that other voices need to be heard. The addition of these voices will produce changes in the discourse that will affect reconstruction in the field. Leadership structures need to be shared to reconstruct our thinking, assumptions and practices relating to knowledge, while school leaders need to think more creatively with insight and intuition. It is this kind of thinking that will challenge our EBs and, ultimately, their effect on the leadership approach of the school leader.

The inclusion of EBs in the educational leadership discourse will allow leaders to make meaning out of their professional lives. It will allow practitioners to become comfortable in their choice of professions. Reflection, deconstruction and the making of meaning must enter the educational leadership discourse. Core beliefs about knowing that underpin other beliefs knowledge and thinking (such as how they make

judgments) can be developed through interventions that focus on explicit reflection on EBs. Such interventions need to enable individuals to see that sometimes critical, evidenced based interpretation of information is necessary to arrive at reasonable perspectives.

With this in mind, the instrument used in this paper can be used as a research tool to examine the relationship between leaders' assumptions of knowledge and their leadership approaches. As the emphasis on school reform continues, there will be a need to provide school leaders with data that will enable them to modify their leadership approaches to meet the challenges of today and tomorrow. EBs are the basic factors that influence people's actions and behaviour. The results of this paper further confirm a positive relationship between participants' EBs and leadership approaches, and indicate the effect of each EB on leadership approaches. It can be concluded that, firstly, a principal's leadership approach can be predicted by assessing his or her EBs and, secondly, by reinforcing these positive beliefs, his or her leadership approaches can more easily be influenced.

Methodologies and tools for identifying leadership approaches and for measuring EBs already exist in the literature. A first step for future research might be to use these to establish a set of EB characteristic of school leaders, perhaps in the same way that other value and belief sets have been developed. It is the hope that EBs will offer the leadership researcher a new and significant field of inquiry for investigating the behaviours of leaders, and in the long term, support training interventions that target the development of mature beliefs underpinning school leadership

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