School Effectiveness in the Mpumalanga Province of South Africa

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A research project investigating some of the key characteristics of effective schools in the Mpumalanga Province of South Africa, made use of 2,400 structured questionnaires to obtain data from a random sample of schools in each of the 10 districts within the province. Using two consecutive factor analytic procedures, the 105 items in the questionnaires were reduced to three second order factors with high (>0,7) Cronbach-Alpha reliability coefficients. These factors were dubbed:

- *Accountable collaborative management, consisting of 12 first order factors and 76 items;*
- *Open democratic management, consisting of five first order factors and 16 items; and*
- *Normative management, consisting of three first order factors and 13 items.*

Multivariate statistical methods were used to identify significant statistical differences between the various independent variables. Partial Eta squared values provide the substantive significant values. Although numerous significant differences were found, all the groups partially agreed, agreed or strongly agreed that effective schools in Mpumalanga are grounded on the above three factors.

Introduction and Background to the Problem

How educators define and understand school effectiveness is shaped by their work contexts, focus and prevailing circumstances within their schools. First, we briefly discuss school effectiveness in the South African context and illustrate how systemic pressures from their internal and external environments affect schools as complex organisations. 'School performance is unlikely to be significantly improved by any measure or set of measures that fails to recognise that schools

are governed by well-established rules and norms of behaviour and adapted for stability' (Chubb, 1988:29). Money does not seem to be the key or secret ingredient, rather, a number of intangible items that promote school effectiveness and productivity seem to coincide with school climate or culture. Second, we detail different aspects of school effectiveness as found by the students who undertook the research. Third, we provide empirical findings of the research and conclude by discussing the implications of this research for school effectiveness in the Mpumalanga Province of Education.

Literature Review on School Effectiveness in South Africa

The transformation currently taking place in South Africa has brought numerous issues in the country's internal affairs into sharp focus. In the present context in South Africa, schools, and how effectively they are managed, constitute one area among many others that are undergoing transformation. The processes of reconstruction and transformation that are currently underway in South Africa are complex, and can be described in systemic terms as being dynamically complex. We argue that schools are also complex, diverse, tangled and dynamic systems that often surprise us (Dalin, 1998:29). Fullan (1997:20) maintains that this dynamic complexity is the real territory of change. He argues that when cause and effect are not close in time and space, particularly in the case of effective education in the current context in South Africa, obvious interventions do not produce expected outcomes as other unplanned factors dynamically interfêre.

School effectiveness means many things to many people. The term *effective* evokes notions of leadership that are exceptional, perhaps worth emulating, often in rare supply or widely valued. The legacy of 'effective schools' research has created a predisposition on the part of many educators to define effectiveness in terms of learner performance. Schools are thus effective when their learners perform beyond expectations and this is also true in the sense of South African schools where achievement in the Secondary Certificate Examination (SCE) is often seen as the only norm of success.

This research project followed what could probably best be classified as using a systems approach, where a distinction can be made between inputs, context, processes and the outcomes of education. Input consists of all kinds of variables connected with financial, physical and human resources, as well as the background of the learners. Context involves the political, economic, social, demographic and technological forces wherein education takes place. When discussing the effectiveness of outcomes, it is pertinent to use different levels of the education system,

such as student level, classroom level, school level and contextual level (Creemers, 1997:110). Creemers (ibid) further recommends that multiple outcomes be used as criteria for school effectiveness. Examples of these multiple outcomes are:

- traditional outcomes such as reading, mathematics and language;
- compensation for initial attributes or striving towards academic equity;
- the development of social skills and attitudes in addition to academic growth;
- higher order academic skills, such as problem solving;
- meta-cognitive knowledge and skills; and
- educational technology, creativity and moral behaviour.

Most researchers and educators would probably be more interested in how the above outcomes can be achieved than in the actual achievements themselves. In other words, what educational processes in the classroom and school levels are responsible for the achievement of the outcomes mentioned above? Creemers (1997:113) lists the following effective school correlates with regard to the United States of America, as provided by Levine and Lezotte (1990):

- a productive school climate and culture;
- the acquisition of central learning skills by students;
- monitoring of student progress;
- practical staff development at the school site;
- outstanding leadership;
- salient parent involvement;
- effective instructional arrangements and implementation;
- high operationalised expectations and requirements for students; and
- other possible correlates

Creemers (1997:114) states that a study in the United Kingdom conducted by Mortimore, Sammons, Stoll, Lewis and Ecob (1989), found 12 factors that were comparable with those of Levine and Lezotte. In the Netherlands, Scheerens and Creemers (1989) found that only an orderly climate, frequent evaluation, achievement orientation, high expectations and direct instruction seemed to distinguish effective from non-effective schools. The concept of direct instruction is associated with 'the process-product teaching-effectiveness model' which seems to be an effective way to teach basic reading and computational skills and simple subject mastery to elementary school children (Sergiovanni & Starratt, 1998:222). The problem is that direct teaching does not seem to be the most appropriate method of teaching when it comes to the higher order cognitive skills. Informal and more open teaching strategies

seem superior to structured approaches in promoting creativity, self-concept enhancement, positive attitudes toward school, curiosity, self-determination, independence and co-operation (Sergiovanni & Starratt, 1993:208).

Direct or explicit teaching and teaching to achieve higher order thinking skills could probably be presented as a continuum. At the one extreme of the continuum one would use constructivist principles, pupil-centred learning, little teacher control, concentration on higher order cognitive skills and the use of problem-based teaching and project work. At the other end of the continuum one finds specific outcomes, a teacher-centred approach, higher amounts of teacher control, lower order cognitive skills and direct instruction. Teaching probably does not occur exclusively at either end of the continuum, but would vary between the two extremes depending on what goals or value patterns the teacher wishes to achieve.

Another problem with the above approach, irrespective of whether you are using constructivist or direct instruction principles during the process of teaching, is that it does not account for the contextual variability, the educational level of the parents, juvenile delinquency and school safety and security, which are only some of the contextual variables that are especially relevant in the South African context. Creemers (1997:110–119), however, largely manages to overcome these problems by making use of a systems approach where he considers input, output, process and contextual variables. Output, input and process variables have been briefly discussed and a discussion of the contextual variables will provide a more balanced view of school effectiveness, as these variables do play a role in perceptions of school effectiveness.

At the contextual level, important aspects are quality, time, opportunity to learn and resources. Quality is related to the availability of a national policy focusing on the effectiveness of education, a national testing system, training and support systems and funding of schools based on outcomes. Time is related to national guidelines with respect to time schedules for schools and the supervision of the maintenance of these schedules. The opportunity to learn is associated with national guidelines and rules for the development of the school curriculum within the parameters of a national curriculum. Resources are related to the availability of materials, educators and other components that support education in schools and in classrooms (Creemers, 1997:119).

Furthermore, in addition to the above, South Africa has recently introduced a national system of appraisal for educators, which has been supplemented by a national system for whole school evaluation. Sergiovanni and Starratt (1998:222) warn against supervisory practices that

are based on rationalistic, rather than rational thinking. For example, because the direct teaching model is an effective way to teach basic reading and computational skills, this model is prescribed as a means by which all learning takes place. There is a real danger that many provinces across South Africa could adopt teacher-evaluation checklists and other instruments composed of items primarily or exclusively based on this research. This results in uniform use of an instrument that might be appropriate for a limited range of teaching and learning outcomes, but is invalid for other teaching and learning outcomes (Sergiovanni & Starratt, 1998:222). The haste with which whole school evaluation was introduced in South Africa could indicate that issues of comprehensiveness and credibility might be lacking, as whole school evaluators can hardly be well-trained in a number of isolated three-week sessions.

From the above it appears as if the indicators of effectiveness commonly cited are an artefact of how researchers decide to define effectiveness. The indicators are not independent or objective but a function of human decisions (Sergiovanni & Starratt, 1993:208). Thus, when it comes to evaluation instruments, it is extremely important how effectiveness is defined as 'winning and losing in evaluation is never entirely objective but always in part an artefact of the evaluation system used' (Sergiovanni & Starratt, 1998:222).

In the South African context school effectiveness is probably strongly related to the public's perception of how well grade 12 learners perform in the final examination known as the SCE. An effective school would thus probably be one where all learners pass the SCE, with a large percentage obtaining university exemption. However, educators probably believe that input, process and contextual variables also play a role in perceptions of school effectiveness and hence need to be considered.

The literature review above revealed that an effective school is composed of many diverse factors. Due to the many present interventions in the education system in South Africa and because of the recommendations of the literature review above, it was decided that it would be appropriate to involve variables at the input, context, process and output levels of the educational system. Twenty Master of Education students therefore investigated the following key components in school effectiveness in the South African context, namely:

- norms and values, traditions and belief systems as aspects of school culture (Pieterse, 2000; Mfoloe, 2000; Ndlovana, 2000);
- parental involvement, caring, pupil involvement and responsibility and collegiality as aspects of school climate (Mokone,2000; Molemane,2000; Motuang, 2000; Sibande, 2000);
- vision as an aspect of school mission (Lushaba, 2000);

- recognition and staff development as an aspect of motivational strategies (Nkosi, PB, 2000; Mahomed, 2000);
- curriculum design and implementation as aspects of the curriculum (Nkosi, SB, 2000; Mitshali, 2000);
- collaboration, transformation, ethical foundation and the management of stakeholders as aspects of leadership (Mashego, 2000; Sukati, 2000; Maluleka, 2000; Lekgau, 2000); and
- physical facilities, staffing, financial foundation and information as aspects of resources (Nkuna, 2000; Ngidi-Mtshali, 2000; Kajeni, 2000; Ditshego, 2000).

Although the literature review revealed several other aspects such as order, academic demands of courses, frequent monitoring of student progress, high expectations and requirements of all students and regular feedback on performance (West-Burnham, Bush & Glover, 1995; Edmonds, 1979), these aspects could be accommodated in the first mentioned component.

The aspects involved above should see schools as part of the social order and thus subsequently affected by the constant shifts in politics, economic patterns, religious beliefs, demographics, history, social and other various components of society (Grobler, 2000; Phendla, 2000:1; Dalin, 1998:29). These components influence the pace of change in schools within the historically framed patterns of knowledge accessible to them.

The problems that this research thus seeks to investigate are:

- To what extent educators agree or disagree about those components identified in the literature as to what constitutes an effective school in the Mpumalanga Department of Education?
- What management guidelines can assist in making schools in Mpumalanga more effective?

Aims of the Research

In view of the above discussion the aims of this research are to:

- probe the perception of educators with reference to the identified components of school effectiveness in the Mpumalanga Department of Education; and
- propose management guidelines that could assist in making schools in the Mpumalanga Department of Education more effective.

Having introduced the research problems and having provided the aims of the research, it is necessary to provide a theoretical framework within which school effectiveness can be grounded.

Research Methodology

In order to determine the perceptions of educators about the key components of school effectiveness, 105 items representative of school culture, school climate, vision, motivational strategies, curriculum, leadership and resources were formulated for inclusion in Section B of a structured questionnaire (see literature review above). Respondents were asked to what extent they agree or disagree with the formulated items. They had to provide their opinions to the header 'an effective school should' on a six-point scale where one meant disagree totally; two meant disagree; three meant partially disagree; four meant partially agree; five meant agree and six meant agree totally.

In addition, through 18 items, the questionnaire also obtained biographical information about the respondents. The biographical data served as quasi-independent variables for the research. They were quasi in the sense that respondents were assigned to a particular condition based upon some inherent characteristic such as age or gender (Heiman, 2001:44).

The Research Sample

Figures obtained from the Mpumalanga Department of Education indicate that there are approximately 26 906 educators in Mpumalanga in a ratio of approximately 3.8 English to one Afrikaans medium of instruction educators. Twenty schools were randomly selected in each district in the ratio of 4:1, i.e. sixteen English to four Afrikaans schools. Twelve questionnaires were distributed in each selected school. Consequently, 2,400 questionnaires were distributed in the 10 districts of the Mpumalanga Province in South Africa to educators at all post levels. The sample can thus be classified as a stratified random sample of schools in the Mpumalanga Province (Heiman, 2001:115). Principals of the selected schools were approached to obtain their permission and co-operation. The questionnaires were handed to principals by the researchers and personally collected again after completion. Co-operation was good and this facilitated a good response rate to the questionnaires of 70,2 per cent.

Validity and Reliability

In order to establish content validity, the questions were designed within the conceptual framework as outlined above. The questions were constructed to represent the essential aspects of school effectiveness as revealed by the literature review namely, school culture, school climate, vision, motivational strategies, curriculum, leadership and resources.

The content validity of the questionnaire was verified by means of a pilot study. A pilot study uses respondents similar to those in the actual study and determines for instance whether the instructions are clear, whether the task can be performed given the time constraint and whether the researcher has developed a workable, sensitive and reliable scoring procedure (Heiman, 2001:89–90). Thirty educators not involved in the final study were used as respondents for the pilot study and the information gleaned from this exercise was used to improve the clarity of items. The services of several experts from the Department of Educational Sciences and from the Statistical Consultation Service of the Rand Afrikaans University were also used to improve the content validity of the questionnaire.

To assess the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) as well as Bartlett's Test of Sphericity were used (Hair, Anderson, Tatham & Black, 1998:99). The MSA value was 0.95 and Bartlett's test had a significance of < 0.001. Both these values thus indicate that the items are suitable for factor analysis. The 105 items all had individual item Measures of Sampling Adequacy's above 0.6 and were subjected to Principal Axis Factoring (PAF). Twenty (20) factors were extracted using the Kaiser criterion (eigenvalues >1) and, together with an orthogonal (Varimax) rotation, explained 55.10 per cent of the variation (Hair *et. al.*, 1998:99).

These 20 first order factors were again subjected to similar procedures (MSA=0.92 and Bartlett < 0.001). This procedure will be referred to as the second order procedure. Three (3) second order factors had eigenvalues greater than one and explained 47.8 per cent of the variance. The rotation method for this second order procedure was Direct Oblimin. The structure matrix (Norusis, 2002) shows the correlation of each of the first order factors with the second order factors (see Table I). Although some of the first order factors consisted of few items, each of the factors was named to assist in the naming of the second order factors.

The two successive Principal Axis Factoring procedures thus resulted in three (3) second order factors namely:

- Factor 2.1, which was named *accountable collaborative management* with 12 underlying first order factors consisting of 76 items. It had a Cronbach-Alpha reliability coefficient of 0.95;
- Factor 2.2, that was named *open democratic management* with five (5) underlying first order factors consisting of 16 items with a Cronbach-Alpha reliability coefficient of 0.80; and

- Factor 2.3, which was named *normative management,* which had three (3) latent first order factors and consisted of 13 items. It had a Cronbach-Alpha reliability coefficient of 0.75.

The names given to the 20 first order factors as well as the loading of these on the second order factors (see Table II) were used in naming the second order factors.

TABLE I

The structure matrix indicating the correlation between the first order factors and their appropriate second order factors

First order factors (F1.1–F1.20)		Second order factors (F2.1–2.3)		
		Factor 2.1	Factor 2.2	Factor 2.3
F1.1	Caring climate	0.94	0.43	0.24
F1.12	Stakeholder involvement	0.71	0.34	0.18
F1.2	Effective team management	0.69	0.64	0.10
F1.8	Ethical management	0.66	0.25	0.09
F1.3	Resource management	0.64	0.12	0.19
F1.9	Developmental management	0.55	0.54	0.16
F1.7	Curriculum-driven management	0.54	0.36	0.12
F1.18	Learner achievement equity	0.52	0.38	0.25
F1.17	Recognition	0.47	0.31	0.40
F1.10	Value-based management	0.45	0.32	0.21
F1.19	Individual achievement	0.41	0.18	0.31
F1.15	Educator incentives	0.38	0.21	0.34
F1.4	Transparent management	0.24	0.65	0.33
F1.20	Consensus curriculum	0.42	0.60	0.08
F1.5	Stakeholder accessibility	0.53	0.60	0.33
F1.11	Tolerant co-operation	0.46	0.53	0.24
F1.14	Parental involvement in professional educator development	0.13	0.52	0.43
F1.6	Common values management	0.17	0.18	0.65
F1.16	Competent decision-making	0.21	0.27	0.50
F1.13	Financial involvement	0.29	0.29	0.32

The first order factor (F1.1–caring climate) had the highest loading on the first second order factor (F2.1), followed by resource management (F1.3), ethical management (F1.8) and stakeholder involvement (F1.12). Hence the name *accountable collaborative management* was given to this second order factor (see Table II). The factor *open democratic management* was treated in a similar manner, as the first order factor transparent management (F1.4) had the highest loading followed by consensus curriculum (F1.20) and parental involvement in professional educator development (F1.14). *Normative management* as the third

second order factor was named as such because common values management (F1.6) had the highest factor loading, followed by competent decision-making (F1.16).

TABLE II
The pattern matrix indicating the loading between the first order factors and their appropriate second order factors

First order factors (F1.1–F1.20)		Second order factors (F2.1–2.3)		
		Factor 2.1	Factor 2.2	Factor 2.3
F1.1	Caring climate	0.93		
F1.3	Resource management	0.72		
F1.8	Ethical management	0.70		
F1.12	Stakeholder involvement	0.69		
F1.2	Effective team management	0.54		
F1.7	Curriculum-driven management	0.48		
F1.18	Learner achievement equity	0.42		
F1.9	Developmental management	0.40		
F1.10	Value-based management	0.38		
F1.19	Individual achievement	0.37		
F1.17	Recognition	0.36		
F1.15	Educator incentives	0.32		
F1.4	Transparent management		0.63	
F1.20	Consensus curriculum		0.55	
F1.14	Parental involvement in professional educator development		0.49	
F1.5	Stakeholder accessibility		0.43	
F1.11	Tolerant co-operation		0.39	
F1.6	Common values management			0.66
F1.16	Competent decision-making			0.46
F1.13	Financial involvement			0.23

Each of the above factors was now investigated to see whether there were statistically significant differences between the factor mean scores of the groups. Appropriate hypotheses were set for two and three or more independent groups. For two independent groups, Hotelling's T^2 and Student's t-test were used and for three or more independent groups, MANOVA, ANOVA and the Scheffé or Dunnett T3 was used (Norusis, 2002). When the difference between the mean scores is statistically non-significant ($p>0.05$) then the null hypothesis cannot be rejected and the danger of failing to perceive the presence of a possible effect is present. On the other hand, should the difference between the mean scores be statistically significant ($p<0.05$) then the null hypothesis should

be rejected (and Ha accepted). Here the risk is present that one could erroneously equate statistical significance for substantial significance. It is thus advisable to give the sizes of the effects as well as the p-values (Rosenthal, Rosnow and Rubin, 2000:4).

The effect size indicates how differences in the dependent variable are consistently caused by changes in the independent variable (Heiman, 2001:421). The greater the effect size, the greater is the accuracy of describing how the dependent variable, or the respondents' behaviour, is influenced by the independent variable. In this particular research project it should be noted that the independent variables are quasi-independent variables and cannot be manipulated as true independent variables. Where differences between mean scores were small both statistical and substantial significant values are thus provided.

An example showing the appropriate data for two independent groups in tabular form is:

TABLE III

Significance of differences between Christian educators and educators from other religions regarding the three factors

Factor	Group	Factor mean	Hotelling T_ (p-value)	Student t-test (p-value)
Accountable collaborative management	Christians	5.57		0.473
	Other religions	5.60		
Open democratic management	Christians	4.63	0.000	0.051
	Other religions	4.77	**	*
Normative management	Christians	4.10		0.000
	Other religions	3.83		**

** Statistically significant at the 1 per cent level ($p<0.01$); N (Christian educators=1 543)

* Statistically significant at 5 per cent ($p>0.01$ but <0.05); N (educators of other religions=111)

Table III indicates that there is a statistically significant difference between the vector mean scores of Christian educators and educators from other religious groups at the multivariate level when all three factors are considered together ($p < 0,0005$). HoT is thus rejected and the alternative hypothesis HaT is accepted. At the univariate level, Christian educators and educators from other religious groups differ statistically significantly in respect of open democratic and normative management. Hot2 and Hot3 are thus rejected in favour of the alternative hypotheses, namely Hat2 and Hat3. The mean scores indicate that the religious groups agree with one another in respect of accountable collaborative management, but they do not differ statistically significantly from one another.

Educators who belong to the Christian faith have a statistically significantly lower score than educators belonging to the other religious groups in terms of open democratic management as an aspect of school effectiveness. Both groups do, however, agree that open democratic management is an important aspect of school effectiveness. The substantive significance or effect size ($\__p^2$=0.002; r=0.04 where r=$\sqrt{\__p^2}$) indicates that only 0.2 per cent of the variance observed in open democratic management could be explained by the two religious groupings. The effect size is small and one would probably not notice this difference in the behaviour of the two religious groups involved.

In respect of normative management, educators belonging to the Christian faith have a statistically significantly higher factor mean score than educators belonging to other religious groups. Educators who belong to the Christian faith thus believe to a greater extent that normative management is an important aspect of school effectiveness than the other religious groups. Although the p-value for open democratic management is statistically significant the substantial significance as determined by Partial Eta squared ($\__p^2$=0.008; r=0.10) is small. The two religious groups explain only 0.8 per cent of the variance in this factor.

An example showing the appropriate data for three independent groups in tabular form is:

TABLE IV

Significance of differences between the three educational qualification groups in respect of the three factors

Factor	Group	Factor mean	Manova (p-value)	Anova (p-value)	Scheffe/DunettT3			
						A	B	C
Accountable collaborative management	A	5.53			A		–	–
	B	5.59		0.067	B	–		–
	C	5.58			C	–	–	
Open democratic management	A	4.71			A			*
	B	4.66	0.003 **	0.023 *	B	–		–
	C	4.57			C	*		
Normative management	A	4.10			A		–	–
	B	4.08		0.222	B	–		–
	C	4.09			C	–	–	

** Statistically significant at the 1 per cent level (p<0.01)

* Statistically significant at the 5 per cent level (p>0.01 but p <0.05)

A = Grade 12 + Diploma (N=397)

B = Diploma + FDE (N=753)

C = Degree + higher (N=464)

Using the information in Table IV, it follows that there is a statistically significant difference at the one per cent level between the three educational qualification groups at the multivariate level. HoM is thus rejected in favour of the research hypothesis HaM. At the univariate level, the factor mean scores of the three highest educational qualification groups differ in respect of open democratic management ($p=0.023$) only. HoA is thus rejected in favour of HaA.

In respect of the pair-wise comparison, the following conclusions can be made:

- in terms of accountable collaborative management, the three educational qualification groups do not differ statistically significantly in their factor mean scores. Educators with the lowest educational qualification have the lowest factor mean score in respect of accountable collaborative management, whilst those with a teacher's diploma in addition to a further educational diploma have the highest factor mean score. All three groupings agree, to strongly agree that effective schools will display the items as contained in the factor accountable collaborative management;
- in terms of open democratic management, educators with the lowest qualifications have the highest factor mean score and differ statistically significantly from educators with university degrees or higher qualifications. Well-qualified educators are often more critical in their thinking and it could have been expected that they would have a lower factor mean than the less well-qualified educators. Well-qualified educators are thus more reserved in their perceptions of open democratic management as an aspect of school effectiveness. The three educational qualification groups, as independent variables, explain only 0.4 per cent of the variance ($\__p^{2=}0.004$; $r=0.10$) in open democratic management. The effect size is small (Rosenthal, Rosnow and Rubin, 2000: 15); and
- in respect of normative management, there were no statistically significant differences between the various qualification groups.

Length limitations prevent a detailed discussion as above. The factor mean scores of the various independent groups in respect of the three factors are summarised in Table V and the findings are discussed.

Discussion of the Differences Between the Factor Mean Scores Presented in Table V

In order to expedite the discussion of the factor mean scores, the factors will be discussed separately and only scores that were statistically significantly different from one another will be discussed.

TABLE V
Mean scores of the independent groups in respect of the three factors making up school effectiveness

Independent Group	Category name	Factor mean scores		
		F1	F2	F3
Attended workshop–School effectiveness	Yes	5.61**	4.73**	4.13**
	No	5.53**	4.54**	4.01**
Post level	Promotion post	5.61	4.65	3.99**
	Educator	5.56	4.64	4.14**
Educator organisation	SADTU	5.61**	4.82**	3.99**
	Other or none	5.51**	4.28**	4.22**
Educator attendance	Excellent	5.53**	4.61**	4.16**
	Average to poor	5.57**	4.70**	3.95**
Principals gender	Male	5.57	4.63*	4.08
	Female	5.61	4.73*	4.04
Benefited from workshop	Definitely	5.66**	* 4.84**	4.13
	Partially	5.55**	4.62**	4.10
	Not at all	5.52**	* 4.64	4.19
Age of respondents	20–30 years	5.60	4.77**	* 3.97*
	31–33 years	5.60	* 4.75**	4.00
	34–36 years	5.54	4.67**	* 3.98
	37–40 years	5.59	* 4.73**	* 4.19**
	41–46 years	5.52	* 4.53**	4.09
	47+ years	5.57	4.27**	4.17
Teaching experience	1 to 8 years	5.61	4.76**	4.00**
	9 to 13 years	5.56	** 4.68	* 4.03
	14+ years	5.56	** 4.53**	* 4.16**
Mother tongue	Nguni	5.58	4.82**	3.96**
	Afrikaans	5.51**	4.14**	4.37**
	Sotho	5.60**	4.84**	3.98**
	English	5.60	4.44**	3.88**
Attendance of learners	Excellent	5.59	4.59	4.13*
	Average	5.56	4.68	4.01*
	Poor	5.52	4.80	4.20
	Combined	5.57	4.65	4.04
District in which school is situated	Eerstehoek	5.61	4.85**	4.10
	Ermelo	5.61	* 4.65**	4.06
	Groblersdal	5.57	4.63**	4.03
	Hazyview	* 5.71**	4.97**	4.33**
	KwaMhlanga	5.57	4.89**	4.01
	Malelane	5.66	* 4.91**	4.19**
	Moretele	5.60	* 4.78**	3.82**
	Nelspruit	5.49**	* 4.45**	4.07
	Standerton	5.53**	4.35**	4.16**
	Witbank	* 5.54	4.41**	4.02
Level of discipline	Excellent	5.58	4.64	4.29**
	Good	5.61*	4.66	4.05**
	Average	5.56	4.65	4.04**
	Poor	5.39*	4.55	3.95**

** Statistically significant at the 1 per cent level ($p<0.01$)
* Statistically significant at the 5 per cent level ($p>0.01$ but <0.05)
[= Significant difference between groups

F1 = Accountable collaborative management
F2 = Open democratic management
F3 = Normative management

Accountable collaborative management

(1) *Attendance of a course on school effectiveness*—educators who indicated that they had attended a course/workshop/seminar on school effectiveness had a significantly higher mean score than educators who had not attended in respect of the factor accountable collaborative management. Although both groups agree, to strongly agree with the items involved in accountable collaborative management, it would appear that attendance at courses has a positive effect on the perceptions of educators in terms of greater accountable collaboration. The courses on school effectiveness have probably enhanced the idea that accountable collaboration is the bedrock of effective management. The effect size is small and only 0.9 per cent of the variance in accountable collaborative management is explained by the attendance groups ($\__P^2$=0.009; r=0.11)

(2) *Educator organisation membership*—educators belonging to the South African Democratic Teachers Union (SADTU) have a statistically significantly higher mean score than educators belonging to unions such as TUATA, NATU, NUE, SAOU, NAPTOSA and SAVBO. Educators belonging to SADTU thus believe that accountable collaborative management is more important than the other teacher organisation members believe. Both groups do, however, agree, to strongly agree that accountable collaborative management is an important aspect of school effectiveness. In this respect it is important to note that Moloi (1999:224) found that membership of a teacher organisation fostered a positive perception in respect of educator commitment. The effect size, as determined by the Partial Eta squared is small, explaining only 1.6 per cent of the variance present in accountable collaborative management ($\__P^2$=0.016; r=0.13).

(3) *Educator attendance*—educators who perceived the attendance of educators at their school to be excellent had a statistically significantly higher mean score than educators who perceived educator attendance to be average to poor. The substantive significance ($\__P^2$=0.004; r=0.10) indicates that only 0.4 per cent of the variance in accountable collaborative management is explained by the educator attendance groups. The difference in mean scores between these two groups (0.04) is probably too small to be seen as a difference in the behaviour of the two attendance groups.

(4) *Improvement of management skills from course attendance*—respondents who feel that the course, seminar or workshop attended had definitely benefited their management skills, obtained a significantly higher mean score than the groups who felt they benefited partially or not at all. It thus appears as if attendance of such courses in respect of school effectiveness over the past three years has influenced the perception of a group of respondents in respect of accountable collaborative management

as an aspect of school effectiveness. The substantive significance is small and a difference in behaviour with respect to accountable collaborative management between the attendance groups would probably not be observed at the practical level ($\__p^2$=0.009; r=0.11).

(5) *Mother tongue*—Educators with Sotho as mother tongue differ statistically significantly from educators who have Afrikaans as mother tongue. Sotho mother tongue speakers have a significantly higher score than Afrikaans mother tongue speakers. Sotho mother tongue speakers thus perceive accountable collaborative management as more important than Afrikaans mother tongue speakers. It is also perhaps significant to note that Afrikaans mother tongue educators have the lowest mean score of all the mother tongue groups in respect of accountable collaborative management, although all the groups have relatively high factor mean scores. Afrikaans mother tongue speakers are probably more individualistic than collectivistic. In collectivistic cultures the personal relationship prevails over the task and should be established first. In the individualistic society, the task is supposed to prevail over any personal relationships (Hofstede, 1991:67; Broodryk, 1996:31–33). The effect size ($\__p^2$=0.011; r=0.11) is small and the four mother tongue independent groups explain only 0.9 per cent of the variance in accountable collaborative management.

(6) *District in which educator is employed*—educators who work in Nelspruit have the lowest mean score whilst educators who work in Hazyview have the highest mean score. Nelspruit, Ermelo and Witbank differ statistically significantly in their mean scores from the other seven districts. These three districts contain a large percentage of Afrikaans-speaking educators and this could be why they differ in perception from the other districts. Nelspruit, Ermelo and Witbank are also largely urban individualistic areas; whereas Hazyview is distinctly urban and collectivistic. The return of questionnaires from Hazyview was also much poorer than from the other districts and this may be the result of low educator morale in this district, which has been plagued by educator and learner unrest. Despite the significant differences in mean scores, the educators in all 10 districts sampled agree, to strongly agree that accountable collaboration is vital for effective schools. The effect size ($\__p^2$=0.017; r=0.13) is small and only 1.7 per cent of the variance observed in accountable collaborative management is explained by the grouping of the ten districts.

(7) *Discipline levels*—educators with the perception that discipline in their schools is good to excellent have higher factor mean scores than educators who believe that it is poor. The effect size is small and accounts for 1.5 per cent of the variance observed ($\__p^2$=0.015; r=0.12). All four

groups do however agree, to strongly agree that accountable collaborative management is imperative for effective schooling.

This completes the discussion of accountable collaborative management as an aspect of effective schools. The second factor of effective schools in Mpumalanga, namely open democratic management, will now be discussed.

Open democratic management

(1) *Attendance at workshops related to school effectiveness*—educators who attended a workshop, seminar or course on school effectiveness in the past three years have a statistically significantly higher mean score than those who had not attended such a course. Both groups partially agree, to agree that open democratic management is an important aspect of school effectiveness. It also seems that the attendance of courses, workshops or seminars have had a positive influence on these respondents in terms of open democratic management as an aspect of school effectiveness. The effect size is small and accounts for 1.6 per cent of the variance observed in open democratic management ($\__p^{2=}0.016$; r=0.13).

(2) *Educator organisation membership*—educators belonging to SADTU had a mean that indicates that they agree that open democratic management is a component of school effectiveness. The other educational organisations have a mean suggesting that they only partially agree that open democratic management is a component of school effectiveness. The effect size is medium or moderate (Rosenthal, Rosnow and Rubin, 2000:15) and 9.7 per cent of the variance observed in open democratic management can be explained by the two educator organisation groupings ($\__p^{2=}0.097$; r=0.31). The two educator organisation groupings often differ radically from one another in respect of aspects of open democratic management, and it is not surprising to see that they differ significantly in their perceptions of this aspect of school effectiveness. Verhoeven (1996:130), however, indicates that no definite evidence suggests that democratisation increases school effectiveness. This may be due to the many different meanings given to school effectiveness.

(3) *Educator attendance*—Educators who perceive the attendance at their schools to be excellent differ statistically significantly from educators where the attendance is perceived as being average to poor. Educators that perceive attendance at their schools to be excellent thus do not agree as strongly with open democratic management as an aspect of school effectiveness as opposed to those educators where the attendance is perceived as average to poor. The effect size is small. The two attendance groups can only explain 0.3 per cent of the variance present in the dependent variable ($\__p^{2=}0.003$; r=0.10).

(4) *Principal's gender*—Educators with female principals have significantly higher mean score than educators who have male principals. Although both groups agree that open democratic management is important for an effective school, educators who have female principals agree to a greater extent with this factor. This is probably because co-operation is more strongly associated with the feminine dimension of societal culture (Hofstede, 1991:82). The effect size indicates that a difference in behaviour between the two groups with respect to open democratic management will probably not be observable at the practical level ($\__p^{2=}0.002$; r=0.05).

(5) *Improvement of management skills from course attendance on school effectiveness*—the educators who feel that attendance at a course, workshop or seminar on effective schools benefited their management skills, have a significantly higher mean score in respect of open democratic management than the other groups. Those educators who have the perception that they only benefited partially or not at all have a lower factor mean score. All three groups do, however, agree, to partially agree that open democratic management is a component of effective schools. The Partial Eta squared value indicates that 1.6 per cent of the variance in open democratic management can be explained by the independent groups involved ($\__p^{2=}0.016$; r=0.13).

(6) *Age of respondents*—educators who belong to the oldest group, (47+ years) have the lowest factor mean score and partially agree that open democratic management is an aspect of school effectiveness. The youngest age group (20 to 30 years of age) has the highest factor mean score and they agree that open democratic management is an aspect of school effectiveness. This youngest age group also differs statistically significantly from the 41 to 46 year age group. It thus appears that age has a tempering effect on the perception that open democratic management is an aspect of school effectiveness. The substantial significance or effect size ($\__p^{2=}0.043$; r=0.21) indicates that only 4.3 per cent of the variance in open democratic is accounted for by the age groups.

(7) *Teaching experience*—there seems to be an inverse relationship between teaching experience and the importance of open democratic management in the sense that the group with the least teaching experience (1 to 8 years) has a higher mean score than the group with nine to 13 years' experience. They in turn have a lower mean score than the group with more than 14 years of teaching experience. The group with the greatest teaching experience differs statistically significantly from the other two groups and has the lowest mean score. It again appears as if age moderates the perception that open democratic management is an aspect of school effectiveness. The effect size is small ($\__p^{2=}0.016$;

r=0.13) and a difference in behaviour between these groups would probably not be observable.

(8) *Mother tongue*—in respect of open democratic management, the Afrikaans mother tongue speakers have the lowest factor mean score, whilst the English mother tongue speakers have the second lowest score. These two groups thus differ significantly from all other mother tongue groups. The effect size is moderate (η_p^2=0.135; r=0.41) indicating that 13.5 per cent of the variance in open democratic management is explained by the four mother tongue groups. Educators who have Afrikaans as mother tongue only partially agree with the fact that open democratic management is important for school effectiveness. It is possible that these educators are of the opinion that being too democratic in respect of management is not conducive to school effectiveness. It is also possible that the Afrikaans and English speaking educators, who presently make up most of the white minority group in South Africa, may feel that the present education dispensation is decidedly hostile to the idea of minority protection as an aspect of democracy (Potgieter, 1996:173). This is also in agreement with the findings of Sewlall (1996: 69), who found that the white educators presently have strong feelings of uncertainty associated with high stress and subjective feelings of anxiety (Hofstede, 1991:125).

(9) *District in which educator is employed*—educators employed at schools in the Standerton district have the lowest factor mean score and only partially agree that open democratic management is part and parcel of effective schools. The effect size is small to moderate and the district groups explain only 6.6 per cent of the variance in open democratic management (η_p^2=0.066; r=0.26). Educators from the Hazyview district have the highest mean score and they agree that open democratic management is vital to school effectiveness. It is also significant that Standerton, Witbank and Nelspruit have the lowest mean scores in terms of open democratic management. Most of the schools sampled in these urban districts are Afrikaans medium schools and this finding is thus in accordance with the findings of the mother tongue groups and feelings of high uncertainty avoidance.

Two of the factors constituting school effectiveness have now been discussed. Statistically significant differences in the mean scores of the third and last factor, namely normative management, will now be explained.

Normative management

(1) *Attendance at courses related to school effectiveness*—educators who had attended workshops, seminars or courses on school effectiveness

had a statistically significantly higher factor mean score than educators who had not attended any such courses. Attendance at courses related to school effectiveness may thus influence the perceptions of educators in respect of normative management as an aspect of effective schools. Both groups partially agree that normative management is an aspect of effective schools. Although the p-value for normative management is statistically significant the substantial significance as determined by Partial Eta squared (η_p^2=0.009 r=0.11) is small. The two attendance groups explain only 0.8 per cent of the variance in this factor.

(2) *Post level*—educators have a statistically significantly higher factor mean score than educators in promotion posts in terms of normative management. The effect size is small (η_p^2=0.003 r=0.10). Educators appear to want direction and norms to be involved in school management to a greater extent than educators in promotion posts. It should be remembered that it is much more difficult to implement such norms than it is to believe in them and educators in promotion posts are involved with implementation. Educators, on the other hand, normally only want to get on with teaching and expect management to see that all obstacles are removed so that effective teaching can be facilitated. Norms provide the parameters within which teachers can operate and assist school discipline.

(3) *Membership of educator organisation*—members belonging to the South African Democratic Teachers' Association (SADTU) have a statistically lower factor mean score than educators belonging to the other educator organisations. Normative management is probably more in line with educator organisations who see teaching as a profession, whereas SADTU with their affiliations to the worker unions such as the Congress of South African Trade Unions (COSATU), view teaching in a different light and have different norms to the so-called professional organisations. The two educator organisation groups, as independent variables, explain only 1.7 per cent of the variance (η_p^2=0.017; r=0.13) in normative management. The effect size is small (Rosenthal, Rosnow and Rubin, 2000: 15) and at the practical level one would probably not see any difference in the behaviour of the groups.

(4) *Attendance of educators*—educators with the perception that attendance of educators at their schools is excellent have a statistically significantly higher factor mean score than educators who believe that attendance is average to poor. If the norm in the school is that educators should set the example that excellent attendance is vital, then it is probable that learners will follow this example and this should enhance school effectiveness. The effect size as determined by the Partial

Eta squared ($_p^2$=0.014; r=0.12) is small and the two educator attendance groups explain 1.4 per cent of the variance.

(5) *Age of respondents*—the youngest age group (between 20 and 30 years) had the lowest factor mean score and differed statistically significantly from the 34 to 36 year and the 37 to 40 year age groups. The younger age group does not agree to such a great extent as does the older age groups that normative management is part of school effectiveness. The effect size is small and the age groups, as independent variables, explain 1.2 per cent of the variance in normative management.

(6) *Teaching experience*—educators with 14+ years of teaching experience have the highest factor mean score and differ from the other two teaching experience groups at the one per cent level of statistical significance. All groups partially agree that normative management is a component of effective schools and it is expected that the more experienced educators would view a directive form of management as more important. The three teaching experience groups, as independent variables, explain only 0.8 per cent of the variance ($_p^2$=0.008; r=0.11) in normative management.

(7) *Mother tongue*—in respect of normative management, Afrikaans mother tongue educators have the highest factor mean score and differ statistically significantly from the other three mother tongue groups. The effect size ($_p^2$=0.044; r=0.21) indicates that the four mother tongue groups explain only 4.4 per cent of the variance in normative management. According to the mean scores Afrikaans mother tongue educators have a more favourable perception that a directive form of normative management is more conducive to effective schools than the other mother tongue groups. This could again be the result of the 'extent that members of a culture feel threatened by uncertain or unknown situations' (Hofstede, 1991:113; Sewlall, 1996:69). Educators belonging to such high uncertainty avoidance cultures feel comfortable in structured learning situations and are concerned with the right answers.

(8) *Attendance of learners*—here the educators, who believe that the attendance of learners is poor, have the highest mean score. The Partial Eta squared value ($_p^2$=0.013; r=0.10) is small and it is probable that no difference in behaviour between the two groups would be observed. It is possible that where norms of what constitutes excellent attendance are absent, educators feel that they should be present in order, so that precision and punctuality can be learnt (Hofstede, 1991:125). All three groups do, however, partially agree that normative management is an aspect of effective schools.

(9) *District in which educator is employed*—educators from Hazyview have the highest mean score, whereas educators from Moretele have

the lowest factor mean score in respect of normative management as an aspect of effective schools. Educators from Moretele differ in their factor mean scores at the one per cent level of statistical significance from educators in Standerton, Malelane and Hazyview. It may be because of all the unrest and disruption of education that the educators in Hazyview regard normative management as more important arguing this will give direction to learners and educators (Hofstede, 1991:121). The effect size is small ($_p^{2=}0.017$; r=0.13) and it is unlikely that any differences between the district groups with respect to normative management would be observed.

(10) *Discipline level*—it is not surprising to find that those educators who perceive discipline in their schools to be excellent have the highest factor mean score, whereas those who perceive it to be poor have the lowest factor mean score. Educators, who perceive discipline in their schools to be excellent, differ statistically significantly from all the other groups at the one per cent level. Excellent discipline is often built on a foundation of norms and values and all the groups partially agree, to agree that normative management should be an aspect of effective schools. The Partial Eta squared value indicates that 1.3 per cent of the variance of normative management is explained by the four discipline groups ($_p^{2=}0.013$; r=0.11).

The various independent groups have now been discussed and the statistically significant differences between their mean scores in terms of the three factors have been elucidated. Partial Eta squared values were provided to indicate the effect size. From an analysis of the above data it can be seen that all respondents partially agree, agree or strongly agree that effective schools in Mpumalanga are composed of accountable collaborative management, open democratic management and normative management.

Management Implications of the Findings

The various aspects of school effectiveness, such as school culture, school climate, vision, motivational strategies, curriculum, leadership and resources can be reduced to three factors, namely:

(1) *Accountable collaborative management*, consisting of 76 items with a Cronbach-Alpha reliability coefficient of 0,980. The relative importance of the first order factors in accountable collaborative management according to stakeholder perceptions are:

- A caring climate; resource management; ethical management; stakeholder involvement; effective team management; curriculum-driven management; learner achievement equity; developmental management; value-based management; individual achievement;

recognition and educator incentives. All the independent groups sampled agree, to strongly agree that accountable collaborative management is an aspect of school effectiveness. Factors such as course attendance on school effectiveness, excellent educator attendance and schools with excellent discipline all seem to enhance perceptions of school effectiveness. Principals should also attempt to foster a caring climate and bolster resource and ethical management in their schools. Stakeholder involvement and effective team management also indicate that a collaborative management style could reinforce school effectiveness.

(2) *Open democratic management*, consisting of 16 items with a Cronbach-Alpha reliability coefficient of 0,875. The relative importance of the first order factors are:

- Transparent management; consensus curriculum; parental involvement in professional educator development; stakeholder accessibility and tolerant co-operation. The various independent groups all at least partially agree that open democratic management is an aspect of school effectiveness except for Afrikaans mother-tongue speakers who seem to have reservations about management that is too democratic. Certainly principals should enhance the principles of transparent management and allow greater stakeholder accessibility in their schools. Attendance of courses on school effectiveness has a positive influence on open democratic management as a factor of school effectiveness and male principals could attempt to improve the collaborative aspects of their management practices. It seems that the minority groups of educators somehow need to reduce their present dimension of strong uncertainty avoidance. A reduction in the high levels of crime in South Africa could certainly assist in reducing the negative feelings towards politics and politicians and consequently lower the uncertainty avoidance amongst the minority cultures (Hofstede, 1991:127). At the least, it thus appears as if school principals should take care when using the factor open democratic management to enhance school effectiveness, as there seems to be differences of opinion as to its actual value in enhancing perceptions of school effectiveness.

(3) *Normative management*, consisting of 13 items with a Cronbach-Alpha reliability coefficient of 0,785. The relative importance of the first order factors of normative management are:

- Common values management;
- Competent decision-making; and
- Financial involvement.

The various independent groups all at least partially agreed that normative management is an aspect of school effectiveness. Attendance at courses concerned with school effectiveness and excellent educator attendance seem to cultivate positive perceptions of school effectiveness among educators. Common values management would also appear to give direction in times of change and uncertainty and enhance competent decision-making. Schools with the perception that discipline in their schools is excellent also seem to agree with normative management as an aspect of school effectiveness.

Conclusion

It is obvious from the above that school effectiveness is difficult to conceptualise as it is a complicated construct. It is multifaceted and, as this research indicates, it is composed of aspects of school culture, school climate, vision, motivational strategies, curriculum, leadership and resources. These aspects can be reduced to three factors, all concerned with the management of the school namely, accountable collaborative management, open democratic management and normative management. It appears as if accountable collaborative management can be especially beneficial to school effectiveness.

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