An assessment of the impact of entrepreneurial orientation on the success of selected public secondary schools

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ABSTRACT

There is a need for research on the influence of entrepreneurial orientation on the success of public schools. Through an investigation of the influence of an entrepreneurial orientation on the perceived success of secondary schools, this study attempts to address this need. The influence of the five independent entrepreneurial orientation dimensions, Innovativeness, Autonomy, Risk-taking, Opportunity utilisation and Competitive aggressiveness, was measured by means of four dependent variables: an Effective learning environment, Learner achievement, Strategic intent and Staff development. The respondents were identified by means of a convenience sampling technique, and the survey yielded 313 useable questionnaires from five high performing public secondary schools. To assess the validity and reliability of the measuring instrument, the data collected were analysed by means of an exploratory factor analysis and Cronbach alpha coefficients were calculated. The hypothesised relationships were assessed by means of a multiple regression analysis. The results show that Innovativeness and Opportunity utilisation exert a positive influence on all four variables measuring the Perceived success of the participating schools. Competitive aggressiveness, furthermore, exerts a positive influence on Learner achievement. Autonomy also has a positive influence on an Effective learning environment. There were no significant relationships between Risk-taking and any of the perceived success variables.

INTRODUCTION

An independent investigation by the South African Social Investment Exchange (SASIX) (2011) indicates that education in South Africa does not only rank with that of the poorest education countries in the world, but also with that of the poorest African nations. The inadequate performance of the South African education system takes place despite a richness of resources in Africa's most industrialised country. The under-performance of South African pupils is, therefore, a cause for concern, and the reasons for this unsatisfactory state should be investigated to guide potential interventions to prevent this situation from continuing. A further cause for concern is that there is a large gap between the small minority of schools that still perform well and the overwhelming majority that are truly lamentable. The dark reality, according to Bloch (2009), is that 60 per cent to 80 per cent of South Africa's public schools can be considered to be dysfunctional.

The worth of any school system lies in its ability consciously to serve the purpose for which it was established. Such an educational system is also expected to serve its customers (students, parents, employers of labour and society) adequately. Teachers are the direct vehicles through whom the educational objectives are transmitted to students. The school principals, on the other hand, are vested with the responsibility of managing both teachers and students to achieve the educational objectives of the nation (Osim, Uchendu and Mbon, 2012). To address the issue of poor quality in the South African school system, Osim *et al*. (2012) stated that pertinent questions should be raised, such as: How innovative are the school principals in carrying out their management tasks? How do they ensure that the teachers under their leadership initiate innovations in their teaching methods to enhance quality? To what extent does government allow principals and teachers to initiate innovations?

In the research of Dinham (2005), three broad approaches were discerned in the actions of the principals of

outstanding schools. Firstly, these principals use their powers and the rules and boundaries of the 'system' creatively. Secondly, they exhibit a bias towards experimentation and risk-taking. Thirdly, they exhibit strength, consistency, yet flexibility in decision-making and the application of policy and procedures. The outstanding schools tend to have a strong executive structure with clear, well-understood responsibilities. Rather than being dictatorial or autocratic, school principals were seen to use these structures and responsibilities responsibly and effectively. These leaders use the discretion available to them and push against administrative and systemic constraints when necessary. At times, they tend to be ahead of the system and profession to act as 'ground-breakers'. These principals use resources at their disposal creatively to support innovative programmes.

PROBLEM STATEMENT AND OBJECTIVES

In South Africa today, almost everyone has an opinion about education and schooling. Some commentators think there have been vast improvements since 1994, while others believe that much of the system is worse than the Bantu education of apartheid (Spaull, 2012). According to the Organisation for Economic Co-operation and Development (OECD) (cited by SASIX, 2012), many local learners fare much worse in international tests than those in other developing countries, including African countries. Globally, the education system of South Africa is rated lower than those of Botswana, Kenya, Mauritius, the Seychelles and Brazil. As could be expected, the levels of illiteracy in South Africa are high: an estimated 24% of persons above 15 years of age cannot read, and educators in the township schools are poorly educated themselves.

Empirical studies, according to Madsen (2007), support the statement that there is a positive relationship between entrepreneurial orientation and organisational performance, which, in practice, suggests that those organisations that adopt an entrepreneurial orientation will perform better. Within the South African context, limited research has been done into this matter especially within the education sector (Malan, 2011). The dysfunctionality of schools can be ascribed, among others, to school management teams that do not implement the dimensions of entrepreneurial orientation, that are not able to facilitate the sustainable development of the institution and the staff within the school.

It is against this background that a new type of leadership is required within schools – corporate entrepreneurial leadership or intrapreneurial leadership (Malan, 2011). In practice, that means leadership with an innovative and revolutionary mentality – an entrepreneurial orientation. Performance over the long term is dependent on the school innovating and adopting a leadership role in the teaching community. According to Oosthuizen (2006), organisations that re-invent themselves are those that gain an advantage over competitors; and they are able to sustain a culture of innovation and change that allow them to develop and grow.

Against this background, the primary objective of this study is twofold. Firstly, it is to validate scales measuring the dimensions of an entrepreneurial orientation and the perceived success of selected public secondary schools; and secondly, it is to assess the impact of an entrepreneurial orientation on the perceived success of these schools, and based on the findings, make recommendations to ensure the effective management of schools. For the purpose of this study, the five dimensions of an entrepreneurial orientation - Innovativeness, Autonomy, Risk-taking, Pro-activeness and Competitive aggressiveness - will be considered as independent variables influencing the dependent variable, the Perceived success of the participating secondary schools.

OPERATIONALISATION OF THE VARIABLES

Various scholars have identified the characteristics or dimensions of successful schools. These dimensions include, among others, strong leadership, effective administration, the monitoring of learner progress, the focus on learner achievement, a safe and effective learner environment, parent and community involvement, staff development, a cooperative working environment and sound cooperation between schools and higher education institutions (Dagget, 2005; Marzano, 2003; Visher, Teitelbaum and Emanuel, 1999; Scheerens and Bosker, 1997).

An entrepreneurial orientation has its roots in the strategy-making process literature, and represents the policies and practices that provide the basis for entrepreneurial decisions and actions (Rauch, Wiklund, Lumpkin and Frese, 2009). Based on Miller's (1983) conceptualisation that an entrepreneurial organisation is one that engages in product-market innovation, frequently undertakes somewhat risky ventures and is the first to introduce pro-active innovations, three dimensions of entrepreneurial orientation were identified: Innovativeness, Risk-taking and Pro-activeness. Covin and Slevin (1989) further refined Miller's definition by arguing that the entrepreneurial orientation of an organisation is demonstrated by the extent to which the top managers are inclined to take organisation-related risks (risk-taking dimension), to favour change and innovation in order to obtain a competitive advantage for their organisation (innovative dimension), and to compete aggressively with other organisations (pro-active dimension). While a number of authors have adopted similar definitions, for example, Morris, Kuratko and Covin (2008) and Zahra, Jennings and Kuratko (1999), many others have made subtle changes that altered the meaning of the construct (George and Marino, 2011). For example, Dess and Lumpkin

(2005) define entrepreneurial orientation as the strategy-making practices that organisations use to identify and launch corporate ventures. This definitionis clearly limited to decisions related to the launch of new ventures. Thus, an organisation may have a high entrepreneurial orientation based on Covin and Slevin's (1989) definition, but not necessarily on that of Dess and Lumpkin (2005).

Furthermore, several authors have defined the domain of entrepreneurial orientation as containing either fewer or more dimensions (George and Marino, 2011). Two other dimensions were added by Lumpkin and Dess (1996), namely competitive aggressiveness and autonomy. These authors argue that entrepreneurial orientation includes a propensity to act autonomously and demonstrate a tendency to be aggressive towards competitors. Wang (2008), on the other hand, adopted four dimensions, pro-activeness, competitive aggressiveness, risk-taking and innovativeness.

Although the entrepreneurial orientation construct has been widely debated (Covin and Lumpkin, 2011), there is unfortunately no consensus on matters such as an appropriate definition of the construct, its domain or its dimensionality (Covin and Lumpkin, 2011; George and Marino, 2011). For the purpose of this study, an entrepreneurial orientation refers to a strategic orientation, one that captures the specific entrepreneurial aspects of decision-making styles, methods and practices. Furthermore, the entrepreneurial orientation construct consists of five independent dimensions: autonomy, innovativeness, risk-taking, pro-activeness and competitive aggressiveness.

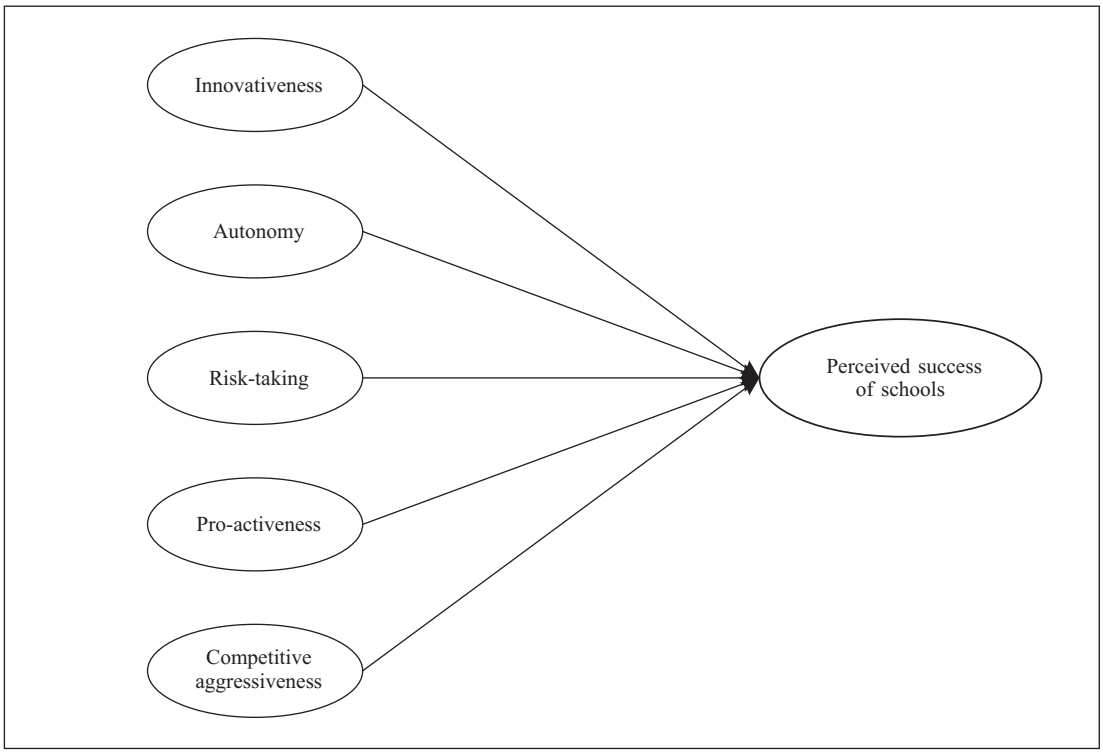
THE THEORETICAL MODEL

In Figure 1 (the hypothesised model), the dimensions of entrepreneurial orientation hypothesised as influencing the dependent variable, Perceived success of the participating secondary schools, are Autonomy, Innovativeness, Risk-taking, Pro-activeness and Competitive aggressiveness. The model proposes that the dimensions of entrepreneurial orientation investigated in this study are positively related to the perceived success of the participating public secondary schools.

Dependent variable: Perceived success of schools

Dagget (2005) believes that change in many schools is urgently needed. The pressure for global competitiveness, the eradication of unschooled labour, advancement on the technological level, and the pressure to retain the middle class have resulted in the public, media and governments pressing for higher standards for all learners. The question can rightfully be asked: "What makes a school successful?" Edmonds (cited by Dagget, 2005), in his work "Search for effective schools", identified five dimensions of successful schools, namely strong

FIGURE 1
THE THEORETICAL MODEL



administrative leadership; the focus on basic skills; high expectations pertaining to learner performance; regular monitoring of learners' performance; and safe and organised schools.

Scheerens and Bosker (1997), in their research on the wide variety of school reform, identified eight essential characteristics of successful schools, that is, monitoring of learners' progress; focus on achievement; parent involvement; the creation of a safe and organised climate; a focused curriculum; strong leadership; a cooperative working environment; and the time on activity (the time that a learner is actively involved with a task).

Visher *et al.* (1999) issued a report on behalf of the USA Department of Education comparing the results of 300 research studies to identify eight general characteristics of successful schools. These characteristics are commitment to high academic expectations; small learning environments; learning is structured around the learner; professional development focuses on teaching; connect extramural learning opportunities with classroom learning; career and higher education counselling; flexible and relevant segments of education; access to what learners can do; partnerships with higher education; and support cooperation between parents and the community. Marzano (2003) identified five characteristics of highly successful schools: a guaranteed and feasible curriculum; challenging goals and effective feedback; parent- and community involvement; a safe and organised learning environment; and collegiality and professionalism.

Quick and Quick (cited by Dagget, 2005) undertook a study analysing five models of achieving schools and identified the following five main dimensions: a commitment to a strict and relevant curriculum; the implementation of a test programme to evaluate learners' conceptual knowledge and application of knowledge; a focused and sustainable staff development programme; a commitment to address learner behaviour; and a willingness to incorporate organisational changes for the benefit of the learners. Lezotte, Skaife and Holstead (cited by Dagget, 2005), on the other hand, view the following characteristics as the most important: the creation of a school culture; the interaction between effective schools; school-based management; data collection, breakdown and analysis; school improvement plans; the organisation of the schools for learners; the development of community support; and the evaluation of learner progress.

For the purpose of this study, and based on the aforementioned dimensions of successful schools identified by various scholars (Dagget, 2005; Marzano, 2003; Visher *et al*., 1999; Scheerens and Bosker, 1997), the perceived success of public secondary schools will be measured by means of 23 items. The wording of the statements (items) originally measuring the perceived success of the schools is provided in Appendix A.

Independent variables: Entrepreneurial orientation

The five dimensions measuring an entrepreneurial orientation will be discussed in this section.

Innovativeness

Innovativeness reflects an organisation's tendency to engage in and support new ideas, novelty, experimentation and creative processes that may result in new products, services or processes (McFadzean, O'Loughlin and Shaw, 2005). Consistent to this view, Lassen, Gertsen and Riis (2006) describe innovation as an organisation's propensity to become involved in the support of new ideas, renewal, experimentation and creative processes that may lead to new products, services or technological processes.

The importance of innovation to entrepreneurship was first emphasised by Lumpkin and Dess (1996), who proposed that innovation is the single dimension that has to be employed by all entrepreneurial organisations. It can be argued therefore that, even in the presence of the other dimensions, if innovation is not employed, there is no organisation-level entrepreneurship (Gürbüz and Aykol, 2009). Product or service innovation presents any change in the product or service range that an organisation takes to market, and has proved to be a potentially significant source of strategic advantage (Cooper, 1998). Product or service innovation is the most clearly understood form of innovation and consists of disruptive (or radical) innovation and incremental innovation (Schilling, 2005).

Initiating innovation is a very crucial aspect of principals' administrative behaviour. If education is to follow the trend of development recorded in recent times, then school principals have no option but to be innovative (Pejza, 1985). Pejza (1985) adds that a leader should continuously scan the environment, noticing where change is needed. In other words, leaders of change are expected to be pro-active in their efforts to change and improve their schools. It is believed that one of the strong factors responsible for the degenerating standard of education is secondary school principals' failure to initiate innovation (Pejza, 1985). Based on this, the following relationship is hypothesised:

H^1: There is a significant relationship between the implementation of Innovativeness in the school environment and the Perceived success of the participating secondary schools

Autonomy

Autonomy is an essential part of entrepreneurship and is traditionally viewed as the formation of a new and independent organisation (Lassen *et al*., 2006). Within an organisational context, 'autonomy' refers to the independent actions of an individual or team that develops an idea or a vision and carry it through to completion. The actions are free of any strict limitation and the individual or team can act independently and make key decisions.

To encourage autonomy, organisations use both 'top-down' and 'bottom-up' approaches. The top-down approach includes aspects such as management support for programmes, giving incentives that foster a climate of entrepreneurship and welcoming autonomous decision-making (Dess and Lumpkin, 2005). Dess, Ireland, Zahra, Floyd, Janney and Lane (2003) are of the opinion that such organisation design features may be as important to entrepreneurial success as the other dimensions of an entrepreneurial orientation. Encouraging autonomy from the bottom up will require special incentives and structural arrangements designed to develop and build support for entrepreneurial initiatives (Lumpkin, Cogliser and Schneider, 2009).

Autonomy constitutes one of the bases for innovative and entrepreneurial behaviour (Casillas and Morena, 2010), and organisations that rely on an entrepreneurial orientation to create new value and growth must encourage entrepreneurial behaviour by allowing employees to act and think more independently (Gürbüz and Aykol, 2009). Autonomy is therefore essential to the process of leveraging an organisation's existing strengths, identifying opportunities and encouraging the development of new ventures and/or improved organisation practices (Lassen *et al*., 2006). Prior research (Rauch *et al*., 2009) confirms the view that autonomy encourages innovation; it promotes the launching of new ventures and increases the competitiveness and effectiveness of organisations.

According to Schmerler (2002), many educators and policy-makers have realised that to enhance their performance, schools need the luxury of freedom. Just as autonomous cultures in the business world have improved employee morale, increased innovation, and encouraged a more nimble, customer-focused workforce, greater autonomy can free educators to try new approaches to instruction, staffing, and schedules so that they can respond quickly and more effectively to student needs. Experience with autonomous schools has shown that granting schools more flexibility can yield greater innovation in school management, staffing, and instruction, bringing high-performance schools to communities that desperately need them. It is therefore hypothesised that:

H^2: There is a significant relationship between Autonomy in the school environment and the Perceived success of the participating secondary schools

Risk-taking

The term 'risk' is defined by Dewett (2004) as the extent to which there is uncertainty about whether potentially significant and/or disappointing outcomes of a decision will be realised. Against this background, Mullins and Forlani (2005) characterise risk as either the potential to act too quickly on an unsubstantiated opportunity (sinking the boat), or the potential to wait too long before acting (missing the boat).

Risk is inherent in the functioning of any organisation, and almost every decision taken by managers involves risk (Von Stamm, 2008). Often, corporate entrepreneurial organisations that have an entrepreneurial orientation are typified by risk-taking behaviour, such as incurring heavy debt or making large resource commitments, in the interests of obtaining high returns by exploiting opportunities (Bhardwaj, Agrawal and Momaya, 2007). However, this risk does not refer to extreme or uncontrollable risk, but rather to moderate and calculated risk (Morris *et al*., 2008). Most corporate entrepreneurs are therefore not high risk-takers (Lambing and Kuehl, 2007). Instead, they try to define the risk they have to take, minimise it as much as possible and manage it (Timmons and Spinelli, 2009). These organisations should rather be viewed as risk-aware and opportunity-focused organisations (McBeth and Rimac, 2004).

Another aspect of risk-taking is the assumption that innovativeness and risk-taking are directly related; that is, doing more innovative things means taking higher risks. According to Morris *et al*. (2008), this relationship is far more complex. Risk is also high when organisations ignore new product or service opportunities and engage in little or no innovation. In this respect, Burns (2008) notes that while not innovating presents a minimal risk in the short term, it does create a considerable risk in the long term. In essence, organisations that do not innovate are faced with a higher risk of not perceiving market and technology shifts that competitors capatalise on. The opposite is also true. Organisations that attempt to develop breakthrough innovations, that create new markets and redefine industries face high risk (Morris *et al*., 2008).

To be successful in future, organisations will need to exploit an entrepreneurial orientation with the ability to rapidly sense, act and mobilise under highly risky conditions (McGrath and MacMillan, 2000). Factors such as globalisation, deregulation, technological and social change and information technology are forcing organisations to cope with rapid and unexpected change, which has long been central to the theory of entrepreneurship (Shane, Locke and Collins, 2003).

According to Mendez-Morse (1992), many school leaders encourage their staff to experiment with various instructional methods to meet the academic needs of the students. Those that do, guide and provoke the staff to explore options that more adequately address the needs of their students and provide the environment that makes risk-taking safer. If so, they provide their staff with opportunities to consider and implement curriculum changes, and they encourage experimentation with different arrangements of organisational structures, such as schedules and class size. They encourage their staff to experiment with various instructional methods to meet the academic needs of the students.

Against this background, the following hypothesis is subjected to further testing:

H^3: There is a significant relationship between the practice of Risk-taking in the school environment and the Perceived success of the participating secondary schools

Pro-activeness

'Pro-activeness' refers to a posture of anticipating and acting on future wants and needs in the market, thereby creating a first-mover advantage *vis-à-vis* competitors (Madsen, 2007). First movers are, however, not always successful. The introduction of novel products or breakthrough technologies is not always accepted by the market. Therefore, careful analysis of the environment and extensive feasibility research are needed for a pro-active strategy to lead to a competitive advantage (Dess and Lumpkin, 2005).

However, Lumpkin and Dess (1996) argue that although the idea of acting in anticipation of future demand is an important component of entrepreneurship, the idea of being first to the market is somewhat narrowly construed. An organisation can be novel, forward thinking and fast without always being first. Subsequently, Lumpkin and Dess (1996) suggest that pro-activeness refers to processes aimed at anticipating and acting on future needs by pursuing new opportunities that may or may not be related to the present line of operations or the introduction of new products and brands ahead of the competition. Some of the activities that are associated with pro-activeness include identifying and evaluating new opportunities, identifying and monitoring market trends, and forming new venture teams (Kropp, Lindsay and Shoham, 2008). A pro-active organisation is therefore a leader rather than a follower, since it has the will and the foresight to seize new opportunities, even if it is not always the first to do so (Gürbüz and Aykol, 2009).

Effective leaders take the initiative, anticipate and recognise changes in their organisational environment, and begin to explore possible courses of action to respond to those changes. According to Pejza (1985), "a leader continuously scans the environment noticing where change is needed." Leaders of educational change are proactive in their efforts to change and improve their schools and districts. According to Mazzarella and Grundy (1989), they are "always testing the limits in an effort to change things that no one else believes can be changed". They are pro-active because they challenge their organisation to respond to changes that affect its business. Often, these pro-active school leaders are described as individuals who do not blindly allow the rules, regulations, or traditions of their schools and authorities to limit their change efforts (Mazzarella and Grundy, 1989; Pejza, 1985).

Leaders of change recognise shifts in the environment and guide their organisation to be responsive to those changes (Mendez-Morse, 1992). Leaders of educational change recognise paradigm shifts in areas such as curriculum design and student needs (Pejza, 1985). They also constantly scan their school or the community noting where change is needed. They anticipate the changing needs of their students and take the initiative to identify the appropriate course of action.

School principals should, according to Panush and Kelley (1970), dedicate themselves to being pro-active change agents who strive to critically examine the issues they face and, in the process, remain willing to examine their own motives so that it is clear when their actions are the result of educational principles rather than prejudices gained from earlier experiences and training or personal idiosyncrasies. Against this background, the following relationship is hypothesised:

H^4: There is a significant relationship between the existence of Pro-activeness in the school environment and the Perceived success of the participating secondary schools

Competitive aggressiveness

'Competitive aggressiveness', as a dimension of entrepreneurial orientation, refers to an organisation's propensity to challenge its competitors directly and intensely (Lumpkin and Dess, 1996) in an attempt to improve its position in the market (Chang, Lin, Chang and Chen, 2007). It is important to note that, within the context of entrepreneurial orientation, competitive aggressiveness is a reaction to competitive trends and demands that already exist in the market (Lumpkin and Dess, 2001). It therefore translates to a response to threats from competitors.

Organisations that are competitively aggressive are characterised by responsiveness, which may take the form of head-to-head confrontation – as, for example, when an organisation enters a market that another competitor has identified (Lee and Sukoco, 2007). Responsiveness may also take the form of an organisation being reactive – as, for example, when it lowers its prices in response to a competitive challenge. Competitive aggressiveness also reflects a willingness to be unconventional rather than relying on traditional methods of competing. This response includes, among other things, adopting unconventional tactics to challenge industry leaders, analysing and targeting their weaknesses, and focusing on high value-added products (Lumpkin and Dess, 2001).

Although closely related, Lumpkin and Dess (1996) believe that there is an important distinction between competitive aggressiveness and pro-activeness that needs to be clarified. For them, pro-activeness refers to how an organisation relates to market opportunities by seizing

initiative and acting opportunistically in order to shape the environment; that is, to influence trends and perhaps even create demand. In contrast, competitive aggressiveness refers to how organisations relate to competitors; that is, how they respond to trends and demand that already exist. The following relationship is hypothesised:

H^5: There is a significant relationship between the Competitive aggressiveness of the school and the Perceived success of the participating secondary schools

RESEARCH METHODOLOGY

Measuring instrument

Based on the literature review on the success factors of schools, the items measuring the dimensions of the Perceived success of secondary schools were identified (Dagget, 2005; Marzano, 2003; Visher *et al*., 1999; Scheerens and Bosker, 1997). One of the objectives of this study was to validate an instrument measuring the dimensions of a successful school.

The five dimensions of entrepreneurial orientation investigated in this study – Innovativeness, Autonomy, Risk-taking, Pro-activeness and Competitive aggressiveness – were identified in the literature (Morris *et al*., 2008; Zahra *et al*., 1999; Lumpkin and Dess, 1996). The items measuring the dimensions were compiled based on a study conducted by Lotz (Lotz and Van der Merwe, 2013; Lotz, 2009; Covin and Slevin, 1989).

Respondents were requested to indicate their extent of agreement with each statement (item) by means of a five-point Likert scale (where 1 indicates that they strongly disagree and 5 that they strongly agree with the statement).

Study population and sample

The study population for this study consisted of teachers (job level one) and heads of departments (job level two) from five secondary schools in Pretoria, Gauteng. These schools were chosen based on the grade 12 results from 2010 when the Gauteng Department of Education named them the top five schools for their achievements. The participating schools were Waterkloof High School, Menlopark High School, Garsfontein High School, Eldoraigne High School and Afrikaans Girls' High School.

Data collection

The questionnaires were couriered to a designated person (in most instances the principal or deputy-principal) of a specific school, who acted as a contact person and also assisted with the distribution and subsequent collection of the questionnaires. Respondents were requested to complete the questionnaire anonymously and voluntarily, and to return the completed forms to the designated person. In total, 350 questionnaires were distributed, of which 313 usable questionnaires were returned – a response rate of 89.43%.

Statistical analysis

The statistical analysis was conducted in two phases. Firstly, the data were subjected to an exploratory factor analysis to assess the construct validity of the measuring instrument. This was followed by the calculation of the Cronbach alpha coefficients to assess the reliability of the measuring instrument. The purpose of these analyses was to validate the measuring instrument. In the second part, the relationships between the independent and dependent variables were examined by means of multiple linear regression analysis. The purpose of the second part of the empirical study was, therefore, to investigate the impact of the independent variables (the construct measuring an entrepreneurial orientation) on the dependent variables, i.e., the success factors of the participating schools.

The above analyses made use of the computer programmes Statistica (Statsoft, 2010) and PASW Statistics (PASW, 2010).

RESULTS AND DISCUSSION

Demographic information

The largest percentage (54%) of the respondents falls in the 40 to 59 years old age group. The largest percentage (75.4%) of the respondents is female and the overwhelming majority (98.7%) of the participants are Caucasian. A total of 53.1% of the respondents possess a Baccalaureus degree and a diploma/certificate or an Honours degree and 6.7% of the respondents possess a Master's degree. A total of 81.8% of the participating respondents are on job level one, which implies a regular teacher, while 15.7% of the respondents are heads of departments. These results are more or less representative of the study population.

Construct validity of the measuring instrument

Before conducting a multiple regression analysis to assess the relationships between the variables, the number of factors and the items loading onto each factor must be known (Hair, Black, Babin, Anderson and Tatham, 2006). For this reason, an exploratory factor analysis was conducted to identify the unique factors present in the data before conducting a multiple regression analysis.

Lotz and Van der Merwe (2013) highlighted the danger of using scales not validated for a specific country context. This concern was also highlighted in the international business literature (Scheepers, Hough and Bloom, 2008; Antoncic and Hisrich, 2001; Knight, 1997). Even though

the domain of entrepreneurial orientation has received a substantial amount of theoretical and empirical attention (Rauch *et al*., 2009), the vast majority of publications have been by American authors (Frank, Kessler and Fink, 2010). It is important, therefore, to validate the scales used in this study within the South African context, and specifically within public secondary schools by means of an exploratory factor analysis.

In order to conduct the exploratory factor analysis, the data were divided into two models. The first model related to the perceived success of secondary schools, whereas the second model related to the constructs measuring an entrepreneurial orientation.

With regard to the first model (the perceived success of the schools), an Oblimin oblique rotation was performed on the principal components of the exploratory factor analysis, since there was theoretical justification to believe that the factors measuring perceived success would correlate with each other (Field, 2009). Two tests – the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy – were considered to be important in determining the appropriateness of the data for factor analysis (Gürbüz and Aykol, 2009). The data measuring the perceived success yielded a sampling adequacy of 0.937, and the Bartlett's test of sphericity yielded a p-value of smaller than 0.001, indicating that patterns of correlations are compact and that factor analysis should yield reliable factors (Field, 2009).

To identify the number of factors to be extracted, Kaiser's criterion to retain factors with Eigen-values greater than one (Field, 2009) was used. A total of 23 of the 26 items measuring the Perceived success of secondary schools demonstrated sufficient discriminant validity by loading to a sufficient extent on to only one factor. Factor loadings greater than 0.35 were considered significant (Field, 2009; Stevens, 1992). The factor matrix of the 23 items is provided in Table 1.

Table 1 shows that the items expected to measure Perceived success split into four separate factors that were named an Effective learner environment, Learner achievement, Strategic intent and Staff development. One item loaded significantly (valuesgreaterthan 0.35) on to two factors, namely an Effective learner environment and Learner achievement. Rather than deleting the item, it was decided to classify it under the factor that has the highest loading, Learner achievement. The wording of the statements (items) used to measure the four removed variables is provided in Appendix A.

TABLE 1
OBLIMIN ROTATED FACTOR MATRIX: PERCEIVED SUCCESS [1)]

Items	Factor 1 Effective learning environment	Factor 2 Learner achievement	Factor 3 Strategic intent	Factor 4 Staff development
Success24	**0.728**	-0.041	0.112	0.087
Success22	**0.727**	-0.084	0.225	-0.106
Success23	**0.705**	0.004	-0.006	0.151
Success18	**0.685**	0.124	0.162	-0.141
Success1	**0.594**	0.127	-0.161	0.238
Success15	**0.593**	-0.106	0.111	0.325
Success 2	**0.590**	0.154	-0.095	0.216
Success5	**0.507**	0.286	0.110	0.063
Success19	**0.460**	-0.070	0.212	0.314
Success6	-0.306	**0.850**	0.044	0.116
Success3	0.154	**0.813**	0.006	-0.069
Success9	0.322	**0.548**	0.270	-0.199
Success 4	**0.395**	**0.537**	-0.034	0.099
Success12	-0.104	0.012	**0.797**	0.099
Success 20	-0.056	0.008	**0.761**	0.056
Success13	0.265	0.179	**0.516**	-0.007
Success26	0.362	0.017	**0.442**	0.058
Success14	0.263	0.183	**0.416**	0.225
Success7	0.254	0.078	**0.385**	0.023
Success25	-0.150	0.083	0.126	**0.821**
Success17	0.170	-0.043	0.198	**0.653**
Success21	0.308	-0.027	-0.096	**0.618**
Success11	0.192	0.096	0.216	**0.512**
Cronbach Alpha	**0.900**	**0.784**	**0.806**	**0.795**

[1)] Loadings greater than 0.35 were considered significant
The items included in the factor analysis are provided in Appendix A

Factor 1, labelled an Effective learning environment, comprised nine items. Nine of the 26 items intended to measure the original variable, Perceived success, loaded on to factor 1 (refer to Table 1). An 'Effective learning environment' refers to an environment where the learning experience of learners can be maximised by the efficient and effective use of learning time, the focus on basic skills, mutual trust and respect, professionalism, safety and discipline.

The second factor, labelled Learner achievement, comprised four items (Table 1). For the purpose of this study, 'Learner achievement' means that the school focuses on and values learner achievement, the school is committed to high academic expectations, and that learner achievement is continuously monitored.

With regard to the third factor, labelled Strategic intent, six items loaded on to this factor. Strategic intent means that the school has a clear vision and mission, challenging goals are set, the school has partnered with tertiary institutions, the infrastructure of the school supports learning and that technology is utilised to encourage learning.

Four of the items used to measure the latent variable, Perceived success, loaded on to factor 4 and was labelled Staff development. It means that teachers are continually encouraged to improve their qualifications and that there is an active and open staff development programme. The wording of the statements (items) originally measuring the latent variables is provided in Appendix A.

With regard to the second model, to assess the discriminant validity of the 36 items measuring the entrepreneurial orientation of the respondents at secondary public schools, an exploratory factor analysis was conducted. Two tests – the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy – were considered important in determining the appropriateness of the data for factor analysis (Gürbüz and Aykol, 2009). The data measuring the entrepreneurial orientation yielded a sampling adequacy of 0.910 and the Bartlett's test of sphericity yielded a p-value of smaller than 0.001, indicating that patterns of correlations are compact and that factor analysis should yield reliable factors (Field, 2009).

TABLE 2
OBLIMIN ROTATED FACTOR MATRIX: ENTREPRENEURIAL ORIENTATION [1)]

Items	Factor 1 Innovativeness	Factor 2 Autonomy	Factor 3 Risk-taking	Factor 4 Opportunity utilisation	Factor 5 Competitive aggressiveness
Inno3	**0.842**	0.037	-0.004	-0.031	-0.020
Inno2	**0.835**	-0.077	0.027	-0.030	-0.096
Inno4	**0.786**	-0.047	-0.038	0.077	0.142
Inno1	**0.732**	-0.100	0.002	0.159	0.095
Inno7	**0.676**	-0.123	0.021	-0.185	-0.132
Inno5	**0.607**	0.011	0.066	0.377	0.216
Inno8	**0.579**	-0.178	0.067	-0.194	-0.092
Inno6	**0.552**	-0.083	0.187	-0.173	-0.079
Pro-ac3	**0.511**	0.030	0.129	-0.275	0.165
Pro-ac1	**0.459**	0.134	0.219	-0.428	0.113
Auto3	0.046	**-0.767**	-0.021	0.108	0.092
Auto1	0.026	**-0.724**	-0.094	-0.148	-0.084
Auto4	0.118	**-0.673**	0.011	-0.113	-0.052
Auto5	-0.084	**-0.614**	0.248	0.203	0.143
Auto2	0.257	**-0.583**	0.005	-0.136	-0.080
Inno13	0.119	**-0.397**	0.280	-0.200	-0.124
Risk5	-0.069	-0.032	**0.892**	0.016	-0.032
Risk6	-0.068	0.023	**0.861**	-0.052	-0.034
Risk4	0.116	-0.081	**0.713**	0.038	0.085
Risk2	0.064	0.089	**0.673**	0.002	0.149
Inno12	0.230	-0.216	**0.432**	-0.151	-0.050
Risk1	0.097	0.024	0.176	**-0.718**	0.029
Kom4	-0.105	-0.304	-0.027	**-0.604**	0.220
Inno9	0.126	-0.249	0.162	**-0.566**	-0.102
Pro-ac2	0.402	0.155	0.143	**-0.459**	0.240
Com2	-0.015	0.002	0.076	0.024	**0.846**
Com3	0.068	-0.011	-0.110	-0.322	**0.722**
Com1	0.028	-0.035	0.166	0.089	**0.718**
Cronbach Alpha	**0.906**	**0.793**	**0.839**	**0.757**	**0.745**

[1)] Loadings greater than 0.35 were considered significant
The items included in the factor analysis are provided in Appendix A

An Oblimin oblique rotation was performed on the principal components of the exploratory factor analysis. To determine the number of factors to be extracted, Kaiser's criterion was used – to retain factors with Eigen-values greater than one (Field, 2009). A total of 28 items demonstrated sufficient discriminant validity by loading to a sufficient extent. The factor matrix of the remaining 28 items is provided in Table 2.

Applying the factor extraction criterion that the Eigen-values must be greater than one (Davis, 2005), five factors were extracted in the exploratory factor analysis explaining 61.45% of the variance before rotation. After rotation, these factors could be identified as the theoretical dimensions of Innovativeness, Autonomy, Risk-taking, Opportunity utilisation and Competitive aggressiveness.

Factor 1, labelled Innovativeness, comprised ten items. Eight of the 12 items used to measure the latent variable Innovativeness (refer to Table 2) loaded significantly on to factor 1, as expected. Two items related to Pro-activeness also loaded on to factor 1. For the purpose of this study, 'Innovativeness' refers to the regular implementation of new services/subjects/sport codes/processes, the increase in the number of services/subjects/sport codes/processes during the past two years, and the extent to which these new services/subjects/sport codes/processes added significant value over the past few years.

The second factor, labelled Autonomy, comprised six items. Five of the items used to measure the latent variable Autonomy (Table 2) loaded significantly on to factor 2. One item that was originally intended to measure Innovativeness (Inno13) also loaded on to factor 2. 'Autonomy' refers to employees being encouraged to manage their own work without continual supervision and being allowed flexibility to be creative and to try different methods to do their jobs.

The third factor, which comprised five items, was labelled Risk-taking. Four items (Table 2) intended to measure the latent variable Risk-taking loaded on to the factor, as expected. One item (Inno12), used originally to measure the latent variable Innovativeness, also loaded on to the factor, Risk-taking. 'Risk-taking' refers to the organisation having a strong inclination towards high-risk projects and when confronted with uncertainty, the organisation typically adopts a bold posture to maximise the probability of exploiting opportunities.

The fourth factor comprised only four items. One item each intended to measure Risk-taking (Risk1), Competitive aggressiveness (Com4), Innovativeness (Inno9) and Pro-activeness (Pro-ac2), respectively, loaded on to the combined factor. The new factor was labelled Opportunity utilisation. 'Opportunity utilisation', for the purpose of this study, refers to the opportunities in education that the school, and especially the management team, should pursue. Even in times of uncertainty and confusion, which are unique to the South African public education system, opportunities should be identified on which one can maximise.

The last factor, labelled Competitive aggressiveness, comprised three items. Three items intended to measure the latent variable Competitive aggressiveness (Table 2) loaded on to the factor as expected. In this regard, 'Competitive aggressiveness' refers not only to when an aggressive posture is assumed against competitors, but also to any industry trends that may compromise survival or competitive position.

The statements (items) measuring the five latent variables are provided in Appendix A.

RELIABILITY OF MEASURING INSTRUMENTS

To assess the internal consistency of the items measuring the various factors under investigation, Cronbach alpha coefficients were calculated (Bryman and Bell, 2007). Coefficient alpha measures internal consistency by computing the average of all split-half reliabilities for a multiple-item scale (Zikmund and Babin, 2007). The coefficient varies between 0 for no reliability, and 1 for maximum reliability (Kent, 2007). Nunnally and Bernstein (1994) suggest that, for acceptable reliability, the Cronbach alpha coefficient should be greater than 0.7. The results in Tables 1 and 2 suggest that the proposed instruments utilised to measure the dependent and independent variables are reliable as there are no scores below the cut-off value of 0.7.

Modified hypotheses

As a result of the exploratory factor analysis, it was deemed necessary to reformulate the original hypotheses of the hypothesised model (Figure 1), which are summarised below:

H^{1a}: There is a significant relationship between the implementation of Innovativeness in the school environment and an Effective learner environment in the participating secondary schools

H^{1b}: There is a significant relationship between the implementation of Innovativeness in the school environment and Learner achievement in the participating secondary schools

H^{1c}: There is a significant relationship between the implementation of Innovativeness in the school environment and the Strategic intent by the participating secondary schools

H^{1d}: There is a significant relationship between the implementation of Innovativeness in the school environment and Staff development in the participating secondary schools

H^{2a}: There is a significant relationship between Autonomy in the school environment and an Effective learner environment in the participating secondary schools

H^{2b}: There is a significant relationship between Autonomy in the school environment and Learner achievement in the participating secondary schools

H^{2c}: There is a significant relationship between Autonomy in the school environment and the Strategic intent by the participating secondary schools

H^{2d}: There is a significant relationship between Autonomy in the school environment and Staff development in the participating secondary schools

H^{3a}: There is a significant relationship between the practice of Risk-taking in the school environment and an Effective learner environment in the participating secondary schools

H^{3b}: There is a significant relationship between the practice of Risk-taking in the school environment and Learner achievement in the participating secondary schools

H^{3c}: There is a significant relationship between the practice of Risk-taking in the school environment and the Strategic intent by the participating secondary schools

H^{3d}: There is a significant relationship between the practice of Risk-taking in the school environment and Staff development in the participating secondary schools

H^{4a}: There is a significant relationship between Opportunity utilisation in the school environment and an Effective learner environment in the participating secondary schools.

H^{4b}: There is a significant relationship between Opportunity utilisation in the school environment and Learner achievement in the participating secondary schools

$H^{4c:}$ There is a significant relationship between Opportunity utilisation in the school environment and the Strategic intent by the participating secondary schools

H^{4d}: There is a significant relationship between Opportunity utilisation in the school environment and Staff development in the participating secondary schools

H^{5a}: There is a significant relationship between the Competitive aggressiveness of the school and an Effective learner environment in the participating secondary schools

H^{5b}: There is a significant relationship between the Competitive aggressiveness of the school and Learner achievement in the participating secondary schools

H^{5c}: There is a significant relationship between the Competitive aggressiveness of the school and the Strategic intent by the participating secondary schools

H^{5d}: There is a significant relationship between the Competitive aggressiveness of the school and Staff development in the participating secondary schools

Multiple regression analyses results

In order to assess whether the independent variables, i.e., Innovativeness, Autonomy, Risk-taking, Opportunity utilisation and Competitive aggressiveness, have an influence on the dependent variables an Effective learning environment, Learner achievement, Strategic intent and Staff development, a multiple regression analysis was performed. The results of the multiple regression analysis for the influence of the independent variables on the dependent variables are presented in Tables 3 to 6 respectively.

Table 3 indicates that, in practice, a significant percentage (58.7%) of the variation in the dependent variable, an Effective learning environment in the participating

TABLE 3
MULTIPLE REGRESSION RESULTS: IMPACT OF THE INDEPENDENT VARIABLES ON THE DEPENDENT VARIABLE EFFECTIVE LEARNING ENVIRONMENT

	Non-standardised coefficients		Standardised coefficients		
Model	**B**	**Std. Error**	**Beta**	**t-value**	**p-level**
Innovativeness	0.213	0.053	0.218	4.024	0.000***
Autonomy	0.108	0.048	0.105	2.273	0.024*
Risk-taking	-0.014	0.045	-0.016	-0.318	0.750
Opportunity utilisation	0.529	0.046	0.573	11.420	0.000***
Competitive aggressiveness	-0.048	0.033	-0.061	-1.467	0.143

$R^2 = 0.587$ (* $p<0.05$;** $p<0.01$; *** $p<0.001$)

schools, is explained by the five entrepreneurial orientation variables, i.e., Innovativeness, Autonomy, Risk-taking, Opportunity utilisation and Competitive aggressiveness.

The multiple regression analysis indicates significant positive relationships between the independent variables Innovativeness ($p < 0.001$), Autonomy ($p < 0.05$) and Opportunity utilisation ($p < 0.001$) and the dependent variable an Effective learning environment. No significant relationship emerged between the independent variables Risk-taking ($p = 0.750$) and Competitive aggressiveness ($p = 0.143$) and the dependent variable an Effective learning environment.

The hypotheses that there is a significant relationship between the respective independent variables Innovativeness (H^{1a}), Autonomy (H^{2a}) and Opportunity utilisation (H^{4a}) and the dependent variable, an Effective learning environment could therefore not be rejected. However, the hypotheses that there is a significant relationship between the independent variables Risk-taking (H^{3a}) and Competitive aggressiveness (H^{5a}) and an Effective learning environment were rejected.

The results of Table 4 indicate that 33.1% of the variation in the dependent variable, Learner achievement in the participating schools, is explained by the five entrepreneurial orientation variables. The results furthermore indicate significant positive relationships between the independent variables Innovativeness ($p < 0.001$), Opportunity utilisation ($p < 0.05$) and Competitive aggressiveness ($p < 0.001$) and the dependent variable Learner achievement. The hypotheses that there is a significant positive relationship between the independent variables Innovativeness (H^{1b}), Opportunity utilisation (H^{4b}) and Competitive aggressiveness (H^{5b}) and the dependent variable, Learner achievement, could therefore not be rejected.

The results of the multiple linear regression analyses, furthermore, show no significant relationship between the independent variables Autonomy ($p = 0.227$) and Risk-taking ($p = 0.590$) and the dependent variable Learner achievement, respectively. The hypotheses that there is a positive relationship between the independent variables Autonomy (H^{2b}) and Risk-taking (H^{3b}) and Learner achievement were rejected.

The multiple linear regression analysis in Table 5 indicates that a significant percentage (40.1%) of the variation in the dependent variable, Strategic intent in the participating schools, is explained by the five entrepreneurial orientation variables. The results, furthermore, show significant positive relationships between the independent variables Innovativeness ($p < 0.001$) and Opportunity utilisation ($p = 0.001$) and the

TABLE 4
MULTIPLE REGRESSION RESULTS: IMPACT OF THE INDEPENDENT VARIABLES ON THE DEPENDENT VARIABLE LEARNER ACHIEVEMENT

	Non-standardised coefficients		Standardised coefficients		
Model	**B**	**Std. Error**	**Beta**	**t-value**	**p-level**
Innovativeness	0.273	0.058	0.326	4.730	0.000***
Autonomy	-0.063	0.052	-0.071	-1.211	0.227
Risk-taking	-0.027	0.049	-0.034	-0.540	0.590
Opportunity utilisation	0.124	0.050	0.157	2.459	0.014**
Competitive aggressiveness	0.206	0.036	0.303	5.749	0.000***

$R^2 = 0.331$ (*p < 0.05; **p < 0.01; ***p < 0.001)

TABLE 5
MULTIPLE REGRESSION RESULTS: IMPACT OF THE INDEPENDENT VARIABLES ON THE DEPENDENT VARIABLE STRATEGIC INTENT

	Non-standardised coefficients		Standardised coefficients		
Model	**B**	**Std. Error**	**Beta**	**t-value**	**p-level**
Innovativeness	0.353	0.059	0.393	6.024	0.000***
Autonomy	0.094	0.053	0.099	1.776	0.077
Risk-taking	0.007	0.050	0.009	0.149	0.882
Opportunity utilisation	0.171	0.051	0.202	3.339	0.001***
Competitive aggressiveness	0.040	0.036	0.055	1.106	0.270

$R^2 = 0.401$ (*p < 0.05; **p < 0.01; ***p < 0.001)

TABLE 6
MULTIPLE REGRESSION RESULTS: IMPACT OF THE INDEPENDENT VARIABLES ON THE DEPENDENT VARIABLE STAFF DEVELOPMENT

	Non-standardised coefficients		Standardised coefficients		
Model	**B**	**Std. Error**	**Beta**	**t-value**	**p-level**
Innovativeness	0.240	0.062	0.226	3.842	0.000***
Autonomy	0.100	0.056	0.089	1.776	0.077
Risk-taking	0.101	0.053	0.103	1.900	0.058
Opportunity utilisation	0.399	0.055	0.399	7.310	0.000***
Competitive aggressiveness	0.045	0.039	0.053	1.171	0.243

$R^2 = 0.511$ (*p < 0.05; **p < 0.01; ***p < 0.001)

dependent variable Strategic intent. The hypotheses that there is a significant positive relationship between the independent variables Innovativeness (H^{1c}) and Opportunity utilisation (H^{4c}) and the dependent variable, Strategic intent could, therefore, not be rejected. No significant relationship could be found between the independent variables Autonomy (p = 0.077), Risk-taking (p = 0.882) and Competitive aggressiveness (p = 0.270) and the dependent variable, Strategic intent. This means, in practice, that the hypotheses that there is a positive relationship between the independent variables Autonomy (H^{2c}), Risk-taking (H^{3c}) and Competitive aggressiveness (H^{5c}) and the dependent variable Strategic intent, were rejected.

Table 6 shows that 51.1% of the variation in the dependent variable, Staff development in the participating schools, is explained by the five entrepreneurial orientation variables. The multiple regression analysis indicates significant positive relationships between the independent variables Innovativeness (p < 0.001) and Opportunity utilisation (p < 0.001) and the dependent variable Staff development. No significant relationship emerged between the independent variables Autonomy (p = 0.077), Risk-taking (p = 0.058) and Competitive aggressiveness (p < 0.243) and the dependent variable Staff development.

The hypotheses that there is a significant positive relationship between the independent variables Innovativeness (H^{1d}) and Opportunity utilisation (H^{4d}) and the dependent variable Staff development, could therefore not be rejected. The hypotheses that there is a positive relationship between the independent variables Autonomy (H^{2d}), Risk-taking (H^{3d}) and Competitive aggressiveness (H^{5d}) and the dependent variable Staff development were rejected.

CONCLUSION AND RECOMMENDATIONS

The purpose of this study was, firstly, to validate the measuring scales utilised in this study, and secondly, to investigate the influence of an entrepreneurial orientation in selected public secondary schools on the perceived success of these schools and, based on the findings, make recommendations to ensure the effective management of schools. The exploratory factor analysis, together with the interpretability of the factors, provides some evidence of construct validity. The results of this study suggest that the proposed instrument is reliable.

With regard to the relationships between the dependent and independent variables, the results show that staff in the participating public secondary schools believe that the two independent factors measuring an entrepreneurial orientation, namely Innovativeness and Opportunity utilisation, influence all four dependent factors that measure the perceived success of the schools: an Effective learning environment, Learner achievement, Strategic intent and Staff development. Put differently, when public secondary schools introduce new services, subjects, sport codes and processes on a regular basis; when they have increased the number of services, subjects, sport codes and new processes over the past few years; when the impact of these new services, subjects, sport codes and processes has added significant value in that period; when confronted with uncertain decisions, the school maintains a strong stance in order to maximise the possibility of opportunities within the uncertainty; when the school tries to maximise the value of opportunities without placing a strain on existing models, structures or resources; and when actions are initiated to which competitors can react – when all these conditions are present, the school is more likely to experience perceived success in terms of all four of the success factors.

The study also found a significant relationship between Autonomy and an Effective learning environment, meaning that schools that encourage their staff to manage their own work without continual supervision and allow them the flexibility to be creative and to try different methods to do their jobs, are more likely to experience a more effective learning environment. There was also a significant positive relationship between Competitive aggressiveness and Learner achievement, implying that when an aggressive posture is assumed against not only competitors, but also against any industry trends that might

compromise the school's survival or competitive position, the more likely it is that learner achievement will be improved.

No significant relationship was found between Risk-taking and the constructs measuring the Perceived success of the participating schools.

To enhance the entrepreneurial orientation in public sector secondary schools, a number of recommendations are presented. Firstly, because an entrepreneurial orientation has its roots in the strategy-making process, it is recommended that entrepreneurship becomes the strategic way of thinking within the school environment. This can be done by specifically including the word 'entrepreneurship' or 'innovation' in the vision statement of the school, setting goals and developing strategies to foster an entrepreneurial orientation. The focus of the school then becomes opportunity identification and utilisation, discovery of new sources of value, and product and process innovation that could lead to greater success.

Being pro-active – having an attitude of anticipating and acting on future market wants and needs – can facilitate the entrepreneurial orientation in schools. Schools must therefore constantly monitor the external environment and, more importantly, disseminate this information among all staff with the view of seeking new opportunities and ideas.

It is the task of the school principal and management to create an environment in which workplace autonomy can be fostered. Furthermore, autonomy must actually be granted to staff to enable them to exploit new opportunities and ideas. Task objectives should be framed in such a way that they are clear, but defined in broad terms, to allow staff the freedom to pursue a number of different approaches in performing their tasks.

New opportunities and ideas need to culminate into new products, services and processes. Goals and objectives need to be set for innovation. These objectives must include the type of innovation as well as the number of innovative products, services or processes required. An integrative approach to the type of innovation is recommended and goals and objectives must be developed for both incremental innovations and radical innovations.

Furthermore, schools should become more aggressive in competing with other schools to position themselves as leaders in the market, providing excellent and effective education. They should foster and reward learner achievement, and develop their staff to their full potential, empowering them to perform in the ever-increasing challenges of the school environment.

Finally, in today's dynamic and uncertain competitive environment, successful schools will be those in which entrepreneurial behaviour will lead them to explore opportunities to build foundations for their future success.

LIMITATIONS OF THE STUDY

The study attempted to contribute to improving the success of public secondary schools, by concentrating on the necessity and applicability of an entrepreneurial orientation in them. The study was, however, limited to the possible entrepreneurial actions of the five top performing schools in Gauteng, all located in Pretoria.

The study is further limited to the internal environment of the schools and did not account for external factors. The interpretation of the findings should therefore be handled with care, as they cannot be generalised.

The study considers entrepreneurial orientation as one of the many success factors of a school. Success factors that were not considered include among others: the geographic location of the school; the socio-economic status and level of education of the community where the school is situated; available resources; and the demographic composition of the school.

SUGGESTIONS FOR FUTURE RESEARCH

Measuring the success of schools is difficult and poses unique challenges. It is recommended that the scales to measure the success of schools be further developed and refined. It is also suggested that the research be expanded to other high-performing schools in the private and public sectors. The entrepreneurial orientation of struggling schools should be investigated as well. The proposed studies can provide useful information for conducting comparative studies that could lead to a better understanding of the role that entrepreneurship plays in school success.

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APPENDIX A
SCHOOL SUCCESS FACTORS: DEPENDENT VARIABLES

Factor 1: Effective learning environment	
There is a trusting relationship between parents, learners, teachers and the school management team	(Success24)
At our school, there is mutual respect between learners and staff	(Success22)
Teaching time is used effectively and efficiently	(Success23)
Learner behaviour is addressed	(Success18)
At our school, there is a presence of very strong administrative leadership	(Success1)
There are definitive signs of collegiality and professionalism	(Success15)
There is a strong focus on basic skills of learners	(Success2)
The school is safe and organised	(Success5)
Here exists a willingness to establish organisational changes to the benefit of the learners	(Success19)
Factor 2: Learner achievement	
The focus at the school is achievement	(Success6)
High expectations are placed on learners pertaining to achievement	(Success3)
The school is committed to high academic expectations	(Success9)
The progress of learner achievement is continuously monitored	(Success4)
Factor 3: Strategic intent	
There are partnerships with tertiary institutes	(Success12)
Technology is applied optimally to the benefit of the learners	(Success20)
The infrastructure of the school supports learning and concomitant success	(Success13)
The school has a clear vision and mission	(Success26)
There are challenging goals and effective feedback	(Success14)
Parent involvement is maximum and the school supports collaboration with the community	(Success7)
Factor 4: Staff development	
Teachers are continuously encouraged to improve their qualifications	(Success25)
There exists a focused and sustainable staff development programme	(Success17)
All the staff was part of the school development plan	(Success21)
There is a clear connection between the curricular, co-curricular and extra-curricular contents	(Success11)

ENTREPRENEURIAL ORIENTATION: INDEPENDENT VARIABLES	
Factor 1: Innovativeness	
Our school has over the past two years expanded the number of services/subjects/sport codes/processes	(Inno3)
Our school places a great emphasis on new and innovative services/subjects/sport codes/processes	(Inno2)
Our school continuously strives towards new opportunities	(Inno4)
Our school regularly adds new services/subjects/sport codes/processes	(Inno1)
At our school, there is a strong emphasis on the sustained improvement of services/subjects/sport codes/processes	(Inno7)
Over the past few years, the changes to the services/subjects/sport codes/processes were dramatic	(Inno5)
At our school, there is a great emphasis on innovation for the successful future existence and success of the institution	(Inno8)
At our school, there is a strong correlation between the number of new ideas that are generated and the number of ideas that are successfully implemented	(Inno6)
Our school is continually seeking new services/subjects/sport codes/processes	(Pro-ac3)
Our school is often first to establish new services/subjects/sport codes/processes	(Pro-ac1)
Factor 2: Autonomy	
Educators at our school are allowed to make decisions without having to go through an elaborate justification - and approval process	(Auto3)
I have sufficient autonomy in my work without continuous supervision to do my work	(Auto1)
Educators at our school are encouraged to manage their own work and portfolio and there is flexibility when problems are solved	(Auto4)
I seldom need to follow the same work procedures or work methods during the execution of my most important tasks	(Auto5)
Our school allows me to be creative and offers me the opportunity to experiment with new methods in my work	(Auto2)
The school's management are open to my ideas and suggestions	(Inno13)

APPENDIX A (Cont.)
ENTREPRENEURIAL ORIENTATION: INDEPENDENT VARIABLES

Factor 3: Risk-taking	
Projects with a calculated risk are highly valued, even if it does not work out as initially planned	(Risk5)
The term 'risk-taker' is considered a positive attribute for employees at our school	(Risk6)
Employees of the school are often encouraged to take calculated risks pertaining to new ideas	(Risk4)
In general, our school has a strong inclination towards high-risk projects	(Risk2)
The management of the school often question the status quo and inspire the staff to think and act in innovative ways	(Inno12)
Factor 4: Opportunity utilisation	
During times when the school is confronted with uncertain decisions, we often have a very strong stance in order to maximise the possibility of opportunities within the uncertainty	(Risk1)
Our school knows when it becomes too dangerous to act overly aggressive	(Com4)
Our school leadership always tries to maximise the value of opportunities without placing a strain on existing models, structures or resources	(Inno9)
Typical of our school, actions are initiated to which our competitors can react	(Pro-ac2)
Factor 5: Competitive aggressiveness	
Our school is very aggressive and intensely competitive	(Com2)
Our school has a very effective aggressive stance to fight trends that threaten the future existence of our school	(Com3)
In our interaction with competitors, our school has a very competitive 'undo the competitor' attitude	(Com1)