

**ECONOMIC AND MANAGEMENT SCIENCE LEARNING
AREA OF CURRICULUM 2005 AND
ENTREPRENEURIAL ORIENTATION**

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DECLARATION

I, Ingrid le Roux, declare that this dissertation is my own work, unless otherwise indicated. It is being submitted in partial fulfillment of the requirements for the degree: **Master of Philosophy in Entrepreneurship and Small Business management – University of Pretoria. Furthermore, I declare that it has not been previously submitted to any other Institute or University.**

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ABSTRACT

This study focus on the Entrepreneurial Orientation (EO), Education and Economic and Management Science learning area of curriculum 2005 constructs in order to determine whether EMS education can impact on the entrepreneurial orientation of learners. A brief overview is given to see how the EO construct has been described in academic literature at firm level as well as societal level.

Entrepreneurship and education in schools are discussed with emphasis on what has been reported in the literature. Problems to make comparisons between countries are looked at and why it is important to have entrepreneurial education.

A comparison is made between the enterprising skills, behaviour and attitudes mentioned by Gibb and the five dimensions of EO to determine common ground in teaching for EO.

EO and education is also discussed. Education is seen as the independent variable to improve learners performance because it reaches the youth for many years and a tool to develop EO through a curriculum. The implicit role of culture is referred to and EO is seen as the mediator between the national culture and entrepreneurship.

An attempt is made to develop an understanding of what should be included in EO learning mode to effectively convey the EO dimensions to the learner. Comparisons of the creative steps of Driver, knowledge skills of Fayolle and the business mode of Gibb were compared to teaching for the EO dimensions.

Finally the results of an empirical study that was done to determine if the EO of learners that went through the EMS learning area of curriculum 2005 from grade 7-9 did change compared to a control group that did not go through the EMS learning area of curriculum 2005 from grade 7-9. The results reported that innovativeness and risk taking are affected by the EMS learning area of curriculum 2005.

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CHAPTER 1

INTRODUCTION, BACKGROUND AND LITERATURE

1. INTRODUCTION, BACKGROUND AND LITERATURE

1.1 Introduction

According to the Global Entrepreneurship Monitor (GEM) (Foxcroft, Wood, Kew, Herrington and Segal, 2002: 4), an increasing consensus exists within South Africa about the importance of entrepreneurship in economic development. Pahn (1993: 8) suggests that in South Africa there are too few people with entrepreneurial qualities, leading to a situation where the South African economy performs poorly because only a very limited number of people succeed as entrepreneurs. According to Van Aardt, Van Aardt and Bezuidenhout (2000: 3), South Africa, like many other developing countries, has a great shortage of entrepreneurs, especially in the formal sector. South Africa ranks in the lowest quartile of all the developing countries in the GEM, with only little over six out of every hundred adults being an entrepreneur (Foxcroft et al., 2002: 4). The key factor in changing the status quo, according to the GEM report, is education (Foxcroft et al., 2002: 5).

Chhabra (1998: 2) argues that all learners passing through the education system have two career options, namely wage-employment or self-employment. The majority of learners, however, prefer to go for wage-employment and only a few learners venture into a self-employment or entrepreneurial career. Van Aardt et al. (2000: 4) feel that South Africans in general are not educated for becoming entrepreneurs but for entering the labour market as employees: consumers of existing jobs instead of creators of new jobs. In order to stimulate self-employment, an appropriate climate for the developing of entrepreneurial orientation must be created which will result in a paradigm shift from job seeker to job creator. The earlier one starts with entrepreneurship education the better the result will be. In order to create an entrepreneurial society in general, and entrepreneurship education in particular, one must dare to perforate every boundary to the playground (Hijort and Johannison, 1997: 14).

Education is now seen as a major instrument for economic and social development. Investment in education leads to the accumulation of human capital, which is a key to sustaining economic growth and increasing income. Education contributes to economic growth, but by itself it is not growth-generating (World Bank Review, 1996). Ross (2002: 7) argues that as economies of nations compete for strong positions within a competitive market, many governments are increasingly inclined to view the relative performance of their education system as a key element in strategies designed to achieve improvements in national economic development. Bellamy (1999: 85) argues that an educated population is vital to sustaining competitive markets. Those countries going through an economic crisis which have invested in education are more likely to emerge with far less damage and much greater potential to rebound. According to Hill (2003: 105), one important aspect of education is its role as a determinant of national competitive advantage. The ability of skilled and educated workers seems to be a major determinant of the probable economic success of a country.

If learners are to experience a mindset change from wage-employment to self-employment and starting their independent ventures, they need the necessary exposure, knowledge and skills provided by skilled teachers in order to develop their entrepreneurial potential. Yet trying to teach entrepreneurial orientation without the emphasis on the cultural model mentioned by Lee and Peterson (2000: 406), see figure 1.1, no change in behaviour is expected.

The purpose of this study is too:

- determine the nature of Entrepreneurial (EO) as discussed in the literature,
- discuss entrepreneurship and education,
- compare the enterprising skills mentioned by Gibb (1993: 14) to the EO dimensions mentioned by (Lumpkin and Dess (1996: 137).
- argue that education is a key factor in changing the EO of learners,
- ascertain whether Driver's (2001) creative steps, Fayolle's (1998) knowledge skills and Gibb's (1993) small-business learning differ from teaching for EO.

1.2 Background to study

In the current economic climate in South Africa many students find themselves without work after their basic matric education and often with no intention of working for themselves but only aiming to find employment in the formal sector. It is believed that enhancing entrepreneurship through the development of entrepreneurial orientation can not only address this problem, but can also benefit the South African economy as a whole. Chhabra (1998: 2) argues that the lasting solution of unemployment lies in self-employment through “entrepreneurisation” of the society.

The problem to be addressed is whether intervention through education, and specifically teaching for EO through the EMS learning area of Curriculum 2005, can change the EO of learners. The transfer of the orientation to the learner needs consideration. The teacher as facilitator of learning is the most important vehicle in transferring the body of knowledge to the learner. This leads to the question of what constructs are needed to ensure an appropriate level of skill and knowledge to ensure that the teacher, as the facilitator of learning, is able to instil an entrepreneurial orientation in learners.

You cannot teach a man anything.

You can only help him discover it within himself.

Galileo Galilei (1564-1642)

In South Africa a “new” national outcomes-based education curriculum (C2005) has been implemented for school education, one of its aims being to develop an internationally competitive country. Teaching how to engage in entrepreneurial activity in order to prepare learners for the world of work is a theme running through the content of the Economic and Management Science (EMS) learning area, to increase in depth and breadth from Grade 1 to Grade 9 (DoE, 1997:6).

It is necessary to determine what has been written in the literature regarding the nature of EO and how entrepreneurship in education is being dealt with around the world. The study also looks for comparisons between Gibb’s (1993: 14) list of enterprising skills and Lumpkin and Dess’s (1996: 137) conception of EO. The topic

of EO and education is also discussed. Education is seen as a major tool for developing entrepreneurial orientation through a suitable curriculum. To understand the EO learning mode, comparisons between the works of different authors are made to determine whether teaching the dimensions of EO encompasses all aspects of their work.

1.3 Literature

1.3.1 Nature of entrepreneurial orientation

Much research has already been done on defining entrepreneurial orientation in an organisational context. The term entrepreneurial orientation (EO) has been used to refer to the strategy-making process and styles of firms that engage in entrepreneurial activities (Lumpkin and Dess 1997: 429). Entrepreneurship in the corporate context is described as a dimension of strategic posture represented by a firm's risk-taking propensity, tendency to act in a competitively aggressive, proactive manner, and its reliance on frequent and extensive product innovation. The reason for this is that the domain of entrepreneurship is no longer restricted in a conceptual sense to the independent new-venture creation process (Wortman, 1987; Low and MacMillian, 1988; Covin and Slevin, 1991; Dess, Lumpkin and Covin, 1995). Covin and Slevin (1991) describe entrepreneurial organisations as organisations with an entrepreneurial posture: those firms in which particular behavioural patterns recur.

More recently, Lumpkin and Dess (1996) have noted a distinction between entrepreneurial orientation and entrepreneurship by suggesting that EO represents key entrepreneurial processes that answer the question of how new ventures are undertaken, whereas the term entrepreneurship refers to the content of entrepreneurial decisions by addressing what is undertaken (Lumpkin and Dess, 1997). Many companies regard entrepreneurial behaviour as essential if they want to survive in a world increasingly driven by accelerating change. This belief may stem in part from both the academic and popular press suggesting that there is a positive influence of entrepreneurial activity on performance (Lyon, Lumpkin and Dess, 2000: 1055).

Entrepreneurial orientation involves processes including autonomy, risk-taking, proactiveness, innovativeness and competitive aggressiveness. These five dimensions of EO as seen by Lumpkin and Dess (1996: 137) clarify the concept, and although each dimension can be viewed as salient to entrepreneurship, they can also vary independently in a given context. However, all five dimensions are central to understanding the entrepreneurial process and they may occur in different combinations, depending on the entrepreneurial opportunity.

1.3.1.1 Autonomy

The history of entrepreneurship is filled with many stories of people determined to make their idea work, people who leave secure positions to pursue their dreams. In the South African culture there are Sol Kertzner, Herman Mashaba, Habakuk Shikwane and Raymond Ackerman, to name a few (Pretorius & Le Roux, 2003). Autonomy is a quality of independent, single-minded people with a free spirit who are self-directed in their pursuit of a new idea and have the ability to carry their idea through to completion (Lumpkin & Dess, 1996: 140). When the autonomy dimension of EO is strong, entrepreneurs operate within their cultures despite environments with societal constraints, but benefit from societies without constraints. Typically, autonomy is also associated with high internal locus of control (Pretorius & Le Roux, 2003).

1.3.1.2 Risk-taking

Lumpkin and Dess (1996: 144) quote Cantillon (1734), who was the first to use the term entrepreneurship, and who postulated that the principal factor separating entrepreneurs from employees was the uncertainty and risk of self-employment. Risk-taking ability is a quality frequently used to describe entrepreneurship (Lee and Peterson, 2000: 406). Risk is not seen as a gamble but an opportunity, carefully calculated and thoroughly studied before embarking on it (Van Aardt et al., 2000: 8).

Liles (1974) as quoted by Lee and Peterson (2000: 406) identified four critical risk areas faced by the entrepreneur, namely financial risk, career risk, family and social risk and emotional risk (Pretorius and Le Roux, 2003). Only societies with a cultural foundation that supports ambiguity and uncertainty and commits resources for risky ventures, thus risk-taking, can have a strong EO (Lee and Peterson, 2000: 406).

1.3.1.3 Proactiveness

Webster's 9th New Collegiate Dictionary (1991: 937) defines "proactiveness" as acting in anticipation of future problems, needs or changes. Economic scholars since Schumpeter have stressed the importance of taking the initiative in the entrepreneurial process (Lumpkin and Dess, 1996: 146).

Proactive individuals can be seen as creators of change and are often initiators of activities that shape the environment by influencing trends and creating a demand. A classic example of proactiveness in a South African context is the cigarette company Rembrandt's introduction of filters to the market. Pro-activeness is therefore crucial to entrepreneurial orientation, because it suggests a forward-looking perspective on a new venture and can be described as the opposite of passiveness (Pretorius and Le Roux, 2003). According to Lee and Peterson (2000: 406), proactiveness is crucial to EO because it is concerned with the implementation stage of entrepreneurship.

1.3.1.4 Innovativeness

Innovation can be seen as the tendency to engage in and support new ideas and creative processes that may result in new products, services or technological processes, including changes to already existing goods or services. Schumpeter (1934, 1942) was among the first to emphasise the role of innovation in the entrepreneurial process. Schumpeter was well known for his economic process of creative destruction, in which new goods or services that shifted resources away

from existing firms caused new firms to grow. The key to this cycle of activity was entrepreneurship: the competitive entry of innovative new combinations that propelled the dynamic evolution of the economy (Lumpkin and Dess, 1996: 142).

Lee and Peterson (2000: 406) are of the opinion that cultures that are highly innovative will produce new technology, products or services, all processed within their countries.

1.3.1.5 Competitive aggressiveness

Competitive aggressiveness is the opposite of reactivity and can be seen as the way in which a person or organisation relates to competition, how they react to competition and how they respond to trends and demands that already exist in the market (Pretorius and Le Roux, 2003). Spotting the gap in the market and trying to find an entry into the marketplace is an important activity for any entrepreneur. These opportunities do not present themselves readily, but must be actively sought (Wickham, 2001: 205). Individuals with competitive aggressiveness think about themes such as competition in terms of standard of excellence, outperforming others, accomplishing something unique and being long-term oriented. All these criteria serve as evidence of achievement motivation (Van Vuuren, 2002: 12). Individuals with competitive aggressiveness are prepared to act differently in order to survive in an already existing market, making competitive aggressiveness an essential component for EO.

1.3.1.6 Critical thinking

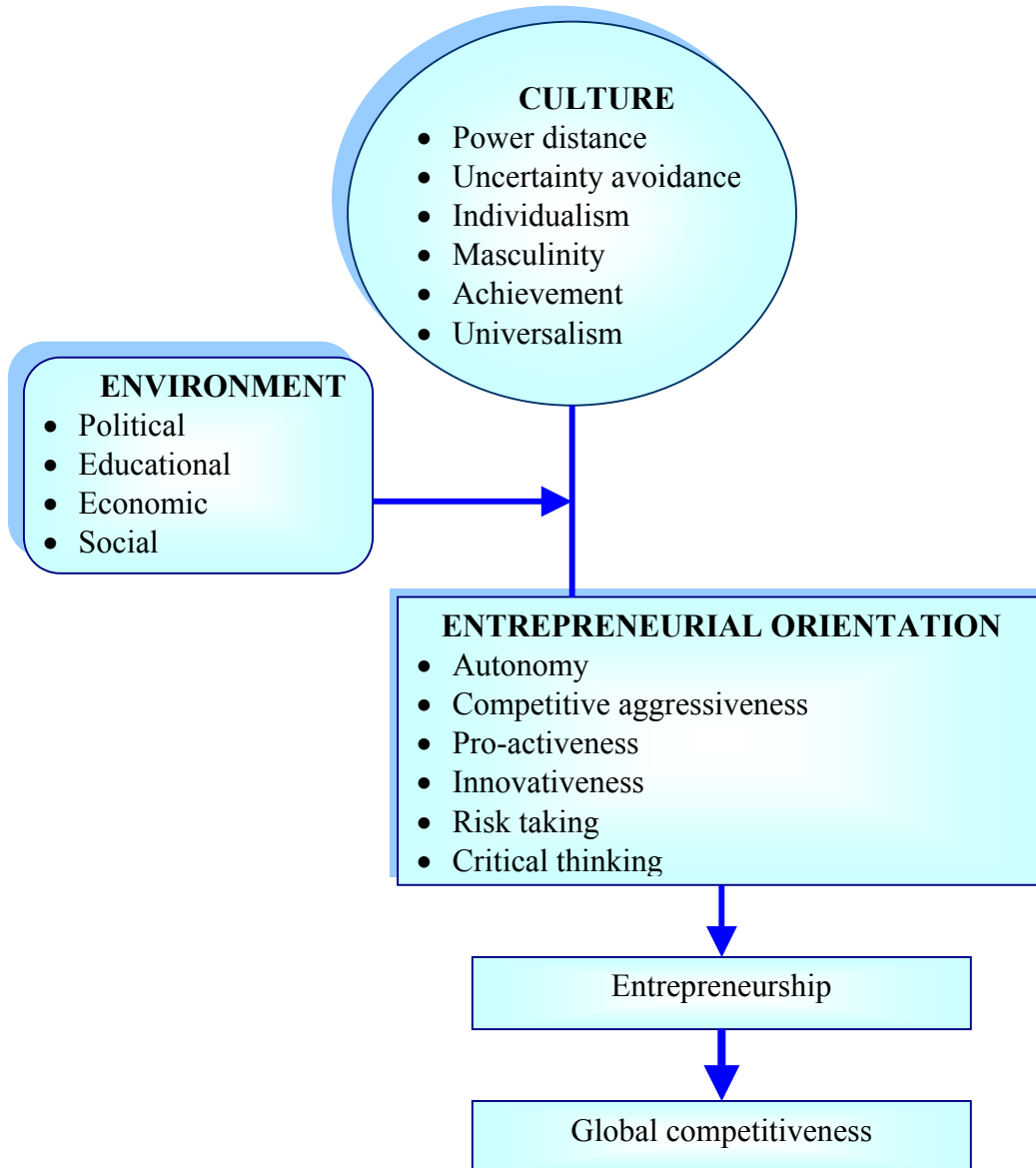
Despite critical thinking not being one of the dimensions referred to by Lumpkin & Dess (1996), an entrepreneurial orientation depends on a conducive environment and culture as suggested in the model of Lee and Peterson (2000), which postulates critical thinking as important as a societal dimension. A whole-brain thinker is able to

acquire knowledge, understand what he or she has observed, is able to apply it in different contexts, break it up into components and analyse it, is able to integrate it in a wider context and is able to evaluate the outcomes critically. With reference to the levels mentioned in Bloom's taxonomy, a higher level of thinking is reached (Lumsdaine and Lumsdaine, 1995: 57; Lumsdaine, Lumsdaine and Shellnut, 1999). Having many people with the ability to look further than the situation itself and see the bigger picture will enhance an entrepreneurial orientation within a society.

EO cannot stand on its own, and in order to promote environments that support creativity and innovation, allowance for new ideas and experimentation is also needed. Just think of the difference it can make if one adds people with critical thinking skills to analyse, synthesise and evaluate the learning process. All six dimensions are vital in developing entrepreneurial orientation, although they may vary independently of each other in a given context (Pretorius and Le Roux, 2003).

Scale development work done by Lumpkin and Dess (1997) and Lumpkin (1998) as quoted by Lyon et al. (2000), also provides theoretical support and empirical evidence to prove that the dimensions of EO may vary independently. Lee and Peterson (2000) argue that the theory behind EO is applicable not only at the company level but also at the societal level (2000: 405). However, several concepts, as described in the cultural model of Lee and Peterson (2000: 410), are needed to create an environment conducive to entrepreneurship. Without these, no entrepreneurial orientation will be created (see Figure 1.1).

Figure 1.1: Model depicting the relationship of EO entrepreneurship and global competitiveness (Lee and Peterson 2000: 410 with education and critical thinking as added constructs).



1.3.2 Entrepreneurship and education

There is currently a great deal of activity in what might be broadly termed the field of enterprise and entrepreneurship education in schools and colleges. Most of the governments in the European communities have also given substantial support to

activities designed to stimulate entrepreneurship among young people. In the USA, entrepreneurship education has been pursued extensively for several decades, extending through a wide variety of different models inside and outside of education. In Canada, interest and activity in this area has also expanded in recent years, while in Asia, major experiments are taking place in several countries including India, Malaysia and the Philippines (Gibb, 1993: 12).

According to the Department of Education's Senior Phase Policy Document (DoE, 1997), successful national economies of the future will have as their key competitive advantage the skills of their people. According to this document, long-term prosperity will depend on the quality of the workforce. South Africa is seeking, like other countries, to enhance its competitive advantage by bringing general and further education and training up to the level of the demands of economic and social projections. In South Africa, outcomes-based education (OBE) has been introduced in schools through Curriculum 2005 (C2005) in order to bridge the inequality that exists as a result of the separate development of the past. The emphasis is on moving away from rote learning to a pupil-centred learning environment that will lead to creativity and innovation. Economic and Management Science education is now implemented from an early age up to grade 9. EMS is one of the eight learning areas in the curriculum dealing with entrepreneurship within this learning area (DoE 1997: 2).

Comparisons in the field of entrepreneurship education are complicated because of differences in objectives and in meaning of terms used to describe programmes. Entrepreneurship Education is commonly used in Canada and the United States. This expression is rarely used in the UK and only occasionally used in Europe (Dubs, 1989). In the UK the subject is referred to as Enterprise Education rather than Entrepreneurship Education, and is focused upon the development of personal attributes. According to Gibb (1993) it does not necessarily embrace the concept of small business for profit or the entrepreneur, although it is linked with the development of an enterprise culture within which the entrepreneur can flourish.

Many of the programmes for enterprise or entrepreneurship education throughout the world take place within or as an adjunct of the education system. This gives rise to a

number of issues such as the acceptance by teachers and school authorities of this form of education and the degree to which the programmes can be linked with the mainstream school curriculum and form part of it (Gibb, 1993: 12). According to Nel and Badenhorst-Weiss (2003: 14), the government of South Africa has to find a way to include entrepreneurship as an independent learning area in the national curriculum. At the moment it is only a theme running through the EMS learning area of C2005.

McClelland (1975) referred to entrepreneurship as the “parent of innovation” because it serves as the innovative change agent that moves organisations and society forward. Without entrepreneurship, business and society would be neither dynamic nor adaptive, resulting in stagnation. Entrepreneurship is the vehicle for companies and societies to find innovative ways to exploit opportunities as a way to survive in an ever-changing environment.

Timmons (1999), as quoted by Van Vuuren and Nieman (1999: 3), argues that entrepreneurship education should convince students to become actively involved in entrepreneurship, help them to understand the dynamic nature of the world of entrepreneurship and should slow down reality shock by means of formal and informal tuition.

Lyon (1997: 3) postulates that the better the quality of entrepreneurship teaching, the better the society will reflect and recognise entrepreneurial activity. He argues that an educational system reflects a society. The absence of an entrepreneurial orientation in schools is symptomatic of a society that does not recognise entrepreneurial activity sufficiently.

After all is said and done, entrepreneurship education may just be the solution to South Africa’s unemployment problem, high crime rate and low economic growth. According to Nel and Badenhorst-Weiss (2003: 14), the challenge is to create a climate of entrepreneurial learning in South Africa and a means to implement it. This may be established once OBE is implemented successfully and pupils start to think like entrepreneurs.

1.3.3 Goals for teaching entrepreneurship and entrepreneurial orientation - finding common ground

As indicated above, the terms entrepreneurship and enterprise embrace a wide range of meanings, including small business. According to Gibb (1993:12) they are sometimes used synonymously and sometimes not. Much of the content of Enterprise Education in the UK is not directly aimed at stimulating entrepreneurship, whether defined as independent small-business ownership or the development of opportunity-seeking leaders of high-profile companies. Its major objective is to develop enterprising people and to inculcate an attitude of self-reliance through the process of learning.

In discussions during programmes to develop “enterprising young people” in the UK, teachers of primary, secondary and tertiary institutions felt that the following concepts were important:

- opportunity seeking
- initiative taking
- making things happen independently
- problem-solving and risk-taking
- commitment to work and tasks
- the ability to cope with uncertainty and ambiguity

If one compares these key behaviours, skills and attributes quoted by Gibb (1993) with the six dimensions of EO as suggested by Lumpkin and Dess (1996: 137), one finds definite similarities between them (see Table 1.1).

Table 1.1 Comparison of the enterprising skills, behaviour and attitudes from Gibb (1993: 14) with the EO dimensions of Lumpkin and Dess (1996: 137) - own compilation.

Lumpkin and Dess's EO Dimensions	Gibb's Enterprising Skills, Behaviour and Attributes
Autonomy	Acting independently on own initiative;
Risk-taking	Taking risky action in uncertain environments; Coping with uncertainty and enjoying uncertainty
Proactiveness	Opportunity seeking; Commitment to making things happen; Actively perceiving goals; Persuading others
Competitive aggression	Flexibility to respond to challenges
Innovativeness	Solving problems and conflict creatively
Critical thinking	Solving problems

Opportunity and the freedom to practise being enterprising in a supportive climate simulating real life would help learners to become active constructors rather than passive recipients of knowledge. If enterprise can be acquired through experiencing real-life situations, surely one can enhance entrepreneurship through education and training. The strength of enterprising skills, attributes and behaviours, as well as the mix of these qualities, will vary between individuals. Some individuals will be more creative, some more analytical, and some more capable of independent behaviour than others. Using all four brain quadrants and emphasising the development of creative problem-solving while using all of the quadrants as mentioned by Lumsdaine and Lumsdaine (1995: 80) can only benefit our society.

1.3.4 Entrepreneurial orientation and education

An entrepreneurial orientation is the tendency to act autonomously, to innovate and take risks, to be aggressive towards competition and to be proactive in seeking opportunities (Lumpkin and Dess, 1996: 137). The ultimate key factor in improving learner performance, according to the GEM report (2002), is education.

Education is an environmental factor that reaches the youth of a country for many years and can be seen as a tool for developing EO through the content of a curriculum. Thurow (1999) mentions the need for government to invest in education, to enable learners to act in an entrepreneurial way (Godsell, 1999). In an attempt to normalise the situation in South Africa, C2005 was implemented in 1997. Many parents wonder where the future jobs are going to come from. The option of creating your own business and being responsible for your own income is often overlooked.

Thomas and Mueller (2000: 289) also argue that the tendency of certain societies to entrepreneurship points to the implicit role of culture in the theory of entrepreneurship. They quote Weber's (1904) Protestant work ethic, McClelland's (1961) need for achievement and Shane's (1992) individualism, that also placed emphasis on different cultural dimensions. Thurow (1999) argues that the capacity to break with the past and welcome innovation, is a key factor of an entrepreneurial society; in this view he is supported by Godsell (2000:17).

According to Lumpkin and Dess (1996: 135) entrepreneurship activity represents one of the major engines of economic growth and today accounts for many new business development and job creation initiatives. It is therefore important for societies to generate economic growth and ensure economic and socio-economic development. Entrepreneurial orientation can also be seen as the mediator between the national culture and entrepreneurship (Lee and Peterson, 2000: 406).

Lee and Peterson developed a cultural model that can be used to explain a society open to entrepreneurship and with a strong entrepreneurial orientation. The cultural model can serve as a framework for understanding the relationship between the unique characteristics of national culture and entrepreneurship, and acknowledging

the strong role of a culture's EO (Lumpkin and Dess, 1996: 402). These writers suggest that specific cultural tendencies are necessary to create a strong EO. Formal education also supplements the family's role in socialising the young into the values and norms of the society. Some cultural values and norms may encourage or discourage the development of a strong EO. Hofstede's (1980) and Trompenaar's (1994) cultural dimensions can be used to depict a culture most conducive to the development of a strong EO (Lee and Peterson, 2000: 404). However, Hill (2003: 106) suggests that one should be careful not to read too much into Hofstede's research because it can be criticised on a number of counts. Although the results are interesting and indicate in a general way the differences between cultures, one must remember that culture is not constant and can evolve over time (Hill, 2003: 107).

1.3.5 EO learning mode

Business education can be seen as the "learning organisation" for the potential entrepreneur. If one looks at the small business learning mode as suggested by Gibb (1993: 19), one sees clearly that teaching for EO includes all activities of the model, but encompasses even more. The small business provides an environment of uncertainty, with key essences reinforcing commitment to cope, a task structure which demands enterprising behaviour and where the learning mode (way of learning) is one of learning by doing, solving problems and grasping opportunities. Table 1.2 shows that the small-firm owner-manager's innate capability for enterprising behaviour will therefore be stimulated and learning acquired by enterprising means.

Table 1.2 Comparison between the EO dimensions of Lumpkin & Dess (1996: 137) and the small-business learning mode model of Gibb (1993: 19) – own compilation.

Entrepreneurial orientation	Small business learning mode
Autonomy	Doing Personal interaction
Risk-taking	Making mistakes Borrowing
Innovation	Making it up
Proactiveness	Opportunity grasping Customer feedback
Competitive Aggressiveness	Peer interaction Pressure
Critical thinking	Problem solving

What then should a teacher try to convey to the learners if he or she wants to facilitate effective learning and promote EO? Fayolle (1998) describes three levels of pedagogical approach, namely knowledge, skill and way of being (Pretorius, 2001: 67).

Freire (1971), as quoted by Gravett (1999: 18), referred to the traditional approach of teaching as the banking approach. In order to achieve current pedagogical requirements a different teaching style is required. The new Curriculum 2005 propagates a more active approach, or an action-learning approach, to incorporate not only knowledge and skill but also values, attitudes and previous experience in order to change behaviour and involve learners in their own learning.

Compared with the dimensions of EO we find the following in Table 1.3:

Table 1.3 The proposed pedagogical requirements to promote an EO - Own compilation based on Fayolle (1998).

Pedagogical requirements	Entrepreneurial Orientation
Knowledge	Theoretical understanding of entrepreneurship
Skills	Critical analyses of the situation/ environment; Critical thinking/ problem solving; Taking calculated risks.
Way of being	Adaptable, curious; Seizing an opportunity/competitive aggressiveness; Transforming it into a business through innovation; Acting in autonomous and proactive ways.

The importance of creativity in this process can never be overestimated. Hijort and Johannison (1997) argue that entrepreneurship is about creativity and action, not just about idea generation, not even a reduction to invention, but implies the enactment of new patterns of behaviour. It appears to be necessary to change thinking from an early age, and especially to emphasise the spirit of initiative throughout studies in primary, secondary and higher education (Luczkiw: ([n.d.]). Hijort and Johannison (1997) and Driver (2001) suggest that teaching creativity should result in a change in behaviour. If one compares Driver's steps for fostering creative behaviour (2001: 2) with the EO dimensions, one sees that teaching for creativity compares favourably with teaching for EO, as seen in Table 1.4.

McClelland (1961), Punzenina (1986) and Borland (1975), as quoted by Van Vuuren and Nieman (1999: 6), refer to the strong relationship between performance motivation and entrepreneurial behaviour. They argue that all entrepreneurship programmes should include the development of the performance motivation of the entrepreneur, in this case the learner. Chhabra (1998: 3) also argues that in order to

develop a culture which starts to consider self-employment and entrepreneurship as an option, a necessary awareness and motivation is needed.

Table 1.4 Comparison between Lumpkin and Dess’s EO (1996: 137) and Driver’s Creative Steps (2001: 2) - own compilation.

Entrepreneurial Orientation	Driver’s Creative Steps
Autonomy	Free choices; Ask questions; Imagine other viewpoints.
Risk-taking	Take sensible risks; Allow them to make mistakes
Proactiveness	Take initiative; Explore the environment; Include their community.
Innovation	Take initiative; Reward new ideas; Give time to come up with new ideas.
Competitive aggressiveness	Work in groups; Test ideas; Act unconventionally;
Critical Thinking	No judgement; Question assumptions; Time to think.

The entrepreneurial learning mode should focus on the five dimensions of EO and also critical thinking, which together basically include all the suggestions made by authors such as Driver, with his creative steps, Fayolle, with his knowledge skills and Gibb with his small-business learning mode.

In order to encourage teachers to promote EO, the emphasis should be placed on the developing of the dimensions as suggested by Lumpkin and Dess (1996: 137), as

well as critical thinking. All of these are vital to maintaining an enterprising classroom environment and focusing on learning by doing, discovery and active participation.

1.4 Conclusion

In summary, the overriding aim for entrepreneurship education is to develop EO, and to bring into play behaviour, skills and attitudes that will enhance a student's knowledge of the possibilities of working for himself or herself, and take away the fear of risk and failure by providing learners with insight into the functions and aims of business.

EMS education focusing on entrepreneurial activities will not work unless teachers emphasise the dimensions of EO while teaching and dealing with the content and activities of the EMS learning area of Curriculum 2005. Success in EO education would have a snowball effect, because students would want to work for themselves, would earn a living on their own initiative, no longer relying on the government and big business to give them employment.

Knowledgeable teachers are needed to bridge the gap between the content on paper and the actual transference of the skills and attitudes to the learner. Teachers should also collaborate with various institutions and organisations in the business sector when assigning projects to learners. To teach and develop an entrepreneurial orientation needs highly motivated, competent and committed teachers.

CHAPTER 2

PROBLEM STATEMENT, HYPOTHESIS AND RESEARCH METHODOLOGY

2. PROBLEM STATEMENT, HYPOTHESIS AND RESEARCH METHODOLOGY

2.1 Introduction

A projection was made in February 2003 that only 7% of pupils who leave school in South Africa are likely to get a job in the formal sector (Lewis: 2002). Enhancing entrepreneurship through developing entrepreneurial orientation in school could not only address this problem, but also benefit the South African economy as a whole. Chhabra (1998: 2) argues that the lasting solution to unemployment lies in self-employment through “entrepreneurisation” of the society.

2.2 Problem statement

The problem to be addressed is whether intervention through education, and specifically teaching for EO through the EMS learning area of curriculum 2005 (C2005), could change the EO of learners. Pretorius and Le Roux (2003) have already established that the dimensions of EO are well covered in the EMS learning area of C2005. They could not, however, establish a relationship between EO behaviour before and after exposure to the EMS learning area of C2005. To do so would require an empirical study, and therefore this research was executed.

2.3 Hypothesis statements

To govern the thinking process the following hypotheses were set:

Ho1: The education intervention through the EMS learning area of Curriculum 2005 enhances Entrepreneurial Orientation.

Ha1: The education intervention through the EMS learning area of Curriculum 2005 does not enhance Entrepreneurial Orientation.

Sub Hypothesis:

Unpacking this hypothesis required sub hypotheses for the different elements of EO and they are stated as follows:

Ho2: The education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension of **autonomy**.

Ha2: The education intervention through the EMS learning area of Curriculum 2005 does not enhance the EO dimension of **autonomy**.

Ho3: The education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension of **risk-taking**.

Ha3: The education intervention through the EMS learning area of Curriculum 2005 does not enhance the EO dimension of **risk-taking**.

Ho4: The education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension of **proactiveness**.

Ha4: The education intervention through the EMS learning area of Curriculum 2005 does not enhance the EO dimension of **proactiveness**.

Ho5: The education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension of **innovativeness**.

Ha5: The education intervention through the EMS learning area of Curriculum 2005 does not enhance the EO dimension of **innovativeness**.

Ho6: The education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension of **competitive aggressiveness**.

Ha6: The education intervention through the EMS learning area of Curriculum 2005 does not enhance the EO dimension of **competitive aggressiveness**.

Ho7: The education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension of **critical thinking**.

Ha7: The education intervention through the EMS learning area of Curriculum 2005 does not enhance the EO dimension of **critical thinking**.

2.4 Research methodology, data collection and analysis

2.4.1 Research methodology

The term methodology refers, according to *Collins Dictionary* (1995), to “the system of methods and principles used in a particular discipline”, which in the case of this study is the methods and principles used in the research (Ehlers, 2000: 126).

This chapter provides insight into ways and methods that were employed in gathering the information for the empirical part of this study. The universe and sample frame are discussed, as well as the sample method and size. Next, the method of data collection and questionnaire design is described. The last part of the chapter concerns the data processing, analysis and evaluation of results.

The first part of the study is descriptive in nature, using secondary sources to describe the ex-post facto situation regarding the intervention through education, especially the EMS learning area of C2005, to influence the EO of learners.

The second part of the study is based on primary data collected in a survey using a questionnaire (see Appendix A) from grade 10 and grade 12 learners from six different schools in the Pretoria/Halfway House area.

- The first part of the research determined whether the EMS learning area of C2005 (grade 7 – 9) includes, on paper, the EO dimensions necessary to teach and develop EO. This was done through the following steps:
 - Firstly the EMS learning area of C2005 was analysed according to the learning outcomes and its sub-elements.
 - Each element was then subjectively rated for coverage of the different factors contributing to entrepreneurial orientation.
 - A five-point scale, in which 5 is good and 1 is poor, was used to evaluate each sub-element for each learning field within each specific outcome.
 - Lastly, within each specific outcome a percentage was calculated, based on the individual perceptions of the researcher.
 - The aim was to measure the inclusion of each EO element in the EMS learning area of Curriculum 2005.

2.4.2 Data and sample decision

2.4.2.1 Data required

- The universe

Defining the universe is the first and a very critical step in the sampling process. The universe or population unit in this study is the grade 10 learners as the sample group, and grade 12 as the control group, due to the fact that the grade 10 learners had completed the EMS learning area of C2005, while the grade 12 learners did not go through the EMS learning area of C2005 from grades 7 – 9.

- The sample frame

Once the population is defined, the next step is to obtain a frame of the population (Sudman & Blair, 1998: 338). The sampling frame is closely related to the population and is a list of elements from which the sample is actually drawn.

Approximately 1400 questionnaires were distributed to six schools in the Pretoria and Halfway House area in an approximate 30km radius from the University of Pretoria.

Different schools were contacted to take part in the research but only schools prepared to take part in the research were chosen.

- Sampling method and sample size of data

Due to the large population of this study, it was decided to use a questionnaire. Questionnaires were personally delivered to schools at the beginning of a working week and the delivery included a briefing session with the teacher in charge of the research. The schools internally decided on a suitable time to deal with the questionnaires. The questionnaires were personally collected at the end of the week.

2.4.2.2 Method of data collection

There is no simple answer to which of the available methods of data collection the researcher should use when collecting primary data. It all depends on the purpose and nature of its use (Blakenship & Breen, 1993:122).

For this study it was decided to develop a questionnaire with structured questions which would be completed by the respondents.

- Questionnaire design

The first step was to develop structured questions to cover all six dimensions of entrepreneurial orientation. Several questions from the literature were used to guide the selection.

- Rating scale

A standard five-point Likert scale (Cooper & Schindler, 2001: 240) was used in which 5 is good and 1 is poor.

- Testing of the questionnaire

To identify and eliminate problems, the questionnaire in the pilot phase was given to two knowledgeable respondents in the field for testing. The questionnaire was then adapted and some unclear statements were changed or replaced.

According to Sudman and Blair (1998: 300), there is always a chance that some questions could cause problems and questionnaire testing is needed to identify and eliminate these problems.

The questionnaire consisted of positive and negative questions in order to ensure that no underlying weakness existed and to eliminate pattern-forming while completing the questionnaire.

- Data processing, basic analysis and evaluation of results

The responses were gathered directly from the questionnaire using Microsoft Excel spreadsheet and imported into the SAS software package at the Department of Statistics at the University of Pretoria. Some basic calculations were made to check the reliability of the data.

Finally the data was imported into the statistical software program where the final analysis and cross-tabulations were made.

- Response rate

The number of questionnaires handed out was 1400, and a 100% response rate was obtained.

- Editing and coding

According to Martins, Loubser and Van Wyk (1996), “editing entails a thorough and critical examination of a completed questionnaire in terms of compliance with the criteria for collecting meaningful data and in order to deal with questionnaires not duly completed”. All questionnaires, once received, were edited and checked for completeness and accuracy. After questionnaires with missing and incomplete data had been discarded, 1217 workable questionnaires were obtained.

Coding refers to the process whereby codes are assigned to the answers of respondents (Martins et al., 1996: 299). A coding frame was drawn up according to which every answer was coded in order to simplify the data capturing.

- Data cleaning

According to Sudman and Blair (1998: 428), the finished data file usually contains some coding and/or data errors that should be cleaned. This was achieved by running checks and balances with the relevant software package.

- Data transformation

Once the data has been entered it is almost always necessary to transform the raw data into variables that are usable in the analyses (Trochim, 1997). The following transformations were performed in this study:

- Reversal items were used in the questionnaire in some instances to help reduce the possibility of a response set. In order for all scores for scale items to be in the same direction, the ratings were reversed for these specific items.

2.4.3 Data analysis

- Table

The data was firstly analysed in tabular format. A standard set of tables was produced which included the average response for each item expressed in terms of the standardised 100-index (%). The average refers to the mean score for the item expressed in terms of the standardised 100-index. In some instances the standard deviation was calculated to measure variation.

Data processing was followed by analysis and interpretation (summaries were developed, looking for patterns and applying statistical techniques).

- Validity and reliability

Validity and reliability are a prerequisite for research data in order to point out possible shortcomings and pitfalls in research results (Ehlers, 2000: 136).

- Validity

Validity refers to the extent to which a test measures what it is intended to measure.

Internal validity in this study is limited to the ability of a research instrument to measure what it purports to measure.

Technically, a measure tends to validate conclusions, or that a sample enables valid inferences. A proposition, inference or conclusion may have validity.

Item scale correlation across subjects was tested.

- Reliability

In most contexts the notion of consistency emerges. Reliability is a necessary contributor to validity but is not a sufficient condition for validity (Cooper and Schindler, 2001: 215).

Reliability is concerned with estimates of the degree to which a measurement is free of random or unstable error.

One of the most commonly used measures of reliability is the Cronbach alpha coefficient (Bagozzi, 1994: 18) which provides a measure of internal consistency.

2.4.4 Factor analysis

The term “factor analysis” was first introduced by Thurstone (1931) and is a generic name for a group of multivariate statistical methods whose primary purpose is to define the underlying structure of a set of variables and to reduce a set of variables, measures or items to a smaller set of common factors (Hair, Anderson, Tatham and Black, 1995: 366). It examines the relationship of each of a large series of variables to every other one, to determine which are highly correlated with others. The process ends with a reduced number of packages of variables (Blankenship and Breen, 1993: 266).

The main application of factor analysis techniques is, firstly, to reduce the number of variables and, secondly, to detect structure in the relationship between variables; that is, to classify variables. Therefore, factor analysis is applied as a data reduction or structure detection method. The most common market research application is principal component analysis (Sudman and Blair, 1998: 557) which will be explained briefly.

The extraction of principal components amounts to a variance maximising (varimax) rotation of the original variable space. For example, in a scatterplot one can think of the regression line as the original X axis rotated so that it approximates to the regression line. This type of rotation is called variance (variability) of the new variable (factor), while minimising the variance around the new variable (Statsoft, 1997).

According to Sudman and Blair (1998: 548) the key descriptive results obtained from a factor analysis are the eigenvalues and factor loadings, while in some instances

factor scores are calculated. However, in the case of this study no factor scores were calculated.

When a satisfactory factor solution has been derived, some meaning must be assigned to each factor, which involves substantive interpretation of the pattern of factor loading for the variables (Hair et al., 1995: 397). While all significant factor loadings are usually used in the interpretation process, it is suggested that, as a rule of thumb, one should ignore variables with loadings less than 0.50.

According to Sudman and Blair (1998: 549), the overall factor analysis can generally be considered effective if the total variance explained by the selected factors exceeds 70%. If this is not the case, it should be noted in the report.

2.4.5 Variance analysis

Anova is a much more flexible and powerful technique and can be applied to much more complex research issues (Statsoft, 2002).

In this study four factors: grade; gender; language group; and school, were taken into account, which makes the four-way or multi-way ANOVA the ideal tool to determine the interrelatedness between the different variables used.

One important reason for using ANOVA methods, rather than multiple two-group studies analysed via *t* test, is that the former method is more efficient, and one can gain more information with fewer observations.

ANOVA also allows one to detect interaction effects between variables and, therefore, to test more complex hypotheses about reality (Statsoft, 2002).

A general way of expressing all interaction is to say that an effect is modified (qualified) by another effect. If one uses a four-way interaction, one may say that the three-way interaction is modified by the fourth variable; that is, that there are different types of interaction in the different levels of the fourth variable in many areas (Statsoft, 2002).

2.5 Objectives and contribution of the research

2.5.1 Objectives

The primary objective of the research is to determine whether EO can be enhanced through the EMS learning area of C2005. Due to the high unemployment rate many scholars find themselves without work after their basic school education. Learners with EO can then opt for self-employment rather than finding work in the formal sector.

2.5.2 Contribution of the research

The objective is to determine whether learners exposed to the EMS learning area of C2005 differ in EO compared to the control group.

- To create a measurement tool for EO on a societal level (“non firm”)
- To provide feedback to the policy makers and curriculum developers of the EMS learning area of C2005.

This research will place them in a better position to include relevant and updated information in an attempt to change learners’ attitude from job-seeking to job-creating as a result of an increased entrepreneurship orientation amongst our youth.

CHAPTER 3 FINDINGS

3 FINDINGS

3.1 Introduction

The results of the empirical study are provided in a tabular format. The first part of the chapter presents the descriptive data and all the demographic information regarding grade, gender, language and school, and in the next part the factor analysis and analysis of variance results are provided.

3.2 Descriptive data of part 1

Figure 3.1: Entrepreneurial Orientation dimensions in the EMS learning area of C2005

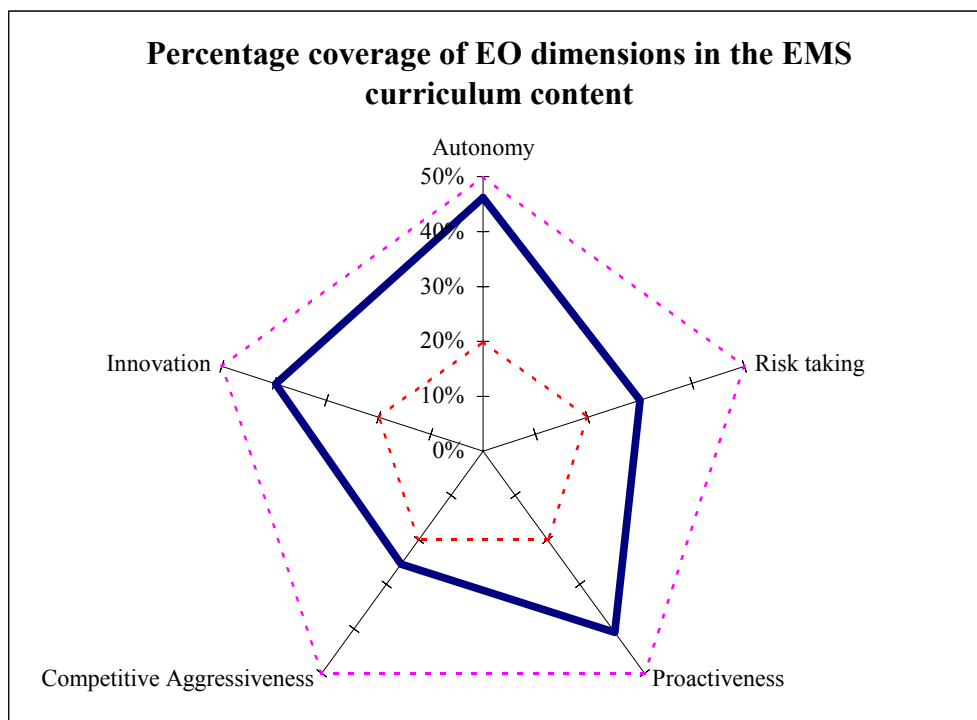
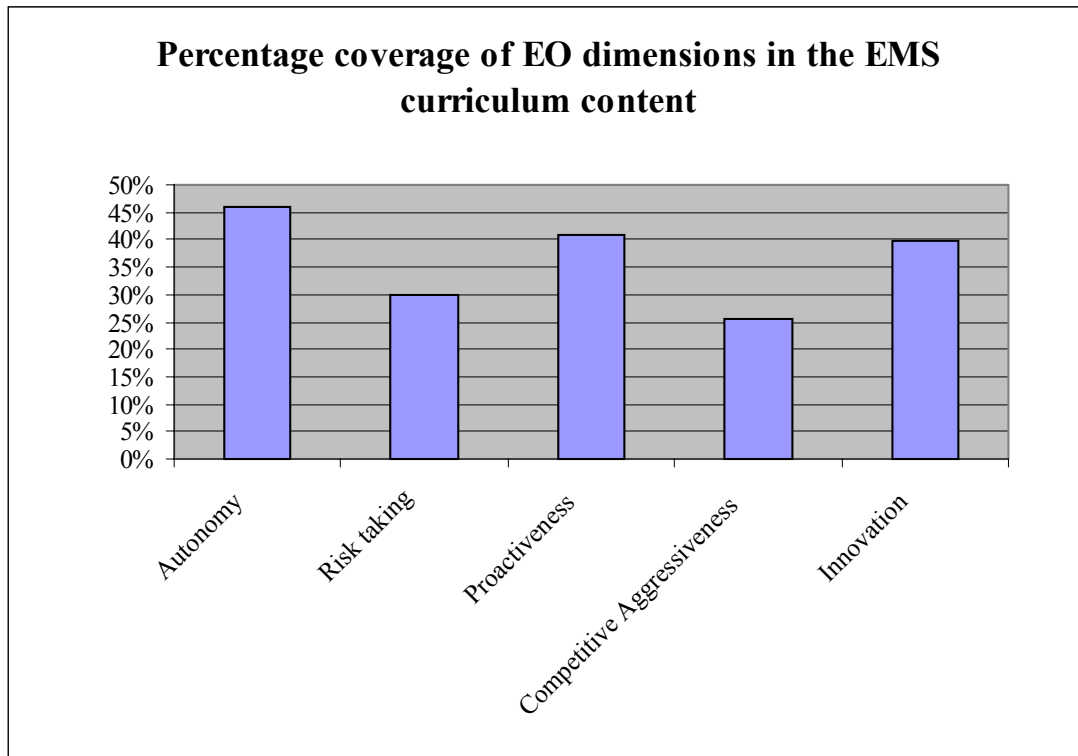


Figure 3.2: Visual presentation of the coverage of the Entrepreneurial Orientation criteria in the EMS learning area of C2005.



Figures 3.1 and 3.2 show the apparent contribution of the EMS learning area of C2005 to each of the EO elements. The apparent percentage coverage for the different elements of EO varies but is always less than 50% for the individual elements.

Autonomy was ranked the highest, with 45%, and competitive aggressiveness the lowest, with 25%.

From this analysis it is therefore possible to assume that all the dimensions of EO are covered in the EMS learning area of C2000.

3.3 Demographic information of part 2

3.3.1 Grade

Table 3.1: Grade distribution of the sample

GRADE	FREQUENCY (<i>n</i>)	PERCENTAGE (%)
Grade 10	567	46.59
Grade 12	650	53.41
TOTAL	1217	100%

46,59% of the respondents were in grade 10 and 53,41% in grade 12.

3.3.2 Gender

Table 3.2: Gender distribution of the sample

GENDER	FREQUENCY (<i>n</i>)	PERCENTAGE (%)
Male	508	41,74
Female	709	58,26
TOTAL	1217	100%

41,74% of the respondents were male and 58,26% female.

3.3.3 Language

Table 3.3: Language distribution of the sample

LANGUAGE	FREQUENCY (<i>n</i>)	PERCENTAGE (%)
Afrikaans	343	28,18
English	478	39,28
African	371	30,48
Others	25	2,05
TOTAL	1217	100%

28,18% of the home languages of respondents were Afrikaans, 39,48% English, 30,48% African languages and 2,05% “other” languages such as Portuguese, Chinese and French. The “other” language speakers do not represent a significant number of respondents.

3.3.4 School

Table 3.4: School distribution of sample

SCHOOL	FREQUENCY (<i>n</i>)	PERCENTAGE (%)
Midrand High School	225	18,49
Lenasia Secondary School	261	21,45
Hillview High School	165	13,56
Sutherland High School	210	17,26
Uitsig Hoërskool	161	13,23
Eldoraigne Hoërskool	195	16,02
TOTAL	1217	100%

- 18,49% of the respondents were from Midrand High School, a mainly English-medium school,
- 21,45% of the respondents were from Lenasia Secondary School, an English-medium school with many respondents who have English as second/third language and an African language as their home tongue.
- 13,56% of the respondents were from Hillview High School, an English-medium school with many respondents who have English as second/third language and an African language as their home tongue.
- 17,26% of the respondents were from Sutherland High School, a mainly English-medium school,
- 13,23% of the respondents were from Uitsig Hoërskool, an Afrikaans-medium school,
- 16,02% of the respondents were from Eldoraïne Hoërskool, an Afrikaans-medium school.

3.4 Factor analysis

The appropriate multivariate technique which has been used in this particular study is known as factor analysis. As already discussed in Chapter 2, the term “Factor analysis” describes a group of statistical methods whose primary purpose is to condense data contained in a fairly large number of variables into a set of smaller new “variables”, called factors (Bischoff, 1998: 91).

This reduction in numbers of variables makes the sheer volume of variables easier to manage, with a minimum loss of the information contained in the original variables. Although factor analysis uses an advanced form of correlation, it differs from normal correlation analysis in that there is no dependent variable. All variables are evaluated simultaneously (Bischoff, 1998: 92).

Table 3.5: Eigen and Cronbach Alpha Values for the variables that loaded successfully

FACTOR		EIGEN VALUE	SQUARED MULTIPLE CORRELATIONS	CRONBACH ALPHA
1	V4	2.68763	0.10803	0.6044
2	V8	2.40406	0.14214	0.6063
3	V12	1.30099	0.13546	0.6012
4	V17	1.24813	0.12911	0.6078
5	V3	1.15038	0.12541	0.5957
6	V10	1.07634	0.36282	0.5799
7	V15	1.04173	0.18679	0.5912
8	V16	0.94327	0.10439	0.6043
9	V18	0.92730	0.33434	0.5854
10	V23	0.92239	0.13466	0.5922
11	V27	0.89052	0.13120	0.6005
12	V7	0.86423	0.19381	0.6002
13	V21	0.82194	0.19705	0.5935
14	V11	0.81540	0.11069	0.5967
15	V13	0.79293	0.07242	0.6132
16	V20	0.76379	0.10888	0.6053
17	V28	0.72229	0.19570	0.5928
18	V35	0.69667	0.10961	0.6086
19	V26	0.67346	0.06017	0.6100
20	V5	0.64600	0.15882	0.5891
21	V32	0.61091	0.07606	0.6121
22	V36	0.56584	0.10940	0.6093
23	V38	0.43377	0.09082	0.6093
			ALPHA FOR ALL VARIABLES	0.6112

23 out of the possible 38 variables loaded successfully. The factor analysis therefore indicates that the other variables do not contribute significantly to the exploration of the variation.

Table 3.6: Rotated factor loading

		Variable Statement	FACTOR 1	FACTOR 2
1	4	After school I would like to work for myself	0.237	0.039
2	8	Normally, I would prefer to go on an organised tour	-0.094	0.406
3	12	I would prefer to work for an existing business	0.046	0.293
4	17	I think it is better to work in a strong organisation after matric	-0.066	0.342
5	3	I often surprise people with my novel ideas	0.367	0.098
6	10	People often ask me for help in creative actions	0.670	0.136
7	15	I usually continue doing a new task in exactly the way it was taught to me	0.030	0.522
8	16	I like a task which demands skill and practice rather than inventiveness	0.039	0.298
9	18	People who know me think of me as a creative person	0.614	0.122
10	23	I like to experiment with various ways of doing the same thing	0.354	0.048
11	27	I prefer projects that require original thinking	0.377	-0.043
12	7	When I see something new, I dream about alternative ways to use it	0.416	-0.101
13	21	When I see a new idea, I immediately think how to improve it	0.412	0.008
14	11	I find that change can be exciting	0.328	0.031
15	13	When things are uncertain, I adopt a cautious, wait-and-see attitude.	-0.083	0.283
16	20	I only act when I am sure that I will be successful	-0.025	0.365
17	28	When things change too fast I tend to get nervous	0.145	0.445
18	35	I often get discouraged when I think of past failures	0.084	0.252
19	26	I think Mark Shuttleworth was lucky to found his computer security business	0.002	0.264
20	5	I accept the way things are done if they have been done in a specific way a long time	0.163	0.436
21	32	I often feel inclined to change the way I do things	0.206	0.144
22	36	I often wonder how things fit into the big picture	0.181	0.104
23	38	I often wonder why people do the things they do	0.181	0.108

Table 3.7: Factors and variables contributing to each variable

Innovation	Risk-taking
Alpha – 0.6603	Alpha – 0.6205
People often ask me for help in creative activities (V10)	I usually continue doing a new task in exactly the way it was taught to me (V15)
People who know me think of me as a creative person (V18)	When things change too fast I tend to get nervous (V28)
When I see something new, I dream about alternative ways to use it (V7)	I accept the way things are done if they have been done in a specific way a long time (V5)
I often surprise people with my novel ideas (V3)	Normally, I would prefer to go on an organised tour (V8)
I like to experiment with various ways of doing the same thing (V23)	I only act when I am sure that I will be successful (V20)
I prefer projects that require original thinking (V27)	I think it is better to work in a strong organisation after matric (V17)
I find that change can be exciting (V11)	I like a task which demands skill and practice rather than inventiveness (16)
I often feel inclined to change the way I do things (V21)	I often get discouraged when I think of past failures (V12)
	When things are uncertain, I adopt a cautious, wait-and-see attitude (V13)
	I often get discouraged when I think of past failures (V35)

Investigation of the variables for each factor indicated that Factor 1 relates to innovativeness and Factor 2 to risk-taking.

3.5 Analysis of variance

The variance analysis in this section aims to identify differences in the factors between demographic factors, namely grade, gender, language and school.

3.5.1 Innovativeness

Table 3.8: Analysis of variance results for Factor 1 - Innovativeness

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	10.9777074	1.0977707	3.39	0.0002
Error	1206	390.3451151	0.3236692		
Corrected Total	1216	401.3228225			

Table 3.9: Details for factors of the variance analysis of innovativeness

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Grade	1	0.30269420	0.30269420	0.94	0.3337
Gender	1	0.03192794	0.03192794	0.10	0.7535
Language	3	2.33680749	0.77893583	2.41	0.0658
School	5	6.98506232	1.39701246	4.32	0.0007

The results indicate a significant F-value ($Pr > 0,0002$) for the model, but the R^2 of 0,027 indicates a small percentage variation explained. There is a significant difference only between schools for innovativeness.

Table 3.10: Differences between schools for innovativeness - Probability values for differences in innovativeness between schools ($Pr > | t |$ for $H_0: LS\text{Mean}(i) = LS\text{Mean}(j)$)

School	1	2	3	4	5	6
1		0.0178	0.0399	0.1710	0.2334	0.6660
2	0.0178		0.9962	0.0001	0.0078	0.0844
3	0.0399	0.9962		0.0019	0.0122	0.1008
4	0.1710	0.0001	0.0019		0.7665	0.7125
5	0.2334	0.0078	0.0122	0.7665		0.3358
6	0.6660	0.0844	0.1008	0.7125	0.3358	

Highly significant differences ($P > 0.01$) for innovativeness were found between:

- schools 2 and 4
- schools 2 and 5
- schools 3 and 4.

Significant differences ($P > 0.05$) for innovativeness were found between:

schools 1 and 2

- schools 1 and 3
- schools 3 and 5.

3.5.2 Risk-taking

Table 3.11: Variance analysis results for Factor 2 – Risk-taking

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	34.5017105	3.4501710	11.98	0.0001
Error	1206	347.2626199	0.2879458		
Corrected Total	1216	381.7643304			

Table 3.12: Details for factors of the variance analysis of risk-taking

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Grade	1	6.42738720	6.42738720	22.32	<.0001
Gender	1	3.37550126	3.37550126	11.72	0.0006
Language	3	1.66043199	0.55347733	1.92	0.1242
School	5	11.78010256	2.35602051	8.18	<.0001

The results indicate a significant F-value ($Pr > 0,0001$) for the model but the R^2 of 0,090 indicates a small percentage variation explained. There is a poor fit but in a significant model, with significant differences for grade, gender and school but not for language.

Table 3.13: Differences between grades for risk-taking

Grade	LSMEAN	Standard Error	HO: LSMEAN1 = LSMEAN2 Pr > t
10	2.52093014	0.03422682	< .0001
12	2.66934936	0.03347616	

Significant differences exist between grade 10 and grade 12 learners regarding risk-taking. Grade 12 was significantly more risk averse than grade 10.

Table 3.14: Differences between genders for risk-taking

Gender	LSMEAN	Standard Error	HO: LSMEAN1 = LSMEAN2 Pr > t
Male	2.64866009	0.03495005	0.0006
Female	2.54161941	0.03264795	

Significant differences exist between males and females regarding risk-taking, with males more risk averse than females.

Table 3.15: Differences between schools for risk taking - Probability values for differences in risk-taking between schools (Pr > | t | for HO: LSMean (i) = LSMean (j))

School	1	2	3	4	5	6
1		<.0001	0.0033	0.6392	0.0692	0.4403
2	<.0001		0.3290	<.0001	0.3450	0.0013
3	0.0033	0.3290		0.0196	0.8099	0.0126
4	0.6392	< .0001	0.0019		0.1268	0.2885
5	0.0692	0.3450	0.0122	0.1268		0.0002
6	0.4403	0.0013	0.1008	0.2885	0.0002	

Highly significant differences ($P > 0.01$) for risk-taking were found between:

- schools 1 and 2
- schools 1 and 3
- schools 2 and 4
- schools 2 and 6
- schools 3 and 4
- schools 5 and 6.

Significant differences ($P > 0.05$) for risk-taking were found between:

- schools 3 and 5.

Against the research findings, the results will be discussed and recommendations made in Chapter 4.

CHAPTER 4

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

4. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.

Against the results reported in Chapter 3, the relevant issues are elaborated.

4.1 Discussion

Figures 3.1 and 3.2 indicate that on paper the EMS learning area of C2005 covers all the EO dimensions, although the apparent percentage coverage for the different elements of EO varies. From the analysis it is possible to accept that the EO elements are included in the EMS learning area of C2005, even though they are covered at a relatively low level.

The demographic data of Part 2 can be seen as reliable and no biases are reflected. The differences observed between the grades are small, and although more females than males are represented in the sample, the influence of this is deemed insignificant. Many learners from Hillview High and Lenasia Secondary School, as well as Eldoraigne Hoërskool and Uitsig Hoërskool, have English as a second language. This should not have influenced the results of the research, as English is the medium of education in all except Eldoraigne and Uitsig Hoërskool, where the medium of education is Afrikaans. Both the Afrikaans-speaking schools have English as a second language and preferred to complete the questionnaire in English.

The factor analysis was used to determine the EO of learners. Only two of the six factors could be significantly tested, namely innovativeness and risk-taking. More work is needed to design an appropriate instrument to test for EO on a societal level. However, analysis of the two factors, innovativeness and risk-taking, led to meaningful insights.

4.1.1 Innovativeness

With the variance analysis, no significant differences were observed as regards grades, gender or language, but a significant difference was found between schools regarding innovativeness. Many factors could contribute to this difference. Historically, teacher-training courses did not include entrepreneurship or creativity as a prescribed component, and teaching with the emphasis on engaging in entrepreneurial activities did not exist. Frost (1997: 3) as quoted by Pretorius (2001) argues that for good teaching and effective learning to occur, teachers need to have a sound basis of knowledge about what effective teaching and learning means in their own discipline, because both the context and methods are unique. Qualifications of teachers, the culture in the school and the availability of funds could also influence the amount of innovativeness that pupils exhibit.

4.1.2 Risk-taking

In the variance analysis for risk-taking, differences between grades and genders as well as schools were reported. No differences for language were observed.

- Grade

According to the results, grade 10 learners are less risk-averse, meaning that they appear willing to take more risks than the grade 12 learners (see Table 3.13). The grade 10 learners did, in grades 7-9, go through the EMS learning area of C2005, in which the emphasis is on engaging in entrepreneurial activities. The change in attitude and perception could be related to the exposure to the new C2005.

- Gender

According to the results, female learners are less risk-averse than the male learners, meaning that they are prepared to take more risks, a definite characteristic of an entrepreneurial orientation (see Table 3.14). Nieman, Hough and Nieuwenhuizen (2003: 37) postulate that women or female entrepreneurs are latecomers to the entrepreneurial game. Engaging in entrepreneurial activities

through Curriculum 2005 from an early age is possibly already starting to influence this situation

- Schools

Significant differences between schools were found regarding risk-taking (see Table 3.15). As mentioned in the discussion for innovativeness, many factors could have contributed to these results, such as qualifications and training of teachers, facilities and financial support. Pretorius and Nieman (2002: 3) postulate that a teacher without experience and exposure to the business environment and its accompanying intricacies cannot teach the real issues of starting and managing a business. Deschoolmeester, Schamp, Gabriels, Depoorter and Parmentire (1998: 7) also argue that teachers need to confront learners with business realities by means of company visits, testimonies by entrepreneurs and such methods.

4.2 Conclusions

From the analysis it is possible to accept that the elements for EO are covered in the EMS learning area of C2005. Opportunities do exist for learners to act autonomously, act innovatively, and develop competitive aggressiveness and proactiveness, as well as taking risks and developing their critical-thinking abilities. However, a skilled teacher with the knowledge of the dimensions of EO and the necessary business skills is needed to convey the body of knowledge to the learner in order to develop an effective entrepreneurial orientation.

The first hypothesis, that the education intervention through the EMS learning area of Curriculum 2005 enhances **entrepreneurial orientation** is *rejected* because only two of the six factors, namely innovativeness and risk taking, could be significantly tested.

The second hypothesis, that the education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension **autonomy**, is *rejected*. No evidence could be found of a significant difference between the sample and control

group regarding autonomy and therefore the alternative hypothesis of no enhancement is *accepted*.

The third null hypothesis, that the education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension **risk-taking**, is *accepted*. Evidence of a significant difference between the sample and control group regarding risk taking could be found (see Table 3.12).

The fourth hypothesis, that the education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension **proactiveness**, is *rejected*. No evidence could be found of a significant difference between the sample and control group regarding proactiveness, and therefore the alternative hypothesis of no enhancement is *accepted*.

The fifth hypothesis, that the education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension **innovativeness**, is *rejected*. No evidence could be found of a significant difference between the sample and control group regarding innovativeness, except for schools, and therefore the alternative hypothesis of no enhancement is *accepted*. The differences observed between schools raise the question of whether there are other factors to consider rather than those tested in this study.

The sixth hypothesis, that the education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension **competitive aggressiveness**, is *rejected*. No evidence could be found of a significant difference between the sample and control group regarding competitive aggressiveness and therefore the alternative hypothesis of no enhancement is *accepted*. The differences observed between schools raise the question of whether there are other factors to consider rather than those tested in the study.

The seventh hypothesis, that the education intervention through the EMS learning area of Curriculum 2005 enhances the EO dimension **critical thinking** is *rejected*. No evidence could be found of a significant difference between the sample and

control group regarding critical thinking and therefore the alternative hypothesis of no enhancement is *accepted*.

4.3 Shortcomings of this study

Although the EO dimensions on societal level are confirmed by the literature, certain shortcomings of this study can be seen, namely:

- Although many different questions were asked, no meaningful results for each element of EO were obtained from the questionnaire, except for risk-taking and, to some extent, innovation.
- The instrument tested successfully only two of the six factors as contributors to EO. The instrument therefore lacked the ability to test what it set out to do. More research is required to develop an instrument able to test for EO on the societal level. Inclusion of the dimensions for developing entrepreneurial orientation through education is an important part of enhancing entrepreneurship on a societal level.
- All dimensions are present in the curriculum but may be significantly influenced by other environmental factors, such as culture, education, exposure and experience levels of teachers, availability of equipment and finances of the schools.

4.4 Recommendations

Although the EMS learning area of Curriculum 2005 has engagement in entrepreneurial activities as a theme running through the whole learning area, it is now evident that enhancing and developing EO through an educational intervention needs more than the emphasis of only an entrepreneurial theme. The C2005 consists of eight learning areas, and only approximately 10% of teaching time is allocated to the EMS learning area, which makes it impossible to cover the content suggested in the curriculum in breadth and depth.

Entrepreneurship should be included as part of C2005 as a separate entity, which confirms the opinion of Nel and Badenhorst-Weiss (2003: 14), who come to the same conclusion, holding that government has to find a way to include entrepreneurship as part of the national curriculum.

Creating an entrepreneurial learning climate in South Africa with the focus on teaching to enhance entrepreneurial orientation could change the South African society in the direction of becoming more entrepreneurial. This could alleviate unemployment and enhance economic growth through self-employment.

Although the results of this study were inconclusive for some elements of EO, this study should serve as a basis for more research into this field. Developing an entrepreneurial learning mode with a South African content to replace the entrepreneurial leaning mode described by Gibb (1993) could help the policy makers to develop curriculum content to address the problems specific to the South African society.

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