

Critical success factors for project management in the education sector in South Africa

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ABSTRACT

The South African education system suffers from the legacy of decades of social and economic discrimination against black South Africans. This situation continues despite there being numerous projects to improve the situation. The education sector is a complex environment.

Project management methodologies and processes are used to deliver projects successfully in complex environments. There are several critical success factors of project management that ensure successful project implementation. The aim of this study was to assess the use of available project management methodologies and processes for project management in the education sector in South Africa and identify the critical success factors.

The qualitative research methodology was used for this study. Data was collected through semi-structured interviews with organisations implementing projects in the education sector. The content analysis method within the interpretive analysis method of the transcribed interview data was employed.

The results indicate that the organisations are using project management methodologies or processes. The organisations have chosen internal systems or tailoring the standard project methodologies to suit the organisations needs. Most of the organisations are using these processes and methodologies to a high degree with the remaining using it but to a lesser degree.

The study identified the critical success factors of projects in the education sector. These factors are sector specific factors, internally derived processes and key competencies of the project manager. The sector specific factors are budget, planning, the ability to deal with human behaviour, time, quality, monitoring and evaluation, change management, governance, resource planning, stakeholder requirements, satisfaction and acceptance/usage, design must be thoroughly researched and substantiated, lessons learnt, ability to show the benefit of the projects, partnering and taking on projects based on the government strategy. The Internally derived processes are scope, schedule, cost and resource management as well as regular meetings and reporting. The

key competencies of a project manager are conventional project management skills, communication skills, people management, the ability to mobilise people and collaboration

These organisations in the education sector should combine the methodologies with the critical success factors when implementing their projects. They should investigate whether adding the evolve stage, working with government and partnering could assist in tackling the problems in education in South Africa.

DECLARATION

I, Randir Rajkumar Nirghen, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Randir Rajkumar Nirghen

Signed at

On the day of 2012

DEDICATION

To my parents, Mr and Mrs Nirghen

You provided me with the foundation to reach my dreams, taught me the value of Education and always supported me.

And

To my wife, Sheena Nirghen

You were a pillar of strength throughout this journey.

Thank you for always believing in me.

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CHAPTER 1: INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to discuss the nature of projects in the education sector in South Africa and the critical success factors for successful implementation of these projects. The analysis will include the essence and elements of project management and the current landscape of education in South Africa including its history and the future vision. The analysis will aim to determine whether project management holds the key to successful implementation of projects in education and what factors will ensure its success.

1.2 Context of the study

The South African Education system suffers from the legacy of its past where the apartheid government ensured that the black South Africans were only provided with limited access to education in the form of Bantu education in order to keep their skill levels to that of labourers (Bloch, 2009b). After the 1994 elections the new government inherited an extremely unequal society. Apartheid left a legacy of decades of social and economic discrimination against black South Africans.

Furthermore Jansen and Taylor (2003) argue that the extent of the income inequality is shocking, with the poorest forty percent of the population only earning eleven percent of the income and the wealthiest ten percent earning forty percent. It is estimated that nearly sixty percent of black South Africans are poverty stricken with fifty percent of the population living below the poverty line while only three percent of whites live in poverty (Jansen and Taylor, 2003).

In spite of this the government has made significant steps in correcting the situation. According to Jansen and Taylor (2003) some of these include:

- Very quickly created a single national department of education out of nineteen racially, ethnically, and regionally divided departments of education

- The removal of discriminatory school environments allowing access on the basis of criteria other than race or religion.
- Implementation of policies and laws to govern education
- The highest enrolment rates in African education.

Despite these triumphs there is still a lot lacking. Bloch (2009b), a South African education expert reveals findings that South African learners are consistently underachieving. The author goes on to say that they are amongst the worst in the world and unfortunately often amongst the worst in Africa. Bloch (2009b) believes the country is headed for a national education crisis with sixty to eighty percent of the schools dysfunctional and the learners produced are barely literate and numerate.

The Development Bank of Southern Africa (DBSA) Roadmap (2008) as summarised and presented by Bloch (2009a) at the 2009 Knowledge Management Conference highlights the key areas that hold back education;

- Social disadvantage: Due to the apartheid legacy most parents are uneducated, relatively powerless and lack information.
- Teachers: Teachers are vital to education improvement. There are numerous problems with teachers from poor subject knowledge and teaching practices, to insufficient numbers in training to little performance evaluation.
- Dysfunctional schools: School results are at unacceptable levels. Schools are not managed properly due to the lack of proper school leadership.
- Resources: There have been big improvements but due to the size of the problem, there are still huge backlogs: lack of libraries, labs and computers, and poverty effects from nutrition to AIDS orphans to gang violence.
- Responsibility and accountability: National departments should lead interventions down to provincial levels to ensure consistency as well as

delivery. For there to be school level improvement the support systems and management in districts need to be fixed.

- Three levels are identified for analysis and intervention these are the in-school level, support to school and societal issues. All 3 levels need to be identified and tackled together.

Bloch (2009b) and Fontannaz (2010) also see these problems and offer some solutions in tackling these problems. The solutions are divided into three sections; in-school, support to school and societal. The in-schools solutions are to ensure teachers are in class, on time, teaching, improve quality of early education, external tests, effective evaluation of teachers and quality of teachers by improving teacher development. The solutions for support to schools are to strengthen school management, increase the use of information and communications technology and improve the expenditure. The societal solutions include developing a societal compact for quality education and implement poverty combating initiatives.

Many foundations and Non Governmental Organisations (NGO) have been formed, as well as many corporate social investment (CSI) initiatives started since 1994 in an attempt to deal with these problems. Some examples are the Sasol Inzalo Foundation (Sasol Inzalo Foundation, 2011), Zenex Foundation (Zenex Foundation, 2007), Umlambo Foundation (Umlambo Foundation, 2011), JET Education Service (JET Education Services, 2011), Sci-Bono Discovery Center (Sci Bono Discovery Center, 2011) and others. Some of these organisations are in operation for many years while others are relatively new. All of these organisations undertake numerous projects in an attempt to improve the education situation. Unfortunately, as pointed out above and by Scott, Yeld and Hendry (2007) there seems to be little improvement and South Africa remains in an education crisis. According to Dictionary.com (2011) a complex problem can be described as a complicated correlation or collection of related things, parts, units, etc. An example given is the entire complex of our educational system.

In the recent past, managing complex problems has become associated with the use of project management. These problems are inevitably called a project (Munns and Bjeirmi, 1996). As described by the Project Management Institute (2008), a project is a temporary group activity designed to produce a unique product, service or result. Project management is the application of knowledge, skills and techniques to execute projects effectively and efficiently (Kerzner, 2001). It has been practiced informally, but began to emerge as a distinct profession in the mid-20th century. Project management brings a unique focus shaped by the goals, resources and schedule of each project. The value of that focus is proved by the rapid, worldwide growth of project management (PMI, 2011).

Project management developed as a discipline from different fields of application including construction, engineering, telecommunications, and defence. The 1950s marked the beginning of the modern project management era (Projectsmart, 2011). There are differences among projects in terms of technology, size, complexity, risk, and other variables, however much of the traditional project management literature has treated all projects as the same (Shenhar, Dvir, Levy and Maltz, 2001). The importance of project management is an important topic because all organisations, be they small or large, at one time or other, are involved in implementing new undertakings. These undertakings may be diverse, such as, the development of a new product or service; the establishment of a new production line in a manufacturing enterprise; a public relations promotion campaign; or a major building programme (Projectsmart, 2011).

1.3 Problem statement

1.3.1 *Main problem*

Assess the use of available project management methodologies and processes for project management in the education sector in South Africa and identify the critical success factors.

1.3.2 Sub-problems

Sub-problem 1

The first sub-problem is to assess the use of available project management methodologies and processes for projects in the education sector in South Africa.

Sub-problem 2:

The second sub-problem is to identify critical success factors for project management in the education sector in South Africa.

1.4 Significance of the study

The study fills a gap in that there is limited research on project management regarding projects in the educational context. The use of project management is growing significantly in different sectors and organisations (Winter, Smith, Morris and Cicmil, 2006). The author goes on to explain that the problem they highlight is that the current conceptual base of project management still lacks relevance to practice and to improved performance of projects across different sectors.

It is hoped that the study will provide guidance to government, educational departments, foundations, businesses and NGOs on understanding what should be considered when designing and implementing projects in the education sector to ensure success. This will in turn help improve the current education situation in South Africa. By improving the current education system the quality and number of learners completing grade 12 will improve with the same positive effect on higher education. The resource pool in the country will thus be improved providing a platform for a better skilled workforce reduced unemployment and improved economic growth.

1.5 Delimitations of the study

The study will only address improvement projects for secondary schools. Projects for Primary school and Higher/Tertiary education have been excluded.

The study will be limited to foundations and NGOs specifically set up for improving education in South Africa.

The study will be limited to the process and implementation of the projects and exclude the validity of the business case for the projects.

1.6 Definition of terms

- Primary Education: Grade 1 to Grade 7
- Secondary Education: Grade 8 to Grade 12
- Higher/Tertiary Education: Universities and Technical Colleges
- Foundation: Non Profit Organisation

1.7 Assumptions

The following assumptions have been made regarding the study:

- The respondents will be able to share information on the project implementation in their organisation.
- The respondents will have enough knowledge on the implementation of projects in their organisations to be able to clearly articulate answers to the questions. Lack of knowledge will negatively affect the credibility of study.

The total number of organisations in the education sector will provide sufficient respondents to gain adequate data.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This section contains a literature review on the key themes of relevance to the study. The first area is project management methodologies and processes, including the benefits, the leading methodologies and processes and the lifecycle of projects. The second area is the critical success factors and the required project manager's capabilities for successful project management. The section concludes with an overview of the key learnings.

2.2. Background discussion

Education in South Africa is in a poor state as a direct result of the past apartheid system that ensured that the majority of the citizens of the country were denied proper education (Bloch, 2009b). When the new government took office in 1994 it was left with a huge challenge in education amongst a long list of challenges.

Despite all the challenges, there were positive steps made in correcting the situation including education (Jansen and Taylor, 2003). This was unfortunately not enough. As recently as 2009, Graeme Bloch a leader in South African Education described the country as heading for a national education crises (Bloch, 2009b).

This situation has arisen despite the high number of governmental and non-governmental organisations formed to deal specifically with education. They undertook numerous projects in the education sector but with very little impact.

An education system is considered as a complex problem. According to Munns and Bjeirmi (1996) managing complex problems has become associated with the use of project management. Winter et al. (2006) refer to academic research in the UK indicating that there has been a significant growth in project work across different sectors and industries which should continue with increasing

numbers of new developments and new initiatives being pursued through projects. There are industry reports supporting the growing use of project management standards and practices including the creation of project management centres of excellence within UK government departments.

Several studies have recently recommended using a more project-specific approach, and suggested distinguishing between different project types, and using different management styles to manage them (Shenhar et al., 2001). Project management is no longer seen as just a sub-discipline of engineering. It is now the dominant model in many organisations for strategy implementation, business transformation, continuous improvement, new product development, infrastructure renewal, urban regeneration and community development (Winter et al., 2006). The literature was limited on the use of project management in the education sector however; some key theoretical assertions can be applied from the literature.

2.3. Project Management Methodology and Processes

Irrespective of the industry type or size every project undertaken today requires a common structure or framework in which to start (Charvat, 2003). The author goes on to describe a methodology as a set of principles or guidelines that can be tailored and applied to a specific situation. These guidelines in a project environment could simply be a list of things to do. The author goes on to state that a methodology could also include a specific approach, templates, forms, and even checklists used during a project.

2.3.1 Analysis of Project Management Methodologies

Project management methodology involves the planning and coordination of projects from concept to closure with the main objective to meet the requirements of the owner within budget and timeframe (Chin and Spowage, 2010). Project management methodology is a framework made up of different segments or phases. Each segment or phase has a beginning and an end with specific deliverables and milestones that are required for the next phase to

begin. The end of each milestone or phase is also an appropriate time to consider whether to continue with a project or not (Charvat, 2003). Project management methodology provides the tools and techniques to help project teams make the project successful by ensuring that the project teams clearly understand their scope of work, what each of them needs to accomplish, how their work fits in and contributes to the project as a whole (Chin and Spowage, 2010). However, a project management methodology is not a quick fix or a silver bullet for project success (Charvat, 2003).

In order to effectively leverage from available project management methodologies, it is important to acknowledge that they need to be adapted and classified (Chin and Spowage, 2010). An effective project management methodology is specific to the environment, dynamic and adaptable to the stakeholder demands. With this in mind it must still be customisable to projects in that environment. The authors go on to state that it is widely accepted that suitable project management methodology will increase the likelihood of success of a project.

Chin and Spowage (2010) classify project management methodologies into five levels:

- best practices, guidelines and principles;
- sector specific;
- organisation specific;
- customised to specific types of project within the organisation and
- customised to the individual needs of specific projects.

When implementing projects it is vital not to complicate simple projects with compound methodologies. Figure 1 is a matrix designed by Charvat (2003) for selecting light or heavy methodologies for a project.

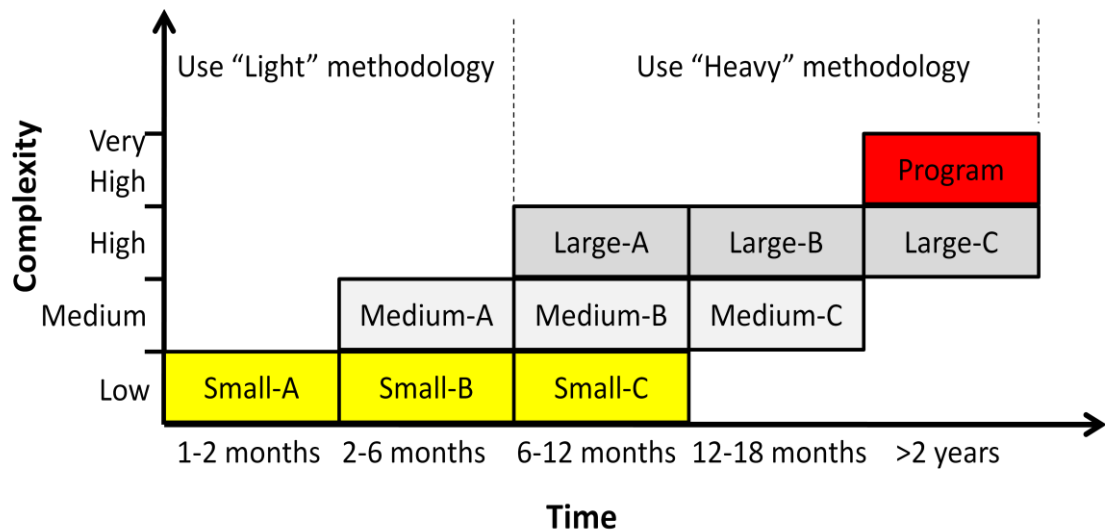


Figure 1: Charvat's matrix for selecting light or heavy methodology (Charvat, 2003)

Figure 1 considers three factors when selecting a light or heavy methodology these factors are time, complexity and size of project. Small projects are generally low complexity. For small projects with one to six months duration use a light methodology. If the duration is over six months the heavy methodology will be used. Medium projects generally have a medium complexity. For medium projects with one to six months duration use a light methodology. If the duration is over six months the heavy methodology will be used. Large projects generally have a high complexity. For large projects the duration is over six months and the heavy methodology should be used. Programs are recognised as containing very high complexity and should therefore use the heavy methodology.

The advantages of using a project management methodology as described by Chin and Spowage (2010) are:

- The project goals and objectives are clarified
- The work processes are more efficient and effective
- There is greater flexibility and adaption of lessons learned from project to project

- Ensures an increased accuracy in planning, identifying and managing risks, challenges and complexities
- There will be a greater amount of standardisation
- There is identification, clarification and acceptance of roles and responsibilities which also enhances communication
- The deliverables and outputs are optimised
- Integration of tools, techniques and knowledge to improve present and future projects

2.3.2 The Leading Project Management Methodologies

There are many project management methodologies with their own practices in the environment. The number has grown as project management is accepted and used more. A study by White and Fortune (2002) showed that there is a larger number of organisations using in-house project management methodologies rather than the standard ones available. The five leading project management practices are Project Management Body of Knowledge (PMBOK), Projects in Controlled Environments (PRINCE), Association of Project Management Body of Knowledge (APMBOK), International Project Management Association (IPMA) and the British Standards (BSI) BS6079-1:2002 (Chin, Yap and Spowage, 2010).

- **The PMBOK approach (Project Management Institute, 2008)**

This approach comprises five major groups of management processes and nine knowledge areas. The management processes are initiation, planning, execution, monitoring and controlling and closing. The nine knowledge areas consist of the core knowledge areas scope, time, cost and quality management and the facilitating functions human resources, communication, risks and procurement management. The planning, executing, monitoring and controlling groups of processes are iterative throughout each phases of the project.

- **PRINCE 2 (PRINCE2, 2005)**

The stages of this approach are starting a project, initiating a project, managing stage boundaries, controlling a stage, managing product delivery and closing the project. It includes eight key components or elements; business case, organisation, plans, controls, management of risks, quality in project management, configuration management and change control. There are three specific project management techniques which are product based planning, change control and quality reviews. Prince 2 is good for complex projects but does not cater for changing environments.

- **APMBOK (Morris, Patel and Wearne, 2000)**

This approach has seven sections consisting of fifty-two topics. These sections are project management in context, planning the strategy, executing the strategy, techniques, business and commercial, organisation and governance and people and profession. It assesses a broader context essential for effective management of projects namely; strategic, technical, commercial, organisational, control and people based elements.

- **IPMA (Morris, 2001)**

The three competencies of this approach are technical competence, behavioural competence and contextual competence. The technical competence consists of twenty sets of elements which deal with project management matters. Behavioural competence consists of fifteen elements focusing on personal relationship between individuals and groups in the project, programme and portfolio. The third competence consists of eleven elements and is contextual in that it deals with the interaction of the project team within the context of the project and within the permanent organisation.

- **British Standard (Chin et al., 2010)**

This approach consists of a document issued in four parts:

Part 1: Guide to project management (BS6079-1:2002);

Part 2: Vocabulary (BS6079-2:2000);

Part 3: Guide to the management of business related project risk (BS6079-3:2000);

Part 4: Guide to project management in the construction industry (PD6079-4).

These documents are designed to fit into broad projects of different types of industries and the public sector.

When comparing and contrasting these five methodologies we find that all are made up of phases, standard approaches, tools and techniques, standards and terms and definitions. All except British Standard have processes and knowledge areas. Based on these being the most adopted methodologies, these seven elements can be seen as a requirement of a successful project methodology.

Each of these methodologies has both strengths and weaknesses. PMBOK is a comprehensive knowledge-based project management guide covering widely proven practices with descriptive knowledge areas and easy to understand concepts. It is comprehensive and well-structured and can be applied to all types and sizes of projects (Wideman, 2005). It however does not provide any templates and checklists and is considered to be far too bureaucratic for smaller projects if followed completely (Siegelau, 2004). PMBOK is also not easily adapted to projects based on their complexity and context and therefore does not allow one to react quickly to unique situations that are apparent in some project environments (Chin et al., 2010).

According to Siegelau (2004) PRINCE 2 is structured producing standardised projects with a standard approach that can be tailored to different organisation needs. It allows for management involvement at important decision points and throughout the project allowing for communication between all stakeholders. PRINCE 2 provides control through the project from protection from scope creep to regular progress reviews with automatic management intervention (Wideman, 2002). Just like PMBOK it is suitable for any size project but includes templates for all required documentation and is easy to complete (Wideman, 2005). Some of these benefits are viewed by some as cumbersome and bureaucratic and makes PRINCE 2 inflexible when dealing with changing

environments and all types of projects (Chin et al., 2010). It is also viewed by some as unsuitable for small projects due to the large amount of documentation with its structure increasing projects length, cost, delaying return on investments, risks of failure and the possibility of real requirements, objectives and expected standards not being met (Chin et al., 2010).

APMBOK is the most comprehensive book of knowledge on projects for any sector and is less method orientated (Morris et al., 2000). It is a framework that companies can utilise for project management (Chin et al., 2010). It has recognised set practices for governing projects and caters for the softer skills (Morris, Crawford, Hodgson, Shepherd and Thomas, 2006). It is however designed for experienced project managers and relies on their competency (Chin et al., 2010). It lacks focus on the technical and commercial issues that affect a project (Stretton, 2010).

IPMA is a framework aiming to provide a holistic model for project managers and tries to identify the skills and abilities needed for specific challenges in specific project environments (Chin et al., 2010). It goes a step further by looking at contextual, behavioural, business and organisational aspects of projects (Muller, 2006). The content is however moderately detailed and only presented in a high-level structure.

BSI is continually updated and revised by its committee board to meet the current needs and changes in the international market (Chin et al., 2010). It provides a guide to general managers to enable them to provide suitable support for project managers and their teams as well as assisting project managers' and their teams to improve their ability to cope and understand the issues that could occur as well as provides possible solutions (Chin et al., 2010). It is however less comprehensive and extensive than other guides and is not revised frequently.

Even though organisations use these and other methodologies to execute projects, this is insufficient for government and NGOs. There is an increase in the requirement for government and NGOs to be more accountable and transparent (Kusek and Rist, 2004). The authors go on to say that results-based

monitoring and evaluation (M&E) systems can help these organisations measure performance and track progress in achieving the goals. A results based M&E system looks at the goals of the organisation, monitors to assess if the goals are being achieved and how can the achievement be proven. The M&E system aids organisations when they demonstrate to their sponsors and government that they are meeting their goals. As explained by Kusek and Rist (2004), results based M&E is a continuous process of collecting and analysing information to compare how well a project is being implemented against the expected outcomes. The Non-Profit Organisations Act 71 of 1997 describes the reporting requirements of NPOs. The reporting requirements are(Honey, 2012):

- Financial statements at the end of every financial year
- Accounting records and supporting documentation preserved
- Report from an accounting officer confirming that the financial statements are consistent with the accounting records; the accounting policies are appropriate and applied, and that the organisation has complied with the financial reporting requirements
- Submit to the Directorate a narrative report together with its financial statements and the accounting officer's report
- Submit to the Directorate the contact details of its office bearers and any changes.

2.3.3 The Project Lifecycle phases

There are many versions of the project lifecycle. From the leading methodologies described above and literature, four phases form the basis of the project lifecycle. These are conceptualisation, planning, execution and completion (Pinto and Slevin, 1988; Project Management Institute, 2008; Thi and Swierczek, 2010). This is similar to the earlier study by Munns and Bjeirmi (1996), except that they had added handover and utilisation to the phases before the completion phase. The number of phases has continued to grow over the years. Most common phases according to Charvat (2003) are:

- Discovery/Concept /Idea
- Engagement concept
- Analysis/Feasibility
- Strategy Planning
- Feasibility Assessment
- System Analysis
- Design /Development
- Deployment/Execution
- Testing
- Quality Assurance
- Training & Education
- Rollout/Implementation/Deployment
- Maintenance/ Support/Operations

It is important to note that the Development Bank of South Africa (DBSA) followed the following four step process for the project to determine the Education roadmap (DBSA, 2008). The roadmap is very highly rated and accepted by all parties in the South African Education sector.

- Phase 1: Diagnose the status of the Education schooling system
- Phase 2: Identify reasons for the current education outcomes
- Phase 3: Consolidate findings to make recommendations around short term interventions
- Phase 4: Postscript: Facilitating the implementation of the recommendations

2.3.4 Research Question 1

Of the organisations in South Africa that rollout education sector projects, to what degree and how are they utilising project management methodologies and processes?

2.4. Critical Success factors of Project Management

Implementation of projects is complex requiring attention to be given to a wide variety of variables including resources, budgets and technical (Pinto and Slevin, 1988). The authors goes on to state that successful project outcomes are expected in environments that are turbulent, unpredictable, and dynamic irrespective of whether the project manager has sufficient power, budget, or personnel. Pinto and Coven (1989) suggests that many of the reasons for project success can be attributed to several critical success factors.

2.4.1 Evolution of Critical success factors in Project Management

Over the majority of the last fifty years success criteria have been an integrated part of project management theory. The early definitions of project management included the so called 'Iron Triangle' success criteria – cost, time and quality (Atkinson, 1999). Figure 2 is a representation of this.

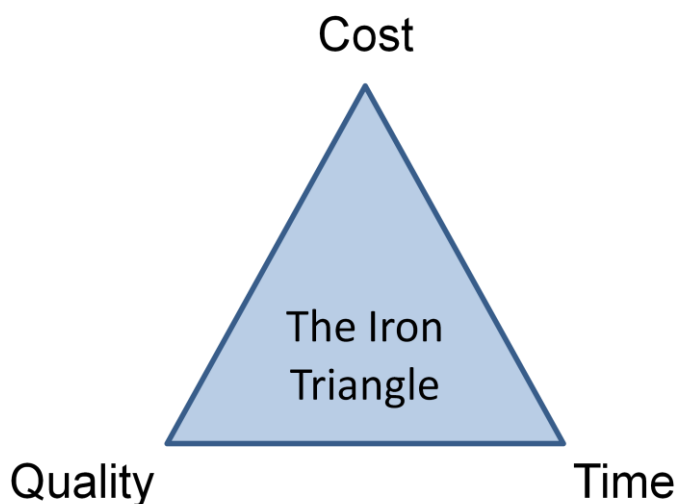


Figure 2: Iron Triangle(Atkinson, 1999)

A study by White and Fortune (2002) found that there must be a fit between the project and the organisation. Pinto and Slevin (1988) added client satisfaction to the three criteria. This meant that the deliverables of the project must be accepted and used by those for whom it was intended. This was greatly expanded on by Pinto and Covin (1989). They stated that communication, power, politics and environmental effects are also important factors. Factors widely cited as key to critical success are that goals and objectives must be clear and there must be top management support for the project (Pinto and Covin, 1989; White and Fortune, 2002). Pinto and Covin (1989) also added project schedule and plans and resources or project personnel. The authors explained that the schedules and plans must be a detailed specification of all the activities. The author explains that when resourcing a project team, thorough consideration must be given to selection, recruitment, and training of the project team. Monitoring and reporting are also factors added by the author as critical.

Recent trends of agile project management also highlight additional critical success factors including customer involvement and team capability (Chow and Cao, 2008). Thi and Swierczek (2010) agree with team capability but also cite manager competencies as important.

PMI has in their latest version of PMBOK, done away with the project triangle as they have observed many more constraints other than scope, time, and cost (Project Management Institute, 2008).

2.4.2 Competencies of the project manager

Complexity, chaos and uncertainty are becoming more evident in projects and project environments. The competencies that are required from project managers in complex environments, as shown in Figure 3, are shared leadership; social competence and emotional intelligence; communication; skills in organisational politics; and the importance of visions, values, and beliefs (Thomas and Mengel, 2008). Project managers should assign significantly higher importance to the satisfaction of customers, end-users, and other stakeholders in complex projects (Müller and Turner, 2007). They also need a

high degree of self-reference, the ability to thrive on change, a solid foundation in traditional methods and techniques, and the ability to adapt to change and develop new approaches on the fly (Thomas and Mengel, 2008).

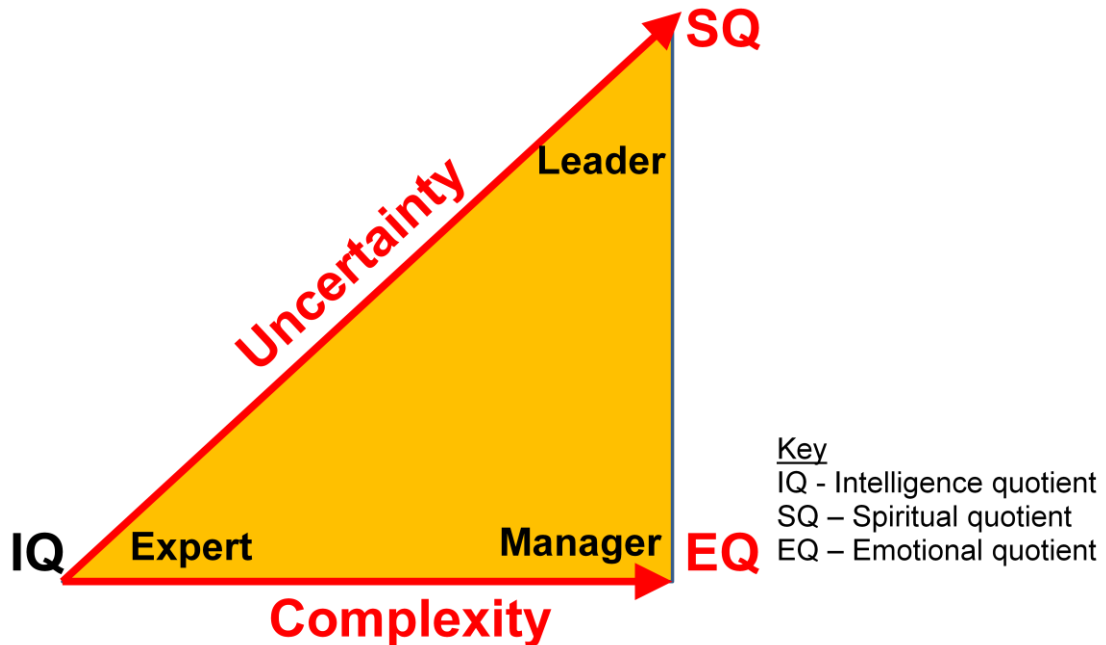


Figure 3: Three-dimensional model of project management knowledge (Thomas and Mengel, 2008)

Compared to other socio-economic sectors, and more than ever, education involves more complex and multidimensional problems (Chang, 2008). The author goes on to state that planning in the education sector is now more complex, especially in developing countries, requiring more diversified and specialised skills and competences. Education managers should possess the necessary technical capacities and the political negotiation and communication skills to effectively engage with finance ministries, external partners, and civil society organisations (Chang, 2008).

2.4.3 Research Question 2

What are the critical success factors for project management of projects in the education sector in South Africa?

2.5. Conclusion of Literature Review

Project success in the Education sector in South Africa has not been successful. The literature was limited on the methods employed for delivery of these projects. The literature review therefore focussed on what is involved in project management methodology and processes and its potential to improve the success of projects. Project management methodologies and processes are now being used across new sectors but must be adapted. Selection of the correct methodology based on the project and sector is also important. There are several other advantages of using a project management methodology and processes besides improving the success of the project.

The five leading methodologies are PMBOK, PRINCE, APMBOK, IPMA and BSI. All of these consist of processes or phases for managing projects. The seven elements identified as requirements for successful project methodologies are phases, standard approaches, tools and techniques, standards and terms, definitions, processes and knowledge areas. Project Lifecycles are derived from these methodologies.

Project success is expected in environments that are turbulent, unpredictable, and dynamic irrespective of whether the project manager has sufficient power, budget, or people. Critical success factors for projects has evolved over the years from only considering cost, quality and time to a more comprehensive view. The critical success factors that have been added to the base three are client satisfaction, communication, power, politics, environmental effects, goals and objectives, top management support, customer involvement , team capability and manager competencies. The competencies of the project manager have also been identified as a critical success factor.

Planning in the education sector is now more complex, especially in developing countries, requiring more diversified and specialised skills and competences. This requires competencies that are similar to that of the modern project manager.

Thus the two Research Questions are:

2.5.1 Research Question 1:

Of the organisations in South Africa that rollout education sector projects, to what degree and how are they utilising project management methodologies and processes?

2.5.2 Research Question 2:

What are the critical success factors for project management of projects in the education sector in South Africa?

CHAPTER 3: RESEARCH METHODOLOGY

This section describes the methodology that was followed to conduct the research to address the two research questions posed in the report. It begins with a discussion on the literature focussing on the qualitative approach. This is followed by an analysis of the research design, population and sample and research instrument used in this report. Data collection, data analysis and limitations with reference to this study are then presented. A discussion on the validity and reliability of the research concludes this section.

3.1 The Qualitative Research methodology

Babbie and Mouton (2005) describe the primary goal of a qualitative research approach as the describing and understanding of actions and events. Another viewpoint is expressed by Myers (2008) who argues that it allows the researcher to understand people and what they say and do. The author goes on to mention that one of the key factors of this approach is that it allows the researcher to understand the context of why actions were conducted in that way. This approach allows one to understand the action in its context and not as an outcome of a theoretical population (Babbie and Mouton, 2005). This can be described as extracting meaning that people ascribe to their work (Hesse-Biber and Leavy, 2010). According to Creswell (2003) qualitative research is exploratory therefore suited for situations where a concept or fact needs to be understood. With this context in mind this approach results in the generation of new theories (Babbie and Mouton, 2005). This research report therefore used the qualitative research approach in the collection of data to answer the two research questions posed.

The data collection for this research report took the form of interviews with each respondent. The interviews are basic individual interviews which take the form of a conversation (Babbie and Mouton, 2005). These are semi-structured interviews which combined features of the formal interview and informal conversation (Creswell, 2003). A set of open ended questions formed the basis for the interview allowing for other questions to emerge from the conversation

(Creswell, 2003; DiCicco Bloom and Crabtree, 2006). The interview was scheduled ahead of time for sixty minutes.

It was assumed that the respondents were open and honest during the interview process.

3.2 Research Design

The research design was in the form of semi-structured interviews. The questions asked in the interview were used to steer the conversation to a point that the research question was answered. The purpose of this was to understand what the interviewee meant and the context of the answer given (Willig, 2008). Even though there is theory and literature on project management, there is a limited amount on its relation to education thus making the context very important. The selected method of a semi-structured interview is the best technique for gathering this type of information.

One of the advantages of using the interview method that pertains to this research is that it allowed the interviewee to talk freely and let you know that what he /she feels is important (Willig, 2008). The author continues to say that it can also be a disadvantage based on the talkative nature of the interviewee. One could therefore end up having too much or too little information. Most parties are familiar with the interview process which makes this an advantage. A disadvantage however, is the lack of trust by the interviewee due to not knowing the interviewer which could lead to limited disclosure (Myers and Newman, 2007).

The first method that was adopted to alleviate the disadvantages was to have a carefully planned agenda (Willig, 2008). This helped the interviewer to remember the research questions thus maintaining control of the interview and its direction at the same time allowing sufficient time for meaningful disclosure by the interviewee. The second method as suggested by Willig (2008) was for the interviewer to be familiar with the interviewee which helped to build rapport with the interviewee. This assisted in building trust allowing for improved disclosure.

3.3 Population and sample

3.3.1 Population

The population of this study was made up of management and project implementation staff from the NGOs, foundations and governmental organisations that are working in the education sector.

3.3.2 Sample and sampling method

Senior managers and project team members were selected from each organisation due to the importance of viewing projects from different perspectives. According to Koro-Ljungberg (2008), triangulation is used to emphasize how various perspectives can add to the validity. Senior managers were chosen due to their knowledge and experience of the education sector and its projects and project team members were selected due to their hands on experience and knowledge on the projects. Triangulation was also used in the choice of organisations. The sample was made up of twenty five organisations from both the donor; project implementation organisations as well as those that do both. One manager and one project team member from each organisation was interviewed. The organisations selected were made up of government, foundations, businesses and NGOs working in the education sector. An attempt was made to select senior managers and project team members that have been involved in more than one project therefore possessing adequate experience in this sector.

Interviews were requested by telephone, email and via referrals from senior managers in the education sector. The letter to the respondents provided in Appendix A was sent to all the respondents. Interviews were planned with fifteen of the twenty five organisations profiled in Table 1 in order to conduct thirty interviews. When an identified interviewee was not available at the scheduled time the interview was rescheduled or an alternate was requested from the identified interviewees.

Table 1: Profile of respondents

Organisation Type	Number of organisations	Number of respondents
Donor Organisations	8	
• Management		8
• Project Team		8
Project Implementation Organisations	8	
• Management		8
• Project Team		8
Donor and Implementation Organisations	9	
• Management		9
• Project Team		9
TOTAL	25	50

3.4 The research instrument

The questions used in the semi-structured interview are provided in Appendix B. The intention was to interview the senior manager of the organisation first in order to understand the organisation's initiatives and the nature of their initiatives. The manager should also provide answers from a management perspective. This facilitated deeper meaning to the answers to the research questions of this report. The project team member was then interviewed to gain an employee's perspective of what the organisation's objectives are. They also provided a more detail response to the actual rollout of projects and initiatives. The questionnaire was set up to initially gain insight into the organisation and its purpose. It then contained questions on the first research question followed by questions on the second research question. The questions were open ended as per the semi-structured interview process to allow for exploring of deeper insights as they arise.

3.5 Procedure for data collection

The interviews were scheduled in advance based on the availability of the interviewees. For the organisations that were in the Gauteng area, the interviews took place at their offices. This ensured that the interviewees were in familiar surroundings and were therefore more comfortable. They were also in a position to reference material when they wished to disclose written information in support of their answers. Interviews were sought with interviewees in other cities either when the interviewer was in that city, or when they were in Gauteng, they were only contacted telephonically as a last resort. Permission was sort from the interviewees for the interview to be recorded ensuring the accuracy of the interview. This recording was made available to the interviewee on request. Notes were also taken especially when there was no recording consented.

3.6 Data analysis and interpretation

The data analysis for this research is the interpretive analysis method. Within interpretive analysis the content analysis method of the transcribed interview data was employed. Terre Blanche, Durrheim and Painter (2006) summarised the methodology into five steps; familiarisation and immersion, inducing themes, coding, elaboration and interpretation and checking.

The familiarisation and immersion steps involved understanding the data completely. This understanding of the data began during the data collecting phase. Fully understand the data, involved going through all the data several times.

The inducing themes step involved determining the themes that arose naturally from the data, keeping the research question in mind. The best way to do this was to use the language of the interviewees, look at the data in terms of processes, functions and contradictions, find the optimal level of complexity namely not too few or too many themes, play around with the themes before finalising and do not lose focus on the research question.

The coding step involved breaking up the data into different sections according to the identified themes. The data could be relevant to different themes.

The elaboration step delved into the themes more carefully. By doing this more themes or sub themes appeared. The coding system could have been revised at this stage. The objective of this step was to continue the processes of analysing the data until no more insights were apparent.

The final step of interpreting and checking the data involved compiling the written account of the study and then going through it in fine detail rectifying any weak points that appeared. This was also the opportunity to check if there was any personal bias in the interpretation of the data.

These five steps by Terre Blanche et al. (2006) was used for the data analysis in this report. One of the methods to ensure that the data did not accumulate and become unmanageable was to start this process as soon as the first interview was over (Maxwell, 2005).

3.7 Limitations of the study

The sample chosen for the interviews forms a high percentage of the major players in this sector. Should any of the respondents not be in a position to accommodate the interview it will be difficult to replace the organisation with a similar one. Some of the organisations were relatively new and this could have limited the number of projects completed thus effecting the experience of the managers and employees. Despite the number of projects carried out in the education sector, Bloch (2009b) believes that the country is heading for an education crises signifying that many of the projects are not having the desired effect and can be considered as unsuccessful. This could have caused the interviewees to decline the interview or be hesitant to divulge information. These factors could affect the number of interviewees and data collected which could affect the results. This was overcome by stressing the fact that the interview would not include questions on the confidential content details but would focus on the details of the methodology, processes and management of the projects.

3.8 Validity and reliability

Validity and reliability in qualitative research has been referred to as establishing 'truth value', 'applicability', 'consistency' and 'neutrality' (Guba & Lincoln 1981). The traditional terms validity and reliability have been replaced with words like trustworthiness and authenticity (Denzin and Lincoln, 2011). The method of making this research valid (external and internal) and reliable is now discussed.

3.8.1 External validity

Guba and Lincoln (1981) suggest that applicability is related to external validity in qualitative research. The capacity to generalise the findings and the representativeness of the subjects is also commonly referred to as external validity (Sandelowski, 1986). The applicability and ability to generalise refer to the degree to which the results of the research can be applied to other situations (Merriam, 1995). Merriam (1995) suggests that generalisation is a key factor in support of external validity. This is the extent to which findings from an investigation can be applicable to other situations and can be established by the individuals in those situations (Merriam, 1995). In order to show that this is the case in this research, sufficient information was provided on the problem being researched to enable users to determine if the results can be used in their situation.

3.8.2 Internal validity

In qualitative research credibility rather than internal validity is a measure of the truth value (Guba and Lincoln, 1981). An important factor is the factual account of the interview (Maxwell, 1992). In order to show that a report is credible it must be referred back to the interviewees for them to verify the true reflection of their interview (Sandelowski, 1986). This process was followed in this report. Interviews were held with both managers and project team members to get both perspectives thus adding to the internal validity.

3.8.3 Reliability

Reliability in a qualitative research context is described as the ability to replicate the data and consistency of a study in terms of the clearness and correctness of the final research (Lincoln and Guba, 1985). In this study the same question format and agenda was used to ensure consistency and replication. A voice recorder was used during the interview with the consent of the interviewee to ensure clearness and correctness.

CHAPTER 4: PRESENTATION AND DISCUSSION OF RESULTS

4.1 Introduction

The results of the research questions in Appendix B are presented using tables and quotations. The discussion of the research questions is presented by comparing and contrasting the results of the interviews with the findings of literature as summarised in Chapter 2.

These results were obtained from semi-structured interviews. Twenty Five organisations were approached for interviews with requests for interviews to both management and project staff. Fifteen of the organisations accepted. No further organisations were approached due to this being the target. The organisations were split into Donor, Donor/Implementation and Implementation organisations. The organisations were based in Johannesburg, Pretoria and Cape Town.

4.2 Demographic profile of respondents

There were five interviews with each of the three organisations; Donor, Donor/Implementation and Implementation. In each organisation interviews were held with a management and a project management member of staff. There were 3 organisations from Cape Town, 2 from Pretoria and 10 from Johannesburg. The intention was to interview fifteen organisations mainly from Gauteng due to the inability to interview organisations in outlying areas in South Africa. Interviews were held with government organisations, foundations, businesses and NGOs working in the education sector as planned. Most of the organisations interviewed were based in Johannesburg but undertook projects throughout the country. The main reason for these organisations being situated in Johannesburg was that their founding companies' head offices were situated there. The research is therefore representative of education projects throughout South Africa.

4.2.1 Question 1

The first question in this section of the interview requested the role of the interviewee in the organisation and on the projects that the organisation was involved in.

The range of managers interviewed is shown in Table 2. The managers were all executive level managers including CEOs, Managing Directors, Programme Directors and a National director. The aim of the interview was to gain the senior management perspective which was therefore achieved.

Table 2: Types of managers interviewed

Type of Manager	Number Interviewed
CEO	6
Managing Director	5
Programmes Director	3
National Director	1
Total	15

The role of these managers in Table 2 did not differ much across the organisations interviewed. The three main roles of these managers were running the organisation, providing strategic direction and integration and alignment of the projects of the organisation. The first role of running the organisation is important for management because should this be lacking there will not be an organisation to deliver on the projects. The second role of strategic direction was described by the managers as “*shaping*”, “*strategic insight*” and “*strategic direction*”. These words relate to the role of any CEO and director of any organisation. They are tasked with directing the organisation on a path that will lead it to meeting its goals, objectives, vision or mandate. “*Integration*” of the projects and ensuring the projects were “*coherent*” and “*aligned*” is the third role described by the managers. This is important as it

ensures that the projects undertaken by the organisation are related to one another and all again lead to the goals, objectives, vision or mandate of the organisation.

Some of the organisations were small or relatively new. The role of the senior managers extended to *“building capacity”*, *“transferring knowledge”* and even running some of the projects. It is important for the senior managers to pass on their knowledge and build capacity because this is one way to increase the skills pool and increase the amount of work that can be done. Running key projects is also the role of some of the managers in the larger organisations. The managers also provide assistance and guidance to the project team when required.

Fifteen project managers were also interviewed. The target of the interviews was to interview fifteen project staff. This was achieved by having the opportunity to speak to the project managers themselves. The project managers interviewed, managed the implementation of the projects. They were not necessarily involved in the very early stages of the projects but did get involved when the project was past the idea stage. This was generally when some action was required and had to be managed.

4.2.2 Question 2

The second question in this section of the interview requested a description on the type of organisation.

The organisations interviewed were government, foundations, businesses and NGOs working in the education sector as per the target group of the research. More specifically the organisations were focused on Mathematics, Science, Technology and Language education. With this focus they tackled education from many different angles. They viewed the type of their organisation as not just an NGO or Foundation. The most common focus of these organisations are summarised in the Table 3. The total number of times that all the focus areas were repeated was 37. This was due to a few organisations having two or more

focus areas. From the 15 organisations interviewed seven focus areas surfaced.

Table 3: Summary of focus areas of respondents organisations

Rank	Focus	Number of repetitions
1	Research	11
2	Bursaries and Financial Support	7
3	Teacher Development	5
3	Schools Development	5
4	Principal Development	4
5	Innovation	3
6	Creation of material	2
	Total	37

From the summary in Table 3, Research is the highest focus across the organisations. One respondent described the organisation as:

“This is a Foundation. We are a not for profit organisation and is therefore very cost driven. It is important that the projects we undertake make a meaningful difference to education and is therefore research based”

Another respondent’s description was:

“The bottom line of this organisation is creditability which is influenced by successful project implementation. We do this by ensuring that our projects are well researched, designed and implemented with transparent governance procedures and processes.”

The organisations that are research focused want to ensure that they do the right things. The initial research is to provide sufficient evidence to substantiate undertaking their projects. The research is then focused on forming a solid

basis for what can be done to address the need. They finally research whether it was done before and the best way to do it. This method provides them with the transparency and credibility that is required to implement projects in the education sector. These organisations are on the same track as described by Bloch (2009) in that many organisations have been running projects in this sector with very little impact. The credibility of these organisations needs to therefore be improved. The organisations have to ensure that the projects that they undertake will make a difference and similar statements are not repeated in future. According to Kusek and Rist (2004) there is an increase in the requirement for government and NGOs to be more accountable and transparent. By focusing on the research aspect these organisations are ensuring accountability and transparency and therefore credibility. A few of the organisations used innovation as well as research to describe their organisations. Through the research they are finding innovative ways of dealing with the problems in education. The Non-Profit Organisations Act 71 of 1997 sets out the reporting requirements of NPOs (Honey, 2012).

The second highest organisation type in Table 3 is bursary and financial support organisations. Many organisations, corporate social initiatives and the government provide bursaries and financial support to learners. One of the respondents explained:

“We were founded to provide bursaries and financial support to deserving learners across South Africa”

This was the sole reason for this organisations existence. Other organisations however provide financial support and undertake many other projects. Providing financial support addresses the financial need by a large portion of the population and is in line with the literature as explained by Bloch (2009a) and earlier by Jansen and Taylor (2003) who have described the inequality in South Africa where a large portion of the population live in poverty. This reduces the access of these people to tertiary education and even proper school education. With these organisations providing financial support many more individuals can have access to education.

The next three types of organisations as per Table 3 are schools, teacher and principal development. These are in line with government's and the DBSA Roadmap (2008) as presented by Bloch (2009a) and supported by Fontannaz (2010). These are categorised as teachers, dysfunctional schools and poor resources. The dysfunctional schools are caused by the lack of leadership in the schools which refers to the principal development focus. Poor resources refer to schools development focus area. Some of these organisations are linked to or partner with government as explained by two of the respondents:

"We are an implementation vehicle for the GDE"

and

"We work with Government and Organisations and form Partnerships to improve education quality"

The final type of organisation is those that create material for schools. This was described by a respondent as:

"We create material for all grades for the Maths, Science and Languages curriculum"

This is consistent with the DBSA Roadmap (2008) as presented by Bloch (2009a) and supported by Bloch (2009b) and Fontannaz (2010). Materials in schools fall under the resources category that needs attention in order to get the schools and the education system functioning properly.

4.2.3 Question 3

The third question in this section of the interview requested a description of the objectives of the organisation.

The interviewees chose to describe the objectives of the organisations in their own words. Each organisation has several objectives. There is huge overlap in terms of these objectives. The objectives that incorporate most of the organisations interviewed as described by the respondents are separated into themes and shown in Table 4.

Table 4: Central themes from the objectives of the organisations

Central Themes	OBJECTIVES OF THE ORGANISATIONS
Improving the education system	“Trying to shift science, technology, engineering and maths education in a positive direction”
	“Contribute to education body of knowledge”
	“Help government to implement education improvement projects”
	“Design and test education improvement strategies for the education department and all levels”
	“Start with programme and its benefits but these are platforms to test what works and in the process gather information to make a system change”
	“Schools Leaderships”
	“Teacher training”
Restoring trust in education	“Building Trust in Education”
	“Joy of learning is restored”
Increasing the skills pool	“Maximizing potential”
	“Team up with young people with determination but no means and link them to opportunity”

There are three themes that are evident from the objectives as explained by the respondents and shown in Table 4. These are;

- improving the education system,
- restoring trust in education and,

- increasing the skills pool.

The themes are linked to each other.

These organisations are focused on improving the education system in South Africa. They do this by implementing projects that positively change and make additions to the education system. This is aided by the objective of schools leadership and teacher training. One of the managers suggested the importance of schools leadership as:

“Leadership is important for the functioning of any organisation. Why should a school be different?”

According to the respondents there are insufficient maths and science teachers in our schools. One of the organisations interviewed trained teachers in this area and added 4500 maths and science teachers into the schooling system last year. Once the education system is improved trust in the education system can be restored. This should focus learners on the importance of education thereby making learners want to go to school. By improving the education system and making learners want to be in school, the NGOs can positively affect the skills pool of South Africa.

The objectives of these organisations are consistent with most of The Development Bank of Southern Africa (DBSA) Roadmap (2008) as summarised and presented by Bloch (2009a) and supported by Bloch (2009b) and Fontannaz (2010) which highlights the key areas that hold back education in South Africa. Two of the five areas are covered by these organisations namely teachers and dysfunctional schools. There is also a level of responsibility and accountability that is covered. But this is on a provincial and not national level. The resources area is also only partly covered. The area of social disadvantage is not covered by these organisations. This could be because it's handled separately by other organisations and government. According to DBSA this needs to be identified and tackled together for there to be favourable results.

4.3 Results and discussion pertaining to Research Question 1

Of the organisations in South Africa that rollout education sector projects, to what degree and how are they utilising project management methodologies and processes?

4.3.1 Question 1

The first question in this section of the interview requested reasons for the organisations undertaking projects in the education sector.

The main reasons surfacing from the interviews for the organisations choosing projects in the education sector are summarised in Table 5. The total number of times that the main reasons for undertaking education projects were repeated was 46. This was due to a few organisations having two or more main reasons. From the 15 organisations interviewed four main reasons for choosing projects were identified. These reasons are first, identified and researched need for interventions, second, mandate / trust deed, third, skills shortage and fourth, government priority.

Table 5: Main reasons for undertaking education projects

Reason	Number of Organisations
Identified and Researched Need for interventions	15
Mandate / Trust Deed	12
Skills Shortage	11
Government Priority	8
Total	46

From Table 5 the main reason for organisations undertaking projects in the education sector is that there is an identified and researched need for interventions. The research conducted by most of these organisations, as

explained during the interviews, indicates that there are problems in education. The research by the organisations indicates these problems are a major contributor to the lack of in particular Science, Technology, Engineering and Mathematics (STEM) skills in South Africa which is the third reason for organisations undertaking education projects. One of the respondents answered as follows:

“The problem with Science, Technology, Engineering and Mathematics skills stems from science and mathematics education problems.”

Another interviewee answered as follows:

“The shortage of skilled resources in South Africa is based on the state of the education currently.”

The findings of these organisations are consistent with Bloch (2009b) and Jansen and Taylor (2003) who reveal findings that South African learners are consistently underachieving. Bloch (2009b) believes the country is headed for a national education crisis with sixty to eighty percent of the schools dysfunctional which produce learners who are barely literate and numerate. This is again confirmed in the (DBSA) Roadmap (2008) supported by Bloch (2009b) and Fontannaz (2010) that highlights the key areas that hold back education in South Africa. These are social disadvantage, lack of teachers, dysfunctional schools and lack of resources. The positive from this is that the organisations research reflects the literature and studies by others including government. By doing this there is a sound basis for undertaking projects in education. Doing the research also focuses the areas in the troubled education system that needs attention. Getting the education system working will then have the knock-on effect of reducing the skills shortage.

The second reason for undertaking projects in the education sector is that the organisations are mandated to do so. The mandate stems from the position that there is a clear, researched and identified requirement for interventions in the education environment particularly in the area of Science, Technology, Engineering and Mathematics (STEM) education. A respondent explains:

“They are the basis of needs that are perceived in line of our mandate.”

These organisations were formed based on the researched need. From the literature study a number of organisations have emerged with the sole purpose of tackling education projects. These organisations are relatively new, only being launched in the last five years. Organisations were chosen based on the work they do in this sector. Their reasons for starting these organisations are therefore consistent with the literature.

The fourth reason that organisations undertake education projects is that it has now become one of government’s top priorities. A respondent explained:

“It is apparent that the problems in education have become so prevalent that it is now one of the government’s top 5 priorities. This has led to organisations like ours being started or existing organisations redirected their focus on education projects.”

This is related to the history of the country where the past apartheid system provided poor quality education to Non Whites as described by two respondents as their reasons for undertaking projects in this sector:

“Our projects are necessitated by the limited access and poor quality education available to non whites.”

And

“The organisation was established exclusively for black learners in school when the crisis in education was evident in 1974”

Education is seen as a means of taking South Africans out of the trap of poverty and crime to economic freedom. This was not the main reason for organisations undertaking projects in education but was mentioned as an outcome of a successful education system. As answered by two interviewees:

“We are still convinced that education is central against the struggle of poverty.”

and

“We feel that we can best maximize potential through education.”

According to Jansen (2001) the apartheid system ensured that the majority of the citizens of the country were denied proper education. The reasons given by the organisations are consistent with literature. Most of the organisation have through research or have been established to tackle the problem South Africa has inherited from its past.

An interesting and positive observation from the interviews was the passion shown by all of the respondents. This was best described by one as the reasons for engaging in projects in the education sector:

“We are personally interested in meaningful pursuit of excellence in maths and science education and skills”

The respondents are not just looking at this as another job. They have chosen this as a sector that they want to be involved in. They have taken the education problem and made it their personal goals for the rest of their careers. With this passion at play the drive to sort out the education issues will be strengthened.

4.3.2 Question 2

The second question in this section of the interview requested an explanation of how the organisations determined the projects they undertake.

The respondents were requested to answer the next few questions with a project in mind to assist in the explanation. The organisations undertook projects based on a combination of sources or just one of these three main sources summarised in Table 6. These are requests, self defined and instructions.

Table 6: Sources of education projects

• Requests	• Self defined	• Instruction
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The first source of education projects as shown in Table 6 is requests. The requests come from organisations that have money and would like to undertake a project that matches what these organisations do. The second source is self defined projects and is based on the research conducted by these organisations as well as the objectives of the organisations. The final source is instructions which come from two places. The one is from government to organisations which they have close ties with and the other is from private sector companies to the organisations they established to work in this area. All of these three are however still based on the mandate and objectives of the organisations.

The organisations have processes that are followed in order to select projects that they undertake including those that come through as instructions. The most common process is that of selection by a committee. The various committees include boards, management committees and strategic planning sessions. At these meetings, proposals are submitted, reviewed and discussed. Projects are selected, screened and prioritised at these meetings based on a set of criteria. The criteria as established from the interviews are:

- Mandate
- Governance
- Strategy
- Timing
- Budget

These findings are consistent with the purpose of using project management methodology in the literature, as indicated by Chin and Spowage (2010) that project management involves the planning and coordination of projects from concept to closure with the main objective to meet the requirements of the owner within budget and timeframe. The organisations meet the requirements of the owner by only taking on projects that come from requests, instructions and research but are in line with the objectives of the organisations' mandate.

The process of selecting the projects as described by the respondents ensures that the organisations take on the correct projects.

4.3.3 Question 3

The third question in this section of the interview requested the process/methodology that the organisation used for project management.

All the organisations have a process or methodology by which they run projects. This is true of the three types of organisations. Whether the organisation is a full implementer of projects or purely a donor organisation, a process does exist. Most of the organisations use “*internally derived*” processes and methodologies. Some of these are formal while others are not. As per the respondents the formal processes and methodologies were derived from the “PMBOK” type methodologies. The PMBOK methodology includes management processes like initiation, planning, execution, monitoring and controlling and closing. It also includes the nine knowledge areas of scope, time, cost and quality management. It also includes facilitating functions like human resource management, communication, risks and procurement management and the processes of planning, executing, monitoring and controlling. The processes and methodology was then customised for the organisation and its projects. Those processes and methodologies that are not formal have not been documented or named.

This is consistent with Chin and Spowage (2010) who explain that in order to effectively leverage from available project management methodologies, it is key to realise that they need to be adapted and classified. It has to be specific to the environment. The organisations that have informal systems do not want to complicate their projects. They describe their projects as simple and uncomplicated. This is consistent with Charvat (2003) who had earlier explained that when implementing projects it is vital not to complicate simple projects with complicated methodologies.

A few of the organisations however used other models:

- *“Stage Gate Model”*
- *“Theory of constraint”*
- *“Logic Framework”*
- *“Critical Chain”*

It is interesting to note at this point that none of the organisations are using any of the five main project methodologies described in the literature as a standard methodology. These are Project Management Body of Knowledge (PMBOK), Projects in Controlled Environments (PRINCE), Association of Project Management Body of Knowledge (APMBOK), International Project Management Association (IPMA) and the British Standards (BSI) BS6079-1:2002. Even though the organisations are not directly using one of these five, many have derived their methodologies from PMBOK.

4.3.4 Question 4

The fourth question in this section requests a description of the process/methodology and how it was derived.

4.3.4.1 Processes/Methodologies

The basic structure of majority of the processes and methodologies discussed by the respondents are included in the steps as shown in Figure 4.

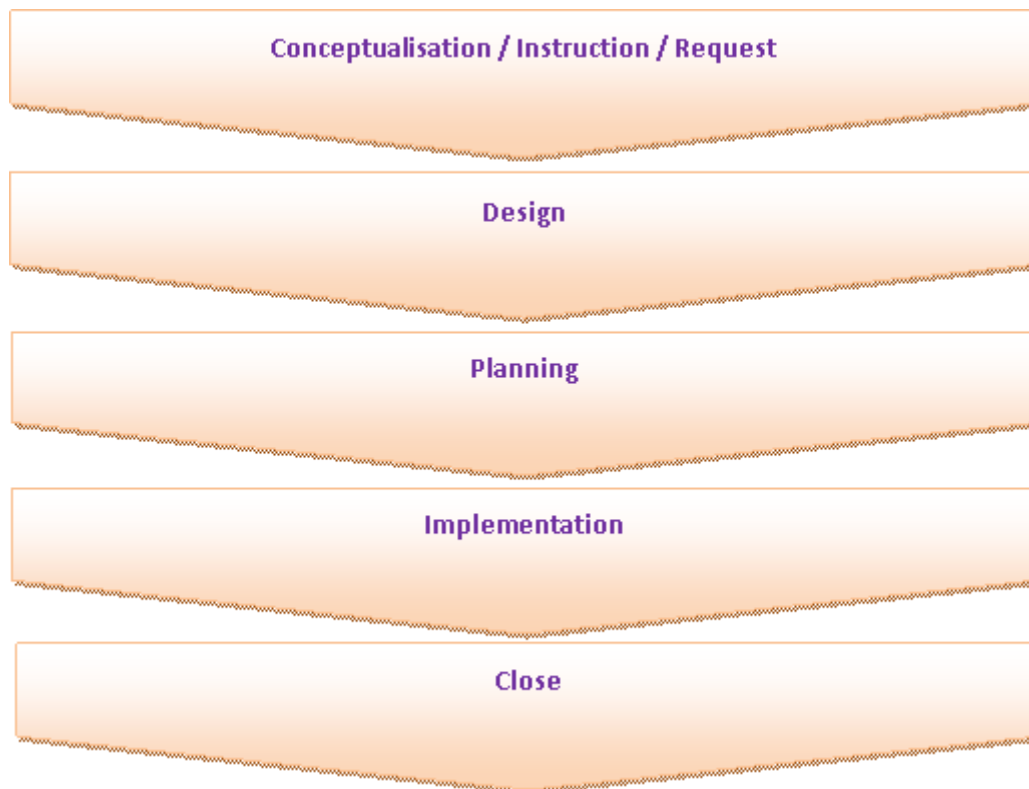


Figure 4: Summary of the basic structure of organisations project management processes or methodologies (developed from interviews)

The first step in Figure 4 relates to how projects originate in organisations. Some of the organisations either get instructions from government or their founder organisations on the projects they should undertake. Others receive requests to undertake a specific project or projects. The remainder of the organisations conceptualise projects based on their research and findings. The next step is to further breakdown the scope of the project, gather the required information, bring in the required experts and design the final outcome. During the design phase many organisations set up monitoring and evaluation systems for the project. This process is seen as important but is not always carried out. The next step is to plan the project. This involves planning the activities to a time line, finding the correct resources and budgeting. The next step is to implement the project. This involves actioning the activities against the plan derived in the step before. This is done by some organisations by using the monitoring system set up in the design step. The final phase is the close out step. The evaluation criteria if possible are then used to see if the project is successful.

The description of the methodologies by the respondents is coherent with Pinto and Slevin (1988); the Project Management Institute (2008) and Thi and Swirczek (2010). Four phases form the basis of a project lifecycle these are conceptualisation, planning, execution and completion. Charvat (2003) explained that these phases have grown over the years and one phase that was added was the design phase.

There are however many other phases listed by Charvat (2003) that are not mentioned by the respondents. These are engagement concept, analysis/feasibility, feasibility assessment, systems analysis, testing, quality assurance, training and education and maintenance/ support / operations. Not all stages are required for all projects. This could be a reason why some were not mentioned. Another reason could be that the activities that are covered in some of the additional phases are actually carried out in the basic phases. An example could be quality assurance. Monitoring and evaluation is used for quality assurance and this is carried out during the implementation and closeout steps of the project (Kusek and Rist, 2004; Project Management Institute, 2008).

Some organisations use a *“Conceptual model that allows for the allocation of responsibilities. In this model they break down the tasks, resources, budgets.”* It is considered an *“Enabled approach”* that provides an operational plan setting out how to run the project by setting targets, budgets, resources followed by implementation. This is very similar to the last three steps of the steps in Figure 4.

4.3.4.2 How are the Processes/Methodologies derived?

The organisations explained their project management as different from ordinary projects. They considered it a *“soft project where your hard and rigid project management methodologies do not work”*. According to a respondent:

“In education projects we have to deal with or acknowledge that we don’t have control of the people. How do we get people to listen to what we are saying if we don’t have control of them?”

This was explained by most of the organisations when discussing their methodologies.

The methodologies were derived from the existing *“PMBOK type methodology”*. The methodology used is considered a hybrid of the *“normal project management methodologies and processes.”*

Chang (2008) suggested that compared to other socio-economic sectors education involves more complex and multidimensional problems. Chin and Spowage (2010) explained that an effective project management methodology is specific to the environment, dynamic and adaptable to the stakeholder demands. With this in mind it must still be customisable to projects in that environment. Organisations will therefore have to add or change their processes or methodologies to cope with the different nature of the projects. However the basis is still an existing methodology. These organisations have discovered the loop holes in the existing methodology to deal with education projects and have made the necessary changes to ensure their projects are successful.

The two methodologies that differ from those described in the literature as described by the respondents are the Theory of Constraints and the Critical Chain. The theory of constraints as explained by the respondent is *“all about throughputs”*. Another respondent explained it as:

“the method of continuous improvement by identifying and managing the most important constraints. The basic principles of project management are still there with the emphasis on the constraints.”

The other method used by some of the organisations as described by a respondent:

“Our methodology is similar to the normal project management methodology but differs in the way the critical path of the project is managed, hence the name critical chain project management.”

This is described by the respondent as *“Identified bottleneck constraints – get those right and most things work out”*. These methods are more focused on the

implementation of the project. The organisations still go through the initial steps as summarised in Figure 4.

A very interesting outcome from one of the respondents was the notion of “*evolving*” after the implementation stage. According to the respondent they have found that in the education sector, once a project has been implemented there has to be another step before hand over. Some organisations evaluate the project for a period of time after implementation. This is thought to be by this respondent as “*insufficient*”. They have introduced the evolving step. During this step they “*monitor and make changes to what was implemented if it is perceived that the original design is not working. This step continues until there is a positive outcome. In this way the project is tracked to a successful completion and not just a completion*”.

The respondents have explained that it is difficult to immediately see the success of a project once implemented. This phase therefore allows time to ensure that what was established by the project is working. If it is not it can be tweaked or changed as required. This could be a valuable step in ensuring success of projects. The evolve phase is different and inconsistent with the literature but it is very interesting and worth evaluating further.

4.3.5 Question 5

The last question in this section of the interview requested the existence of governance processes and an explanation of how it works.

From the interviews it is clear that all the organisations do have governance processes in place. At every stage of a project there is some sort of governance that exists as summarised in Table 7.

Table 7: Summary of the organisations project steps with respective governance Processes

STEP	GOVERNANCE PROCESS
Before the start of a project. At the Conceptualisation / Instruction / Request step	Board Approval Management approval Management committee approval Gate approval process
After the Design Step	Management approval Management Committee Approval Steercom Approval Gate approval process
After the Planning Step	None
Implementation Step	Management Approval Management Committee Approval Steercom Approval Gate approval process

Five types of governance process are shown at each step in Table 7. These are Board Approval, Management Approval, Management Committee Approval, Steercom Approval and Gate approval process. The number of approval points in the projects reflects the importance placed on governance. Before a project is allowed to go to the next step it has to go through an approval. In some organisations it is as simple as management approval but the governance still exists. These approvals are there to ensure that the project is still in line with the mandate, objectives, budget of the organisation. Most importantly though, as described by one of the respondents:

“the management committee ensures that the project and its design will provide the results as originally envisaged. Should this not be the case the project is generally stopped but can also be sent back for more clarification or study.”

One of the organisations uses a very formal system of governance. This was described by the respondent as:

“We have criteria of all the activities that should be done during each step. At the end of each step there is a review and the project is assessed against these criteria. If suitable answers are not given to each criterion an explanation is expected. Should this not satisfy the committee the project is stopped or the project team is expected to come back to the committee with an explanation before the decision is made to continue or stop the project.”

Table 7 is an example of the Gate review process. This is the most formal of the processes of any of the organisations. The Gate process involves a committee of peers that evaluate the documentation prepared as required for the project. Only if the project meets the requirements will the committee pass the project through the Gate. This approval is then taken to a steering committee for final approval.

During each of these steps most of the organisations have regular feedback meetings where the project status is assessed. One of the respondents explained:

“If a serious problem is picked up, this can be taken to management or steercom for a decision on the way forward. The project does not have to wait till the end of a step to take these decisions.”

Regular monthly reports are also provided to management by most of the organisations. This allows the management to regularly be up to date on the status of the project as well as any issues that may arise.

The governance procedures of the organisations are consistent with the literature. According to Charvat (2003) the end of each milestone or phase the project should consider whether they should continue with the project or not.

The organisations have proper governance procedures in place. They have one of Management Committee Approval, Steercom Approval or Gate approval process. Some organisations have very clear set rules to how this is done while others can even go to management at any point to decide on whether to continue with the project or not. By ensuring that there is proper governance in place the organisations are ensuring that their projects meet the objectives of the project and the organisation. It does this by ensuring at every stage there is a point to correct any mistakes or deviations.

4.3.6 Conclusion

The organisations executing projects in the education environment in South Africa are using project management methodologies or processes to manage their projects. Most of the organisations are using it to the fullest extent. From the time a project is brought forward it undergoes governance to decide whether it should even be attempted. The projects then follow a project management methodology. The methodologies used by the organisations vary from very comprehensive to informal. This is based on the complexity of the projects the organisation undertakes and according to the literature is acceptable. The project lifecycle or steps conform to the four basic steps as determined from the leading methodologies including one of the additional steps added to the basic steps over time.

4.4 Results pertaining to Research Question 2

What are the critical success factors for project management of projects in the education sector in South Africa?

4.4.1 Question 1

The first question in this section of the interview requested the factors considered by the respondents as critical for the success for their projects.

During the interviews various factors came up as critical to the success of their projects. The critical success factors as described by the respondents for their

projects are summarised in Table 8. Many of the factors were discussed by more than one respondent. Table 8 also reflects the number of respondents that mentioned each factor.

Table 8: Critical success factors

Rank	Critical Success factor	Frequency
1	Budget	28
2	Thorough planning	26
3	The ability to deal with human behaviour	24
4	Time	22
4	Quality	22
4	Monitoring and evaluation developed and in place	22
5	Change management	20
5	Governance must be in place	20
6	Resource planning	18
6	Stakeholder requirements, satisfaction and acceptance/usage	18
7	Design must be thoroughly researched and substantiated	16
8	Lessons Learnt	13

According to the respondents the standard critical success factors as mentioned by Atkinson (1999), White and Fortune (2002) and Thi and Swierczek (2010) that are required for success of all projects are required for their projects as well. These are budget, time and quality. This is evident in Table 8 by the high

number of respondents that chose these. One of the respondents answered the question:

“The standard project management factors are not negotiable. Without these being in place the projects will fail.”

From the number of respondents that mentioned *“Budget control”*, it seems to these organisations to be one of the most important critical success factors contributing to the running of successful projects in this environment. Time and quality are ranked fourth in Table 8. Planning and time are linked with planning being ranked second.

Atkinson's (1999) the 'Iron Triangle' introduced these factors. The triangle consists of cost, quality and time factors. These are consistent with the respondents as they saw these as non-negotiable factors for the success of their projects. These together have the highest repetitions by the respondents. These are the original success factors to which many have now been added. According to Atkinson (1999), these three factors must be properly managed and if one is not in place the project can fail. There are many other critical success factors added but these add to ensuring the project is completed on time, within budget and to the right quality as designed. This was reaffirmed in the studies by White and Fortune (2002) and Thi and Swierczek (2010).

Thorough planning was the second highest rated factor in the summary in Table 8. One of the respondents suggested that:

“Planning is so important that it is a factor on its own and should be kept separate from the time factor as this is merely control of the plan”.

The respondents were adamant that the planning step is fundamental to understanding what needs to be done and then finding the best way to make it happen. A respondent pointed out:

“In construction or other structured projects the steps to be followed are almost set and cannot be changed. You can do things more intelligently but the high

level sequence cannot change. In our projects there is no set way of implementing and therefore the planning is crucial."

Another respondent suggested that:

"In planning we have to tackle the problem systematically and to ensure that all the factors and links are influenced."

This was again nicely summarised by one respondent:

"The strategy tactics to be employed must be thoroughly interrogated. Only stop when there is nothing left".

Thorough planning as a critical success factor is also consistent with the literature. According to the Project management Institute (2008) there needs to be proper planning at every phase of the project. Planning is also mentioned by the other leading project management methodologies (Morris et al., 2000; Morris, 2001; PRINCE2, 2005; Chin et al., 2010). Pinto and Covin (1989) found that planning was more than just a need, as a project schedule and proper plans are critical success factors. The studies of White and Fortune (2002) and Thi and Swierczek (2010) confirmed this finding. They explained that the schedules and plans must be a detailed specification of all the activities. The theory calls for having a full understanding and knowledge of what needs to be done in order to plan it thoroughly. Sixteen of the respondents concur that the activities in the design must be researched to understand the activities of the project fully. They fully apply their mind to the problem and interrogate it completely. In this way they ensure that the planning is as complete as possible.

The third critical success factor in Table 8 refers to the ability to deal with human behaviour. The respondent explained that their projects involve dealing with people. The projects are more often than not making a change that affects people. The project managers therefore need to have the ability to deal with people. One of the respondents summarised this concept as follows:

“Human behaviour is more difficult to deal with. You have to understand who you are dealing with and plan accordingly. This does not mean you will be successful. You can still be wrong.”

The ability to deal with human behaviour is not mentioned as a critical success factor in the literature. It is however the third highest critical success factor according to the respondents. This could be explained by the fact that the projects that the literature is based on are mostly based on the hard paradigm (Pollack, 2007). The author goes further to say that the project management effort is coordinated to reach a particular goal or to perform some specific function where the resources are instructed to complete their actions. In education projects the client could be government, funders or management but the beneficiaries are the learners and teachers. The payment for these projects is also not done by the beneficiaries. The process of implementation and the end result of an education project could affect both the teacher and learner. The project manager's understanding of how the community, school, teachers and learners are going to react to him and the project can assist him in dealing with the situation and therefore the project. The findings by Pollack (2007) regarding people based projects could be the reason why human behaviour has not been mentioned as a critical success factor.

Monitoring and evaluation is also ranked fourth together with Time and Quality in Table 8. Kusek and Rist (2004) explain M&E as a continuous process of collecting and analysing information to compare how well a project is being implemented against the expected outcomes. M&E system looks at the goals of the organisation, are they being achieved and how can the achievement be proven. The respondents that discussed it as a critical success factor emphasised its importance. Basically most respondents said that monitoring and evaluation must be designed during the design of the project together with the planning. In this way you *“manage Inputs, process, outputs and Impact.”* It also ensures that *“quality measures are developed and in place”*. With this however you must ensure you use the monitoring and evaluation that was designed. The problem with education is that as a respondent describes it:

“In education it is very difficult to isolate success”.

Another respondent said:

“One can evaluate the course and satisfaction but it is difficult to measure long term success”.

In education projects it is therefore difficult to determine whether the project was successful once completed. It is even more difficult to decipher whether the change can be attributed to a particular project. In education projects it is easy to gather the immediate feedback with *“qualitative feedback.”* Many respondents explained that it is very expensive and difficult to do long term extensive monitoring as well as isolating the reasons for the success.

Monitoring and evaluation is also a factor consistent with the literature. According to Kusek and Rist (2004) results-based M&E systems can help organisations measure performance and track progress in achieving the goals. Pinto and Covin (1989) added monitoring and control as one of the critical success factors. Project monitoring and evaluation criteria was also considered as a success factor by Cheng, Dainty and Moore (2006). A properly designed M&E system can serve the purpose of tracking whether a project is successful. This needs to be properly understood.

Closely linked to the ability to deal with human behaviour and people management is change management. Change management is one of the factors ranked fifth in Table 8. The respondents were clear that *“managing expectations”* and *“creating an environment for change to take place”* is very important. One cannot as described by one of the respondents *“shove things down someone’s throat and not expect them to gag”*

Change management in projects refers to all the internal and external factors that influence project changes (Motawa, Anumba, Lee and Peña-Mora, 2007). The change management referred to here is the change that occurs affecting the project. Customer involvement is mentioned by Chow and Cao (2008) as a critical success factor. Stakeholder involvement and management support are referred to by White and Fortune (2002) and Thi and Swierczek (2010) as critical success factors. By having customers and stakeholders involved in the project, their input, understanding and buy-in are obtained. In this way they

don't feel that changes are being forced on them. These are factors of change management. This understanding is consistently the intention of change management, as explained by the respondents.

The other factor ranked fifth in Table 8 is governance. This was brought up by the majority of management respondents and a few of the project staff. As described by the respondents that in light of their organisations being NGOs, foundations and government institutions, governance is crucial. They went on to explain that the current climate of corruption that has surrounded many organisations is a concern and they do not want this to interfere with the work that they are doing. This stems from the passion for finding a solution to education that was evident in the interviews. Besides this the organisation cited governance as key, as it formed a point for checking, confirming and focusing direction on the projections. As described by one of the respondents as *"governance is valuable to ensure that money and time is not spent on projects that don't bring the desired outcomes for the organisation or the country"*.

Project governance is not one of the success factors in the literature. Turner (2006) describes project governance as providing the structure, through which the objectives of the project are set, and the means of attaining those objectives are determined, and the means of monitoring performance are determined. This is according to the respondents important and should be understood better.

Resourcing is the sixth ranked factor in Table 8. Resourcing involves ensuring that the correct type, quality and number of resources are on the project at the right time. The lack of good resources for these projects is a concern for these projects which makes it a critical success factor by the respondents. One of the respondents explained:

"Resourcing is essential especially because of the skill shortage in the country."

Another respondent answered:

"In order to cope with the amount of work that has to be done and the low number of skilled resources, resource planning becomes essential for maximising resource usage".

Pinto and Covin (1989) added resources or project personnel as a critical success factor. Resourcing a project team involves thorough consideration to selection, recruitment, and training of the project team (Pinto and Covin, 1989). Resourcing is a critical success factor according to the literature as well. The respondents however add a factor that makes it more critical in South Africa. According to the respondents skills shortage is the attributing factor for why they consider resourcing a critical success factor. This makes the planning of resourcing very important. New ways have to be found in using the available resources in a way that benefits all.

Stakeholder requirements, satisfaction and acceptance/usage is also the sixth ranked critical success factor in Table 8. The respondents explained that there are numerous stakeholders that need to be involved. One respondent explained:

“We must work with all the players to ensure we get a complete picture so that the problem is tackled from all angles”.

This is reiterated by another respondent who explained

“a lot is created that is not based on the need of the learners/educators”.

These creations are not used because the benefit is not understood or that the users feel it is just another product from government *“to make life more difficult”*. The respondents felt that by including all the stakeholders with proper change management they would be able to *“ensure that everything created is used to the satisfaction of all the stakeholders”*.

Stakeholder satisfaction, clear understanding of the needs of the stakeholders and ensuring uptake of implemented projects are consistent with the literature. Pinto and Slevin (1988) and Thi and Swierczek (2010) found client satisfaction to be a critical success factor. This meant that the deliverables of the project must be accepted and used by those whom it was intended for. For this to be the case the project must have had a clear understanding of the requirement and delivered it as required.

The seventh critical factor from Table 8 as discussed by the respondents was that of the design. This is closely linked to the planning where the respondents felt that no design should be based only on a person or group of persons' views. This was explained by one respondent: *"All inputs into the design must be thoroughly researched before inclusion. In this way there is reasoning for why something is done and it increases the chance of success"*. This as discussed under planning is consistent with the literature.

The final factor by the respondents is that of lessons learnt and is ranked eighth in Table 8. The feeling of the respondents that brought up this factor was that they continuously see projects *"falling into the same trap as previous ones"*. One of the respondents said:

"The organisations working in this environment need to somehow share their learnings with others so that money and time is not wasted making the same mistakes".

Another respondent said:

"Organisations must also learn from their own lessons and feed that back into their designs and plans."

Lessons that are learned during the project must be shared. The respondents found that they keep seeing the same mistakes happen over and over. This is costly and wastes time. These lessons need to be fed back into the system so that it is not made again. Lessons learnt forms part of M&E. In evaluation the learnings are noted and used in the same project or carried to other projects. It is therefore consistent with the literature.

4.4.2 Question 2

The second question in this section of the interview requested the factors considered by the respondents as critical for the success of projects in the education sector.

This question was considered by the respondents to be similar to the previous question due to them all working in the education space. The interviewees were asked to consider the education environment as a whole and not just their organisation and determine if there were other factors that came to light. A few interesting factors were introduced.

The first factor that came out was around showing the benefit of the projects. The respondents mentioned that *“the results were long term”*. A solution for this was to ensure that *“short term gains were built into the projects thus maintaining faith by the stakeholders.”* The respondents explained that in education the benefits of the projects are not necessarily visible once the project is complete. Most of these have to go through for the academic year or the entire schooling career of a learner before the benefits can be visible. The beneficiaries do not see the immediate benefit and are therefore reluctant to accept the changes arising from the projects. The studies by Thi and Swierczek (2010) and White and Fortune (2002) showed that customer satisfaction is a critical success factor.

The second factor to ensure success in projects in this sector was through partnering with other organisations on projects that have the same or similar priorities and agendas. This way *“you keep different people moving in the same direction”*. By partnering with these organisations there can be gains from pooling resources. There can also be savings in time and money. The research by the different organisations can also be collated to find a possible better solution. Partnering is being used more these days by businesses to gain from the efficiencies of the different organisations (Bresnen and Marshall, 2002). This can bring the same benefit to the projects in the education environment.

The third factor requires the organisations working in this sector to determine their projects based on what the government strategy is. One of the respondents discussed that they:

“align themselves with the strategy and priority of government so that they do not undo or work against the government initiatives”.

This will ensure that no organisation is working against the government projects as well as not adversely affecting their projects. It also allows for the “*cumulative effect of the projects to be visible.*” It could allow for partnering with the government thus allowing government to tackle other areas of the sector where there is little or no work being done.

4.4.3 Question 3

The third question in this section of the interview requested a description of how projects were managed in their company.

Figure 5 sets out the main points on how projects are managed. The majority of respondents said that their projects were managed according to the “*the basic project management principles*”. The internal project processes were followed to manage the projects.

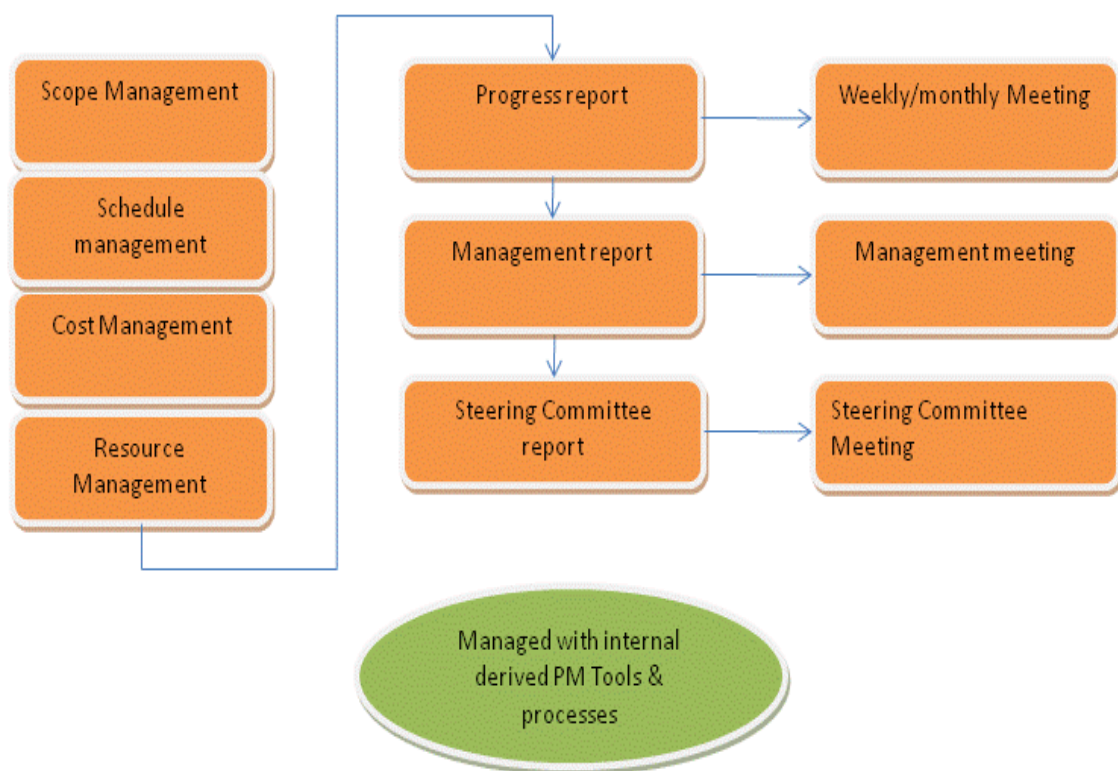


Figure 5: Summary of the respondent’s basic structure of project management (developed from interviews)

The internal processes for project management as described by the respondents shown in Figure 5 was further broken down in the interviews to scope, schedule, cost and resource management. The five leading project management methodologies incorporate scope, schedule, cost and resource management in the management of projects (Chin et al., 2010). They also call for regular meetings and reporting. These methodologies also include communication, risk, change and procurement management. Internally derived project management tools are used to manage these activities. From the management of these activities reports are prepared. The project reports track the activities that should have been completed, those in progress and those that should be starting. All issues are also highlighted in the reports. The projects have regular project meetings as well as management and steering committee meetings. The reports are used as the basis for these meetings. Management and steering committee meetings are therefore for informing management on the project and to get guidance on any issue and concerns of the project.

4.4.4 Question 4

The fourth question in this section of the interview requested competencies of project managers specifically to the education sector.

A wide range of competencies were provided by the respondents. Each respondent provided more than one competency. Table 9 is a summary of these responses with the number of respondents that mentioned each competency.

Table 9: Competencies of project managers

Rank	Competency	Frequency
1	Conventional project management skills	26
2	Communication Skills	24
3	People management	20
4	Ability mobilizing people	18

Rank	Competency	Frequency
5	Collaboration	17
6	Interpersonal skills	14
6	Time management	14
7	Credibility in area	12
7	Education sector knowledge	12
8	Report Writing	8
8	Conflict resolution	8
8	Influence	8
9	Humility	7
10	Diplomacy	5
10	Respect	5
10	Engagement	5
11	Sensitivity	4
11	Ability to influence	4
11	Presentation skills	4
12	Strong Management relationships	3

The ranking in Table 9 shows that only the first five competencies were mentioned by more than half of the respondents. These five competencies are conventional project management skills, communications skills, people management, ability to mobilise people and collaboration. These are the critical success factors for the majority of the organisations interviewed. The next four factors mentioned by more than a third of the respondents are time management, interpersonal skills, credibility in area and education sector knowledge. The remaining factors have been mentioned by less than a third of the respondents.

Of the thirty respondents twenty six were of the view that a project manager in the education sector should have conventional project management skills. This is the first ranked competency in Table 9. It did not matter which background or methodology they had experience with, they had to have experience in project management.

One respondent answered the question as follows:

“The project managers must have basic project management skills. The education specific knowledge can be learnt in time”.

The project managers have to understand project management in order to run projects in this environment. The conventional project management knowledge are those that a project manager learns from the leading methodologies (Thomas and Mengel, 2008). The author explains that the seven elements from the leading project methodologies that make up the conventional knowledge are phases, processes, knowledge areas, standard approaches, tools and techniques, standards and terms and definitions.

The second highest ranked competency from Table 9 is that the project manager must possess good communication skills. This has to be extraordinary in these projects. One of the respondents explained:

“Communication skills must be of a higher quality than normal because of the nature of communication skills required. In this environment one is not dealing with people within a project but many people that know nothing about the nature of projects. They therefore needed to be communicated to differently”.

Another respondent described the communication skill as:

“Project managers must be able to manage with an Iron fist in a velvet glove”.

Good communication skills is a critical success factor according to Thomas and Mengel (2008) and Chang (2008). These are required in the education sector due to the greater need to effectively engage with government ministries, external partners and civil society organisations (Chang, 2008). Due to the nature of the communication and the type of stakeholders that a project

manager in the education sector has to deal with, it is important for the project manager to have improved communication skills different to that needed to manage a team that he/she is in control of.

The next three competencies in table 9 are linked. These are people management, ability to mobilise people and collaboration. In these projects the project managers deal with many different stakeholders from different sectors including learners, teachers, society, business and government. Being able to understand the differences and manage each stakeholder properly is the reason the respondents referred to people management and ability to mobilise people as key competencies. The ability to get these different stakeholders to collaborate with the project and each other is the third competency in this link. A respondent described the projects as:

“There is a higher degree of unusualness in people development projects. Project managers therefore need very good people management skills”

Thomas and Mengel (2008) refer to the factors of shared leadership, social competence and emotional intelligence, communication; skills in organisational politics as competencies required of a project manager. Project managers should be assigning significantly higher importance to the satisfaction of customers, end-users, and other stakeholders in complex projects (Müller and Turner, 2007). For them to do this they need the people management skills referred to by the respondents. Leadership, social competence and emotional competence strengthen the project manager's people management skills when dealing with this environment. This also enables them to mobilise the stakeholders and persuade them to collaborate when required.

Of the top two thirds of the competencies in Table 9 which totals nine, only one is not consistent with the findings of this literature study. Thomas and Mengel (2008) lists the competencies as a solid foundation in traditional methods and techniques, shared leadership, social competence, emotional intelligence, communication, skills in organisational politics, self-reference, the ability to thrive on change, the ability to adapt to change and develop new approaches on the fly. Other competencies as implied by Müller and Turner (2007) are

assigning significantly higher importance to the satisfaction of customers, end-users, and other stakeholders. Chang (2008) adds necessary technical capacities and the political negotiation and communication skills.

According to the respondents a project manager in the education environment needs to have a background in education and be recognised in the environment. As a respondent explains:

“In the past Project managers knew the process of project management only. This was insufficient. They need to know the education process and the dynamics of learning as well”.

Chang (2008) has added the necessary technical capacity. There is a need based on the literature but less than half the respondents mentioned it as a key competency. The rest argued that it could be learnt while on the project.

The competency not covered by the literature in this study concerns credibility in the education sector. The possible reasons for this not being covered in the literature is that the project manager's responsibility has always been that of managing the delivery of the project as defined by subject matter experts. The subject matter experts need to have the knowledge to assist the project manager deliver on his project. Any clarity or explanation required by the project manager can be attained from the expert. The basic knowledge of the education sector can be learned as the project moves along.

4.4.5 Conclusion

The organisations identified critical success factors for their projects that are mostly consistent with the findings from the literature. The thirteen critical success factors identified are budget, planning, the ability to deal with human behaviour, time, quality, monitoring and evaluation, change management, governance, resource planning, stakeholder requirements, satisfaction and acceptance/usage, design must be thoroughly researched and substantiated, lessons learnt. Of these factors three factors were not consist with the literature. These are ability to deal with human behaviour, change management and

governance. These are required according to the literature but not as critical success factors.

The organisations are in the education sector and therefore only had three critical success factors to add that were specific to the education sector. These are the ability to show the benefit of the projects, partnering and taking on projects based on the government strategy.

Internally derived processes are used to manage projects including scope, schedule, cost and resource management as well as regular meetings and reporting. The five leading project management methodologies also incorporate the processes as well as communication, risk, change and procurement management.

The respondents top five key competencies of a project manager are the same key competencies identified from the literature. These are conventional project management skills, communication skills, people management, the ability to mobilise people and collaboration.

4.5 Conclusion

Based on the discussion in this study, organisations in the education sector of South Africa are executing projects using project management methodologies or processes to manage their projects. The processes and methodologies cover all seven elements of a good project methodology, these are: phases, standard approaches, processes, knowledge areas tools and techniques, standards and terms and definitions. The organisations have procedures and governance in place for selecting projects. The governance process continues throughout the project lifecycle.

The answer to research question one is twofold, most of the organisations in South Africa that roll out education sector projects utilise project management methodologies or processes to a high degree while the remaining still utilise project management methodologies or processes but to a lesser degree.

The discussion indicates that the organisations in the education sector in South Africa have identified critical success factors for their projects that are mostly consistent with the findings in the literature.

The answer to research question two includes thirteen critical success factors made up of sector specific critical factors, the internally derived processes for managing projects and the five key competencies of the project managers.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the conclusions of the study, offers recommendations to stakeholders and suggestions for future research.

5.2 Conclusions of the study

Education in South Africa has suffered due its political history. Since the fall of Apartheid the government has been left with a huge challenge to provide quality education and infrastructure to the majority of the population. There have been numerous positive steps to correct the situation with not much success. The education system is still headed for a national education crisis. This situation is prevalent despite the projects being undertaken in the environment by government and NGOs. The education environment is very complex and so are the projects.

The findings from the literature indicate that in order to deal with these complex problems, project management methodologies and processes can lead to successful implementation of the projects. These methodologies are made up of seven key elements; phases, standard approaches, processes, knowledge areas, tools and techniques, standards, and terms and definitions. The literature also indicates that together with the methodologies there are critical success factors that are required for there to be successful project implementation. These are sector specific critical factors, the processes for managing projects and key competencies of the project manager.

The results of question one in this study has shown that the organisations are using project management methodologies or processes incorporating the seven elements. The organisations have chosen internal systems or tailoring the standard project methodologies to suit the organisations needs. This is an

acceptable practice. Most of the organisations are using these processes and methodologies to a high degree.

The results of question two in this study have identified the critical success factors of projects in the education sector. These factors are sector specific factors, internally derived processes and key competencies of the project manager.

5.3 Recommendations

Project managers are not being involved early enough in the project lifecycle. By involving them early the project can benefit from their experience and project management ability, thus ensuring that all project factors are considered up front for the projects.

The organisations should not attempt to tackle problems in isolation. The entire picture should be clear. They should look at it from all angles to ensure that there are no other stumbling blocks preventing achievement of a positive result.

There should be a database formed of all the organisations operating in the education sector. The data base should include the objectives and the focus of the organisations. The amount of work being carried out in the sector will become visible in a central place.

Links should be formed with organisations doing similar work. Before an organisation kicks off a project they should investigate if another organisation is doing or has done similar work. The organisations can gain from knowledge sharing and lessons learnt.

The organisations undertaking similar work can form partnerships to undertake the work together. This allows for pooling of resources and could benefit the project. In education partnering might be a critical success factor due to the synergies that could be attained from several organisations working together rather than against each other to bring about change in education. This could include government.

Forums should be created for this sector addressing all the identified needs. The project implementation experience of organisations can be discussed at these forums. Knowledge can also be shared thus enhancing other projects that are taking place.

All organisations should tie up with what government is trying to achieve. Should they not agree with government process than they should try and work with government and not against government to find a better solution.

5.4 Suggestions for further research

One area of study is how to determine whether the benefit that the project was set up to deliver was achieved. Benefit realisation in education could take several years. It is also difficult to determine whether that project caused the benefit or was it another intervention or a combination of interventions.

Another area of research is on the evolve stage that formed part of one of the organisations project lifecycle. The study can try and determine whether the evolve stage ensures success of a project.

The importance of governance in education projects is another area of research. The study can try and determine whether it is a critical success factor or not.

In education projects the clients and the beneficiaries are generally different. The study can determine how this affects the successful implementation of a project and what is needed to make the implementation successful.

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APPENDIX A

Letter to Respondents

Dear Respondent,

I am completing my MBA at The University of Witwatersrand, Johannesburg (Wits). My MBA thesis is on the critical success factors of project implementation in the education sector in South Africa. In gathering data on this subject, I would be grateful if I could arrange a 1 hour interview with you to understand how your organisation implements and measures success of its projects. I understand that you are very busy so your agreement to contribute to my research is greatly appreciated.

The interview will not include questions on the confidential content details of the projects but will focus on the details of the methodology, processes and management of the projects. Confidentiality will be observed throughout the research process and the final report will be for academic purposes only.

I will be available to meet with you at a time and location that is convenient to you.

Thank you for your kind assistance.

Yours sincerely,

Randir Nirghen

SA Mobile: +27 82 809 1378

APPENDIX B

Interview Questions

1. Demographics

- 1.1. What is your role in the organisation and on projects?
- 1.2. Describe the type of organisation you work for?
- 1.3. What are the objectives of your organisation?

2. Research Question 1

- 2.1. Why is your organisation undertaking projects in the education sector?
- 2.2. How do you determine the projects that your organisation will be undertaking?
- 2.3. What process/methodology does your organisation use for project management?
- 2.4. Explain the process / methodology? How was it derived?
- 2.5. Are there governance processes in place? If yes, how does this process work?

3. Research Question 2

- 3.1. What factors do you consider as critical for the success of your projects?
- 3.2. What factors do you consider as critical for projects in the education sector?
- 3.3. How are the projects managed?
- 3.4. What are the competencies required of the managers of the projects?

4. Closing

- 4.1. Is there anything I have forgotten to ask on your project management?

APPENDIX C

Consistency matrix

The consistency matrix represents the sequence of activities during the research process.

Table 10: Consistency matrix

Research problem: Assess the use of the available project management methodologies for project implementation in the education arena in South Africa and identify the critical success factors					
Sub-problem	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
The first sub-problem is to assess the use of available project management methodologies for projects in the education sector in South Africa.	Charvat, J. (2003) Chin, C. and Spowage, A. (2010) Chin, C., Yap, E. and Spowage, A. PMI (2008)	Of the organisations in South Africa that rollout education sector projects, to what degree are they utilising project management methodologies?	Semi-structured interviews with questions 2.1, 2.2, 2.3, 2.4 and 2.5 from Appendix B	Qualitative data	Familiarisation and immersion, Inducing themes, Coding, Elaboration and Interpretation and checking
The second sub-problem is to identify critical success factors for project implementation in the education sector in South Africa.	Pinto, J. K. and Covin, J. G. (1989) Pinto, J. K. and Slevin, D. P. (1988) Thomas, J. and Mengel, T. (2008)	What are the critical success factors for implementation of projects in the education sector in South Africa?	Semi-structured interviews with questions 3.1, 3.2, 3.3 and 3.4 from Appendix B	Qualitative data	Familiarisation and immersion, Inducing themes, Coding, Elaboration and Interpretation and checking

