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FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS IN THE SOUTPANSBERG WEST CIRCUIT IN THE LIMPOPO PROVINCE

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STATEMENT OF ORIGINALITY

I, Tshilidzi Nephawe, declare that the treatise 'Facilities management awareness amongst high school learners and teachers of the Soutpansberg West Circuit in the Limpopo Province' is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

T. Nephawe   November 2018

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ABSTRACT

The Facilities Management (FM) profession in South Africa needs to start recognising and acknowledging the importance of formal education amongst the population. The question of FM being a career normally receives shallow responses; and it sometimes leads to a contradiction. The FM profession seems to be taking an 'as it is' approach, when it comes to the establishment of an education agenda; since there is no clear evidence regarding alignment and transition from high school to tertiary level, and then to the workplace. The level of awareness plays a significant role in all elements of FM practice. Even at the present moment, FM is still not a career of choice, meaning that anyone can be a facilities manager.

There are parts of South Africa where the population is unaware of FM. Some had never heard about it at all. It was important to establish the level of awareness: with the intention of developing a critical awareness of FM as a career path amongst high school learners and teachers in the Soutpansberg West Circuit, in order to inform them of a possible career choice in FM.

In this study, a mixed-model research methodology was used, which combines both qualitative and quantitative research approaches. A population was identified from which a sample of 14 high schools, 87 high school teachers and 2 299 high school learners was drawn. A 'fit for purpose' questionnaire was distributed to the participants. The data were collected by means of a survey. It focused on a survey; and it used a questionnaire that was composed of multiple closed-ended or quantitative-type items, as well as several open-ended or qualitative-type items. Thematic analysis was used for the open-ended questions.

This study has successfully managed to determine the awareness levels of high school learners and teachers relating to FM, the need for FM awareness in high schools; and whether there were high school learners who wished to become facilities managers in the future.

FM companies, tertiary institutions, and high schools must collaborate in the development of the FM career-guidance programme, in order to increase awareness amongst the teachers and learners. There were students who indicated that they were interested in FM as their career of choice.

KEYWORDS

Facilities management, education, schools, career guidance

DEFINITIONS

Association: A group of people organised for a joint and common purpose.

Career guidance: A comprehensive developmental program designed to assist individual learners in making and implementing informed educational and occupational choices.

Career-counselling: A process that will help learners to know, understand themselves and the world of work in order for them to be able to make career, educational, and life decisions.

Core competencies: Sets of intellectual, personal, social and emotional abilities embedded in each discipline and area of learning - that all learners and teachers need to develop in order to engage through the learning experiences and activities.

Critical awareness: An understanding of social, cultural, political, historical, and conceptual aspects of learning as a language and teaching in a given context.

Educational philosophy: A personal statement of a teacher's guiding principles about educational strategies and how learners should learn aiming to effectively maximising their full learning potential as well as the role of teachers in the classroom, school, community, and society.

Ethical approval: An integral part of the research process aimed to protect both researchers and participants.

Facilities management: An integration of business administration, architecture, and engineering sciences of multi-disciplinary activities within the built environment by means of managing and coordination of the physical workplace with or without the people.

Framework: A basic structure underlying a system's concept and structured process.

High school: A school for older learners, usually children from grades nine (9) to twelve (12) or aged approximately fourteen (14) to eighteen (18) years.

Higher education: Education beyond high school, specifically that provided by colleges and graduate schools, and professional schools.

Profession: A paid occupation, especially one that involves prolonged training and a formal qualification.

Psychometric assessment: Scientific method used to measure individuals' mental capabilities and behavioural style.

Quintile level: Any of five equal groups into which a population can be divided according to the distribution of values of a particular variable – in this case was a financial variable.

Skill: An ability and capacity acquired through deliberate, systematic, and sustained effort to smoothly and adaptively carryout complex activities or job functions involving cognitive skills, technical skills and interpersonal skills.

Training: The process for providing required skills to the employee for doing the job effectively, skilfully and qualitatively.

Workplace: An establishment or facility at a particular location containing one or more work areas.

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LIST OF ABBREVIATIONS

BIFM   British Institute of Facilities Management

CACG   Computer assisted career guidance

CDCG   Counsellor directed career guidance

CIDB   Construction Industry Development Board

FM   Facilities Management

FMA   Facilities Management Association

GDP   Gross Domestic Product

HOD   Head of Department

IFMA   International Facilities-Management Association

IT   Information Technology

JFM   Journal Facilities Management

LER   Average Learner to Educator Ratio

QL   Questionnaire to Learners

QS   Quantity Surveyor

QT   Questionnaire to Teachers

SABS   South African Bureau of Standards

SAFMA   South African Facilities Management Association

SAQA   South African Qualifications Authority

SCCT   Social Cognitive Career Theory

SD   Standard Deviation

TWA   Theory of Work Adjustment

UK   United Kingdom

USA   United States of America

CHAPTER DIVISION

This study will cover six chapters:

Chapter 1 provides an introduction and states the aims and objectives of the study, as well as the research questions, hypotheses and research context.

Chapter 2 contains the literature review, which focuses on the critical aspects of the current knowledge and approaches relating to facilities management awareness in high schools.

Chapter 3 describes the research methodology and the research framework within which the study was conducted; and it covers the research procedures, the methods and the tools used in the study.

Chapter 4 offers the data analysis of the study – the interpretation and presentation of the data – and it provides a discussion on the key findings and their significance.

Chapter 5 contains the testing of the three hypotheses.

Chapter 6 presents the summary, conclusions and recommendations of the study, offering direction for facility management awareness amongst learners and teachers in the Soutpansberg West Circuit in Limpopo.

CHAPTER ONE: BACKGROUND TO THE STUDY

1.1 INTRODUCTION

A study conducted by the South African Facilities-Management Association (SAFMA) predicted a significant growth between the years 2012 and 2015 within the Facilities-Management (FM) market in South Africa (Frost & Sullivan, 2012:6). In 2014, the Department of Higher Education and Training issued a general notice gazette elaborating on the top 100 scarce skills in South Africa. It stated that the joint initiative on the acquisition of priority skills was established in 2006; this initiative accelerated and shared the growth in South Africa. It deals with the supply of priority skills to the economy; and it identifies the artisanal and technical skills needed for infrastructural development, housing, energy and other areas, which are particularly in high demand (Department of Higher Education, 2014:9).

Moreover, South African Statistics, together with the National Development Plan, conducted studies on the rate and the trends of employment, unemployment, skills and economic growth in South Africa. Their report concluded that the education structure does not adequately support skills development, and that there is an urgent need for improvement in this regard (Statistics South Africa, 2014: 45). The National Development Plan identified three 'skills level' compositions, namely: skilled, semi-skilled and low-skilled (Statistics South Africa, 2014: 7). The study put an emphasis on the challenges facing the skilled composition segment. This segment is made up of technical, professional and managerial skills.

The construction and engineering professions are frequently not highly regarded or encouraged as a first career choice for many learners, due to the lack of attractiveness of the industry, or to a lack of knowledge thereof (CIDB & Public Works, 2014: 5).

Facilities managers in South Africa end up in the Facilities Management (FM) profession by 'mistake'; and this has led to a high rate of incompetent and unskilled facilities managers. Recent research conducted by Paresh, Mark, Anis and Ahmed (2015: 5) proposes that the skills mismatch also indicates a poor quality of education and the absence of linkages between the education structure and the employers. The research highlighted a general lack of apex-targeted education, as well as frequent major discrepancies between employee profiles and the skills required for a job; and this also applies to other career areas. It is important to understand whether the employer recognises technical skills as a necessity for maintaining equipment and/or

for the supervision of unskilled workers. In this respect, the higher education system in Africa is not attuned to meet the needs of a variety of skills (Paresh et al., 2015: 3).

1.2 MOTIVATION FOR THE STUDY

Francis (2010: 67) states that it is difficult for a poor person to wait ten years to get something from education; since that is a long time. He further states that it is a concern that learners are being educated to pass examinations; but they are not receiving the kind of skills that would allow them to flourish. Therefore, the education structure needs to work by pull rather than by push; and it should encourage thinking on reinventing schools that would attract learners – with the promise of providing an education that can help them earn a living.

Brophy (2010: 34) stated that teachers were faced with the huge task of developing a particular kind of motivation in their learners. He describes the motivation to learn, as a tendency by learners to find academic activities meaningful and worthwhile – and to attempt to derive the intended academic benefits from them. The motivation to learn was construed as both a general trait and a situation-specific state; since the motivation to learn involves more than wanting or intending to learn.

Career guidance has been identified as a potential means of promoting motivation and learners' attachment to their schools (Lapan, Kardash & Turner, 2002: 17). However, a learner cannot be motivated if s/he has no set goals for life.

The Singapore Ministry of Education (2009: 5) states that career guidance can be used as a powerful tool to motivate students who aspire for their futures. They also stated that successfully achieving one's life goals begins with a teacher believing in learners' abilities to reach beyond their current status. The report from the Singapore Ministry of Education further stated that career guidance is a tremendous resource for capturing the hearts and minds of learners. Learners identify with occupational goals; and they learn not only the educational pathways needed to reach those goals; but they also need to learn the importance of their school courses to provide the foundation for their future success. Career guidance would make school meaningful. High school adolescents were not able to set career goals when there are no effective career guidance and career activities at their schools.

Schmuller and Mortensen (2009: 23) state that career guidance serves as a primary means for providing the contact and the help needed in schools on a personal level

for the enhancement of the individual and the facilitation of the learning process. Through career guidance, individual learners are helped to develop in ways that would enable them to strengthen the use of their abilities, to make wise choices, and to face the problems that they will encounter in and out of their schools.

1.3 STATEMENT OF THE PROBLEM

There is a lack of facilities management career awareness amongst high school teachers and high school learners in the Soutpansberg West Circuit.

According to Miles (2010, cited in Molefe, 2016:5), training and education are the fundamental requirements necessary for good career decision-making. The South African Education Department has attempted to address the lack of career guidance in schools by introducing career-development modules into the learning area of Life Orientation. However, this learning area is not examinable at an external level; and it is therefore not given much value or significance in the school system. Due to the rationalisation of teachers, schools often tend to utilise teachers who are not qualified for career guidance for the subject of Life Orientation. This Learning Area is therefore frequently handled by teachers with negative attitudes, who view this non-examinable subject as unnecessary and unimportant. Consequently, learners are still not being trained to determine their career paths in a systematic way.

Lapan, Gybers, and Petroski (2001: 12) state that career guidance has been identified as a potential way for promoting motivational awareness and learners' attachment to their schools. Therefore, the aim of this study was to develop a critical awareness of FM as a career path amongst high school learners and teachers in the Soutpansberg West Circuit, in order to inform them of the possible career choices in FM.

Numerous researchers have conducted studies on FM in higher education in South Africa and internationally. Research in higher education, conducted by Hauptfleisch and Verster (2011:1), indicated that the improvement of FM practices and the provision of developmental support through educational programmes in South Africa is imperative. Similarly, Makhaya (2010: 1) confirmed that there were opportunities for improvement in FM in the higher education sector.

Contemporary researchers urge that research should be conducted in three key areas of this problem, namely: research into the training needs of facility managers, effective

structures within organisations and educational processes for integrated FM careers (Tladi, 2012: 81).

1.3.1 The research hypotheses and sub-problems

This section focuses on the clarification of the statement of what is to be investigated, in order to identify the research objectives and the key abstract concepts involved in the study – and to identify the relationship with both the problem statement and the literature reviewed. Below are the hypotheses and their sub-problems:

- SP 1.1: High school teachers are unaware of facilities management as a career;
  HP 1.1: High schools do not have diversified career-guidance activities;
- SP 2.1: High school learners are unaware of facilities management, as a career;
  HP 2.1: High school career-guidance teachers are not suitably qualified;
- SP 3.1: High school subjects grouping does not affect learners' career choices;
  HP 3.1: High schools spend enough time on career guidance.

1.4 OBJECTIVES OF THE STUDY

The objectives of the study were identified with the focus on the broad statements of the desired outcomes or the general intentions of the research, in order to paint a picture of this research project. Below are the objectives of this study, which emphasise what is to be accomplished, rather than how it is to be accomplished. The aim of this study is to develop a critical awareness of FM as a career path amongst high school learners and teachers in the Soutpansberg West Circuit, in order to inform students of a possible career choice in FM. This would help to determine:

- The awareness levels of high school learners relating to FM;
- The awareness levels of high school teachers relating to FM;
- The need for FM awareness in high schools;
- Whether there are high school learners who wish to be facilities managers in the future.

1.5 THE ASSUMPTIONS

According to Marilyn (2011: 1), assumptions are elements that are beyond the researcher's control; but if they were to disappear, the study would become irrelevant. The assumptions made in this study are as follows:

- All high schools in the Soutpansberg West Circuit in Limpopo Province do have adequate career-guidance activities.

- There is a relationship in levels of FM awareness between the high school learners and teachers relating to FM as a career of choice.

- There are dedicated teachers for career guidance in high schools in the Soutpansberg West Circuit in Limpopo Province.

- Learners and teachers in the Soutpansberg West Circuit in Limpopo Province are not aware of FM as a career of choice.

1.6 DEFINITION OF THE KEY TERMS

1.6.1 Career Guidance

Career guidance should include all the activities associated with career choices over a lifetime. In the career-counselling process, all the aspects of individual needs, including family, work, and leisure, are recognised as integral parts of career decision-making and planning (Molefe, 2016: 6).

1.6.2 Career Choice

A career is defined as the totality of work one does in a lifetime. Choice refers to the actions of choosing or preferring. From a career-guidance perspective, a career choice is implied when a young, non-adult and inexperienced person takes a stand and orientates him- or herself with regard to possible work in the future (Molefe, 2016: 7).

1.6.3 Learner Motivation

Learner motivation entails a learner's tendency to find academic activities meaningful and worthwhile; and to attempt to derive the intended academic benefits from these activities (Molefe, 2016: 7).

1.6.4 Career Readiness

According to Molefe (2016:7), career readiness refers to:

- The level of maturity needed to acquire specific information on career options; the identification of interests, values, and aptitudes;
- The use of the relevant information in career planning and course selection;
- Change of plans when pertinent information is presented.

Career readiness was thought to be the interaction between an individual's resources and the demands of reality. Molefe was also of the view that reasonable career maturity for high school adolescents involves:

- Understanding basic work values and attitudes, including some initial experiences with several job clusters;
- An awareness of personal interests and abilities;
- A higher level of achievement in basic academic skills;
- A tentative selection of preferred job clusters;
- A sense of civic responsibility.

1.7 ETHICAL CONSIDERATIONS

The study was submitted to the Department of Education; and permission was sought from the participating schools, the circuit manager, and the School-Governing bodies, learners, teachers and parents. All the participants were informed about the intention of the study. Ethical approval was acquired from the Nelson Mandela University's ethical committee.

According to Leedy and Ormrod (2005: 46), ethical issues in research fall under four categories:

- Protection from harm: A researcher must not expose the participants to any avoidable physical or psychological harm.
- Informed consent: Participants in the study need to be informed of exactly what the study entails; and their participation in the study must be voluntary.
- Right to privacy: The researcher must always consider the participants' right to privacy and the details of how a respondent answered the questionnaire must not be revealed to others.
- Honesty with professional colleagues: A researcher must report his/her findings in an honest and complete manner. The results of the study must not be manipulated or misrepresented in any way.

CHAPTER TWO: THE LITERATURE REVIEW

2.1 INTRODUCTION

As an emerging profession, Facilities Management (FM) has been described in several ways without any firm consensus of opinion. The profession has advanced in many of the developed countries; but it is still in its elementary stages in South Africa and other developing economies. Efforts are still being made to delimit and define the activities and the functions executed through the office of the FM professional.

According to Atkin and Brooks (2009: 2), forty years ago, there was no more than a fleeting mention of FM. It was thought to entail only the maintenance, servicing and cleaning of buildings. A more unified concept was far from being broadly accepted by the real-estate sector during this period. A few common procedures were in circulation; and the responsibility for implementing the procedures was left to innovative organisations, many of them in the fast-growing banking, telecommunications and media sectors.

Since then, FM has not only emerged as a service sector; but it has also helped to establish a new professional discipline with its own standards, codes and technical vocabulary.

It has often been mentioned that education for young people in the construction profession was not sufficiently effective and that a more practical approach was needed. The question may then be asked: Are the professions and firms ready or mature enough in terms of developing professionals and young entrants? (Hauptfleisch & Verster, 2011: 123).

The FM profession is changing rapidly from a client perspective. Senior executives are talking about partnerships, innovation, and value-adding, as well as the environmental impact. This is also becoming increasingly important in creating an efficient and sustainable operating environment. However, from a professional perspective, finding skilled people has become a major challenge.

According to John (2012: 5), FM may not be the first choice for graduates; thus, it is imperative to make the profession an exciting and appealing career option. We live in a country faced with significant developmental challenges; and there is an obligation for other professions or industries within the Built Environment to make a positive contribution to career guidance in the FM profession.

2.2 REVIEW OF THE LITERATURE

A review of the available literature indicates that much has been written on career development and higher education in the FM profession. However, not much has been written on FM awareness amongst high school learners and teachers. As a non-industrial profession in the Built Environment, FM is now beginning to receive attention from different researchers. Although the practice of FM is widely embraced in developed countries, it is still in its infancy stage in many developing countries, resulting in a scarcity of literature thereon (Ogbeifun, 2011: 10).

According to Ogbeifun (2011: 10), the strong performance of the FM unit within the education system does not have any immediate effects; but if it is not monitored, its poor performance could gradually erode the credibility of the educational institutions over a period of time. In the same sense, the development of operational strategies and support facilities would enable the institution to execute its core functions to achieve its goals and this requires a sustainable commitment from facilities managers.

The focus of this section will be a literature review of the material that has a direct effect on FM awareness amongst high school learners and teachers; and this will assess the level of awareness on FM awareness amongst high school learners and teachers.

A study proposing practice improvement and developmental support through educational programmes in South Africa was conducted by Hauptfleisch and Verster (2011: 2). The authors emphasised the importance of having formal education in the FM environment to optimise the utilisation of the products and services in the Built Environment through their continuous, scientific and sustainable improvement. The study has not focused on an undergraduate qualification, or on the level of FM awareness amongst high school learners and teachers in FM. Rather, it has focused on postgraduate programmes in FM.

Furthermore, it does not indicate where the learners who would fill these postgraduate programmes could be sourced.

According to Makhaya (2010: 1), the higher education system became instrumental in supplying society with knowledgeable workers. The study pointed to the significant growth in the demand for higher education, with participation rates increasing from

19% in 2000 to 26% in 2007. Worldwide, 150.6 million learners enrolled in tertiary education in 2007. This represents a 53% worldwide increase since the year 2000.

The study has consequently focused on making the best of FM in the tertiary educational environment. The study does not mention specific plans or strategies for improving and raising awareness on FM in the tertiary educational environment. In addition, the findings from the study provide the present study with a point-of-departure when looking at higher and lower educational levels and growth.

2.3 OVERVIEW OF FACILITIES MANAGEMENT

In the late 1940s, the global FM profession gained traction and recognition as an independent discipline and profession within the Built Environment. The establishment of professional FM institutions around the world – for example, the SAFMA in South Africa, the North American International Facility Management Association (IFMA) in the USA, the JFMA in Japan, the British Institute of FM (BIFM) in the UK, the Facility Management Association of Australia (FMA) in Australia – confirms the growth of the profession and the importance of having FM within the Built Environment.

However, the profession still suffers from an identity crisis and a lack of clearly definable attributes for its core services. For example, in South Africa, the role and scope of duties for facilities managers is enormously different from one company or organisation to another, which sets it apart from other professions within the property and construction industry (such as architecture, project management and town planning), where the roles and the responsibilities of professionals remain consistent across firms. It may be argued that FM is a relatively new discipline, and that it is perceived differently in developing countries in contrast to developed or first-world countries; thus, it is a developing profession.

It is, therefore, necessary at this formative stage to evaluate the core competencies of facilities managers as those of a discipline and profession (Awang, Mohammad, Sapri & Rahman, 2014: 72).

The introduction of a strategic FM system in South Africa is an acknowledgment that the local profession is lagging in its adoption, application and practice of FM. While FM was adopted and practised as early as the 1970s in the US, and in the 1980s in the UK, it was only in the late 1990s that South Africa followed suit. South Africa is,

therefore, regarded as a late adopter, which explains the developmental lag discussed above (South African Bureau of Standards, 2015: 8).

2.4 FACILITIES MANAGEMENT IN THE SOUTH AFRICAN CONTEXT

According to Frost and Sullivan (2012: 6), the FM profession is currently in its growth phase; and it is experiencing steady growth. The profession has yet to receive formal recognition from governmental institutions, such as Statistics South Africa, which has potentially been a hindrance to the development of the profession. In 2009, the economic recession drove most companies to implement more cost-effective measures for running and maintaining their operations. This involved outsourcing some of their FM services, in order to reduce labour costs and to focus more on their core operations. Figure 2.1 indicates the South African FM market overview in 2010 and the areas that are the key drivers of change within the FM environment.
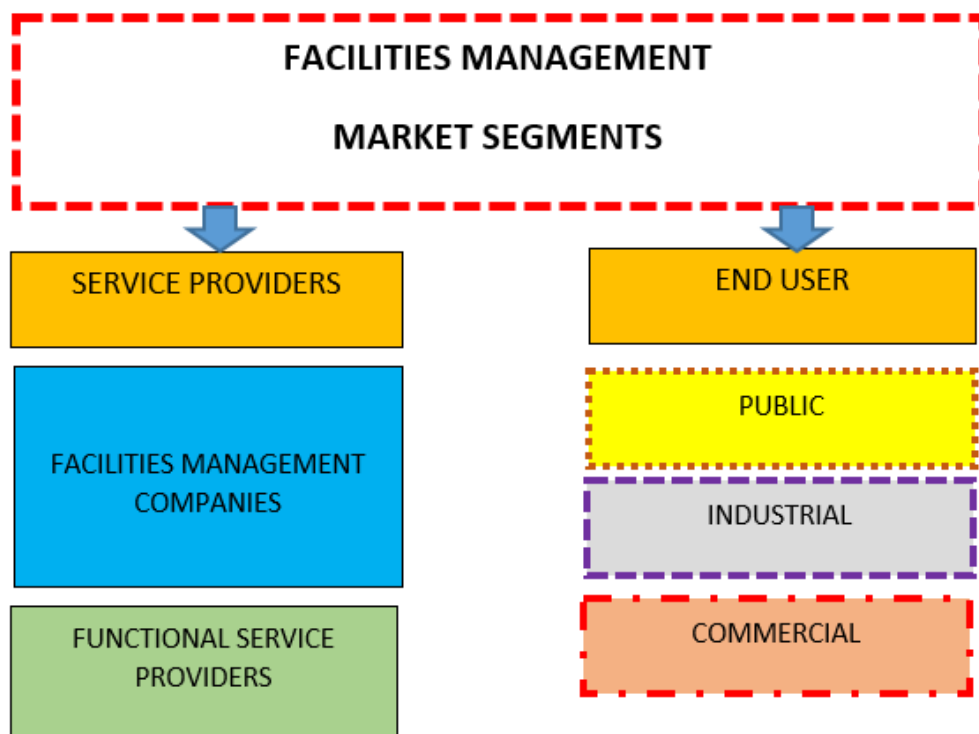
Figure 2.1: South African Facilities Management market overview

(Source: Frost & Sullivan, 2012: 6)

According to the SABS (2015: 10), FM must accept the developing economy in which it operates and the fact that globalisation is a reality. The profession must be proactive in further developing the economy and positively engaging globally. Failure to comprehend these factors will adversely affect the profession in several ways, including the following:

- Misinterpretation of the FM profession.

- The colonisation of the profession, where global interests are not reconciled with local and professional interests in terms of new entrants and the rivalry rate.

- High reactivity to global trends, without any input to protect local interests.

- Entrenched existing power relations, where the profession is not proactive in developing worldwide solutions; and it is not, therefore, a decision-maker or an influencer of decisions.

- Limited opportunities for the profession to push beyond its limit and to globalise beyond the African continent.

2.5 MEASURING CAREER AWARENESS

According to Braverman, Young, King, Peterson, and Weisskirch (2002: 57), there are six scales that could be used to measure learners' self-perception levels of decidedness with regard to their occupational choices. The scale is able to determine the level of comfort regarding the learners' vocational decisional status and any clear ideas of their interests and abilities. Sufficient knowledge about learners' occupations can also be identified by measuring their self-perception. The level of decidedness will further indicate the scale of their comfort with career guidance leaders or ambassadors, and their comfort in making decisions.

According to Rice, Gillis, Leahy, and Polesel, (2015: 31), there is a growing awareness that career development provides and not only meeting the needs of individual learners, but in supporting key career awareness and social goals. Therefore, ensuring more effective and targeted use of common resources. There is a framework that can be applied when assessing and measuring career awareness and it's the quality thereof. The frame work focuses on following measurable indicators:

- Inputs – information and material provided by high schools to their learners, which includes types of materials, resourcing, quality, rate of information availability and ease accessibility to the career guidance platform.
- Processes - different forms of providing information to the learners, activities offered in the career guidance sessions and the types or form of resources targeted for different levels in high school.

- Outputs - how many students have accessed key career guidance services and what artefacts have been produced form one level to another?
- Outcomes - what skills and knowledge have high school learners developed as a result of career guidance?

2.6 CAREER-GUIDANCE PROGRAMMES

Learners' self-perceived needs have indicated that there is a strong need for greater support for career exploration and planning processes for learners, particularly those from minority populations (Braverman et al., 2002: 58). These processes must focus on helping youths understand both themselves and the world of work. The learners' responses suggest that they should be very receptive to reliable sources of information, such as information that can be provided in school-based career-guidance programmes. The fact that school programmes were underutilised should prompt educators to re-examine those programmes and the approaches used to reach and engage learners (Braverman et al., 2002: 58).

Herr (2002: 78) has identified two basic types of career guidance programs which are primarily offered in South Africa which are computer assisted career guidance (CACG) programs and counsellor directed career guidance (CDCG) programs. Computer assisted programs are a relatively new concept in some other parts of South Africa. Avron (2002) further indicated that the career maturity of participants does increase after exposure to a CACG program. A CACG program is primarily based upon trait-factor theories which emphasises the use of diagnostic tests. Computer-assisted career guidance programs attempt to find a match between the individual and a career by focusing on several variables. It matches careers with variables such as interests, job environments, salary scales, and school subjects.

The program cannot, however, combine these variables into a meaningful whole and then link them to a career, but it rather matches each variable individually with careers. The program also fails to consider variables such as personality, aptitude, general intelligence and behavioral attributes (Herr, 2002: 81)

2.7 SKILLS AND EMIGRATION

According to Bailey (2003: 235), South Africa has been experiencing a brain drain since before 1994; and this trend looks as if it is set to continue. Concurrently, the flow of skilled immigrants into the country has slowed down tremendously in the post-

apartheid era, which means fewer skills are being replaced than those lost through emigration. It appears that the primary reasons skilled South Africans emigrate relate to concerns about crime and violence, the poor economic growth rate, the decline in public services in South Africa, and the attraction of lucrative job opportunities internationally. More recently, globalisation of the labour market for highly skilled professionals is also impacting skill-migration trends (Bailey, 2003: 235).

Table 2.1 indicates the different types of migration categories in 2011 and 2012 from the Department of Home Affairs. The order is arranged from the least-issued to the most-issued categories.

Table 2.1: Actual permits issued in 2011/2012 in South Africa

Immigrants	Total
	N
Permanent residence permits	1 322
Work permits	13 261
Study permits	14 060
Other categories	26 621
Visitors' permits	27 128

(Source: Budlender, 2013: 3)

A survey conducted by Budlender (2013: 3) indicated that the South African unemployment rates were alarmingly high; when measured against the labour force participation rate. The volume of permits issued to skilled South Africans to work in other countries has been very high, compared with the permanent residence permits issued locally; and this indicates that we are losing skills to other countries. The relationships among employment rates, unemployment rates, and labour force participation are very important when examining and analysing the effectiveness of labour force participation leading to the growing skill-migration rate. This observation prompts investigation into ways to eliminate or reduce the migration rate in South Africa.

2.8 EFFECTS OF CAREER GUIDANCE

This study will also focus on FM awareness, as a career choice amongst high school teachers and learners. The literature identified on this theme pertains to the effects of career guidance across the different types of learning choices.

Career-guidance programmes affect the target learners' abilities to make informed career choices and to improve their readiness to make career decisions. They also influence learners' aspirations for tertiary education. Grade 9 learners can make informed career choices for their futures, provided the proper guidance measures are in place (Bholanath, 2005: 49).

According to William (2016: 20), career guidance is a very important aspect that cuts across the human developmental phenomenon in all spheres of life as linked to a healthy life, motivation of studying for life, skills dynamics, labour markets and other socio-economic issues. Career guidance is also an element of effective lifelong learning and active labour market policies. As national education and training systems are reformed to reflect changing skill requirements, career guidance becomes increasingly important.

2.8.1 Theory of Work Adjustment (TWA)

According to Dahling and Librizzi (2015: 163), the Theory of Work Adjustment (TWA) is a class of theory in career development that was anchored on the different traditions of vocational behaviour, namely: the Person-Environment Correspondence Theory, which views career choice and development as continual processes of personal adjustment and accommodation, in which the person looks for work organisations and environments that would match his/her requirements in terms of needs; and it looks for individuals that are capable of meeting the requirements of the organisation.

A major strength of TWA is the sequence of measures that have been developed to measure the variables associated with the theory, including measures on satisfaction, needs, values, skills, and abilities. The TWA seeks to explain career development and satisfaction in terms of the Person-Environmental Correspondence; and it offers career-guidance professionals a model to locate entry points, in order to assist individuals with their career choices and adjustment concerns.

2.8.2 The Social-Cognitive Career Theory (SCCT)

The SCCT offers three segmental, yet interlocking-process models of career development; and it seeks to explain the development of academic and vocational interests with regard to how individuals make educational and career choices; and how they seek to ensure their educational and career performance and stability. The three segmental models have different emphases centering around three core

variables, which are: self-efficacy, outcome expectations, and personal goals. Lent (2005: 14) defined self-efficacy as a dynamic set of beliefs linked to particular performance domains and activities. Self-efficacy expectations influence the initiation of specific behaviours and the maintenance of behaviour in response to barriers and difficulties. The SCCT theorised that self-efficacy had four primary information sources or learning experiences, namely: personal performance accomplishments; vicarious learning; social persuasion and physiological and affective states.

Lent (2005: 14) suggested that of the four sources of information or learning experience, personal performance accomplishments have the most powerful influence on the status of self-efficacy. The SCCT choice model views the development of career goals and choices, as functions of the interaction among self-efficacy, outcome expectations and interests over time. The 'Big Five' career theories have served internationally to guide career guidance and the approach to awareness practice.

2.9 LEARNING-PROGRAMME GUIDELINES

Dabula and Makura (2013: 96) recommended that career-guidance programmes be sustained and extended to more learners in the Eastern Cape region of South Africa. This should furnish many underprivileged learners with proper decision-making skills, which are necessary for their personal growth and development. The career-guidance programme would also benefit school learners and their teachers in all the other provinces.

Dabula and Makura (2013: 69) further recommended that career-guidance programmes be tailor-made to address the needs of learners in a particular context, given their diverse socio-economic backgrounds and the rural-urban dynamic, which was always visible during career guidance. Training workshops should be taken into consideration when developing an effective career-guidance awareness programme. A computer-assisted career-guidance system should be developed for schools that have access to computer technology. The sustainability and monitoring of these programmes in schools should be ensured, in order to assist schools in taking ownership of their programmes and developing them further.

2.10 ASPECTS OF CAREER AWARENESS IN HIGH SCHOOLS IN DEMOCRATIC SOUTH AFRICA

According to Rooth, Seshoka, Steenkamp and Mahuluhulu (2011: 40), careers and career choices require a career decision-making process, starting with self-knowledge, where a learner is supposed to know his/her own interests, abilities, talents, strengths and weaknesses. Secondly, a learner's subject knowledge would also add value to the development of a personality type in the scope of the conventional, realistic, investigative, artistic or social sphere, all of which influence self-knowledge and are all pillars to knowing the career fields for career options.

Thirdly, they suggest the integration of self-aspects with the world of work: Studies in finance, for example, qualify learners to receive financial assistance, such as bursaries, student loans, scholarships and learnerships (Rooth et al., 2011: 40).

There is a perception that learners leave school with very little knowledge about the available opportunities that could be waiting out there for them within various industries. Some learners might not realise that they could 'dream big' and become very successful in their lives, as a result of career awareness. Moreover, they need to be provided with the relevant and necessary information to make informed and appropriate career choices. There is a possibility amongst learners and teachers that they have limited access to reliable information about their options for career pathways and employment opportunities.

Herr (2002: 48) suggests that a career guidance program should consist of four basic components, namely; awareness phase which focuses on a history and social background form, a psychometric assessment, and a physical behavior analysis. Secondly, an exploration phase which covers written or visual career information, visits to organisations and individuals in the specific careers, attending of lectures. Thirdly, a decision-making phase which focuses on making a career decision as a result of career exploration, preparation during which a detailed career action plan is formulated and employment element which occur during the exploration phase.

Finally, on having reached a decision, the individual needs to now begin preparing for entry into that career. There are several activities that need to done during this preparation phase. Activities such as seeking bursaries, attending extra lessons, drawing up resumes and seeking part time employment in the field of work are some of the activities that can be undertaken. The counsellor should assist the individual in

such preparation by drawing up of action plans, and doing some scenario mapping (Herr, 2002: 51)

2.11 COMMUNICATING THE FACILITIES-MANAGEMENT MESSAGE

A report by The Strategic Group Industry Leaders (2005: 40) recommended that the development of a comprehensive communications strategy would be an important first step towards improving the recognition of the role of the FM profession among potential clients and the wider community. The dissemination of accurate and targeted information about the profession would remove a major impediment to the profession's future growth potential; and it would help to develop the markets for FM services. Such an action would also help to address the profession's education and training agenda by promoting community awareness of the FM profession, as a credible career choice for school leavers.

2.12 DIVERSITY AND CHANGE MANAGEMENT

The Council of Europe conducted a study in 2014 about change in the educational environment. According to Besson, Huber, Gaillard, and Rohmann (2014: 9), it was widely acknowledged that teachers are an important success factor for social change and that the success of education for sustainable democratic societies depends significantly on the teaching profession. However, many recognised that society might not value the role of teachers enough. In many places, teachers and the teaching profession suffer from a negative image and a lack of recognition and social prestige.

Workplace diversity not only refers to the differences between teachers or educators; but it also caters for the receipt and celebration of these differences within the working environment. Besson et al. (2014: 9) further indicated that diversity training is an essential part of building awareness and a cohesive work environment. It has been clearly shown that well-managed diverse teams outperform homogeneous teams; as they tend to be more creative and effective in problem-solving. Diversity and Change-Management training provide the skills and the knowledge about the global environment characterised in relation to the diversity, strategic complexity and constant change. Therefore, diversity and change management could be a perfect conduit for new career awareness within an existing educational system, as well as amongst teachers and their learners.

According to Norris (2001: 221), the outcomes based education model will radically transform institutions of higher education in South Africa, changing from the current model of teaching and learning, which focused on qualifications consisting of subjects with compulsory and elective elements. Qualifications will be described in terms of the outcomes of learning which include the particular combinations of applied competences that must be achieved by the learner and applied competence is acquired instead of merely achieving subject knowledge. Outcomes-based education is an educational philosophy that is organised around several basic beliefs and principles and starts with the belief that all students can learn and succeed. High schools should control the conditions for success through the supply of quality, authentic learning experiences. Outcomes based education is transformational and it is based and focuses on preparing the learner for life after education.

2.13 ADDRESSING FACILITIES MANAGEMENT CAREER AWARENESS IN HIGH SCHOOLS

Although FM awareness amongst high school learners and their teachers is not well documented, the literature reviewed indicated and illustrated the processes and the fundamentals of how to address this problem. The literature review adequately covers the research sub-problems; and it provides opportunities for testing the hypotheses.

Research conducted by Adams (2002: 84), entitled 'Technology as a new way of learning in South Africa', provides a broader framework on how the high schools' curriculum and learning model can be addressed.

The study has concluded that educators should have a high level of understanding of what technology education entails, in order for them to enable an identification of the need to implement technology, which would be relevant and appropriate to the local environment. Further to the high level of understanding, educators believed that the biggest problem confronting the successful implementation of technology in schools is the lack of government support regarding physical resources, teacher training and retraining, as well as the necessary financial support.

These barriers were considered, when designing and developing the questionnaire, which aimed at finding out the effectiveness of the career-guidance activities.

2.14 CONCLUSION

Although not yet implemented, the government's proposals to provide support and counselling to schools should give a beacon of hope to all South Africans. Parents and teachers need assistance in understanding learners' career needs (Paisley & McMahon, 2001: 274). Career counselling in a post-modern South Africa needs to shift from an objective approach to an interpretive process. New and creative ways of assessment need to be developed. Leaders within the Department of Education need to be facilitators, rather than experts, who do all the thinking and decision-making. They should allow their learners to speak, act, think and choose for themselves. In other words, clients must be led to accept responsibility for their own choices and development.

In a post-modern, multicultural country, this was not always as easy as it may appear to be. However, the shortage of qualified career-guidance teachers seemed to be the most important factor that contributes negatively to learner motivation in schoolwork, especially in rural places.

According to Stead (1996: 33), inadequate career guidance for Grades 10, 11 and 12 high school learners has led to a myriad of problems in South Africa, including the factors mentioned below:

- Learners leave school with only a vague knowledge of employment opportunities.
- Learners have little insight into the most appropriate career direction for their abilities, values, and interests.
- Many learners undertake tertiary education, regardless of suitability, leading to high dropout rates in the first year.
- Many learners are practically unemployable without any post-school qualification.

Many employees were 'stuck' in careers to which they were not suited, leading to low morale, de-motivation, poor performance and bad service levels.

A continuing issue facing youth globally is what career to pursue, with many learners being unaware of which career they can peruse (Jones, 2017). In South Africa there are huge efforts by NGO's, industry and government to address the poor levels of basic education and career guidance. However, there are career guidance

programmes intended to uplift school facilities, teacher's skills, and headmasters' leadership abilities aimed to improve the poorly developed competence. Some young people rush to enroll at university, unaware of the myriad of other possible career choices options. High school learners require to be guided towards careers that they are passionate about (Jones, 2017).

Facilities managers and the Department of Education should join forces to try and improve career awareness amongst learners and teachers in high schools. The aim of their partnership would be to develop a properly structured system, which would enable effective introduction and an awareness platform for the new careers emerging from various industries.

CHAPTER THREE: THE RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter reviews a variety of research methods, including those adopted specifically for this study. It focuses on explaining the methods used to achieve the aims and objectives of the study. A range of research methods is discussed, and reasons are provided regarding techniques employed pertaining to data collection, interpretation and analysis.

According to Fellows and Liu (2015: 2), research methodology is the term for the principles and logical sequence of thought processes that were applied to scientific investigation. Creswell (2005: 84) further indicated that research could be defined as a process in which a researcher engages in a small set of logical steps; it could also be a sequence of processes used to collect and analyse information to increase understanding of a topic or issue.

In most cases, research methodologies are intended to accomplish the research objectives. It can be concluded that research is a well-designed process of gathering and analysing data and involves numerous steps and processes to achieve a better understanding of the problem. According to Creswell (2005: 96), the general process of conducting scientific research includes the following steps: identifying the research problem, conducting a literature review, justifying the purpose of the research, data collection, data analysis and interpretation, and evaluation and reporting of the research.

3.2 RESEARCH PROCESS AND DESIGN

The mutual relationship between theory and research often becomes evident to researchers who are new to these topics when they consider the relationships between theory and research in inductive and deductive approaches to research. In both cases, the theory is crucial. The relationship between theory and research differs for each approach. Inductive and deductive approaches to research are quite different, but they can also be complementary (Blackstone, 2012: 16). A deductive approach to research was commonly associated with the scientific investigation process – the researcher studies what others have done, read existing theories and then tests hypotheses that emerge from those theories. Figure 3.1 outlines the steps involved in a deductive approach to research.
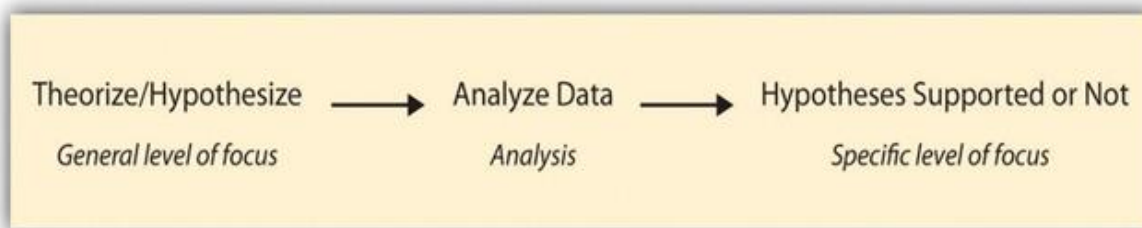
Figure 3.1: The deductive research process

(Source: Blackstone, 2012: 43)

The inductive approach involves research which begins by collecting the data relevant to the topic of interest. Once a substantial amount of data has been collected, the patterns in the data were reviewed, in order to develop a theory that can explain them. Figure 3.2 outlines the steps involved in an inductive research approach.
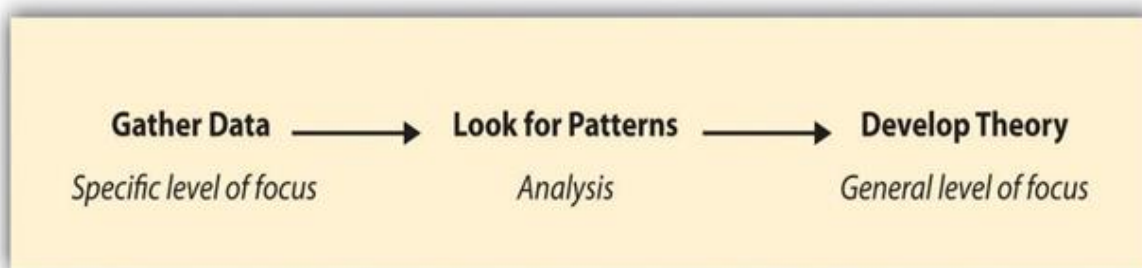
Figure 3.2: The inductive research process

(Source: Blackstone, 2012: 42)

The deductive research approach was used in this study; as it presents an opportunity to test the hypotheses and to develop a theory from them.

3.3 MIXED RESEARCH METHODOLOGIES AND METHODS

Mixed research is a general type of research; and it is one of the three paradigms. The techniques and characteristics of quantitative and qualitative methods were mixed in one overall study. According to Blackstone (2012: 129), there are two major types of mixed research, namely: mixed-method research and mixed-model research (Blackstone, 2012: 129). The mixed-method research uses the qualitative research paradigm for one phase of a research study; and the quantitative research paradigm is utilised for another. A quantitative experiment was conducted, after which a qualitative study – in the form of an interview with the participants was conducted, in order to see whether they agree with the results. According to Blackstone (2012: 130),

mixed-method research is like conducting two mini-studies within one overall research study.

The mixed-model research combines both qualitative and quantitative research approaches within one stage of the study, or across two stages of the research process. It focuses on a survey and it uses a questionnaire that comprises multiple closed-ended or quantitative-type items, as well as several open-ended or qualitative-type items. In the mixed-model research, a researcher might collect qualitative data, but then try to quantify the data, as opposed to the mixed-method approach (Blackstone, 2012: 130). This method was used in this study; as it focuses on a survey; and it uses a questionnaire.

The questionnaire method was selected because it allows for participants anonymity as opposed to having an interview, questionnaires are practical apart from being inexpensive and flexible. Questionnaires are also a practical way to gather data because they can be targeted to the desired groups with multiple ways of managing the data. This method allows a way to gather vast amounts of data on any subject by means of open-ended or multiple choice. Questionnaires are one of the most affordable ways to gather quantitative data.

3.4 THE DATA COLLECTION

The primary data for this study were obtained from the Soutpansberg West Circuit manager, high school teachers, and high school learners. Conversely, the secondary data were obtained through a literature study of the relevant publications from various sources, such as books, conference papers, dissertations, theses, journals, and Facilities Management (FM) magazines.

3.4.1 The Secondary data

According to Hox and Boeije (2005: 23), secondary data are data that were originally collected for a certain purpose; and they were then re-used for a different research project. The data were collected from recent related literature sources, such as books, conference papers, dissertations, theses, journals and FM magazines. Because the FM profession is informal in South Africa, international material and information were used; and these included books, journals, reports, surveys and Internet videos.

3.4.2 The Primary data

The primary data in this study were collected for a specific goal. The data collected in the field were in the form of numeric figures and texts; and they were gathered by means of a research questionnaire specific to a sample population of high school teachers and high school learners in the Soutpansberg West Circuit in Limpopo.

3.4.3 The data-collection instrument

High school learners and high school teachers completed questionnaires in the form of a survey; and copies thereof were distributed to the participants by hand only. Consent forms and assent slips were issued to the relevant participants and authorities. Once the consent forms were returned, the researcher arranged with the schools principals to book appointments at their schools for the data collection. The learners completed the questionnaires in groups simultaneously at each school during the study period session in their respective classes. The teachers completed the questionnaires individually and the completed questionnaires were collected from the coordinators who were located at the staffrooms. All completed, spoiled and uncompleted questionnaires were recorded and given a unique code and reference for administration and data-capturing purposes.

3.4.3.1 Target population

Leedy and Ormrod (2005: 207) identified the following guidelines for the identification of a sufficiently large sample size: With a small population – fewer than 100 people – there was no need for sampling; and if the population size was around 500, 50% of the population should be sampled. If the population size was around 1 500, 20% should be sampled. Beyond a certain point – 5 000 units or more – a sample of 400 units is generally accepted as being adequate.

The Circuit manager provided the base information, which comprised the number of high schools and learners enrolled at the beginning of 2017. This information was used as the base population. The results are shown in Table 3.1.

Table 3.1: The target population

	Population (Based on high school's enrolment Grade 9-12) N	Target sample size (according to Cochran's formula) N	Target sample size according to Leedy & Ormrod (2005: 207)
Teachers	90	73	No need to sample
Learners	5679	374	400 is adequate
Schools	15	14	No need to sample

Sample Size formula used: Cochran's formulas (as cited by Israel, 2003:3):

$$Sample\ Size = \frac{n}{1 + ne^{\wedge}2}$$

N: Total population, e: error (0.05) and Confidence level: 95%

The population amongst the high schools, learners, and teachers was sufficient; and this resulted in an adequate sample size amongst the population groups or the participants. Therefore, the actual sample size was large enough to conduct the research; and it is qualified in terms of the Cochran's and Leedy & Ormrod's methodology of population sampling.

3.4.4 Selection of the group sample

As the concept of sampling is one of the most important in total research endeavour, it is imperative to understand it clearly. According to De Vos, Strydom, Fouche, and Delport (2002: 207), there were various ways that could be used when selecting and planning a sample selection – for example, the probability and non-probability sampling techniques. For the purpose of this study, a non-probability approach was considered; because it caters for different types of sampling selection techniques, namely: accidental, purposive, quota, dimensional, target, snowball, and spatial techniques. However, in this study, a purposive sample selection technique was used.

3.4.4.1 Estimated Sample size

Table 3.2: Sample size

	Soutpansberg West		
N	High Schools 14	Learners grade 9-12 374	Teachers 73

The Average Learner to Educator ratio (LER) at Limpopo Province is (30.1 to 1) for the public schools and (16 to 1) for private schools (Motshekga, 2012: 32).

3.4.5 The purposive sample selection technique

This sample selection technique was used in this study when selecting the group of teachers and learners within the Soutpansberg West Circuit in Limpopo. The sample was based entirely on the judgement of the researcher. The sample was composed of elements that contained the characteristics and representative or typical attributes of the population – judging, therefore, on the level of the schools' quintile levels and schools with a fair representation of a teacher-to-learner ratio. The Soutpansberg West Circuit high schools indicated a fair relevance to representation when compared with other circuits within the Soutpansberg region and the 2017 learners' enrolment. Hence, the population was identified and selected for this study.

3.4.6 The questionnaire design

The questionnaire design technique was selected to encourage collective and independent engagement by the respondents when responding. Twelve (12) draft sample questionnaires were sent to selected teachers and individuals within the education environment for their comment and advice on relevant and possible changes to be considered or incorporated. The high school learners' and high school teachers' questionnaires were designed under the guidance and expertise of an experienced facilities manager with both work and academic experience. The literature review also contributed to the design of the high school teachers' and high school learners' questionnaires.

Questionnaires were sent to the target population; and they were accompanied by a covering letter. The questionnaires were set up to gather information pertaining to the hypotheses and the sub-problems below:

- SP 1.1: High school teachers are unaware of FM as a career.
- HP 1.1: High schools do not have diversified career guidance activities.
- SP 2.1: High school learners are unaware of FM as a career.
- HP 2.1: High School career-guidance teachers are not suitably qualified.
- SP 3.1: High school subject grouping does not affect learners' career choices.
- HP 3.1: High schools spend enough time on career guidance.

According to Howard and Peters (1990: 30), the simpler the design and the shorter the questionnaire, the more likely it is that the respondents will complete and return it. Based on this suggestion, the questions used in this study were short and to-the-point,

considering that the target participants were from the schools where English was not the first language. High school learners' and high school teachers' questionnaire are divided into 3 main parts, namely; demographic questions, close-ended and open-ended questions. High school learner's questionnaire has a total of twelve (12) questions whilst the high school teacher's questionnaire as a total of fifteen (15) questions. There were nine (9) (5+4) likert scale questions for high school teachers and high school learners respectively. Likert scale questions were used to measure the participants' attitudes and opinions to determine the level of responses.

The purpose of the questions is to determine the characteristics of a population and to obtain an overall measure of the attitudes and opinions of the respondent by means of data collection.

3.4.7 Questionnaire administration

According to De Vos et al. (2002: 170), there are various types of data-collection methods, of which the questionnaire is one. In this study, a combination of personal and group-administered questionnaires was used; and these considered the 'number of teachers to the number of learners' ratio, school activity schedules, and the research project-plan timelines. Table 3.3 indicates the process and steps that led to a successful administration of the questionnaire specifically in this study, for both learners and teachers.

Table 3.3: Questionnaires' administration outline

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
NMU research ethics committee-human granted approval	Letter for asking a permission to conduct research survey in high schools sent to Department of Education	A formal meeting with the Circuit manager	Introduce the research data collectors assistants to the schools principals and life orientation teachers	Fieldwork started with a roll call of the research assistance team, checked the number of questionnaire and engaged in a briefing script	Grouping of the questionnaire by school and quintile level	Conduct quality control and data cleaning per assigned capturer

	Step 2.1	Step 3.1	Step 4.1	Step 5.1	Step 6.1	Step 7.1
	Department of Education noted and guided to proceed	Hand the sealed pack; enclosed in the pack were, ethical approval, letters, consent slip, assent forms, questionnaires, project plans, research proposal and briefing/ procedure scripts	Hand the sealed pack with all relevant information similar to the pack handed to the Circuit manager. School principals agreed to forward the letter to SGB and parents	Log register for participants who were absent for various reasons was conducted for teachers and learners. The surplus of questionnaire which were not handed to participants was recorded	Record spoiled questionnaire 6.1.1 Assign questionnaire to data capture and keep the register. 6.1.2 Issue a sample coded questionnaire to guide the data capture	Consolidate all quality approved data sheets. 7.1.1 Create copies of storage and keep hard copies of questionnaires

Permission to continue conducting the research at the respective high schools was granted by the Circuit manager, with the delegation of authority from the Department of Education in Limpopo.

3.5 THE DATA ANALYSIS

One major advantage of quantitative data collection methods – such as survey research – is that large amounts of data can be used. Additionally, they can be represented numerically by any form of data input. In this study, a code book-encrypted Excel-configured template was created to condense the completed teachers' and learners' surveys into analysable numerical data.

The high school teachers' and high school learners' questionnaire were coded to make it easy to capture the data on a spreadsheet for statistical analysis. The data from the questionnaire were then captured for analysis and the quantitative statistical results were produced to assist in the analysis of the research. Various tables were created in which all the statistical data from observations and frequencies were captured. Where necessary, the weighted average was calculated to determine the positive or negative position on each statement from the respondents; these were then ranked accordingly.

Inferential statistical analyses, like Chi-Square, Cramér's V and the Phi-coefficient were used to assess the statistical significance of the findings and the strength of the relationship. The Chi-Square test is one of the non-parametric tests; and it uses

sample data to evaluate the hypotheses on the proportions or relationships that exist within the population (Gavetter & Wallnau, 2005: 455).

According to Harris (1997: 466), Cramér's V is the measure of the strength of the relationship between two variables; while the Chi-Square test only indicates if the relationship between the two variables is statistically significant. It does not provide a measure of the strength of that relationship; hence, Cramér's V or the Phi-coefficient is used. The Phi-coefficient is a measure that adjusts the Chi-Square statistic according to the sample size.

These statistical methodological types aim to test and evaluate the research problem statements made in relation to the hypotheses, as outlined in Chapter One. Each statement was statistically analysed and tested to determine the relationship and the strength of that relationship.

3.6 SUMMARY

This chapter has provided an overview of the research design and the methodologies used for collecting and analysing the data, with the aim of testing the research hypotheses. Different aspects of the research methods were described relating to the information from the literature review; and these set the foundation for developing the questionnaire. The next chapter presents the results obtained from the quantitative and qualitative research aspects of the study. The questionnaire was used as a key instrument to collect the data. Various statistical tests were adopted for the analysis of the data, assisting in the testing of the hypotheses and reaching the conclusions. The research results follow.

CHAPTER FOUR: RESEARCH RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter deals with the responses and the results obtained from the questionnaires, the analysis, and the data interpretation. The objective of this chapter is to expose the data relevant to the sub-problems of the study – with the aim of testing the hypotheses of the identified sub-problem.

4.2 THE RESPONSE RATE

According to Leedy and Ormrod (2005: 207), guidelines for the identification of a sufficiently large sample size – 5 000 units or more – a sample size of 400 people is considered adequate. Therefore, the response rate of 73% and 98% were considered good and acceptable for the purpose of this study respectively.

Table 4.1 indicates the response rate from the high school teachers and learners in the Soutpansberg West Circuit.

Table 4.1: Total response rate

	Population (Based on enrolment)	Target sample size (according to Cochran's formula)	Target sample size (according to Leedy & Ormrod)	Questionnaire sent out to participants.	Questionnaires Not responded & or spoiled	Actual used data (responses)	Response rate
Teachers	90	73	No need to sample	89	2	87	98%
Learners	5679	374	400 is adequate	3160	861	2299	73%

4.3 DEMOGRAPHIC PROFILE OF THE RESPONDENTS

The data were collected from the Soutpansberg West Circuit high schools. As a sample, 14 high schools were drawn from a population of 15 high schools. A sample of 87 high school teachers was drawn from a population of 90 high school teachers; and a sample of 3 160 was drawn from a population of 5 679 high school learners from Grade 9 to Grade 12. This means that the Grade 8 learners were excluded. A total of 14 (n = 11+3) high schools participated in the Soutpansberg West Circuit and the high schools in quintiles 2 and 3 respectively; therefore, there were no high schools classified in quintiles 1, 4 and 5. The Quintile system is a model developed when

funding schools. Schools are in five groups; and they receive funding, based on the group in which they are situated. The funding model is progressive, which means that schools in poorer quintiles receive more funding than schools from more affluent quintiles. For example, quintile 1 receives more funding per child, followed by quintiles 2, 3, 4 and 5 in descending order. This means that quintile 5 will receive the least funding.
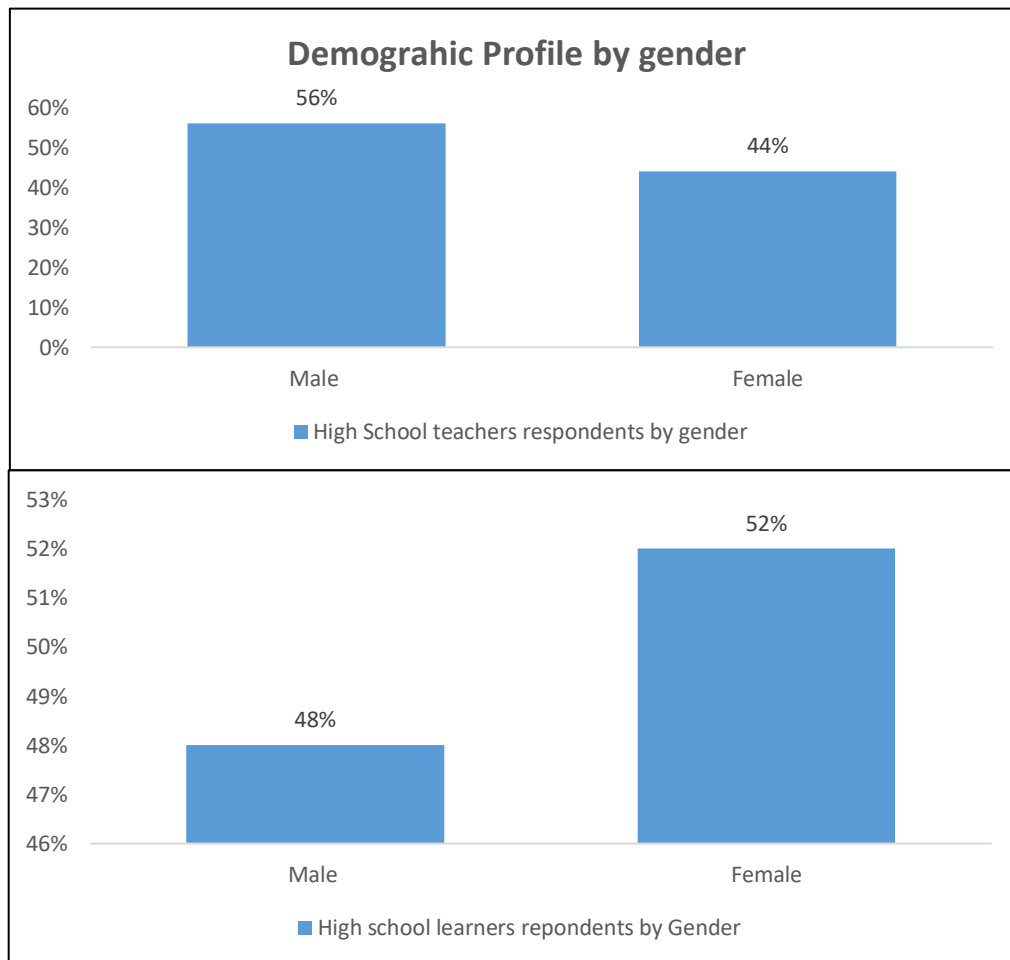
Figure 4.1: High school learners' and High school teachers' demographic representation per gender

Figure 4.1 shows that fifty-two per cent (52%) (N= 2229) of the learner respondents were high school females and forty-eight (48%) (N= 2229) were high school males. Forty-four per cent (44%) (N=87) of the teacher respondents were females and 56% (N= 87) were males.

High school participants represented different types of gender through the grades. The results are shown in Figure 4.2.

High school learners gender by grade
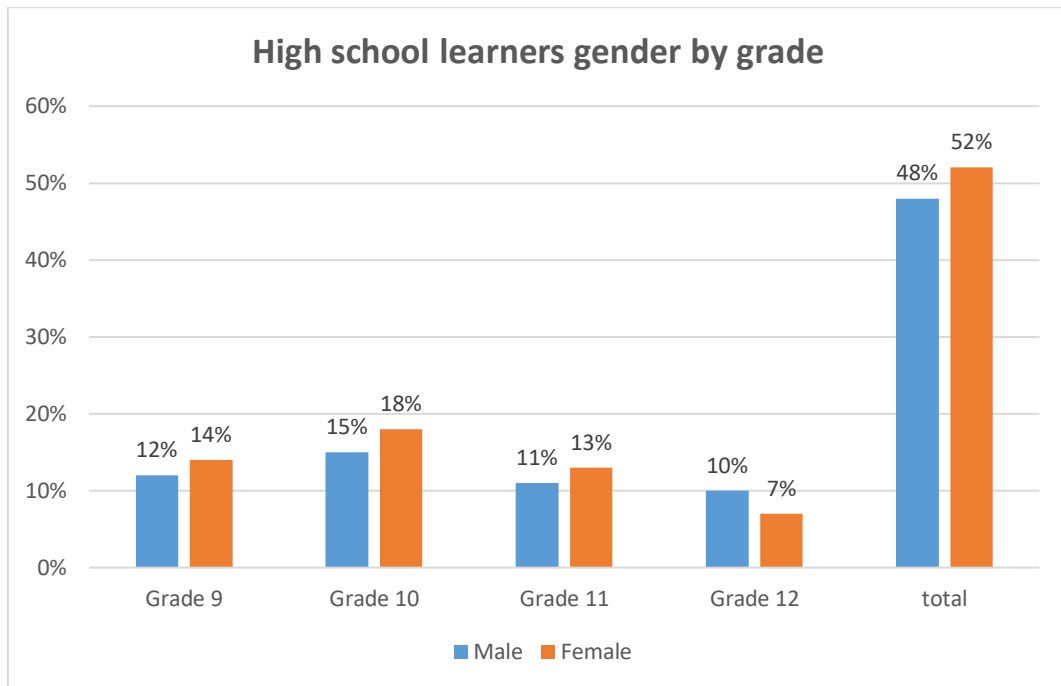
Figure 4.2: High school learners' demographic representation per grade and gender comparison

Figure 4.2 shows that the majority of high school learner respondents were from Grades 10. Out of 2 299 high school learner participants; 26% (12 + 14) were from Grade 9; 33% (15 +18) were from Grade 10; 24% (11 + 13) were from Grade 11; and 17% (10 + 7) were from the Grade 12 learners. High school female learners dominated the responses from the Grade 9 to 11 group; while high school male learners only dominated the responses in the Grade 12 group.

Further to the sample size, the community of the Soutpansberg West Circuit consisted of the various levels, categories and/or classification of the high schools. The results below indicate the comparison of high school classification against their identified quintile level. The results are shown in Figure 4.3.
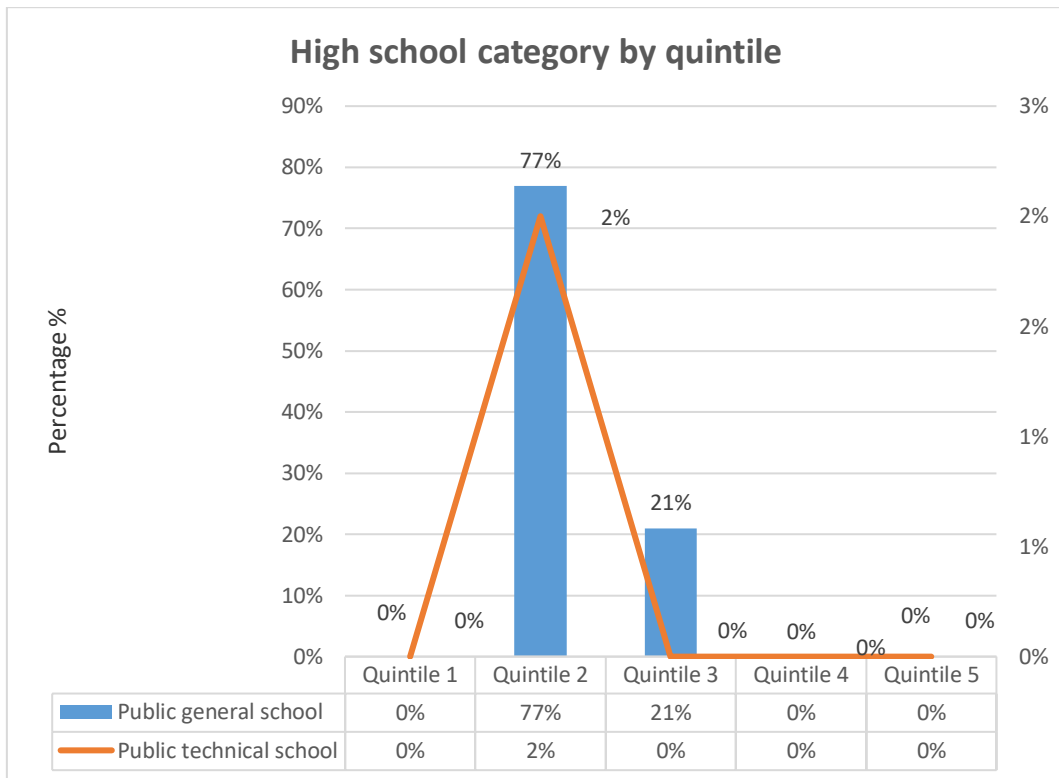
Figure 4.3: High schools' demographic representation per school category and quintile classification

Figure 4.3 shows that 77% of the high schools that participated were classified as general public schools; and they were situated in quintile 2 level; whereas 21% of the same category was found in the quintile 3 level. Only 2% of participating high schools were classified as public technical schools in quintile 2. Therefore, there were no high schools categorised as quintile levels 1, 4 or 5 within the Soutpansberg West Circuit.

The high school environment has a diversified official representation by means of gender, position, title and other authority-defining elements. The sample indicated that there were four key positions for teachers; and these were identified as principals, vice-principals and heads of departments, and teachers who only teach or hold other informal positions. The results below indicate the teacher respondents who have duties over and above the general teaching positions. The results are shown in Figure 4.4.
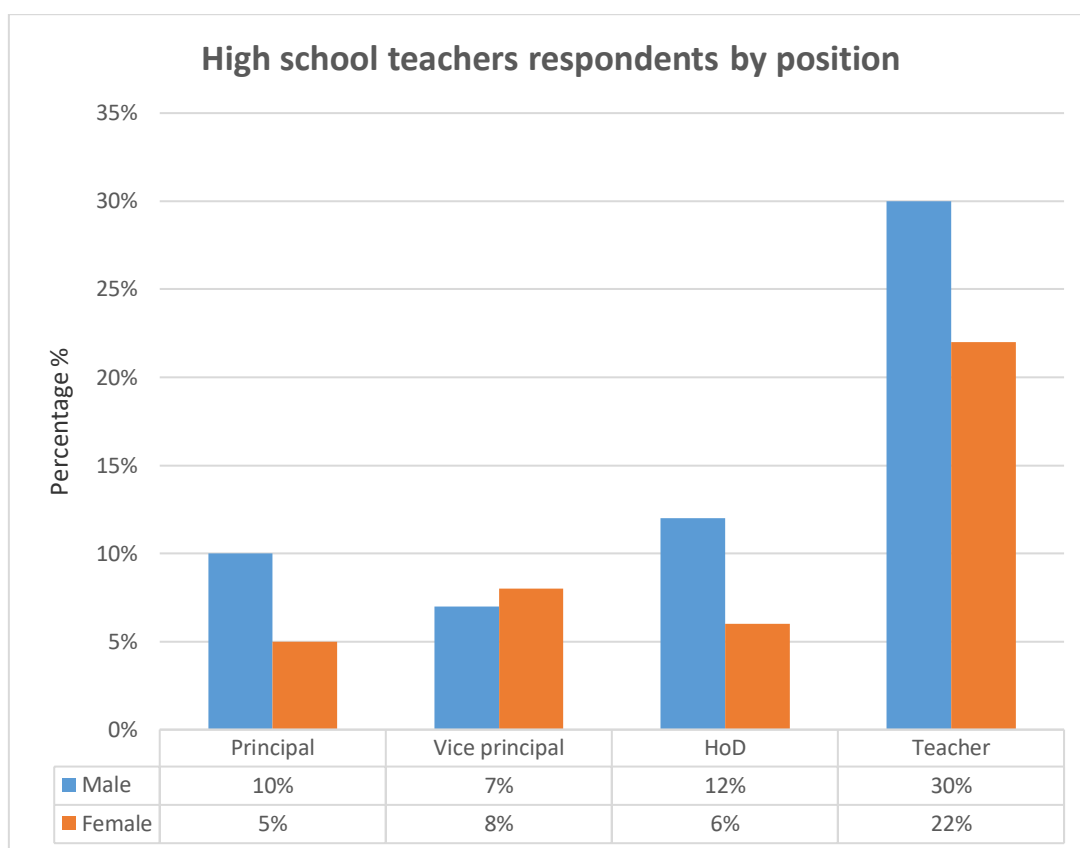
Figure 4.4: High school teachers' demographic representation according to the teachers' positions at the schools

Figure 4.4 indicates that from the positions of teachers at high schools, the majority of response were male teachers. Out of 87 high school teachers participants; 15% were high school principals, 15% were vice principals, 18% were HoDs and 52% of respondents were ordinary teachers. The figure also indicates that male teacher participants dominated all groups, with the exception of the vice-principal group.

4.4 OTHER RESULTS FROM THE HIGH SCHOOL TEACHERS' DATA

This section consisted of a questionnaire with 15 questions –3 demographic, 7 closed-ended and 5 open-ended questions, to determine the awareness levels of high school teachers relating to facilities management (FM), the need for FM awareness in high schools; and whether there were high school learners who wished to become facilities managers in the future. The responses to the questions tabulated below include the results and the interpretation of the data.

Question 3: High school teachers had to choose from various available types of career guidance activities. The results are shown in Table 4.2.

Table 4.2 Career-guidance activities in high schools

	Yes (%)	No (%)	N	Mean	SD	Chi-Sq	P	Cramer's V	Rank
Q 3.1	38	62	87	1.62	0.488	5.069c	0.0	0.197	4
Q 3.2	53	47	87	1.47	0.502	0.287c	0.7	0.245	2
Q 3.3	71	29	87	1.29	0.455	15.736a	0.0	0.092	1
Q 3.4	40	60	87	1.60	0.493	3.322c	0.1	0.221	3
Q 3.5	24	76	87	1.76	0.430	23.276c	0.0	0.092	6
Q 3.6	33	67	87	1.67	0.474	9.667a	0.0	0.176	5
Q 3.7	7	93	87	1.93	0.255	64.655c	0.0	0.17	7

Q 3.1	Q 3.2	Q 3.3	Q 3.4	Q 3.5	Q 3.6	Q 3.7
Community-based career exhibition	Dedicated career-guidance teachers	Guests in the form of former learners who matriculated from your school	Guest speakers from government departments	Guest speakers from industry	Guest speakers from tertiary institutions	Internet-based career activities

For the purpose of this study the following mean rating scale have been applied when analysing the mean results;

Mean rating:

- Yes (1.0 - 1.5)
- No (1.6 - 2.0)

Table 4.2 indicates that:

Thirty-eight per cent (38%) of the high school teachers responded 'Yes' and 62% of respondents responded 'No' to whether community-based career exhibition is one of the career-guidance activities at the school. The mean rating of 1.62 fits in the range of '1.6 – 2.0', indicating that the majority of teachers stated 'No' as a response. The standard deviation of 0.488 significantly indicates a prevalent variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and community-based career exhibition as a career-guidance activity in high schools; since χ^2 (1, n = 87) = 5.069, p = 0.0, V = 0.197.

Fifty-three per cent (53%) of the high school teachers responded 'Yes' and 47% responded 'No' to whether dedicated career guidance teachers were part of the career guidance activities at the school. The mean rating of 1.47 fits in the range of '1.0 – 1.5', indicating that the majority of teachers stated 'Yes' as a response. The standard deviation of 0.502 significantly indicates a prevalent variance, which means that the

respondents had a high variation of responses. It may also be statistically concluded that there is no significant relationship between the respondents and the dedicated career-guidance teachers, as career-guidance activities in high schools; since χ^2 (1, n = 87) = 0.287, p = 0.668, V = 0.245.

Seventy-one per cent (71%) of the high school teachers responded 'Yes' and 29% responded 'No' to whether guests in the form of former matriculated learners is one of the career-guidance activities at the school. The mean rating of 1.29 fits in the range of '1.0 – 1.5', indicating that the majority of teachers stated 'Yes' as a response. The standard deviation of 0.455 significantly indicates a prevalent variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and the guests in the form of former learners who matriculated from high schools, as career-guidance experts; since χ^2 (1, n = 87) = 15.736, p = 0.0, V = 0.092.

Forty per cent (40%) of the high school teachers responded 'Yes' and 60% responded 'No' to whether guest speakers from the government departments were part of the career-guidance activities at the school. The mean rating of 1.60 fits in the range of '1.6 – 2.0', indicating that the majority of teachers stated 'No' as a response. The standard deviation of 0.493 significantly indicates a prevalent variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is no significant relationship between the respondents and the guest speakers from government departments, as career-guidance experts in high schools; since χ^2 (1, n = 87) = 3.322, p = 0.086, V = 0.221.

Twenty-four per cent (24%) of the high school teachers responded 'Yes' and 76% responded 'No' to whether guest speakers from industry were part of the career-guidance activities at the school. The mean rating of 1.76 fits in the range of '1.6 – 2.0', indicating that the majority of teachers stated 'No' as a response. The standard deviation of 0.430 significantly indicates a prevalent variance, which means that the respondents had a high variation of responses. It may also therefore be statistically concluded that there is a significant relationship between the respondents and the guest speakers from industry as career-guidance experts in high schools; since χ^2 (1, n = 87) = 23.276, p = 0.0, V = 0.092.

Thirty-three per cent (33%) of the high school teachers responded 'Yes' and 67% responded 'No' to whether guest speakers from tertiary institutions were part of the career-

guidance activities at the school. The mean rating of 1.67 fits in the range of '1.6 – 2.0', indicating that the majority of teachers stated 'No' as a response. The standard deviation of 0.474 significantly indicates a prevalent variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and the guest speakers 87) = 9.667, p = 0.0, V = 0.176.

Seven per cent (7%) of the respondents responded 'Yes' and 93% responded 'No' to whether internet-based career activities were part of the career-guidance activities at the school. The mean rating of 1.93 fits in the range of '1.6 – 2.0', indicating that the majority of teachers stated 'No' as a response. The standard deviation of 0.255 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and internet-based career activity as a career-guidance activity in high schools; since χ^2 (1, n = 87) = 64.655, p = 0.0, V = 0.170.

The results also indicate that guests in the form of former learners who matriculated from the school was ranked as the highest activity at the schools. Dedicated career guidance teachers were ranked second highest while Internet-based career activities contributed least to the career guidance activities at the schools.

Career guidance activities could be very important, as a tool in high schools; and they could assist with career awareness and the relationship alignment with the industries, tertiary institutions or businesses. Figure 4.5 (graphical representation of Table 4.2) indicates the responses from the high school teachers, confirming the types of career guidance activities in existence at their schools.
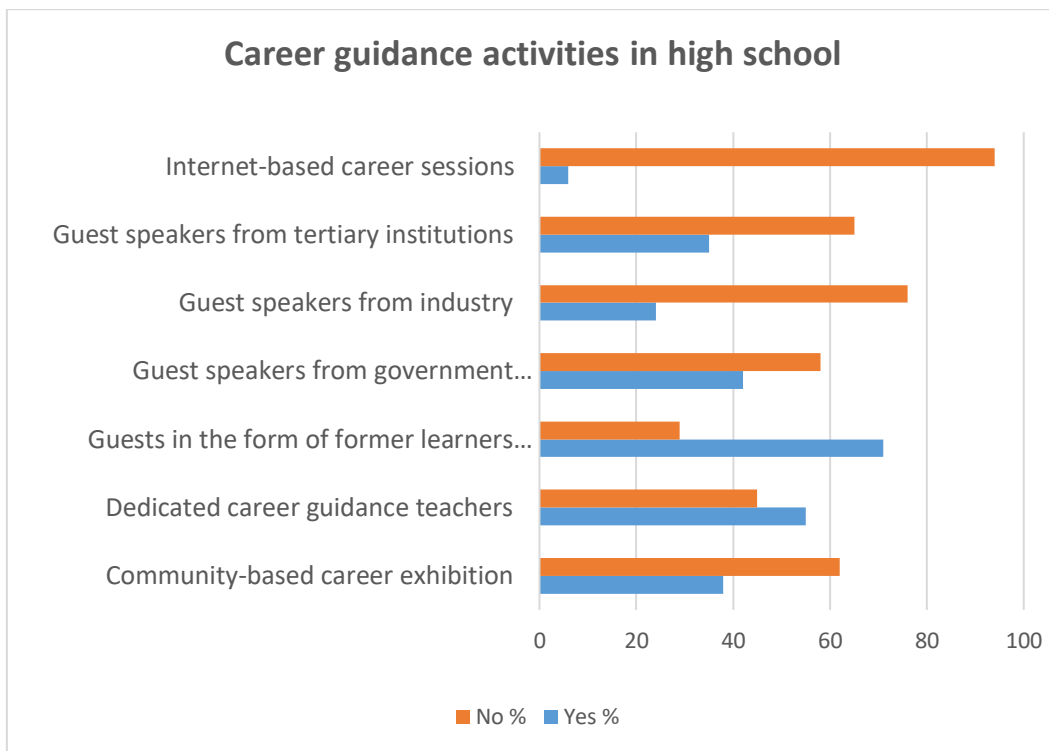
Figure 4.5: Career guidance activities in high schools

Figure 4.5 and Table 4.2 represent the responses of the high school teachers regarding a specific question about teachers' views on the types of career guidance activities that were offered at their high schools. Guests comprising former learners that matriculated from the high school and dedicated career-guidance teachers – were indicated and confirmed by the ranking of 7 and 6, respectively, to be the most common activities in the Soutpansberg West Circuit high schools.

From Table 4.2 and Figure 4.5, it may be concluded that internet-based career-guidance sessions in the Soutpansberg West Circuit high schools were lacking as a result of high schools not having diversified career-guidance activities. High schools are required to improve their career guidance activities to be balanced and focus on employing technology and digital platform such as the Internet based career guidance. Internet based career guidance has an ability to provide opportunity for social communication and information exchange that embraces the capacity for suitable career guidance activities. Technological advances in career intervention focusing on computer-assisted support and the universal participation of the Internet in career information dissemination. Online career counseling emerged to provide a common platform enabling a wider and comprehensive interaction amongst high school teachers and their learners using several communication platforms such as; the Internet; e-mail, chat, teleconferencing, videoconferencing, and social web.

Question 5: Respondents had to indicate the extent of their knowledge level of the careers related to the construction industry. The results are shown in Table 4.3.

Table 4.3: High school teachers' career knowledge level

	Very low (%)	Low (%)	Average (%)	High (%)	Very high (%)	N
Q5.1	29	27	33	8	3	87
Q5.2	27	25	22	8	18	87
Q5.3	26	15	19	23	17	87
Q5.4	22	24	29	9	16	87
Q5.5	14	13	15	39	19	87
Q5.6	51	28	8	13	0	87
Q5.7	17	26	21	20	16	87
Q5.8	15	27	24	14	20	87
Q5.9	17	20	18	19	26	87
Q5.10	37	30	13	12	8	87
Q5.11	19	15	28	18	20	87
Q5.12	33	34	20	10	3	87
	Mean	SD	Chi-sq	P	Cramer's V	Rank
Q5.1	2.29	1.082	30.989a	0.0	0.233	9
Q5.2	2.65	1.428	9.494c	0.0	0.209	8
Q5.3	2.9	1.463	3.747c	0.441	0.215	6
Q5.4	2.73	1.342	9.954a	0.0	0.266	7
Q5.5	3.36	1.314	20.989c	0.0	0.293	1
Q5.6	1.83	1.062	37.368c	0.000	0.269	12
Q5.7	2.92	1.344	2.828a	0.587	0.147	5
Q5.8	2.97	1.346	6.046c	0.196	0.291	4
Q5.9	3.17	1.456	2.368c	0.668	0.217	2
Q5.10	2.24	1.289	29.954a	0.0	0.303	10
Q5.11	3.05	1.385	3.747c	0.441	0.162	3
Q5.12	2.16	1.112	31.448c	0.0	0.287	11

Q5.1	Q5.2	Q5.3	Q5.4	Q5.5	Q5.6
Architecture	Building Management	Civil Engineering	Construction Management	Electrical Engineering	Facilities Management
Q5.7	Q5.8	Q5.9	Q5.10	Q5.11	Q5.12
Interior Design	Land Surveying	Mechanical Engineering	Mechatronics	Project Management	Quantity Surveying

For the purpose of this study, the following mean rating scale have been applied when analysing the mean results;

Mean rating:

- Very low (1.0 – 1.8)
- Low (1.8 -2.6)
- Average (2.6- 3.4)

- High (3.4 – 4.2)
- Very high (4.2 – 5.0)

Table 4.3 indicates that:

Three per cent (3%) of the high school teachers had a very high career-knowledge level of architecture and 8% of the respondents had a high level, while 27% and 29% had a low to very low career knowledge level, respectively. Thirty-three per cent (33%) of the high school teachers had an average career-knowledge level. The mean rating of 2.29 fits in the range of '1.8 – 2.6', indicating that the respondents generally had a 'Low' knowledge level of architecture as a career choice. Their knowledge of architecture was ranked 9th (1 = highest, 12 = lowest). The standard deviation of 1.082 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and architecture at the career-knowledge level; since χ^2 (1, n = 87) = 30.989, p = 0.0, V = 0.233.

Eighteen per cent (18%) of the high school teachers had a very high career-knowledge level of building management and 8% of the respondents had a high level, while 25% and 27% had a low to very low career-knowledge level, respectively. Twenty-two per cent (22%) of the high school teachers had an average career-knowledge level. The mean rating of 2.65 fits in the range of '1.8 – 2.6' indicating that the respondents generally had a 'Low' knowledge level of building management as a career choice. Their knowledge of building management was ranked 8th (1 = highest, 12 = lowest). The standard deviation of 1.428 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and building management at the career-knowledge level; since χ^2 (1, n = 87) = 9.494, p = 0.0, V = 0.209.

Seventeen per cent (17%) of the high school teachers had a very high career-knowledge level of civil engineering and 23% of the respondents had a high level, while 15% and 26% had a low to very low career knowledge levels, respectively. Nineteen per cent (19%) of the high school teachers had an average career-knowledge level. The mean rating of 2.90 fits in the range of '2.6 – 3.4' indicating that the respondents generally had an 'Average' knowledge level of civil engineering as a career choice. Their knowledge of civil engineering was ranked 6th (1 = highest, 12 =

lowest). The standard deviation of 1.463 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is no significant relationship between the respondents and civil engineering at the career-knowledge level; since χ^2 (1, n = 87) = 3.747, p = 0.441, V = 0.215.

Sixteen per cent (16%) of the high school teachers had a very high career-knowledge level of construction management and 9% of the respondents had a high level, while 24% and 22% had a low to very low career-knowledge level, respectively. Twenty-nine percent (29%) of the high school teachers had an average career-knowledge level. The mean rating of 2.73 fits in the range of '2.6 – 3.4' indicating that the respondents generally had an 'Average' knowledge level of construction management as a career choice. Their knowledge of construction management was ranked 7th (1 = highest, 12 = lowest). The standard deviation of 1.342 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and construction management as career knowledge level; since χ^2 (1, n = 87) = 9.954, p = 0.0, V = 0.266.

Nineteen per cent (19%) of the high school teachers had a very high career-knowledge level of electrical engineering and 39% of the respondents had a high level, while 13% and 14% had a low to very low career knowledge level, respectively. Fifteen per cent (15%) of the high school teachers had an average career-knowledge level. The mean rating of 3.36 fits in the range of '2.6 – 3.4' indicating that the respondents generally had an 'Average' knowledge level of electrical engineering as a career choice. Their knowledge of electrical engineering was ranked 1st (1= highest, 12 = lowest). The standard deviation of 1.314 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and electrical engineering as career knowledge level; since χ^2 (1, n = 87) = 20.989, p = 0.0, V = 0.293.

None of the high school teachers had a very high career-knowledge level of facilities management and 13% of the respondents had a high level, while 28% and 51% had a low to very low career-knowledge level, respectively. Eight per cent (8%) of the high school teachers had an average career-knowledge level. The mean rating of 1.83 fits

in the range of '1.8 – 2.6' indicating that the respondents generally had a 'Low' knowledge level of facilities management as a career choice. Their knowledge of facilities management was ranked 12th (1 = highest, 12 = lowest). The standard deviation of 1.062 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and facilities management as career knowledge level; since χ^2 (1, n = 87) = 37.368, p = 0.0, V = 0.269.

Sixteen per cent (16%) of the high school teachers had a very high career-knowledge level of interior design and 20% of the respondents had a high level, while 26% and 17% had a low to very low career-knowledge level, respectively. Twenty-one per cent (21%) of the high school teachers had an average career-knowledge level. The mean rating of 2.92 fits in the range of '2.6 – 3.4' indicating that the respondents generally had an 'Average' knowledge level of interior design as a career choice. Their knowledge of interior design was ranked 5th (1 = highest, 12 = lowest). The standard deviation of 1.344 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is no significant relationship between the respondents and interior design as career knowledge level; since χ^2 (1, n = 87) = 2.828, p = 0.587, V = 0.147.

Twenty per cent (20%) of the high school teachers had a very high career-knowledge level of land surveying and 14% of the respondents had a high level, while 27% and 15% had a low to very low career-knowledge level, respectively. Twenty-four per cent (24%) of the high school teachers had an average career-knowledge level. The mean rating of 2.97 fits in the range of '2.6 – 3.4' indicating that the respondents generally had an 'Average' knowledge level of land surveying as a career choice. Their knowledge of land surveying was ranked 4th (1 = highest, 12 = lowest). The standard deviation of 1.346 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is no significant relationship between the respondents and land surveying at a career knowledge level; since χ^2 (1, n = 87) = 6.046, p = 0.196, V = 0.291.

Twenty-six per cent (26%) of the high school teachers had a very high career knowledge level of mechanical engineering and 19% of the respondents had a high

level, while 20% and 17% had a low to very low career-knowledge level, respectively. Eighteen per cent (18%) of the high school teachers had an average career-knowledge level. The mean rating of 3.17 fits in the range of '2.6 – 3.4' indicating that the respondents generally had an 'Average' knowledge level of mechanical engineering as a career choice. Their knowledge of architecture was ranked 2nd (1 = highest, 12 = lowest). The standard deviation of 1.456 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is no significant relationship between the respondents and mechanical engineering at a career knowledge level; since χ^2 (1, n = 87) = 2.368, p = 0.668, V = 0.217.

Eight per cent (8%) of the high school teachers had a very high career-knowledge level of mechatronics and 12% of the respondents had a high level, while 30% and 37% had a low to very low career-knowledge level, respectively. Thirteen per cent (13%) of the high school teachers had an average career-knowledge level. The mean rating of 2.24 fits in the range of '1.8 – 2.6' indicating that the respondents generally had a 'Low' knowledge level of mechatronics as a career choice. Their knowledge of mechatronics was ranked 10th (1 = highest, 12 = lowest). The standard deviation of 1.289 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and mechatronics at this career knowledge level; since χ^2 (1, n = 87) = 29.954, p = 0.0 V = 0.303.

Twenty per cent (20%) of the high school teachers had a very high career-knowledge level of project management and 18% of the respondents had a high level, while 15% and 19% had a low to very low career-knowledge level, respectively. Twenty-eight per cent (28%) of the high school teachers had an average career knowledge level. The mean rating of 3.05 fits in the range of '2.6 – 3.4' indicating that the respondents generally had an 'Average' knowledge level of project management as a career of choice. Their knowledge of project management was ranked 3rd (1 = highest, 12 = lowest). The standard deviation of 1.385 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is no significant relationship between the respondents and project management at this career knowledge level; since χ^2 (1, n = 87) = 3.747, p = 0.441, V = 0.162.

Three per cent (3%) of the high school teachers had a very high career-knowledge level of quantity surveying and 10% of the respondents had a high level, while 34% and 33% had a low to very low career-knowledge level, respectively. Twenty per cent (20%) of the high school teachers had an average career-knowledge level. The mean rating of 2.16 fits in the range of '2.6 – 3.4' indicating that the respondents generally had a 'Low' knowledge level of quantity surveying as a career choice. Their knowledge of quantity surveying was ranked 11th (1 = highest, 12 = lowest). The standard deviation of 1.112 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and quantity surveying at this career knowledge level; since χ^2 (1, n = 87) = 31.448, p = 0.0, V = 0.287.

Facilities management career-knowledge level was ranked the lowest amongst the high school teachers. Quantity surveying was ranked second lowest career-knowledge level while electrical engineering was ranked the highest career-knowledge amongst the teachers in the Soutpansberg West Circuit high schools. It may be concluded that high school teachers and high school learners are unaware of facilities management as a career.

Question 6: Respondents had to state their views on possible future FM opportunities that could be considered. The results are shown in Table 4.4.

Table 4.4: High school teachers' view on facilities management opportunities at their schools

	Fully disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Fully agree (%)	Missing (%)	N
Q 6.1	14	5	22	33	22	5	83
Q 6.2	12	14	22	23	17	13	76
Q 6.3	13	8	18	36	18	7	81
Q 6.4	6	9	8	36	33	8	80
	N	Mean	Std. Deviation	Chi-sq	P	Cramer's V	Rank
Q 6.1	83	3.46	1.300	20.795a	0.0	0.219	2
Q 6.2	76	3.22	1.305	4.921b	0.0	0.208	4
Q 6.3	81	3.41	1.283	20.420c	0.0	0.306	3
Q 6.4	80	3.88	1.191	41.250d	0.0	0.289	1

Q 6.1	Q 6.2	Q 6.3	Q 6.4
Facilities management can be included in career guidance sessions in the school.	Facilities management can be included as a career option when introducing other careers in the subject Life Orientation.	If facilities management is introduced as part of the subject Life Orientation, I think the condition of the facilities at our school will improve.	I am willing to learn more about facilities management.

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Fully disagree (1.0 – 1.8)
- Disagree (1.8 – 2.6)
- Neutral (2.6 – 3.4)
- Agree (3.4 – 4.2),
- Fully agree (4.2 – 5.0)

Table 4.4 indicates that:

Fifty-five per cent (55%) (33+22) of the high school teachers agreed to fully agreed that FM could be included in the career guidance sessions at their high schools; while 5% and 14% disagreed to fully disagreed, respectively. Twenty-two per cent (22%) of the high school teachers were neutral relating to FM being included in the career-guidance sessions at their high schools. The mean rating of 3.46 fits in the range of '3.4 – 4.2' indicating that the respondents generally 'Agree' that FM could be included in the career guidance sessions in high schools. The standard deviation of 1.300 significantly indicates a resolute, variance which means that the respondents had a consistent variation of responses. Five per cent (5%) of the participants' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and their view on facilities management opportunities at their schools; since χ^2 (1, n = 83) = 20.795, p = 0.0, V = 0.219.

Forty per cent (40%) (23+17) of the high school teachers agreed to fully agreed that FM can be included as a career option in the subject of Life Orientation; while 14% and 12% disagreed to fully disagreed, respectively. Twenty-two per cent (22%) of the high school teachers were neutral with regard to FM being included as a career option in Life Orientation. The mean rating of 3.22 fits in the range of '2.6 – 3.4' indicating

that the respondents generally were 'Neutral' that FM can be included as a career option in the subject Life Orientation. The standard deviation of 1.305 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. Thirteen per cent (13%) of the participants' responses were missing. It may also be statistically concluded that there is no significant relationship between the respondents and their view on facilities management opportunities at their schools; since χ^2 (1, n = 76) = 4.921, p = 0.00, V = 0.208.

Fifty-four per cent (54%) (36+18) of the high school teachers agreed to fully agreed that the condition of the facilities at their school would improve if FM is introduced as part of the subject Life Orientation, while 8% and 13% disagreed to fully disagreed, respectively. Eighteen per cent (18%) of the high school teachers were neutral. while seven per cent (7%) of the participants' responses were missing. The mean rating of 3.41 fits in the range of '3.4 – 4.2' indicating that the respondents generally 'Agree'. The standard deviation of 1.283 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and their view on facilities management opportunities at their schools; since χ^2 (1, n = 81) = 20.420, p = 0.0, V = 0.306.

Sixty-nine per cent (69%) (36+33) of the high school teachers agreed to fully agreed that they were willing to learn more about FM; while 9% and 6% disagreed to fully disagreed, respectively. Eight per cent (8%) of the high school teachers were neutral about their willingness to learn more about FM. The mean rating of 3.88 fits in the range of '3.4 – 4.2' indicating that the respondents generally 'Agree'. The standard deviation of 1.191 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. Eight per cent (8%) of the participants' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and their view on facilities management opportunities at their schools; since χ^2 (1, n = 80) = 41.250, p = 0.0, V = 0.289

The results indicate that high school teacher's willingness to learn more about FM was ranked the highest while including FM in career guidance sessions was ranked second highest. The possibility of FM to be included as a career option when introducing other

careers in the subject Life Orientation was ranked the lowest in the Soutpansberg West Circuit high schools.

Awareness of FM as a career in the high school environment would require opportunities in career activities within the current existing Department of Education career-guidance system provided to high schools. In that regard, questionnaire for teachers were put together in a manner which could indicate some sort of observation pertaining to the willingness, possibility, and openness for high school teachers to accept new ideas. The results are shown in Figure 4.6 (graphical representation of Table 4.4).
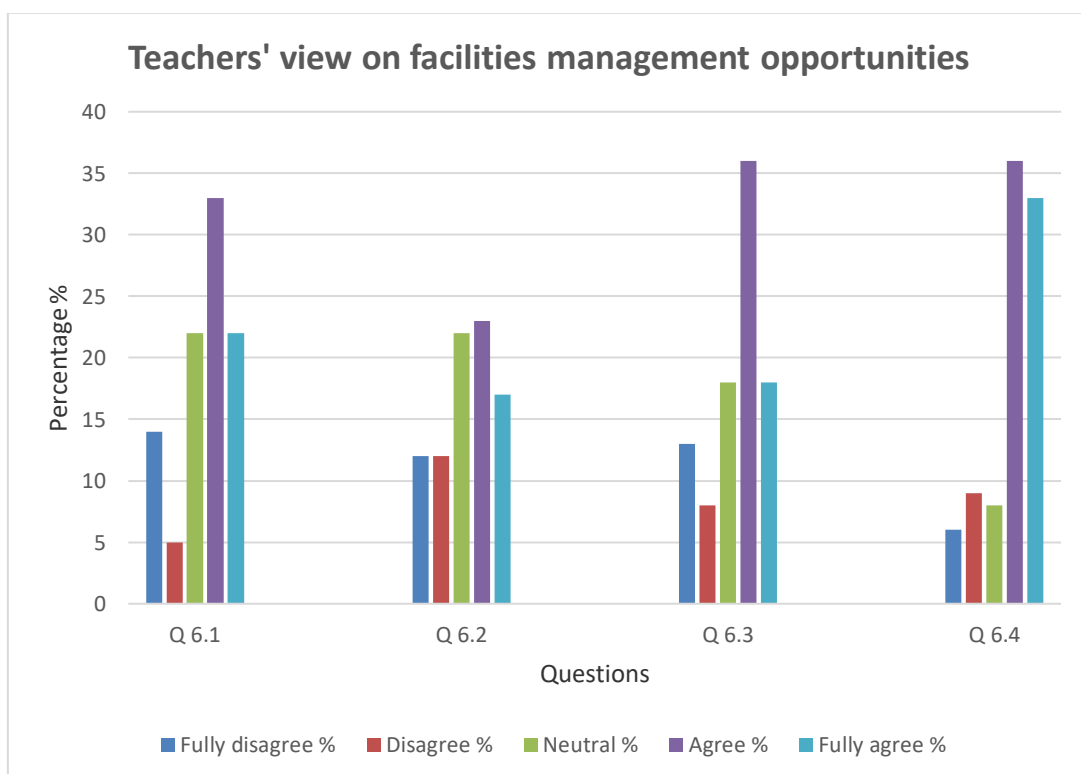
Figure 4.6: Teachers' views on Facilities Management opportunities

With reference to Table 4.4 and Figure 4.6, it may be concluded that the high school teachers were generally in agreement regarding their willingness to learn more about FM and the possibility of FM being included as a career option when introducing other careers in the subject Life Orientation. The results further indicated that there is a relationship between the high school learners who were unaware of facilities management as a career, as a result of FM not fully included in career guidance sessions in high schools.

Question 7: Respondents had to indicate whether they were aware of any high school learners wishing to become facilities managers. The results are shown in Table 4.5.

Table 4.5: Identified learners who wish to become a facilities manager in future

		Yes (%)	No (%)	N	SD	Chi-Sq	P	Cramer's V
Q7	Do you know of any of your learners who wish to become Facilities Managers?	14	86	87	0.347	45.621c	0.00	0.546

Table 4.5 indicates that:

Fourteen per cent (14%) of the high school teachers responded 'Yes'; and 86% of the respondents responded 'No', indicating that the majority of respondents indicated that they were not aware of any learners wanting to become facilities managers. The standard deviation of 0.347 significantly indicates a prevalent variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and those identified learners who want to become facilities managers in the future; since χ^2 (1, n = 87) = 45.621, p = 0.0, V = 0.546. Therefore, a development of a critical awareness about FM as a career path amongst high school learners and teachers is essential.

Question 8: Respondents had to indicate the frequency of career-guidance sessions at their high schools. The results are shown in Table 4.6.

Table 4.6 Frequency of high school career-guidance sessions

N	SD	Chi-sq	P	Cramer's V
84	1.982	36.310a	0.0	0.371

	Once a week	Fortnightly	Monthly	3-Monthly	6-Monthly	Annually	Never	Missing	Total
(%)	14	7	16	12	15	30	2	4	100
Cumulative (%)	14	21	37	49	64	94	96	100	

Q 8 How often do high school teachers have career guidance sessions with their learners?

Table 4.6 indicates that:

Thirty per cent (30%) of the high school teachers indicated that they have career-guidance sessions with their learners once a year; 15% once every six months; 12% once every three months; 16% once a month; 7% every second week, and 14% every week. The results indicated thirty per cent (30%) to be the highest observed response, which means that most of the teachers have career-guidance sessions with their learners once a year. The standard deviation of 1.982 significantly indicates a prevalent variance, which means that the respondents had a high variation of responses: Two per cent (2%) of the high school teachers never have career-guidance sessions with their learners while 4% of results were missing. It may also be statistically concluded that there is a significant relationship between the respondents and the frequency of career-guidance sessions in high schools; since χ^2 (1, n = 84) = 36.310, p = 0.0, V = 0.371.

The time that the high school teachers and learners spend on career guidance is a critical factor in raising awareness within the learning environment. According to the high school teachers, career-guidance sessions have been more of an annual activity. Figure 4.6 (graphical representation of Table 4.6) indicates the results from the respondents on the frequency of the career-guidance sessions between high school teachers and their learners confirming that high schools spend some time on career guidance.

	Annually	Monthly	6-Monthly	Once a week	3-Monthly	Fortnightly	Other	Never
■ Series1	30%	16%	15%	14%	12%	7%	4%	2%

Title: Frequency of high school learners' and teachers' career guidance sessions
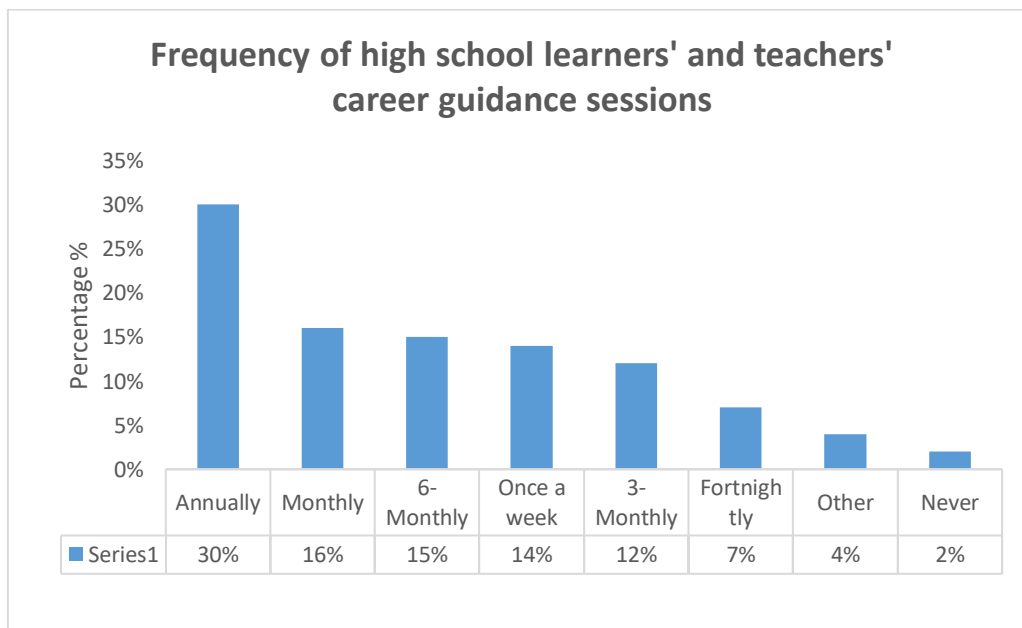
Figure 4.7: Frequency of high school learners' and teachers' career-guidance sessions

Question 9: High school teachers had to indicate their opinion regarding the effectiveness of career guidance at their schools. The results are shown in Table 4.7.

Table 4.7: Effectiveness of career guidance in high schools

N	SD	Mean	Chi-sq		P		Cramer's V	
81	1.362	3.69	23.619[a]		0.0		0.339	
		Fully disagree	Disagree	Neutral	Agree	Fully agree	Total	Missing	Total
(%)		12	8	15	26	36	97	3	100
Cumulative (%)		12	20	35	61	97	97	100	

Q9 Career guidance sessions are effective at the school

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating

- Fully disagree (1.0 – 1.8)   Disagree (1.8 – 2.6)
- Neutral (2.6 – 3.4)   Agree (3.4 – 4.2)
- Fully agree (4.2 – 5.0)

Table 4.7 indicates that:

Sixty-two per cent (62%) (36+26) of the high school teachers either agreed or fully agreed that career-guidance sessions were effective at their schools; while 8% and 12% disagreed to fully disagreed, respectively. Fifteen per cent 15% of the high school teachers were neutral relating to career-guidance sessions being effective at their schools; and 3% of the participants' response were missing. The mean rating of 3.69, fits in the range of '3.4 – 4.2' and therefore indicates that respondents generally 'Agree' that career guidance is effective in high schools. It may also be statistically concluded that there is a significant relationship between the respondents and the effectiveness of career-guidance sessions in high schools; since χ^2 (1, n = 84) = 23.619, p = 0.0, V = 0.339.

The effectiveness of career guidance in high schools can be utilised to measure the engagement, collaboration, and processing of the information and material provided in the career-guidance sessions or activities. High school teachers were required to indicate their views regarding the effectiveness of career guidance at their high schools. The results indicated the relationship between the time spent in career guidance and the effectiveness of career guidance. The results are shown in Figure 4.8 (graphical representation of Table 4.7).
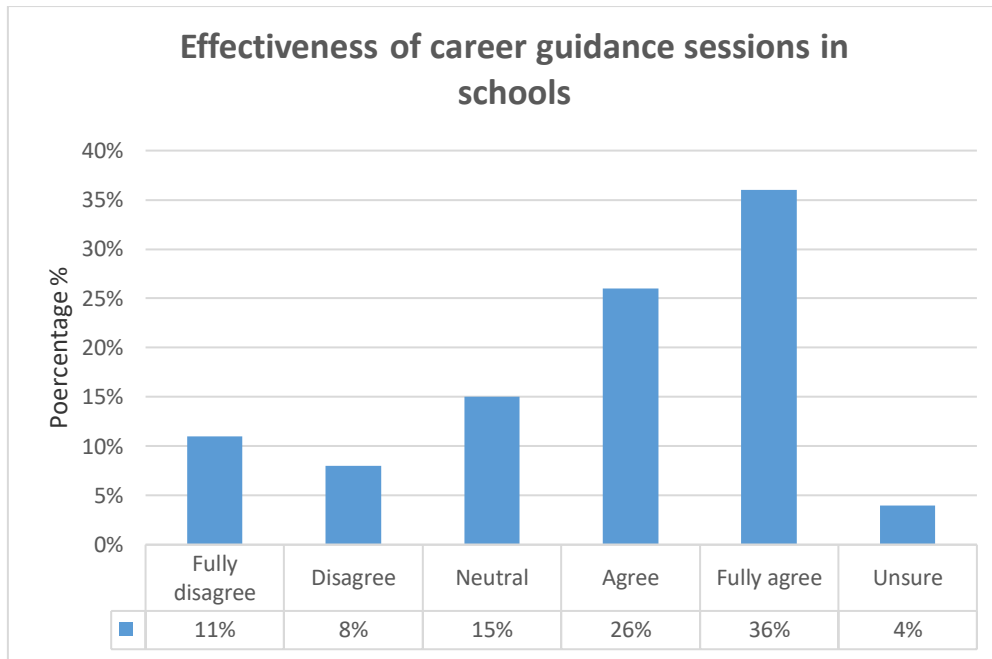
Figure 4.8: Effectiveness of career-guidance sessions in schools

Question 10: High school teachers had to indicate their views regarding the career-guidance teachers being suitably qualified. The results are shown in Table 4.8.

Table 4.8: High school teachers suitably qualified

N	SD	Mean	Chi-sq	P	Cramer's V
82	1.189	2.49	29.304c	0.0	0.345

		Not at all	Very little	Somewhat	Fully	To a great extent	Total	Missing	Total
	(%)	21	32	24	8	9	94	6	100
Cumulative (%)		21	53	77	85	94	100		

Q10 Career guidance teachers at the school are suitably qualified

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Not at all (1.0 – 1.8)   Very little (1.8 – 2.6)
- Somewhat (2.6 – 3.4)   Fully (3.4 – 4.2)
- To a great extent (4.2 – 5.0)

Table 4.8 indicates that:

Seventeen per cent (17%) (8+9) of the high school teachers indicated that career-guidance teachers at their schools were fully or to a great extent qualified; while 32% and 21% were very little to not at all qualified. Twenty-four per cent (24%) of the high school career-guidance teachers were somewhat qualified; and 6% of the high school teachers indicated that the question was not applicable to them. The mean rating of 2.49, which fits in the range of '1.8 –2.6' indicates that the respondents generally think that teachers are 'very little' suitably qualified as career-guidance teachers. The standard deviation of 1.189 significantly indicates a prevalent variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and high school career-guidance teachers being suitably qualified; since χ^2 (1, n = 82) = 29.304, p =0.0, V = 0.345.

The Department of Education is an ever-evolving environment. Therefore, it could be worthwhile trying to identify gaps and misalignment in career guidance and the subject Life Orientation. This could lead to changing or introducing new subjects, and the necessary training or equipping of teachers. Career-guidance sessions are as important as any of the other subjects offered within the curriculum; and they demand proper skilled and fully qualified teachers. Figure 4.9 (graphical representation of Table 4.8) indicates high school teachers' levels, relating to being qualified as career-guidance teachers.

High school teachers' suitably qualified

	Not at all	Very little	Somewhat	To a great extent	Fully	Not applicable
Responses	21%	32%	24%	9%	8%	6%
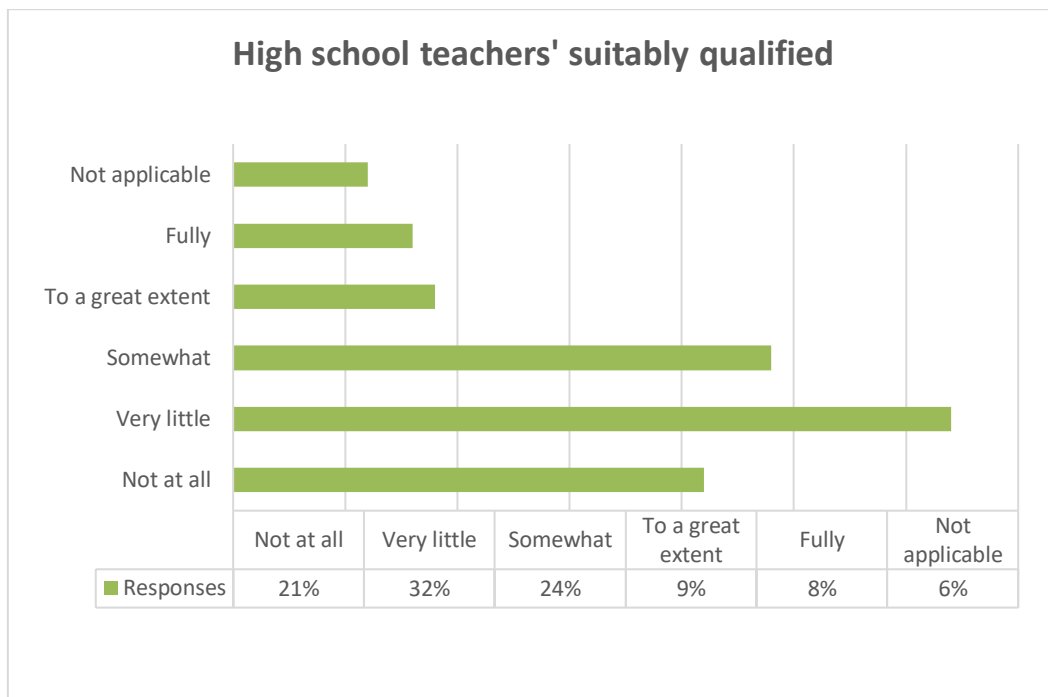
Figure 4.9: High school teachers' suitably qualified

4.5 THEMATIC ANALYSIS FOR HIGH SCHOOL TEACHERS

The inductive thematic analysis is one of the most common forms of analysis in qualitative research selected for this study. It emphasises indicative examining and recording patterns (or themes) within the data. Themes were identified as patterns across datasets that were important to the description of an occurrence and were associated with specific research objectives.

Thematic analysis was performed by coding in six phases to create recognised and meaningful patterns. These phases were: familiarisation with the data, generating initial codes, searching for themes among these codes, reviewing themes, defining and naming themes, and producing the final summary of the overview.

Questions 11 to 15 of the high school teachers' questionnaires were open-ended questions; therefore, qualitative results were grouped to derive the main and sub-themes. The following questions were used in the thematic analysis for high school teachers:

- Question 11: What do you recommend could be done better by industries to assist with the career-guidance awareness at your school?
- Question 12: What do you suggest to learners if they want to know more about the FM profession?

- Question 13: What do you think should be done to assist teachers with FM professional career information?
- Question 14: List five questions that you would like to ask any facilities manager.
- Question 15: List five questions that you would like to ask any FM company.

This section will look at the findings from the inductive thematic analysis. The emergent themes are discussed in relation to the objectives of the study. The individual themes and corresponding sub-themes are presented and summarised accordingly. The thematic results from the high school teacher respondents are shown below.

4.5.1 Main Theme 1: Advice to the South African FM profession

High school teachers responded and provided recommendations, based on their views and requirements. The respondents confirm that there was association required from the FM profession stakeholders, by means of setting up a career helpline, asking for broadcasting interviews, creating awareness strategies, campaigns and employment opportunities for learners. High school teachers' advice also incorporated the short- and long-term involvement in the form of advertising and creating awareness strategies for FM. That can be seen clearly from the sub-themes under this main theme in Table 4.9.

4.5.2 Main Theme 2: Career-path advice

High school teachers responded by providing suggestions relating to high school learners, based on their views and what teachers believe to be valuable. Their responses confirmed that there is a lot of involvement required from the FM profession, in order to equip learners. High school teachers have offered suggestions to the profession – mostly FM companies – to provide schools with in-depth knowledge about their field. That can also be seen clearly from the sub-themes under this main theme in Table 4.9.

4.5.3 Main Theme 3: How to become a facilities manager

The high school teachers responded by requesting more information and insight about how to become facilities managers – based on their views, levels of unawareness or awareness, and their willingness to know more about FM as a career. The respondents confirmed that there was a need for the FM profession to give back to the

high schools career-guidance activities. That can also be seen clearly from the sub-themes under this main theme in Table 4.9.

4.5.4 Main theme 4: Partnership with Facilities Management profession

High school teachers responded by requesting more information from the FM companies about how teachers could partnership with the FM profession at different levels, in order to benefit and be more aware of FM as a career and about the FM profession in general. That can also be seen clearly from the sub-themes under this main theme in Table 4.9.

The detailed responses from the respondents can be seen in Table 4.9. Examples of the exact responses from the participants were captured, whereby searching for themes, reviewing, defining and naming themes was done. The results are shown in Table 4.9.

Table 4.9: Thematic Analysis high school teachers

Theme and sub-theme	Example survey response
Main theme 1: Advice to the facilities management profession	
Sub-theme 1.1: Career helpline	'*Do pop-up adverts on Internet pages. Provide contact numbers that learners can call to enquire about more information; profession to capitalise on social media and career portals*'.
Sub-theme 1.2: Ask for a broadcasting interview	'*Learners enjoy radio programmes which talk about careers. The profession should consider having debates and a career talk show. Consider social media audio short clips. Promote their work on TV*'.
Sub-theme 1.3: Create awareness strategies and campaigns	'*Do career exhibitions. Expose learners to different fields where they will be able to make a choice in terms of career direction". Emphasise what differentiates them from other careers. They should take initiative to promote their field of work*'.
Sub-theme 1.4: Create employment opportunities for learners	'*FM companies should allow learners to do job shadowing. Try job shadowing and vocational training. Do more career exposure to the scarce skills jobs. Allow teachers to also do job shadowing to gain FM profession knowledge. Ensure that the next generation of learner queues up for facilities management jobs*'.
Main theme 2: Career-path advice	

Sub-theme 2.1: Search FM info or ask teachers.	*'Initiate team-building programmes and include career-guidance teachers. High school teachers must have a career talk, especially to the youth. Provide booklets. Do more workshops. Ask principals to invite facilities managers'.*
Sub-theme 2.2: Attend related workshops.	'*Visit a variety of facilities-management companies to have real experience. Training in various careers. We need international information about facilities management. Companies must also play a role in educating teachers about what they do'.*
Sub-theme 2.3: Teaching career guidance	*'Perform tests that will identify the interests of learners in a specific field. Get skilled people from the industries to act as role players of what they do every day. Elaborate on what the facilities-management profession does in the form of a prospectus. Do more research about facilities management career guidance'.*
Sub-theme 2.4: Visit companies in their environment	'*Provide teachers who will specialise in career guidance in your companies. Teachers should also do walk-ins at the sites. Educational institutions must collaborate with companies in the particular industries. Provide teachers opportunities to interact more often with professionals.*
Main Theme 3: How to become a facilities manager	
Sub-theme 3.1 What facilities managers do	*'How will a learner know if this is the right career path they should follow? Do you find your job challenging? Is your current employment in the private or public sector? Are you needed at all levels of decision-making? Which year did you hear about facilities management? What is a facilities manager? How can engineering learners end up as facilities managers? What are high school subjects needed to become a facilities manager? Can I do commerce related subjects in high school and still do facilities management at tertiary level?'*
Sub-theme 3.2: What personalities are needed for your position?	*'How do you always keep your employees' work in check? What separates facilities management from the normal career options that learners are inclined to follow like becoming a doctor or nurse etc.? What are the similarities between FM and other professions? Are you still considering studying further in FM profession? Are you researching and studying further? How do you assign tasks to your co-workers?'*
Sub-theme 3.3: Prerequisites for wanting to become a facilities manager	*'At what institutions can one study facilities management? Does facilities management have a degree or diploma? What qualifications are needed to become a facilities manager? Do you think to have interns increase their efficiency? Do facilities management companies hold workshops for people who wish to know more about facility management?'*
Main theme 4: Partnership with FM profession	
Sub-theme 4.1: Offer Vocational training	*'Are there any internships offered to learners once they have completed their studies? Do you invest in bursaries and scholarships? Is your company involved in charity work? Where your company is located. Can you assist learners with training after they obtain their qualifications?'*

Sub-theme 4.3: Role of the company or its expansion	*'Do you have partnerships with tertiary institutions? Do you invest in educational institutions? Can you assist learners with training after they obtain their qualifications? How often do you get new clients who want you to work for them? What growth will your FM environment provide to enhance learners growth? What are the principles of the FM company, How could learners get hold of you? On what agreements do you work with other companies? What must happen to make your company's work needed?'*
Sub-theme 4.4: Development issues in the FM profession	*'How much does it cost to start a FM company? How do you implement new work strategies to existing plans? How do people view what you do? How can learners get more exposure to what you do? In which other countries can one get a good exposure of FM? What changes has this field brought in society? How can teachers get more information to explain to the learners about what the FM company is about? How do you plan to develop your company further?'*

Figure 4.10 allowed insight and knowledge from the data gathered. The thematic-analysis method enabled this study to develop a deeper appreciation of the group's responses. By using thematic analysis to filter the data, this study determined broad patterns that allowed for more granular research and analysis. Themes emerge from the data that were not imposed or predetermined by the researcher. Figure 4.10 shows a consolidated presentation of the results of emerging themes.

Advice to the FM profession	Career path advice	How to become a facilities manager	Partnership with FM profession
- Career helpline - Ask for broadcasting interviews - Create awareness strategies and campaign - Create employment opportunities for learners	- Search FM info or ask teachers - Attend related workshop - Teaching career guidance - Visit companies at their environment	- What do facilities managers do? - What personalities are needed for your position? - Prerequisite for wanting to become a facilities manager.	- Offer Vocational training - Request school visit by FM companies - Visit companies - Role of the company or its expansion - Development issues in the FM profession

Figure 4.10: High school teachers' thematic analysis

High school teachers have, to a large extent, provided advice to the FM profession, but they have also indicated their willingness to know more about FM. Their responses have covered career-guidance diversification, including what could be done to address FM awareness in high schools with support from facilities managers, FM companies, and engagement by the learners themselves. Further to their responses, the possibility of FM awareness in high schools can be pursued and achieved.

4.6 RESULTS FROM THE HIGH SCHOOL LEARNERS' DATA

This section consisted of questionnaires with 12 questions – 7 closed-ended and 5 open-ended questions – to determine the awareness levels of high school learners about FM, the need for FM awareness in high schools, and whether there were high school learners who wished to become facilities managers in the future. The responses to the questions are tabulated below; and they include the results and the interpretation of the data thereof.

Question 3.1: Respondents had to indicate when the high school learners first encountered career guidance. The results are shown in Table 4.10.

Table 4.10: Career-guidance introduction in high school

N	SD		Mean	Chi-sq	P		Cramer's V
2299	0.723		3.29	120.184[a]	0.0		0.132

		Grade 8	Grade 9	Grade 10	Grade 11	Grade 12	Total
	(%)	2	3	66	22	7	100
Cumulative	(%)	2	5	71	93	100	

Q3.1 At what level high school learners were introduced to career guidance?

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Grade 8 (1.0 – 1.8)   Grade 9 (1.8 – 2.6)
- Grade 10 (2.6 – 3.4)   Grade 11 (3.4 – 4.2)
- Grade 12 (4.2 – 5.0)

Table 4.10 indicates that:

Two percent (2%) of the high school learners indicated that they were introduced to career guidance in Grade 8; 3% of the learners were introduced to it in Grade 9; and 66% of the learners were introduced to career guidance in Grade 10; while 22% and 7% were introduced to career guidance in grades 11 and 12, respectively. The mean rating of 3.29 fits in the range of '2.6 – 3.4' indicating 'Grade 10' as the grade during which most of the high school learners were introduced to career guidance. The standard deviation of 0.723 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and career-guidance introduction across the high school grades; since χ^2 (1, n = 2299) = 120.18, p = 0.0, V = 0.132.

Questions 3.2 to 3.5: The respondents had to indicate the impact level of career guidance in high schools. The results are shown in Table 4.11.

Table 4.11: The effect of career guidance in high schools

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)	Missing (%)	N
Q3.2	2.2	2.3	2.3	48.6	43.3	1.3	2269
Q3.3	1.7	3.8	6.4	45.3	34.8	8.0	2115
Q3.4	2.0	3.3	5.1	47.6	37.0	5.0	2184
Q3.5	3.2	7.0	9.5	43.8	29.6	6.9	2140
	N	Mean	SD	Chi-square	P	Cramer's V	Rank
Q3.2	2269	4.30	0.813	37.213a	0.00	0.064	1
Q3.3	2115	4.17	0.870	46.639a	0.00	0.074	3
Q3.4	2184	4.20	0.856	23.988a	0.00	0.052	2
Q3.5	2140	3.96	1.014	69.671a	0.00	0.090	4

Q3.2	Q 3.3	Q3.4	Q3.5
Career guidance at high schools is important.	Career guidance adds value when applying to be admitted at tertiary level.	Career guidance has created more awareness of what you wanted to study.	Career-guidance events have inspired you.

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Strongly disagree (1.0 – 1.8)   Disagree (1.8 – 2.6)
- Neutral (2.6 – 3.4)   Agree (3.4 – 4.2)
- Strongly agree (4.2 – 5.0)

Table 4.11 indicates that:

Almost ninety-two per cent (91.9%) (48.6 + 43.3) of the high school learners agreed to strongly agreed that career guidance at high schools is important; while 2.3% and 2.2% disagreed to strongly disagreed, respectively. A small percentage, (2.3%) of the high school learners were neutral relating to the importance of career guidance at high schools. The mean rating of 4.30 fits in the range of '4.2 – 5.0' indicating that the respondents generally 'Strongly agree' that career guidance is important at high schools. The standard deviation of 0.813 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. A small percentage (1.3%) of the high school learners' responses was missing. It may also be statistically concluded that there is a significant relationship between the respondents and the importance of career guidance in high schools; since χ^2 (1, n = 2269) = 37.213, p = 0.0, V = 0.064.

More than eighty per cent (80.1%) (45.3 + 34.8) of the high school learners agreed to strongly agreed that career guidance adds value when applying to be admitted at tertiary level; while 3.8% and 1.7% disagreed to strongly disagreed, respectively. A small percentage (6.4%) of the high school learners were neutral relating to whether career guidance adds value when applying to be admitted at tertiary level. The mean rating of 4.17 fits in the range of '3.4 – 4.2' indicating that respondents generally 'Agree' that career guidance adds value when high school learners are applying to be admitted at tertiary level. The standard deviation of 0.870 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. Eight per cent (8%) of the high school learners' responses were missing. It can also be statistically concluded that there is a significant relationship between the respondents and career guidance adding value when applying to be admitted at tertiary level; since χ^2 (1, n = 2115) = 46.639, p = 0.0, V = 0.074.

More than eighty per cent (84.6%) (47.6 + 37) of the high school learners agreed to strongly agreed that career guidance has created more awareness relating to what learners wanted to study; while 3.3% and 2% disagreed to strongly disagreed, respectively. A small percentage (5.1%) of the high school learners were neutral relating to whether career guidance creates more awareness with regard to what learners wanted to study. The mean rating of 4.20 fits in the range of '3.4 – 4.2' indicating that the respondents generally 'Agree' that career guidance creates more awareness in relation to what learners wanted to study. The standard deviation of 0.856 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. Five per cent (5%) of the high school learners' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and the impact of career guidance creating more awareness amongst the high school learners relating to what learners wanted to study; since χ^2 (1, n = 2184) = 23.988, p = 0.0, V = 0.052.

Seventy-three-point four per cent (73.4%) (43.8 + 29.6) of the high school learners agreed to strongly agreed that career guidance events have inspired them; while 7% and 3.2% disagreed to strongly disagreed, respectively. A small percentage (9.5%) of the high school learners were neutral relating to being inspired by career guidance events. The mean rating of 3.96 fits in the range of '3.4 – 4.2' indicating that the respondents generally 'Agree' that high school learners are being inspired by career-guidance events. The standard deviation of 1.014 significantly indicates a resolute

variance, which means that the respondents had a high variation of responses. Seven per cent (7%) of the high school teachers' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and career-guidance events inspiring the high school learners; since χ^2 (1, n = 2140) = 69.671, p = 0.0, V = 0.090.

The results also indicate that career guidance at high schools is important and it was ranked the highest, while the second highest ranking was the learner's awareness of what they wanted to study - as a result of career guidance. Career-guidance events inspiring learners was ranked the lowest in the Soutpansberg West Circuit high schools.

The effectiveness of career guidance amongst high school learners is imperative. Only learners themselves can confirm the extent of the inspirational effect of career guidance at their schools. The results are shown in Figure 4.11 (graphical representation of Table 4.11).
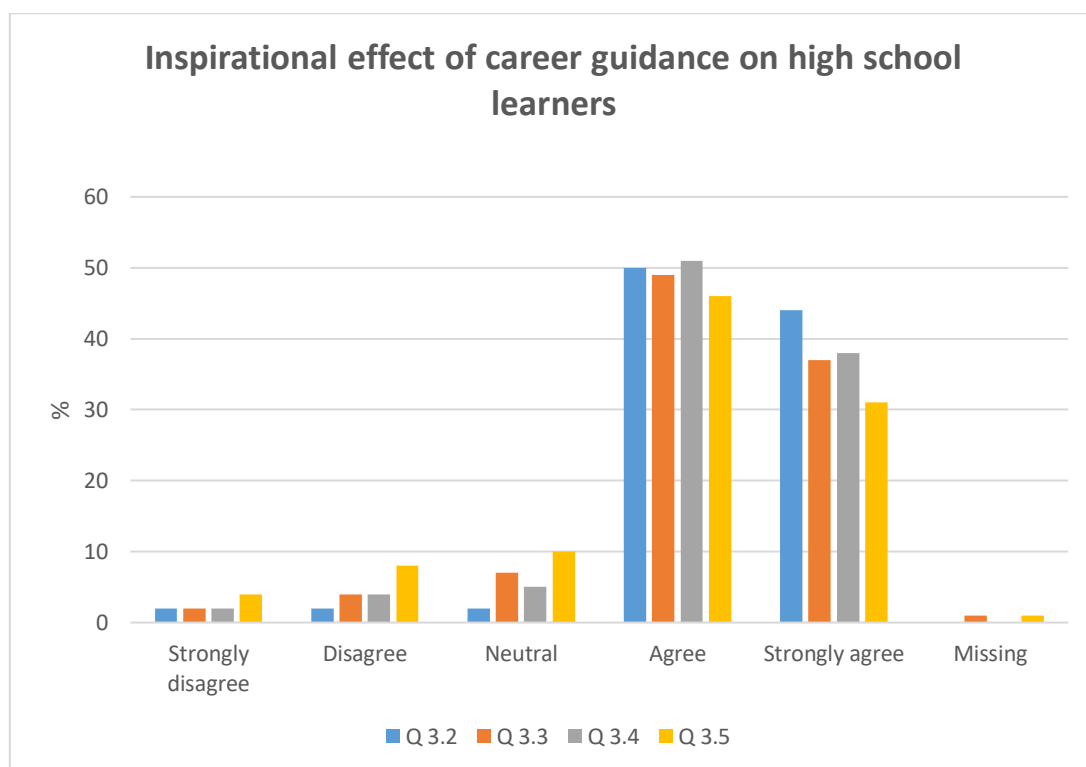
Figure 4.11: Inspirational effect of career guidance on high school learners

It may further be concluded that there were more positive replies, with high responses between agreed and strongly agreed on the effectiveness of career guidance as an important form of career guidance, value-adding creating more awareness and inspiration for high school learners.

Question 4: Respondents had to indicate the extent of their knowledge level with regard to the careers related to the construction industry. The results are shown in Table 4.12.

Table 4.12 (a): High school learners' career-knowledge level

	Very low (%)	Low (%)	Average (%)	High (%)	Very high (%)	N
Q 4.1	26	27	20	18	9	2299
Q 4.2	20	30	20	21	9	2299
Q 4.3	15	21	20	26	18	2299
Q 4.4	19	27	24	20	10	2299
Q 4.5	14	19	19	28	20	2299
Q 4.6	25	30	21	15	9	2299
Q 4.7	22	25	24	17	12	2299
Q 4.8	20	23	22	22	13	2299
Q 4.9	14	18	18	23	27	2299
Q4.10	24	24	21	20	11	2299
Q4.11	16	19	21	27	17	2299
Q4.12	24	23	20	19	14	2299

	N	Mean	SD	Chi-sq	P	Cramer's V	Rank
Q 4.1	2299	2.57	1.294	97.930a	0.0	0.119	11
Q 4.2	2299	2.69	1.261	84.724a	0.0	0.111	10
Q 4.3	2299	3.11	1.338	94.274a	0.0	0.117	3
Q 4.4	2299	2.75	1.267	54.988a	0.0	0.089	7
Q 4.5	2299	3.21	1.337	45.410a	0.0	0.081	2
Q 4.6	2299	2.53	1.237	36.420a	0.0	0.073	12
Q 4.7	2299	2.72	1.298	54.829a	0.0	0.089	8
Q 4.8	2299	2.85	1.327	24.106a	0.0	0.059	5
Q 4.9	2299	3.31	1.396	71.201a	0.0	0.102	1
Q4.10	2299	2.70	1.306	57.159a	0.0	0.091	9
Q4.11	2299	3.10	1.328	83.759a	0.0	0.110	4
Q4.12	2299	2.76	1.363	19.107a	0.0	0.053	6

Q 4.1	Q 4.2	Q 4.3	Q 4.4	Q 4.5	Q 4.6
Architecture	Building Management	Civil Engineering	Construction Management	Electrical Engineering	Facilities Management
Q 4.7	Q 4.8	Q 4.9	Q4.10	Q4.11	Q4.12
Interior Design	Land Surveying	Mechanical Engineering	Mechatronics	Project Management	Quantity Surveying

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Very low (1.0 – 1.8)
- Low (1.8 -2.6)
- Average (2.6- 3.4)
- High (3.4 – 4.2)
- Very high (4.2 – 5.0)

Table 4.12 indicates that:

Nine per cent (9%) of the high school learners had a very high career-knowledge level of architecture; while 18% of the respondents had a high level, 27% and 26% had a low to very low career knowledge level, respectively. Twenty per cent (20%) of the high school learners had an average career knowledge level relating to architecture. The mean rating of 2.57 fits in the range of '1.8 – 2.6', indicating that the respondents generally had a 'Low' knowledge level of architecture as a career choice. Knowledge of architecture was ranked 11th (1 = highest, 12 = lowest). The standard deviation of 1.294 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may therefore also be statistically concluded that there is a significant relationship between the respondents and architecture as career-knowledge level; since χ^2 (1, n=2299) = 97.930, p = 0.0, V = 0.119.

Nine per cent (9%) of the high school learners had a very high career-knowledge level of building management; while 21% of the respondents had a high level, 30% and 20% had a low to very low career-knowledge level, respectively. Twenty per cent (20%) of the high school teachers had an average career-knowledge level relating to building management. The mean rating of 2.69 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of building management as a career choice. Knowledge of building management was ranked 10th (1 = highest, 12 = lowest). The standard deviation of 1.261 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and building management as career knowledge level; since χ^2 (1, n = 2299) = 84.724, p = 0.0, V = 0.111.

Eighteen per cent (18%) of the respondents had a very high career-knowledge level of civil engineering; while 26% of the respondents had a high level, 21% and 15% had

a low to very low career-knowledge level, respectively. Twenty per cent (20%) of the high school learners had an average career-knowledge level relating to civil engineering. The mean rating of 3.11 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of civil engineering as a career choice. Knowledge of civil engineering was ranked 3rd (1 = highest, 12 = lowest). The standard deviation of 1.338 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and civil engineering as career-knowledge level; since χ^2 (1, n = 2299) = 94.274, p = 0.0, V = 0.117.

Ten per cent (10%) of the respondents had a very high career-knowledge level of construction management; while 20% of the respondents had high level, 27% and 19% had a low to very low career-knowledge level, respectively. Twenty-four per cent (24%) of the high school learners had an average career-knowledge level relating to construction management. The mean rating of 2.75 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of construction management as a career choice. Knowledge of construction management was ranked 7th (1 = highest, 12 = lowest). The standard deviation of 1.267 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and construction management as career knowledge level; since χ^2 (1, n = 2299) = 54.988, p = 0.0, V = 0.089.

Twenty per cent (20%) of the respondents had a very high career-knowledge level electrical engineering; while 28% of the respondents had high level, 19% and 14% had a low to very low career knowledge level, respectively. Nineteen per cent (19%) of the high school teachers had an average career-knowledge level relating to electrical engineering. The mean rating of 3.21 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of electrical engineering as a career choice. Knowledge of electrical engineering was ranked 2nd (1 = highest, 12 = lowest). The standard deviation of 1.337 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and electrical engineering as career-knowledge level; since χ^2 (1, n = 2299) = 45.410, p = 0.0, V = 0.081.

Nine per cent (9%) of the respondents had a very high career-knowledge level of facilities management; while 15% of the respondents had a high level, 30% and 25% had a low to very low career-knowledge level, respectively. Twenty-one per cent (21%) of the high school learners had an average career-knowledge level relating to FM. The mean rating of 2.53 fits in the range of '1.8 – 2.6', indicating that the respondents generally had a 'Low' level of FM as a career choice. Knowledge of FM was ranked 12th (1 = highest, 12 = lowest). The standard deviation of 1.237 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and facilities management as career-knowledge level; since χ^2 (1, n = 2299) = 36.420, p = 0.0, V = 0.073.

Twelve per cent (12%) of the respondents had a very high career-knowledge level of interior design while; 17% of the respondents had a high level, 25% and 22% had low to very low career knowledge level, respectively. Twenty-four per cent (24%) of the high school learners had an average career-knowledge level relating to interior design. The mean rating of 2.72 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of interior design as a career choice. Knowledge of interior design was ranked 8th (1 = highest, 12 = lowest). The standard deviation of 1.298 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and interior design as career-knowledge level; since χ^2 (1, n = 2299) = 54.829, p = 0.0, V = 0.089.

Thirteen per cent (13%) of the respondents had a very high career-knowledge level of land surveying; while 22% of the respondents had a high level, 23% and 20% had low to very low career-knowledge level, respectively. Twenty-two per cent (22%) of the high school learners had an average career knowledge level relating to land surveying. The mean rating of 2.85 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of land surveying as a career choice. Knowledge of land surveying was ranked 5th (1 = highest, 12 = lowest). The standard deviation of 1.327 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and land surveying as career-knowledge level; since χ^2 (1, n = 2299) = 26.506, p = 0.0, V = 0.062.

Twenty-seven per cent (27%) of the respondents had a very high career-knowledge level of mechanical engineering; while 23% of the respondents had a high level, 18% and 14% had low to very low career-knowledge level, respectively. Eighteen per cent (18%) of the high school learners had an average career-knowledge level relating to mechanical engineering. The mean rating of 3.31 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of mechanical engineering as a career choice. Knowledge of mechanical engineering was ranked 1st (1 = highest, 12 = lowest). The standard deviation of 1.396 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and mechanical engineering as career-knowledge level; since χ^2 (1, n = 2299) = 71.201, p = 0.0, V = 0.102.

Eleven per cent (11%) of the respondents had a very high career-knowledge level of mechatronics while; 20% of the respondents had a high level, 24% and 24% had low to very low career-knowledge level, respectively. Twenty-one per cent (21%) of the high school learners had an average career knowledge level relating to mechatronics. The mean rating of 2.70 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of mechatronics as a career choice. Knowledge of mechatronics was ranked 9th (1 = highest, 12 = lowest). The standard deviation of 1.306 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and mechatronics as career-knowledge level; since χ^2 (1, n = 2299) = 57.159, p = 0.0, V = 0.091.

Seventeen per cent (17%) of the respondents had a very high career knowledge level of project management; while 27% of the respondents had a high level, 19% and 16% had low to very low career knowledge level, respectively. Twenty-one per cent (21%) of the high school learners had an average career knowledge level relating to project management. The mean rating of 3.10 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of project management as career choice. Knowledge of project management was ranked 4th (1 = highest, 12 = lowest). The standard deviation of 1.328 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents

and project management as career-knowledge level; since χ^2 (1, n = 2299) = 83.759, p = 0.0, V = 0.110.

Fourteen per cent (14%) of the respondents had a very high career-knowledge level of quantity surveying; while 19% of the respondents had a high level, 23% and 24% had low to very low career-knowledge levels, respectively. Twenty per cent (20%) of the high school learners had an average career-knowledge level relating to quantity surveying. The mean rating of 2.76 fits in the range of '2.6 – 3.4', indicating that the respondents generally had an 'Average' level of quantity surveying as a career choice knowledge of quantity surveying was ranked 6th (1 = highest, 12 = lowest). The standard deviation of 1.363 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. It may also be statistically concluded that there as significant relationship between the respondents and quantity surveying as career-knowledge level; since χ^2 (1, n = 2299) = 19.107, p = 0.0, V = 0.053.

Table 4.12 (b): High school learners' and teachers' career awareness ranking comparison.

Career awareness			
Participants	Lowest rank	Second lowest rank	Highest rank
High school Teachers	Facilities management	Architecture	Electrical engineering
High school learners	Facilities management	Quantity Surveying	Mechanical engineering

The results further indicated that facilities management career-knowledge level was ranked the lowest by the high school teachers and learners and the engineering related career-knowledge was ranked highest by the teachers and learners in the Soutpansberg West Circuit high schools.

In Question 5, the respondents had to indicate to what extent they were willing to learn more about FM. The results are shown in Table 4.13.

Table 4.13: High school learners' willingness to learn more about Facilities Management.

N	SD	Mean	Chi-sq	P	Cramer's V
2299	1.538	3.02	42.808[a]	0.0	0.079

	Not at all	Not likely	Somewhat	Likely	Definitely	Total
(%)	22.4	23.3	10.5	17.2	26.6	100
Cumulative (%)	22.4	45.7	56.2	73.4	100	

Q 5 To what extent are you willing to learn more about Facilities Management?

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Not at all (1.0 – 1.8)
- Not likely (1.8 – 2.6)
- Somewhat (2.6 – 3.4)
- Definitely (3.4 – 4.2)
- Likely (4.2 – 5.0)

Table 4.13 indicates that:

More than forty per cent (43.8%) (17.2+26.6) of the high school learners indicated that they were likely or definitely willing to learn more about FM. Twenty three (23.3%) were not likely and 22.4% were not at all willing to learn more about FM. Eleven per cent (11%) of the high school career-guidance learners were somewhat willing to learn more about FM. The mean rating of 3.02 fits in the range of '2.6 – 3.4', indicating that the respondents generally were 'Somewhat' willing to learn more about FM as a career. The standard deviation of 1.538 significantly indicates a prevalent variance,

which means that the respondents had a high variation of responses. It may also be statistically concluded that there is a significant relationship between the respondents and the level of willingness to learn more about FM; since χ^2 (1, n = 2299) = 42.808, p = 0.0, V = 0.079.

High school learners' willingness to learn could indicate the state of being prepared to do something or the state of readiness to change. It was therefore imperative for the participants to indicate their willingness to learn more about FM. The results are shown in Figure 4.12 (graphical representation of Table 4.13).
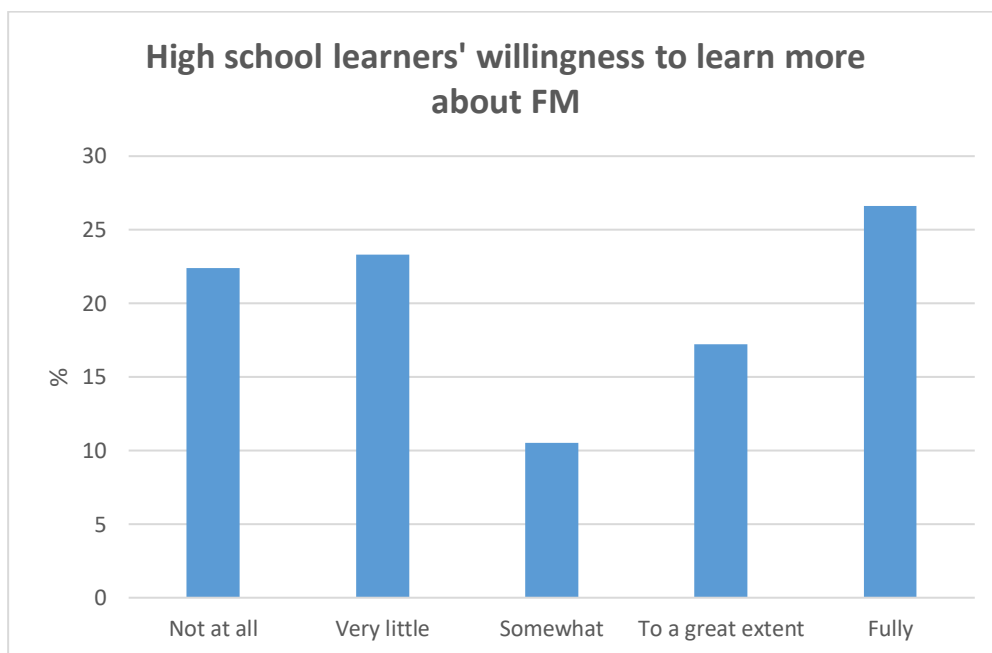
Figure 4.12: High school learners' willingness to learn more about Facilities Management

The results from the high school learners express their desires, cheerful consent or readiness to know new things, with an aim of improving themselves. A total of 77.6% (23.3 + 10.5 + 17.2 + 26.6), n=1784 learners were available for FM awareness and to participate in FM-related career knowledge as a result of their unawareness - of facilities management as a career.

In Question 7, the respondents had to demonstrate their suppositions on different discernment questions. The results are shown in Table 4.14.

Table 4.14: High school learners' opinions on various discernment questions

	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)	Missing (%)	N
Q 7.1	4	5	7	42	39	3	2230
Q 7.2	9	13	7	37	31	3	2230
Q 7.3	9	14	11	35	20	11	2046
Q 7.4	21	25	12	22	12	8	2115
Q 7.5	4	7	12	42	30	5	2184
Q 7.6	28	25	9	20	11	7	2138

	N	Mean	SD	Chi-square	P	Cramer's V	Rank
Q 7.1	2230	4.10	1.04	56.921a	0.0	0.080	1
Q 7.2	2230	3.70	1.29	27.942a	0.0	0.056	3
Q 7.3	2046	3.48	1.28	32.862a	0.0	0.063	4
Q 7.4	2115	2.77	1.38	103.762a	0.0	0.110	5
Q 7.5	2184	3.92	1.07	23.181a	0.0	0.051	2
Q 7.6	2138	2.58	1.41	103.514a	0.0	0.111	6

Q 7.1	Q 7.2	Q 7.3	Q 7.4	Q 7.5	Q 7.6
I am certain about what I want to study after school	My current subject grouping will enable me to achieve my chosen career	Our career guidance teachers are definitely informed about our specific career choices	I wish to change my subject grouping to align them to my desired career choice	It is through career guidance that I became more aware about my career choice	Our school spends time on career guidance at least once a we

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Strongly disagree (1.0 – 1.8)
- Disagree (1.8 – 2.6)
- Neutral (2.6 – 3.4)
- Agree (3.4 – 4.2)
- Strongly agree (4.2 – 5.0)

Table 4.14 indicates that:

A total of 81% (42 + 39) of the high school learners agreed to strongly agreed that they were certain about what they wanted to study after school; while 4% and 5% disagreed to strongly disagreed, respectively. Seven per cent (7%) of the high school learners were neutral about their certainty relating to what they wanted to study after school.

The mean rating of 4.10 fits in the range of '3.4 – 4.2', indicating that the respondents generally 'Agree' that high school learners were certain about what they want to study after school. The standard deviation of 1.04 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. Three per cent (3%) of the high school learners' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and the level of learner's certainty relating to what they want to study after school; since χ^2 (1, n = 2230) = 56.921, p = 0.0, V = 0.080.

A total of 68% (31 + 37) of the high school learners agreed to strongly agreed that they were sure that their current subject grouping would enable them to achieve their chosen career; while 9% and 13% disagreed to strongly disagreed, respectively. Seven per cent (7%) of the high school learners were neutral about their current subject grouping, enabling them to achieve their chosen career. The mean rating of 3.70 fits in the range of '3.4 – 4.2', indicating that the respondents generally 'Agree' that high school learners were certain that subject grouping would enable them to achieve their chosen career. The standard deviation of 1.29 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. Three per cent (3%) of high school learners' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and the learner's view relating to their current subject grouping assisting them to achieve their chosen career; since χ^2 (1, n = 2230) = 27.942, p = 0.0, V = 0.056.

A total of 55% (35 + 20) of the high school learners agreed to strongly agreed that their career-guidance teachers knew more about the learners' specific career choices; while 9% and 14% disagreed to strongly disagreed, respectively. Eleven (11%) of the high school learners were neutral relating to their career-guidance teachers knowing more about their specific career choices. The mean rating of 3.48 fits in the range of '3.4 – 4.2', indicating that the respondents generally 'Agree' that career guidance teachers are definitely informed about the learner's specific career choices. The standard deviation of 1.28 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. Eleven per cent (11%) of the high school learners' responses were missing. It may, therefore, be statistically concluded that there is a significant relationship between the respondents and the level of career-

guidance teachers knowing more relating to learners' specific career choices; since χ^2 (1, n = 2046) = 32.862, p = 0.0, V = 0.063.

A total of 34% (22+12) of the high school learners agreed to strongly agreed that they do wish to change their subject grouping to align them with their desired career choices; while 21% and 25% disagreed to strongly disagreed, respectively. Twelve (12%) of the high school learners were neutral relating to the changing of subject grouping to align them with their desired career choices. The mean rating of 2.77 fits in the range of '2.6 – 3.4', indicating that the respondents were 'Neutral' that high school learner's wishes to change their subject grouping bring into line to their desired career choices. The standard deviation of 1.38 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. Eight per cent (8%) of the participants' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and their level of desire to change and align the subject grouping with their preferred career; since χ^2 (1, n = 2115) = 103'762, p = 0.0, V = 0.110.

A total of 72% (42+30) of the high school learners agreed to strongly agreed that they had become more aware of their career choices through career guidance. Four per cent (4%) and seven per cent (7%) disagreed to strongly disagreed, respectively. Twelve per cent (12%) of the high school learners were neutral relating to the career guidance, thereby rendering them more aware relating to their career choice. The mean rating of 3.92 fits in the range of '3.4 – 4.2', indicating that the respondents generally 'Agree' that career guidance made them to be more aware about their desired career choices. The standard deviation of 1.07 significantly indicates a resolute variance, which means that the respondents had a consistent variation of responses. Five per cent (5%) of the participants' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and their level of career choice awareness, as a result of career guidance; since χ^2 (1, n = 2184) = 23.181, p = 0.0, V = 0.051.

A total of 31% (20+11) of the high school learners agreed to strongly agreed that their school spends time on career guidance at least once a week; while 28% and 25% disagreed to strongly disagreed, respectively. Nine per cent (9%) of the high school learners were neutral relating to their school spending time on career guidance once a week. The mean rating of 2.58 fits in the range of '1.8 – 2.6', indicating that the

respondents generally 'Disagree' that high schools spend at least once a week on career guidance. The standard deviation of 1.41 significantly indicates a resolute variance, which means that the respondents had a high variation of responses. Seven per cent (7%) of the participants' responses were missing. It may also be statistically concluded that there is a significant relationship between the respondents and the level of weekly career guidance occurrence; since χ^2 (1, n = 2138) = 103.514, p = 0.0, V = 0.111.

High schools spend at least once a week on career guidance was ranked the lowest amongst the high school learners. The results from the high school teachers further indicated that career-guidance sessions have been more of an annual activity. Whilst fifty-three 53% (28 + 25) percent of high school learners confirmed that they disagree to strongly disagree that there was a weekly career guidance at their schools.

High school learners who wishes to change their subject grouping to bring their desired career choices was ranked second lowest while learners who were certain about what they want to study after school was ranked the highest amongst the learners in the Soutpansberg West Circuit high schools.

Thinking about what learners need to do after high school can be overwhelming; however, there are different options and opportunities that learners can choose; but they need to be aware of those careers and options. A further statistical analysis was conducted with the aim of measuring the scale of certainty amongst the learners in various grades. It may be concluded that 81% (42+39) percent of learners 'agreed' that they were certain about what they wanted to study after school; and they were also certain that their current subject grouping would enable them to achieve their careers of choice. High school learners were certain that career guidance made them more aware of their career choices. However, they have indicated that their high schools are not spending enough time weekly on career guidance. The results are shown in Table 4.15.

Table 4.15: High school learners' certainty about what to study after school

Count	N 2235	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly agree (%)	Missing (%)	Mean	Rank
Grade 9		0.7	1.3	1.8	10.0	11.3	0.9	4.19	2
Grade 10		2.6	2.0	2.5	14.0	11.4	1.0	3.91	4
Grade 11		0.6	1.0	2.0	10.3	8.3	0.8	4.11	3
Grade 12		0.6	0.5	0.7	7.8	7.8	0.4	4.25	1
Total		4.5	4.8	7.0	42.1	38.5	3.1	4.09	

Q7.1. I am certain about what I want to study after school

For the purpose of this study, the following mean rating scale has been applied when analysing the mean results:

Mean rating:

- Strongly disagree (1.0 – 1.8)
- Disagree (1.8 – 2.6)
- Neutral (2.6 – 3.4)
- Agree (3.4 – 4.2)
- Strongly agree (4.2 – 5.0)

 Table 4.15 indicates that:

The highest observation of high school learners who were certain about what they wanted to study after school was learners in Grade 10, where 14% of them agreed that they were certain. More than three (3.1%) percent of the high school learners' responses were missing. The mean rating of 3.91 fits in the range of '3.4 – 4.2', indicating that the respondents generally 'Agree' that Grade 10 were certain about what they desire to study after school.

Grade 10 learners was ranked the lowest amongst the high school learners who were certain about what they want to study after school even though sixty-six (66%) percent of them were exposed to career guidance. Grade 11 learners was ranked second lowest while Grade 12 learners was ranked the highest amongst the learners in the Soutpansberg West Circuit high schools.

High school learners were requested to view or indicate their opinions regarding their certainty about what they wanted to study after school. The results are shown in Figure 4.13 (graphical representation of Table 4.15).
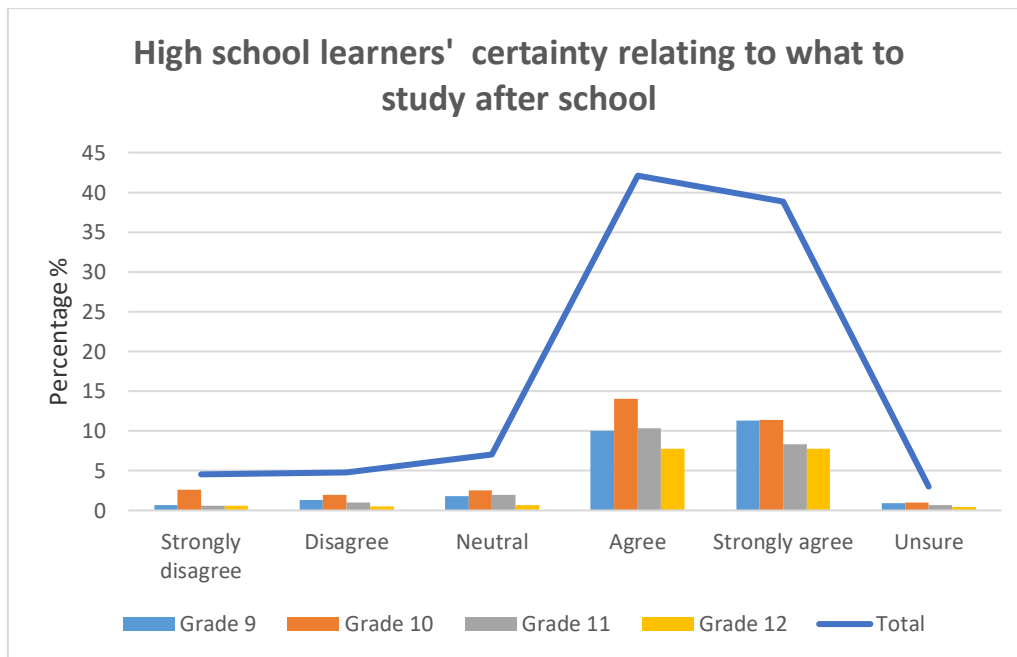
Figure 4.13: High school learners' certainty relating to study after school

4.7 THEMATIC ANALYSIS FOR HIGH SCHOOL LEARNERS

The inductive thematic analysis was one of the most common forms of analysis in qualitative research selected for this particular study. It emphasises the indicative, examining and recording patterns (or themes) within the data. Themes were identified as patterns across datasets that were important to the description of an occurrence and were associated with specific research objectives.

Thematic analysis was performed via the process of coding in six phases to create recognised and meaningful patterns. These phases were: Familiarisation with the data, generating initial codes, searching for themes amongst codes, reviewing themes, defining and naming themes, and producing the final summary overview.

Questions 8 to 12 of high school learners' questionnaires were open-ended questions; and therefore, qualitative results were grouped to derive the main and sub-themes. The following questions were used on thematic analysis for high school learners:

- Question 8: What do you think motivates you when choosing a career?
- Question 9: What do you suggest needs to be done to improve career guidance awareness at your school?

- Question 10: What do you think is causing skills shortages in the FM profession?
- Question 11: List five questions that you would like to ask any facilities manager.
- Question 12: List five questions that you would like to ask any FM company.

This section will look at the findings from the inductive thematic analysis. The emergent themes are discussed in relation to the objectives of the study. The individual themes and corresponding sub-themes are presented and summarised accordingly. The thematic results from the high school learners' respondents are shown below.

4.7.1 Main theme 1: Motivation for career selection

High school learners provided feedback regarding their thoughts as to what they believe motivated them when they were making decisions on choosing careers. The respondents confirmed that there were many factors that influenced them in their career choices. High school learners' responses indicated that learners had incorporated internal and external industrial factors. This can be seen clearly from the sub-themes in Table 4.16.

4.7.2 Main theme 2: Desired changes at schools

High school learners provided their views on what was required to be done to improve career-guidance awareness in high schools. The respondents confirmed that there was an intervention required from the FM profession and from teachers. High school learners' responses incorporated short- and long-term intervention from the profession. This can be seen clearly from the sub-themes in Table 4.16.

4.7.3 Main theme 3: Causes of skills shortage

High school learners responded by providing their views regarding the causes of skills shortages. The respondents confirmed that there were various main factors for skills shortages. High school learners' responses also incorporated the view observed within their respective communities. That can be clearly seen from the sub-themes in Table 4.16.

4.7.4 Main theme 4: Partnership with the FM profession

High school learners responded by requesting more information from FM companies about how learners could partner with the FM profession, in order to benefit by becoming more aware of FM as a career. This can also be clearly seen from the sub-themes in Table 4.16.

The detailed responses from the respondents can be seen in Table 4.16. Examples of the exact responses from the participants were captured, whereafter searching for themes, reviewing, defining and the naming of themes was done.

Table 4.16 Thematic Analysis of high school learners

Themes and sub-themes	Example of survey response
Main theme 1: Motivation for career selection	
Sub-theme 1.1: Opportunities	*'Career opportunities for growth. Growth exposure. Knowing the environment, which I would like to work in. Listening to different presentations opens my mind to the demand for that specific career choice in the country. Careers that make getting a job easy. Popularity in the FM career'.*
Sub-theme 1.2: The diversified position	*'Skills needed. Career opportunities. Mentorship. What I enjoy doing. Where I want to work. Which careers are on the market? Managing employees managing work projects'.*
Sub-theme 1.3: Uniqueness of the company	*'My vision. Field of performing work. Values. Passion for people. Qualities. Rewards. Companies that work closely with the community to motivate learners to dream big relating to career awareness. Company benefits'.*
Sub-theme 1.4: Other career-related issues	*'Being exposed to certain workspaces related to what one likes. My strengths. Dreams. Travelling opportunities. Coaching. Interested in what will pay better than what I love. Physical ability. Mental ability. Expertise. Capabilities. The life I see myself living. Gaining more experience'.*
Main theme 2: Desired changes at schools	
Sub-theme 2.1: Abilities	*'Teachers must be well educated or have foundational knowledge about careers developing a timeline with career goals. Use verbal and written means to offer education on these careers. Offer in-depth understanding of the industries. Explain disadvantages of each career. Implement programmes that will allow learners to interact with different companies from different career fields'.*

Sub-theme 2.2: Specific career guidance	*'Need to offer a variety of career guidance. A gap between the school's curricula compared to those of the working world needs to be narrowed by making sure the school's curriculum is closely related to that of the working world. The country knows exactly what skills are short; and this should be used as a yardstick to guide the schools as to what we want the learners to grow into. The career guidance teachers, as well, should be clued up about skills-shortage programs'.*
Sub-theme 2.3: Helping others.	*'Teachers should engage more with learners and show them how to do online applications. Start career guidance in Grade 7. Identifying the learner's subject strength in Grade 9. Offer personal guidance. Dedicate more time to educating learners about different career paths'.*
Sub-theme 2.4: Exposure to career exhibition'	*'Doing career exhibitions more often – especially in high schools. The school-governing body must advocate a 30 min career-guidance period in the school, which learners would be encouraged to attend, and to do presentations on their career choices. Provide technological resources, such as devices. Have career-guidance expositions more than once a year'.*
Sub-theme 2.5: Relationship with other professions or sectors	*'Motivational speaking. Hold conferences. Train teachers to use technological resources to assist learners with searching for career-related websites. Teachers must emphasise that there are more things that learners can do – and not just the common jobs they see every day. Adopt Zimbabwean education, in which the learners only learn the stream that is needed in the career they want to choose. More job-shadowing opportunities for Learners'.*
Main theme 3: Causes of the skills shortages	
Sub-theme 3.1: Crime	*'Corruption. Fake qualifications. Everyone wants to do tenders. Too many fake companies. Nepotism. Poor law enforcement. Prison and jails are very full. Government not giving us books and nice schools. Strikes and burning schools. Learners drinking and fighting to kill one another'.*
Sub-theme 3.2 Diseases	*'Too many deaths. Many high school learners are sick. Injuries in construction. HIV and Aids, Cancer. Sugar diabetes. An accident on the roads. Drugs are killing the youth'.*
Sub-theme 3.3: Emigration	*'Exchange learners always go back overseas. Too many foreigners. Overseas is better; overseas jobs are well marketed on the internet. I want to go to Dubai or Angola. A profession not marketed effectively. Travelling the world'.*
Sub-theme 3.4: Education	*'Lack of relevant qualifications. Rare specialised skills. Unaware of good career choices to choose. Not knowing what to do after matric. Outdated books. No laboratories. Failing too many times the same grade. Uncertainty when writing matric. University offering courses, which we do not have in high school'.*
Main theme 4: Partnership with FM profession	

Sub-theme 4.1: Life coaches or mentors	*'Allow learners to choose life coaches. Have internal mentors to help learners. Children are not groomed at a young age. Invite ex-students who are successful in their careers to career guide the learners. Take learner's to different career guides, so that they get a variety of information'.*
Sub-theme 4.2: A need for certain qualifications in the FM profession	*'How do we make facilities management a career choice available to school leavers? What are your daily duties? How do you incorporate social investment in the FM career? Which subject stream must one follow, in order to work in a facilities-management company? What are the most common challenges that the FM companies face? How many people does your FM company hire on a yearly basis?'*
Sub-theme 4.3: Affective & perspective	*'What disciplinary measures do you take on people who do not perform according to their scope? Does the company see a future in facilities management? How do you assess and promote your employees? Do you need engineers in FM? Are there any divisions or departments in your company? What motivates you to become the best company? Do you have enough qualified staff?"*

Figure 4.14 allowed for gaining insight and knowledge from the data gathered. The thematic-analysis method enabled this study to develop a deeper appreciation of the group's responses. By using thematic analysis to distill the data, this study had determined broad patterns that allowed for more granular research and analysis. Themes emerge from the data that were gathered; and they were not imposed or predetermined by the researcher. Figure 4.14 shows the consolidated results of the emerged themes.

Motivation to career selection	Desired changes at the school	Causes of skill shortage	Partnership with FM profession
• Opportunities • Diversified position • The uniqueness of the company • Other career-related issues	• Abilities • Specific career guidance • Helping others • Exposure to career exhibition • Relationship with other professions or Sectors	• Crime • Diseases • Emigration • Education	• Life coach or mentors • A need for certain qualifications in the FM profession • Affective & perspective

Figure 4.14: High school learners' thematic analysis

Although high school learners have provided their internal and external factors regarding their engagement with career-guidance activities, they also indicated desired changes at their schools in order to increase and accommodate FM within their career-guidance sessions. Their responses have covered career-selection motivations and causes for skills shortages within their communities. The learners' responses opened greater opportunities and possibilities for partnerships with the FM profession as a whole. Further to their responses, FM awareness in high schools can be pursued and achieved more effectively.

4.8 CONCLUSION

There is a common question that most people, including high school learners, are asked: What do you want to be when you grow up? This question begins in elementary school – when learners probably do not have a sound answer; but by the time they reach high school, they need to start taking that question much more seriously.

It is mainly the teachers' responsibility to help their learners begin to form a solid answer relating to the career path questions. Some of the learners may already know what they want to do; while others may not have thought about the possible careers that exist for them. Therefore, it is important to introduce as many different career options as possible in high school. Active awareness when introducing careers is usually the most effective; this is true for high school learners, in particular. Therefore, this section will cover the conclusion of the results and the data analysis, according to the objective of the study.

4.8.1 Objective 1 of the study: To determine the awareness levels of high school learners relating to FM

Career awareness requires looking outward to the working world. Learners need to be aware of what is happening in the FM profession; what skills will be needed in the future, what occupations are growing, and why and how those occupations relate to the work that learners might enjoy.

Career-awareness levels indicate the levels where learners are expanding their knowledge about possible career paths and job opportunities, as well as what is required, in order to be successful. Combining such information with what their teachers know about them would help learners to set a more informed career direction. The results are shown in Figure 4.15.
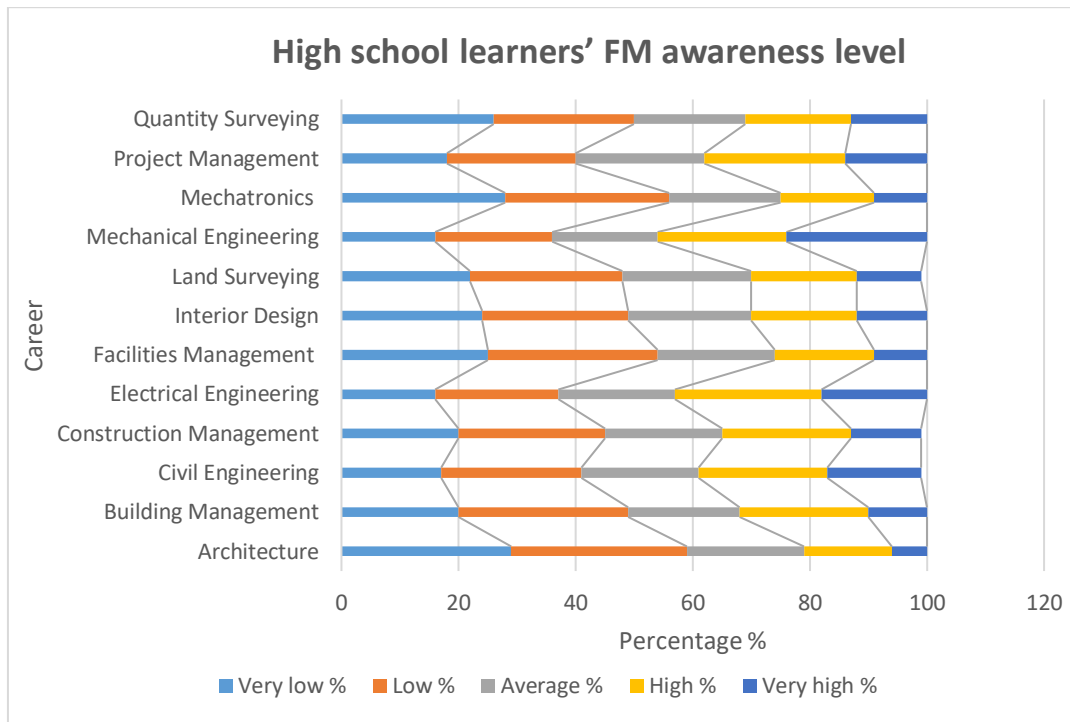
Figure 4.15: High school learners' FM awareness level

Figure 4.15 and Table 4.12 confirm that the Soutpansberg West Circuit high school learners had a low knowledge level about FM career awareness, relative to other career choices. It may be concluded that 55% (25 + 30) combined responses of high school learners had a low to very low FM knowledge-awareness level; whilst 21% of high school learners had an average FM knowledge-awareness level. Only 23% (15 + 8) combined responses of high school learners had a high to very high FM knowledge-awareness level. FM was ranked as the lowest career in terms of learners' knowledge about various careers as per high school learners' career-knowledge level in table 4.12. Therefore, this specific objective has been met.

4.8.2 Objective 2 of the study: To determine the awareness levels of high school teachers relating to FM

New career opportunities are constantly being made available to learners, who need guidance in the form of awareness about the changing marketplace. Global competition, product innovation, process development and advanced technology could affect the types of careers that will be most valuable to learners. Therefore, the role of high school teachers is to educate learners about these changes so that learners do not make career decisions in a vacuum of information. It was important for this study to test the level of awareness amongst the teachers; teachers themselves also require training and awareness; and they should be properly equipped, in order

to enable them to guide and inform learners about the profession and the various career paths therein. The results are shown in Figure 4.16.
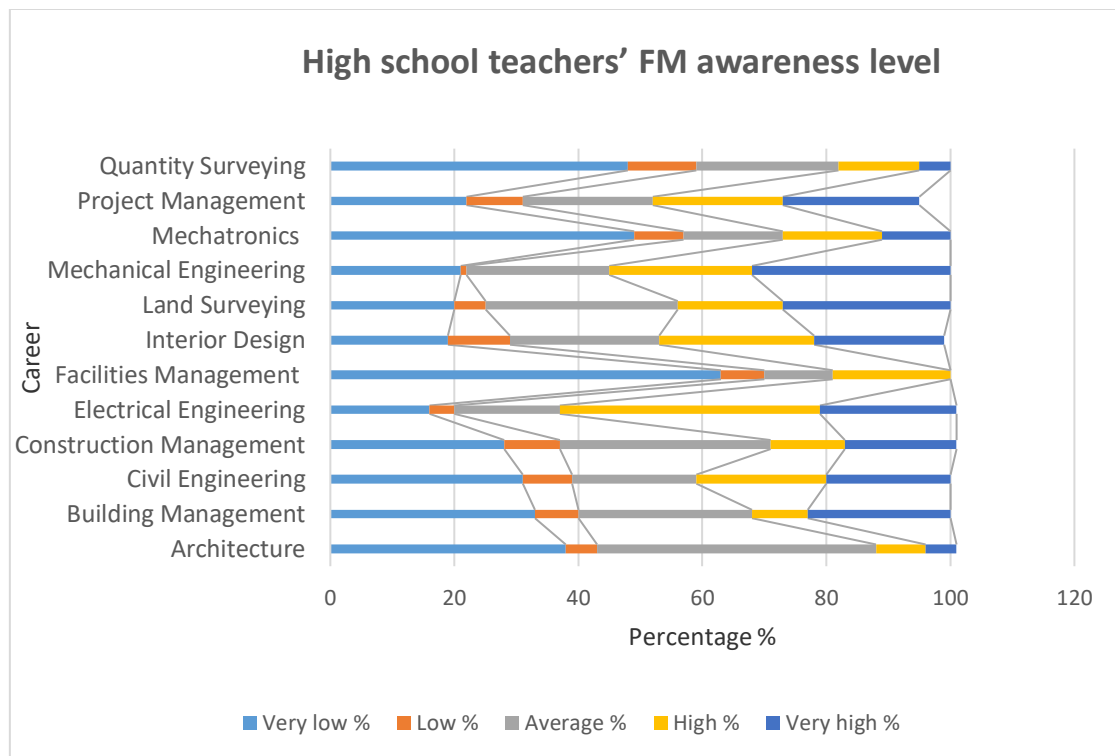
Figure 4.16: High school teachers' FM awareness level

Figure 4.16 and Table 4.3 confirm that the Soutpansberg West Circuit high school teachers had a very low knowledge level of FM as a career. It may be concluded that 79% (28 + 51) of the combined responses of high school teachers had a low to very low FM knowledge-awareness level – whilst 8% of high school teachers had an average FM knowledge-awareness level. It may also be concluded that only 13% (13 + 0) combined responses of high school teachers had a high to very high FM knowledge-awareness level. FM was also ranked as the lowest career in terms of teachers' knowledge about various careers as per high school teachers' career knowledge level in table 4.3. Therefore, this specific objective has been met.

4.8.3 Objective 3 of the study: To determine the need for FM awareness in high schools

According to the Hays Quarterly Report (HAYS jobs report, 2017) regarding the demand for skills in the FM profession, the demand for corporate facilities managers is increasing; as businesses' activities improve. There is a high demand for facilities managers as a result of some movement of professionals within the market. This is creating a demand for more facilities managers globally. Therefore, it is important for

this study to test the need for FM awareness in high schools; since high school is the source of supply to the higher education demand; and the higher education is the source of supply to the labour force, or to industries' skills requirements. The results are shown in Figure 4.17.
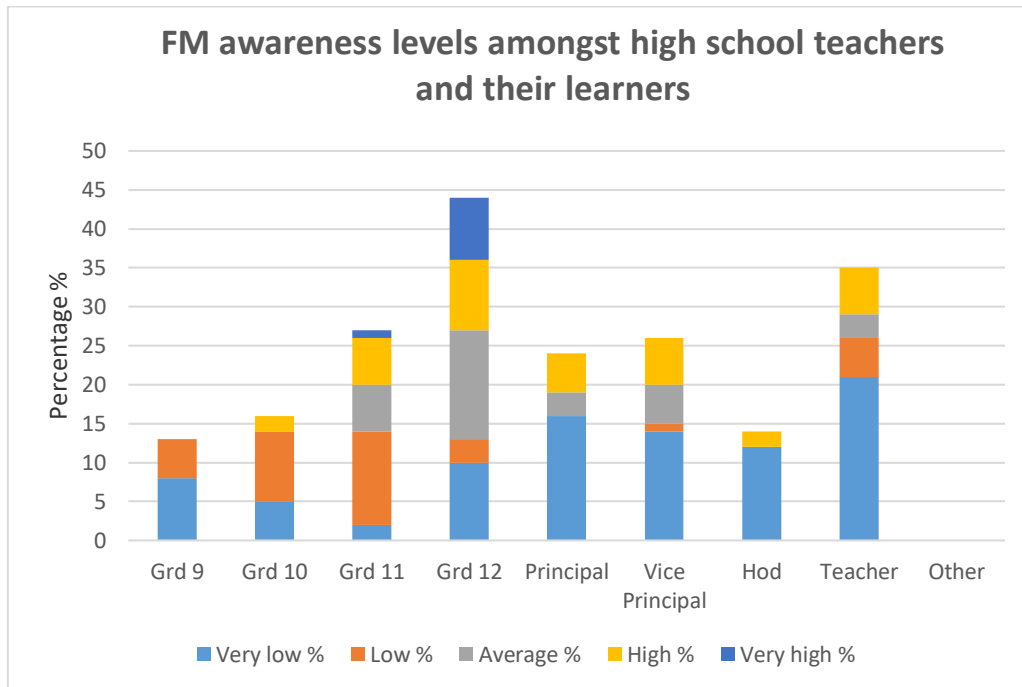
Figure 4.17: FM awareness levels amongst high school teachers and their learners

Figure 4.15 and Tables 4.5, 4.11 and 4.12 confirm that the knowledge level of teachers and learners in Soutpansberg West Circuit, with respect to FM, is low and therefore there is a need for FM awareness in high schools. FM can be included in career-guidance sessions in high schools; and it can also be included as a career when introducing other careers in the subject of Life Orientation. Table 4.4 and 4.13 also shows that high school learners and teachers are willing to learn more about FM. As a result, this specific objective has been met.

4.8.4: Objective 4 of the study: To determine whether there are high school learners who want to become facilities managers

The FM profession in South Africa requires some sort of reformation regarding FM as a career, in order to mitigate the current career path of a facilities manager not being a popular career choice. Therefore, this study managed to determine whether there are high school learners who want to become facilities managers in future. Although there is still a misalignment between the educational fraternity and the FM profession, it is imperative to have some sort of indication in this regard.

High school learners who want to become facilities managers according to their teachers

Yes-14%

No-86%

■ Yes % ■ No %
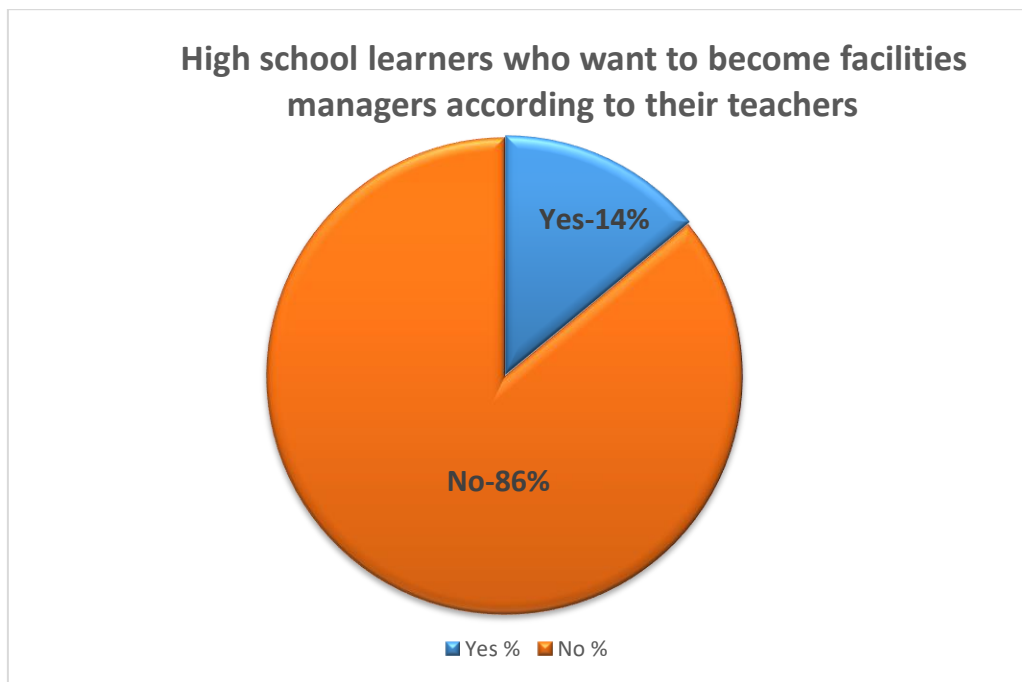
Figure 4.18: High school learners who want to become facilities managers, a teachers' perspective

Figure 4.18 and Tables 4.5 confirm that there were few (14%) percent of the high school learners who wanted to become facilities managers in the future; and 86% of teachers had never come across learners who would like to become facilities managers. Learners were positive in obtaining new knowledge; and they confirmed that it was through career guidance that they became aware of their career choices. Table 4.16, high school thematic results, Main Theme 4 and Sub-theme 4.2 indicated and confirmed that there were high school learners who wanted to become facilities managers in the future supporting the (14%) percent which was observed and confirmed by the teachers' results. Consequently, this specific objective has also been met.

According to the survey report by the JIL company (Pesek, 2013: 4), recruiting millennials is the key to closing the talent gap in the FM profession. By the end of 2014, millennials were expected to make up 47% of the workforce. Despite graduating with degrees in engineering, mathematics and business management, this unique generation is often unaware of career opportunities in the FM profession, thereby making it difficult to recruit them. As a new workforce, it is difficult to understand the millennial mindset. Therefore, this study managed to get a clear indication of the high school learners' willingness to learn more about FM.
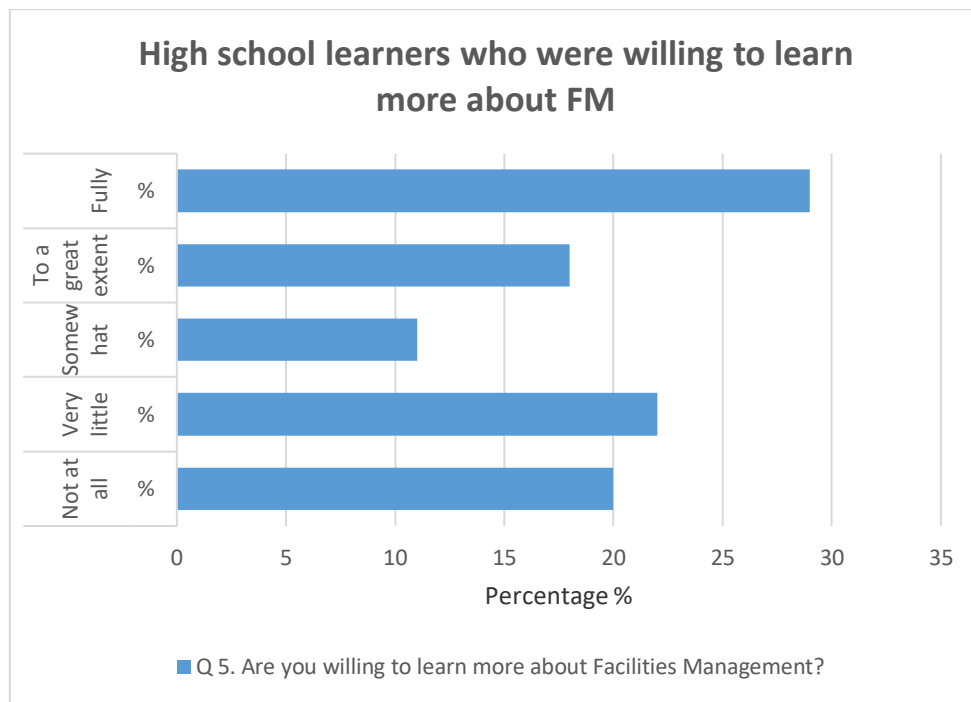
Figure 4.19: High school learners willing to learn more about FM

4.9   SUMMARY

The high school environment has a diversified representation of participants by means of gender, quintile and grade level.

Career-guidance activities could be very important as a tool in high schools; and they could assist with career awareness and the relationship alignment with the industries, tertiary institutions or businesses. However, Internet-based career activities contributed least to the career guidance activities at the schools.

Facilities management career-knowledge level was ranked the lowest career-knowledge amongst the teachers and learners in the Soutpansberg West Circuit high schools

High school teachers were very little suitably qualified as career-guidance teachers. However, they were willing to learn more about FM, even though they believe that there is less possibility for FM to be included as a career option when introducing other careers in the subject Life Orientation. Willingness to learn could indicate the state of being prepared to do something or the state of readiness to change – the results indicated that learners also were somewhat willing to learn more about FM as a career.

The frequency of high school career-guidance sessions has been more of an annual activity and majority of high school teachers indicated that they were not aware of any learners wanting to become facilities managers. High school teachers agreed that

career guidance is effective in high schools. The results indicated that most of the high schools learners generally agreed that they were introduced to career-guidance in grade 10 level and they were certain about what to study after school.

Thematic analysis have determined broad patterns and themes that allowed more granular data analysis for high school teachers and learners. Their responses have covered career-guidance diversification, including what could be done to address FM awareness in high schools with support from the facilities managers.

High school teachers and learners advised the South African FM associations to consider career path advice, establishing partnership with schools and guidance on how to become a facilities manager. However, there were desired changes required at the schools and further to that, a focus was drawn to the skill shortage root cause.

The results indicated that there is an effect as a results of career guidance in high schools and the learners have confirmed that career guidance at high schools is important, they were inspired by Career-guidance events and it helped them to be aware of what they wanted to study.

The objectives of this study were to determine the awareness levels of high school learners and teachers relating to FM, the need for FM awareness in high schools and whether there were high school learners who wanted to become facilities managers in future. All these objectives have been met successfully.

CHAPTER FIVE: TESTING OF THE HYPOTHESES

5.1 INTRODUCTION

Mouton and Prozesky (2001: 101) indicate that the analysis of the data is the interpretation of the collected data for the purpose of drawing conclusions that reflect on the interests, ideas, and theories that initiated the investigation in the first place. This chapter presents the testing of the hypotheses and discussions of the results.

Welman, Kruger, and Mitchell (2009: 224) state that if a relationship is found between the variables appearing in a research hypothesis, it is expected that the research hypothesis and the statistical methods would bring this relationship to light; in other words, they will make statistically valid conclusions. In order to investigate a research hypothesis by means of the inferential-statistical methods, it must first be transformed into a statistical hypothesis (Welman et al., 2009: 12). Such a statistical hypothesis consists of two complementary statements known as a null hypothesis (H_0) and an alternative hypothesis (H_a). The research hypothesis is supported by the rejection of the null hypothesis.

Every hypothesis test requires the researcher to state the null hypotheses and the alternative hypothesis. The hypotheses are stated in such a way that they are mutually exclusive. That is, if one is true, the other must be false, and vice versa. A null hypothesis states that there is no difference between two groups in relation to some variable, or that there is no relationship between two variables (Welman et al., 2009:27).

Decision rule:

Tables from the results section will be further analysed and restructured to reflect the p-Value mode, mean and skewness relating to the group of questions designed to test the hypotheses.

The derivation for supporting or not supporting the hypotheses is as follows:

The p-Value approach was used when testing the hypotheses; it involves determining 'likely' or 'unlikely' by means of determining the probability, assuming the null hypothesis were true, and by observing a more extreme test statistic in the direction of the alternative hypothesis than the one previously observed. If the p-Value is less than (or equal to) Alpha ($\alpha = 0.05$), then the null hypothesis is rejected in favour of the

alternative hypothesis. If the p-Value is greater than Alpha (α = 0.05), then the null hypothesis is not rejected.

Figures in the mode column are analysed and the values are compared with the neutral value of 2.0 on the linear scale. If the mode value is 3.0 or higher, then the statement is supported. If the mode value is 1.0 or less, then the statement is not supported. In any event where the mode value is equal to the neutral value of 2.0, then the statement would be considered inconclusive.

A similar procedure to the mode analysis was followed when analysing the mean values. The average mean value is considered to be 3.0; therefore, if the mean value is greater than 3.0, the statement is supported; and if the mean is less than 3.0, the statement is not supported. In an event where the mean value is 2.0, the statement would be considered as inconclusive.

For skewness, the same approach as the analyses of the mode and mean was applied. However, the basis for supporting each statement will unfold as follows: If the skewness is positive, then it does not support the statement; and if it is a negative value, then it supports the statement. However, if the skewness value is indicating 0.0, then the statement would be considered as inconclusive.

- 'S'   supported
- 'NS' not supported
- 'Inc'   Inconclusive
- 'QT'   Questionnaire for Teachers
- 'QL'   Questionnaire for Learners

Table 5.1: Summary of statistical test results for hypothesis 1

	QT 3.1	QT 3.2	QT 3.3	QT 3.4	QT 3.5	QT 3.6
Count	8.7	87	87	87	87	87
Mean	1.62	1.47	1.29	1.6	7.6	1.67
Std. dev.	0.488	0.502	0.455	0.493	0.430	0.474
Std. error	0.523	0.054	0.049	0.053	0.046	0.051
Hyp. mean	0	0	0	0	0	0
Alpha	0.05	0.05	0.05	0.05	0.05	0.05
Tails	1	1	1	1	1	1
Df	86	86	86	86	86	86
t stat	30.975	27.333	26.382	30.215	38.112	32.787
p value	0	0.668	0	0.086	0	0
t crit.	1.663	1.663	1.663	1.663	1.663	1.663
Sig	yes	no	yes	no	yes	yes
Mode	2	1	1	2	2	2
Skewness	-0.51	0.12	0.96	-0.41	-1.23	-0.72

	QT 3.7	QT 6.1	QT 6.2	QT 6.3	QT 8
Count	87	83	76	81	84
Mean	1.93	3.46	3.22	3.41	4.09
Std. dev.	0.255	1.377	1.529	1.401	1.982
Std. error	0.027	0.151	0.175	0.156	0.217
Hyp. mean	0	0	0	0	0
Alpha	0.05	0.05	0.05	0.05	0.05
Tails	1	1	1	1	1
Df	86	82	75	80	83
t stat	70.671	22.889	18.357	21.898	18.859
p value	0	0	0	0	0
t crit.	1.663	1.664	1.665	1.664	1.664
Sig	yes	Yes	Yes	Yes	Yes
Mode	2	4	4	4	6
Skewness	-3.46	-0.53	-0.09	-0.41	-0.23

5.2 HYPOTHESIS HP1

The first hypothesis states that high schools do not have diversified career-guidance activities.

H_0: High schools do not have diversified career guidance activities.

H_a: High schools have diversified career guidance activities.

Table 5.1 indicates 9 of the 11 questions with a p-Value of less than 0.05, as a result of the total supporting statements, 9 are supported, 2 are rejected and 0 are considered to be inconclusive. Therefore, taking only the p-Value into consideration, the hypothesis is supported.

There is a total of 4 supporting statements for the mode, 2 not supporting and 5 statements were inconclusive. Therefore, taking only the mode values into consideration, according to the decision rule set, the hypothesis is regarded as inconclusive.

There is a total of 4 supporting statements for the mean, 7 not supporting; while 0 statements were inconclusive. Therefore, taking only the mean values into consideration, according to the decision rule set, the hypothesis is not supported.

There is a total of 9 supporting statements for the skewness, 2 not supporting and 0 statements were inconclusive. Therefore, taking only the skewness values into consideration, according to the decision rule set, the hypothesis is supported.

- The total for all 'supports' is   26
- The total for all 'not supports' is   13
- The total for all 'inconclusive' is   5

Therefore, the null hypothesis is supported. Indeed, high schools do not have diversified career-guidance activities.

Table 5.2: Summary of statistical test results for Hypothesis 2

	QT 5.1	QT 5.2	QT 5.3	QT 5.4	QT 5.5	QT 5.6	QT 5.7
Count	87	87	87	87	87	87	87
Mean	2.29	2.65	2.9	2.73	3.36	1.83	2.92
Std dev	1.082	1.428	1.463	1.342	1.314	1.062	1.344
Std err	0.116	0.153	0.157	0.144	0.141	0.114	0.144
Hyp mean	0	0	0	0	0	0	0
Alpha	0.05	0.05	0.05	0.05	0.05	0.05	0.05
tails	1	1	1	1	1	1	1
df	86	86	86	86	86	86	86
t stat	19.747	17.311	18.467	18.972	23.851	16.067	20.270
p value	0	0	0.441	0	0	0	0.587
t crit	1.663	1.663	1.663	1.663	1.663	1.663	1.663
sig	yes	yes	No	yes	yes	yes	no
Mode	3	1	1	3	4	1	2
skewness	0.421	0.440	0.001	0.352	-0.581	1.020	0.142

	QT 5.8	QT 5.9	QT5.10	QT5.11	QT5.12	QT 10	QL7.3
Count	87	87	87	87	87	82	2046
Mean	2.97	3.17	2.24	3.05	2.16	2.49	3.48
Std dev	1.346	1.456	1.289	1.385	1.112	1.189	1.280
Std err	0.144	0.156	0.138	0.148	0.119	0.131	0.028
Hyp mean	0	0	0	0	0	0	0
Alpha	0.05	0.05	0.05	0.05	0.05	0.05	0.05
tails	1	1	1	1	1	1	1
df	86	86	86	86	86	81	2045
t stat	20.581	20.302	16.211	20.545	18.112	18.966	123.001
p value	0.196	0.668	0	0.441	0	0	0
t crit	1.663	1.663	1.663	1.663	1.663	1.664	1.646
sig	no	no	yes	no	yes	yes	yes
Mode	2	5	1	3	1	2	4
skewness	0.203	-0.123	0.848	-0.063	0.739	0.594	-0.582

5.3 HYPOTHESIS HP2

The second hypothesis states that high school career-guidance teachers are not suitably qualified.

H_0: High School career-guidance teachers are not suitably qualified.

H_a: High School career-guidance teachers are suitably qualified.

Table 5.2 indicates 9 of the 14 questions with a p-Value of less than 0.05, as a result, there is a total of 9 supporting statements, 5 rejected and 0 inconclusive. Therefore, taking only the p-Values into consideration, the hypothesis is supported.

There is a total of 6 supporting statements for the mode, 5 not supporting and 3 statements were inconclusive. Therefore, taking only the mode values into consideration, according to the decision rule set, the hypothesis is not supported.

There is a total of 4 supporting statements for the mean, 10 not supporting and 0 of the statements were inconclusive. Therefore, taking only the mean values into consideration, according to the decision rule set, the hypothesis is not supported.

There is a total of 10 supporting statements for the skewness, 4 not supporting and 0 of the statements were inconclusive. Therefore, taking only the skewness values into consideration, according to the decision rule set, the hypothesis is supported.

- The total for all 'supports' is   29
- The total for all 'not supports' is   24
- The total for all 'inconclusive' is   3

Therefore, the null hypothesis is supported. Indeed, high school career-guidance teachers are not suitably qualified.

Table 5.3: Summary of statistical test results for Hypothesis 3

	QL 7.1	QL 7.2	QL 7.5	QL 7.6	QT 9
Count	2230	2230	2184	2138	84
Mean	4.1	3.7	3.92	2.58	3.69
Std dev	1.039	1.286	1.074	1.412	1.362
Std err	0.022	0.027	0.023	0.031	0.148
Hyp mean	0	0	0	0	0
Alpha	0.05	0.05	0.05	0.05	0.05
tails	1	1	1	1	1
df	2229	2229	2183.05	2137	83
t stat	186.275	135.071	170.608	84.465	24.890
p value	0	0	0	0	0
t crit	1.646	1.646	1.646	1.646	1.663
sig	yes	yes	yes	yes	yes
Mode	4	4	4	1	5
Skewness	-1.435	-0.865	-1.076	0.387	-0.794

5.4 Hypothesis HP3

The third hypothesis states that high schools learners spend enough time on career guidance sessions. The null and alternative hypotheses are as follows:

H_0: High school learners spend enough time on career guidance sessions.

H_a: High school learners do not spend enough time on career guidance sessions.

Table 5.3 indicates all 5 questions with a p-Value of less than 0.05. Resulting in a total of 5 supporting statements, with 0 unsupported and 0 inconclusive. Therefore, taking only the p-Values into consideration, according to the decision rule set, the hypothesis is supported.

There is a total of 4 supporting statements for the mode, 1 not supporting; and 0 of the statements was inconclusive. Therefore, taking only the mode values into consideration, according to the decision rule set, the hypothesis is supported.

There is a total of 4 supporting statements for the mean, 1 not supporting and 0 of the statements was inconclusive. Therefore, taking only the mean values into consideration, according to the decision rule set, the hypothesis is supported.

There is a total of 4 supporting statements for the skewness, 1 not supporting and 0 of the statements was inconclusive. Therefore, taking only the skewness values into consideration, the hypothesis is supported.

- The total for all 'supports' is   17
- The total for all 'not supports' is   3
- The total for all 'inconclusive' is   0

Therefore, the null hypothesis is supported. Therefore, high school learners spend enough time on career-guidance sessions.

5.5 CONCLUSION

This conclusion is primarily focusing on this chapter of hypotheses testing.

Three hypotheses were set, based on the problem statement and the sub-problems in Chapter One. The collection of the primary data and the secondary information provided concrete evidence and support for the testing of the hypotheses, which were dealt with in this chapter. Tables 5.1, 5.2 and 5.3 provided evidence relating to the statements used when testing all three hypotheses. Tables 4.2, 4.4 and 4.6, also Figures 4.6 and 4.7, were used to support the testing of Hypothesis 1. Sub-sections 2.2 and 2.1 of the high school teachers' and learners' thematic analysis further reinforce and support the outcome of the hypothesis tested and the decision ruled, which states that high schools do not have diversified career-guidance activities.

Tables 4.3, 4.8 and 4.14, and Figures 4.9 and 4.15 were used to support the testing of Hypothesis 2. Sub-section 2.1 of the high school learners' thematic analysis further reinforced

and supported the outcome of the hypothesis tested and the decision ruled, which stated that career guidance teachers are not suitably qualified.

Tables 4.7 and 4.14, and Figure 4.8 were used to support the testing of Hypothesis 3. Sub-sections 2.3 and 2.4 of the high school learners' thematic analysis further reinforced and supported the outcome of the hypothesis tested and the decision ruled, which stated that high school learners spend enough time on career-guidance sessions.

The goal of hypotheses testing is usually to correctly reject the null hypothesis, or in other words, to show that the treatment applied has had an effect. The hypotheses have been tested successfully. All three null hypothesis were supported. Soutpansberg West circuit high schools do not have diversified career-guidance activities, career guidance teachers are also not suitably qualified. However, learners do spend enough time on career-guidance sessions.

CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 SUMMARY

The aim of this study was to develop a critical awareness of FM as a career path amongst high school learners and teachers in South Africa by conducting research amongst teachers and learners in the Soutpansberg West Circuit.

The construction and engineering professions are often not highly regarded or encouraged as a first-career choice for many learners, owing to the unattractiveness of the industry, or to a lack of knowledge thereof (CIDB & Public Works, 2014: 5). Facilities managers in South Africa end up in the FM environment by 'mistake'; and this has led to a high percentage of incompetent and unskilled facilities managers.

Lapan, Gybers, and Petroski (2001: 261) state that career guidance has been identified as a potential way for promoting motivational awareness and learners' attachment to their schools. Therefore, the purpose of this study was to develop an awareness of FM as a career path amongst high school learners and teachers in South Africa.

Fifty-two per cent (52%) of the learner respondents were high school females; while 48% were males. Forty-four per cent (44%) of the teacher respondents were high school females and 56% were males.

High school female learners have dominated the responses from the Grade 9 to Grade 11 group; while high school male learners have only dominated the response in the Grade 12 group. There were no high schools categorised at quintile levels 1, 4 or 5 within the Soutpansberg West Circuit.

Fifty-four per cent (54%) of the Soutpansberg West Circuit high school learners had a low to very low FM career-awareness level. FM career-knowledge awareness ranked the lowest when compared to the other eleven careers options (Table 4.12).

Seventy-nine per cent (79%) of the Soutpansberg West Circuit high school teachers had a low to very low FM career-awareness level. FM career-knowledge awareness ranked the lowest when compared to the other eleven careers options (Table 4.3).

High schools spend at least once a week on career guidance was ranked the lowest amongst the high school learners. High school learners who wishes to change their subject grouping to bring their desired career choices was ranked second lowest while learners who were certain

about what they want to study after school was ranked the highest amongst the learners in the Soutpansberg West Circuit high schools

The results also indicate that guests in the form of former learners who matriculated from the school was ranked as the highest activity at the schools. Dedicated career guidance teachers were ranked second highest while Internet-based career activities contributed least to the career guidance activities at the schools.

High school teachers were mostly in agreement regarding the high school teachers' willingness to learn more about FM and the possibility of FM being included as a career option when introducing other careers in the subject Life Orientation. There was a need for FM awareness in high schools in the Soutpansberg West Circuit; and there is a positive chance to introduce FM as part of the subject Life Orientation and 43.8% of the high school learners; and 69% of the teachers were profoundly willing to learn more about FM.

Fourteen per cent (14%) of the high school teachers responded 'Yes'; while 86% responded 'No', relating to learners who possibly want to become facilities managers. High school learners were positive in accommodating new knowledge. High school thematic results confirmed that there were high school learners who wanted to become facilities managers. However, high school learners indicated the need for certain qualifications in the FM profession, such as, 'How do learners make FM a career of choice?'; 'Which subject stream must one follow in order to become qualified to work in a FM company?'

Sixty-nine per cent (69%) of the high school teachers agreed to fully agreed that they were willing to learn more about FM; while 43.8% of the high school learners indicated that they were very willing to learn more about FM. The results indicated and concluded that high school teachers and learners 'Agreed' and 'somewhat' willing, as a respective response relating to their willingness to learn more concerning FM. Fourteen per cent (14%) of the high school teachers indicated that they definitely know of high school learners who wish to become facilities managers.

The results from the high school teachers in the Soutpansberg West Circuit confirmed that career-guidance sessions have been more of an annual activity. However, the high school teachers generally 'agreed' that career-guidance sessions were effective at their schools. Seventy-two per cent (72%) of the high school learners disagreed to strongly disagreed that their school spends time on career guidance at least once a week.

High school teachers indicated that career-guidance teachers at their schools are generally 'very little' qualified. High school learners indicated their desired changes at schools, such as, 'Teachers must be well educated, or have foundational knowledge about career development'. 'The career-guidance teachers should be adequately informed about skills-shortage programs'.

6.2 CONCLUSION

A review of the available literature indicated that a relevant literature been written on career development and higher education in the FM profession. However, not much has been written on FM awareness amongst high school learners and teachers. As a non-industrialised profession in the Built Environment, FM received attention from different researchers. Although the practice of FM is widely embraced in developed countries, it remains in its infancy stage in many developing countries like South Africa, resulting in a scarcity of literature.

The introduction of a strategic FM system in South Africa is an acknowledgment that the local profession is lagging in its adoption, application and practice of FM. South Africa is still regarded as a late adopter, which explains the career developmental lag.

Career awareness and career choices require a career decision-making process, starting with self-knowledge, where a learner is supposed to know his/her own interests, abilities, talents, strengths and weaknesses. Secondly, a learner's subject knowledge would also add value to the development of a personality type in the scope of the conventional, realistic, investigative, artistic or social sphere, all of which influence self-knowledge; and they are all pillars to career awareness.

Facilities management career-knowledge level was ranked the lowest amongst the high school teachers. Quantity surveying was ranked second lowest career-knowledge level while Electrical engineering was ranked the highest career-knowledge amongst the teachers in the Soutpansberg West Circuit high schools.

Facilities management career-knowledge level was ranked the lowest amongst the high school learners. Architecture was ranked second lowest career-knowledge level while Mechanical engineering was ranked the highest career-knowledge amongst the learners in the Soutpansberg West Circuit high schools.

The results also indicate that high school teacher's willingness to learn more about FM was ranked the highest while including FM in career guidance sessions was ranked second highest.

The possibility of FM to be included as a career option when introducing other careers in the subject Life Orientation was ranked the lowest in the Soutpansberg West Circuit high schools.

Fourteen per cent (14%) of the high school teachers responded 'Yes'; and 86% of the respondents responded 'No', indicating that the majority of respondents indicated that they were not aware of any learners wanting to become facilities managers.

High school teachers generally 'Agree' that career guidance is effective in high schools. High school teachers generally think that they are 'very little' suitably qualified as career-guidance teachers. However, the shortage of qualified career-guidance teachers could be the most important factor that contributes negatively to learner motivation towards career choice and career awareness. The high school thematic analysis further confirmed that high school teachers must be well educated; or at least they should have foundational knowledge relating to career development; and this would improve the level of awareness and knowledge amongst the teachers.

High school learners indicated that they were introduced to career guidance in Grade 10 level. Grade 10 learners was ranked the lowest amongst the high school learners who were certain about what they want to study after school. Grade 11 learners was ranked second lowest while Grade 12 learners was ranked the highest amongst the learners in the Soutpansberg West Circuit high schools.

The results also indicate that career guidance at high schools was important and it was ranked the highest while, the second highest ranking was the learner's awareness of what they wanted to study as a result of career guidance. Career-guidance events inspiring learners was ranked the lowest in the Soutpansberg West Circuit high schools.

High school learners indicated that they were 'Somewhat' willing to learn more about FM as a career.

Table 4.16, Main Theme 4 and Sub-theme 4.2 showed that the responses from the high school learners thematically indicated and confirmed that there were high school learners who wanted to become facilities managers in the future. Although high school teachers have provided advice to the FM profession in terms of creating employment opportunities and awareness strategies for learners, they have also indicated their willingness to know more about FM.

Career awareness requires looking outward to the working world. Learners need to be aware of what is happening in the FM profession; what skills will be needed in the future; what

occupations are growing; and why and how those occupations relate to the type of work that learners should consider.

The study has provided a response pertaining to the awareness levels of high school teachers and learners relating to FM, which was confirmed to be 'Low'; and the need for FM awareness in high schools was confirmed to be desirable and necessary, according to high school learners' and teachers' results.

6.3 RECOMMENDATIONS

The number of new and ageing buildings is increasing the need for more facilities managers. Unfortunately, there is no formal tertiary FM qualification approved by SAQA. However, different stakeholders within the FM profession are pioneering the formalisation of an FM qualification in South Africa - including the post graduate programme within the built environment such as the MSc degree in FM offered by the Nelson Mandela University. If nothing is done about FM awareness in high schools, the proposed tertiary FM qualification might be negatively affected. If there is no clearly defined FM career path leading to FM, facilities managers could end up in FM – without it being their choice.

High schools must have more frequent career-guidance sessions, and spend sufficient time on career guidance, including internet-based career-guidance platforms, training and educating teachers.

Direct intervention is urgently required from the Department of Education, in terms of desired career-guidance changes in high schools and the establishment of partnerships with FM professionals.

FM companies, tertiary institutions, and high schools must collaborate with one another in the development of a FM career-guidance programme in order to increase awareness amongst teachers and learners. There are already learners who have indicated that they are interested in FM as a career. This group can be used as a 'pilot', when collaborative initiatives amongst teachers, learners, and FM companies or key stakeholders are clearly identified and implemented.

FM companies must intervene to support high schools by providing means of support. High school teachers must be provided with materials and guidance; so that they can learn more about FM as a career.

6.3.1 Recommendations for the FM profession

South African FM organisations need to start recognising and acknowledging the importance of formal education amongst the population. The question of FM being a career normally receives superficial responses; and it frequently leads to contradictions.

The South African FM organisations should consider establishing an FM regulatory body in the form of a council as opposed to only have an unregulated association bodies, or they should persuade the Council for the Built Environment to formally incorporate all the current existing facilities management associations in South Africa – such as SAFMA.

6.3.2 Recommendations for further research

The following aspects emerged; but they did not form part of this research. They are noted here; and they should be further investigated.

The debate around subject grouping could be accelerated within basic education, in order to improve career awareness and career guidance. Without career awareness, high school learners would not be able to make informed choices when it comes to their future career paths. Therefore, an investigation into subject grouping, which would lead to FM as a career path, is imperative; and this should be considered.

FM has a wide scope of services; but some of the services require certification and qualifications. However, we do not know what level of NQF level is applicable. Therefore, an investigation into how the high school curriculum could accommodate FM modules at a broad competency level is imperative; and this should be conducted.

The world of business is rapidly changing, which places a growing burden on the FM profession in South Africa. Technology is also evolving; and the working methods need to accommodate the changing conditions. These changes have forced education to be modified to meet the needs of working life. The thematic study in this project have indicated an interest in wanting to know more about the FM profession. The next step might be: 'What happens after one knows about FM?', a study in 'How to get young people Interested in Facilities Management' is imperative; and this should be conducted.

Further studies will be required to test and compare the results amongst all high schools in the Soutpansberg Circuits in Limpopo, to enable comparison amongst the circuits and their various high schools quintiles.

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ANNEXURE A: Ethics Committee approval letter

NELS●N M▲NDELA

UNIVERSITY

PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa   mandela.ac.za

Chairperson: Research Ethics Committee (Human)
Tel: +27 (0)41 504 2235
Charmain.Cilliers@mandela.ac.za

Ref: [H17-ENG-BQS-002 / Approval]

Contact person: Mrs U Spies

9 October 2017

Prof F Buys
Nelson Mandela University
Faculty of EBEIT

Dear Prof Buys

FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS OF SOUTPANSBERG WEST CIRCUIT IN LIMPOPO PROVINCE

PRP: Prof F Buys
PI: Mr T Nephawe

Your above-entitled application served at the Research Ethics Committee (Human) for approval.

The ethics clearance reference number is **H17-ENG-BQS-002** and is valid for three years. Please inform the REC-H, via your faculty representative, if any changes (particularly in the methodology) occur during this time. An annual affirmation to the effect that the protocols in use are still those for which approval was granted, will be required from you. You will be reminded timeously of this responsibility, and will receive the necessary documentation well in advance of any deadline.

We wish you well with the project.

Yours sincerely

CBCilliers

**Prof C Cilliers
Chairperson: Research Ethics Committee (Human)**

cc: Department of Research Capacity Development
        Faculty Officer: EBEIT

ANNEXURE B: Letter to Soutpansberg West Circuit manager and principals

NELS●N M▲NDELA
U N I V E R S I T Y

FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS OF SOUTPANSBERG WEST CIRCUIT IN LIMPOPO PROVINCE

Letter of Invitation to the Circuit manager and School Principals

My name is Tshilidzi Nephawe, and I am an MSc student at the Nelson Mandela University (NMU). I am conducting research on Facilities Management under the supervision of Professor Fanie Buys from Nelson Mandela University. The Provincial Department of Education has given approval to approach schools for my research. A copy of their approval is contained with this letter. I hereby invite you to take part in this research. This study will meet the requirements of the Research Ethics Committee (Human) of the NMU.

Aims of the Research

This research aims to:

1.0 To determine awareness levels of high school learners about facilities management.

2.0 To determine awareness levels of high school teachers about facilities management.

3.0 To determine the benefits of having career guidance earlier in high school.

4.0 To determine the need for facilities management awareness in high school.

5.0 To determine if there are high school learners who wish to be facilities managers in the future.

Significance of the Research Project

Main aim is to develop critical awareness of facilities management as a career path amongst high school learners and teachers in Soutpansberg West Circuit, in order to inform possible career choices in Facilities Management.

This study will:

- Provide information about high school learner's career knowledge;

- Provide schools and teachers with greater understanding about the influence of schools on the career development of the learners;
- Provide information about high school learners who wish to choose facilities management as a career of choice after post matric.

Benefits of the Research to Schools

- The results will inform facilities-management companies, sectors and other relevant organisations to consider supporting career-guidance initiatives and activities in high schools.

Research Plan and Method

The data will be collected by means of a questionnaire. Learners will be provided with the questionnaire and instructions on how to complete it. Learners are expected to receive only one questionnaire per learner and complete accordingly. Completed questionnaires must be returned to the designated administrator. Permission will be sought from the learners and their parents prior to their participation in the research. Only those who consent and whose parents consent will participate. The Life-Orientation educators will administer the surveys; and they will take the learners 8 to 12 minutes to complete the entire questionnaire. The questionnaires will be administered at the same time. All information collected will be treated in the strictest confidence; and neither the school nor the individual learners will be identifiable in any reports that are written. Participants may withdraw from the study at any time without penalty. The role of the school is voluntary and the school principal may decide to withdraw the school's participation at any time without penalty. The nature of the data to be collected is not sensitive in nature. If a learner requires support as a result of their participation in the survey, steps can be taken to accommodate this.

School Involvement

Once I have received your consent to approach the learners to participate in the study, I will:

- Arrange for informed consent to be obtained from the participants' parents through a letter that will be sent home with the learners.
- Arrange a time with your school, for data collection to take place.
- Obtain informed consent from the participants.

Attached for your information are copies of the Parent Information and Consent Form and also the Participant-Information Statement and Consent Form.

Invitation to Participate

If you would like your school to participate in this research, please complete and return the attached form.

Thank you for taking the time to read this information.

Tshilidzi Nephawe   Professor Fanie Buys

Researcher   Supervisor

NMU   NMU

NELSON MANDELA
U N I V E R S I T Y

FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS OF SOUTPANSBERG WEST CIRCUIT IN LIMPOPO PROVINCE

Circuit manager and School Principals Consent Form

I give consent for you to approach learners in grades 9, 10, 11 and 12 to participate in the study entitled: "Facilities management awareness amongst high school learners and teachers of Soutpansberg West Circuit in Limpopo Province".

I have read the Project Information Statement explaining the purpose of the research project and understand that:

- The role of the school is voluntary;
- I may decide to withdraw the school's participation at any time without penalty;
- Learners in grades Nine, Ten, Eleven and Twelve will be invited to participate, and that permission will be sought from them and also from their parents.
- Only learners who consent and whose parents consent will participate in the project;
- All information obtained will be treated in the strictest confidence.
- The learners' names will not be used; and individual learners will not be identifiable in any written reports on the study.
- The school will not be identifiable in any written reports on the study.
- The participants may withdraw from the study at any time without penalty.
- A report of the findings will be made available to the school.
- I may seek further information on the project from Tshilidzi Nephawe on 0726874557.

_____   _____

      Principal   Signature

_____

Date

Please return to: nephawe@live.com

School Stamp

ANNEXURE C: Letter to high school learner's parents and the SGB

NELSON MANDELA
U N I V E R S I T Y

The Office of the Circuit Manager

Department of Basic Education

Limpopo

Soutpansberg West Circuit

Private Bag X 384,

Tshilwavhusiku,

0938

02/10/2017

RE: NOTICE TO THE SCHOOL-GOVERNING BODY AND PARENTS

My name is Tshilidzi Nephawe, and I am a Master's student in the Faculty of Engineering, the Built Environment and Information Technology at the Nelson Mandela University in Port Elizabeth. The research I wish to conduct for my Master's treatise is entitled: Facilities-management awareness amongst high school learners and teachers of Soutpansberg West Circuit in Limpopo Province. This project will be conducted under the supervision of Professor Fanie Buys (NMU, South Africa).

I am hereby notifying the School-Governing body and the parents of the learners' regarding the data-collection exercise by means of learners and teachers completing questionnaires. I have observed and followed all the protocol required when and before conducting a research study through the standing Ethical committee at the Nelson Mandela University.

I have provided you with a copy of Questionnaires, assent letters, consent forms and the copy of the Ethical committee approval letter from NMU.

Upon completion of the study, I undertake to provide the Department of Education in Limpopo and the Soutpansberg West Circuit with a bound copy of the full research report. If you require any further information, please do not hesitate to contact me on [0726874557 and nephawe@live.com].

Thank you for your time and consideration in this matter.

Yours sincerely,

Tshilidzi Nephawe

Nelson Mandela University

ANNEXURE D: Consent letter to learners' parents

PARENT CONSENT FORM

TITLE: FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS OF SOUTPANSBERG WEST CIRCUIT IN LIMPOPO PROVINCE.

19/09/2017

Explanation of the Study (What will happen to me in this study?)

This research is about a new possible career choice called facilities management and its awareness amongst learners and teachers.

Risks or Discomforts of Participating in the Study (Can anything bad happen to me?)

The researchers do not anticipate any risks to participants during this study.

Benefits of Participating in the Study (Can anything good happen to me?)

Although there are no direct benefits anticipated, the researcher does hope that by participating, teachers and learners will gain awareness of facilities management as a potential career option.

Confidentiality (Will anyone know I am in the study?)

Your child will not be required to write his/her name anywhere for this study. The name of the school will only be known by the researcher and the team at NMU; and his/her school's name will be kept confidential to protect the learners who might accidentally write their names on the questionnaire.

Contact Information (Who can I talk to about the study?)

Parents can contact Mr Tshilidzi Nephawe on 0726874557 or email nephawe@live.com or contact the supervisor, Professor Fanie Buys, on: Tel: +27 (0)41 5042023 or email Fanie.Buys@mandela.ac.za

Voluntary Participation (What if my child does not want to do this?)

This study is voluntary; your child may choose to participate or not to participate – without any consequences. Learners will not be penalized if they decide to withdraw from participating after agreeing to participate. You are allowed to withdraw at any time freely.

I understand what will happen in this study and I am willing to participate? (***Tick the correct box)***

YES		NO

_____   _____

Signature of the Parent   Date

ANNEXURE E: Reply slip for teachers

FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS OF SOUTPANSBERG WEST CIRCUIT IN LIMPOPO PROVINCE

School Teachers' Consent Form

I give consent for you to approach learners in grades 9, 10, 11 and 12 to participate in the study entitled "Facilities management awareness amongst high school learners and teachers of Soutpansberg West Circuit in Limpopo Province".

I have read the Project Information Statement explaining the purpose of the research project and I understand that:

- The role of the school is voluntary;
- I may decide to withdraw the school's participation at any time without penalty;
- Learners in grades Nine, Ten, Eleven and Twelve will be invited to participate; and that permission will be sought from them and also from their parents.
- Only learners who consent and whose parents consent will participate in the project;
- All information obtained will be treated in the strictest confidence.
- The learners' names will not be used and individual learners will not be identifiable in any written reports on the study.
- The school will not be identifiable in any written reports on the study.
- The participants may withdraw from the study at any time without penalty.
- A report of the findings will be made available to the school.
- I may seek further information on the project from Tshilidzi Nephawe on 0726874557.

_____   _____

        Principal   Signature

_____

        Date

Please return to: nephawe@live.com

ANNEXURE F: Questionnaire for high school teachers

Q 1. Please indicate your gender by marking with an 'X'.

Male	
Female	

Q 2. Please indicate your school category by marking with an 'X'.

Public school- Quintile 1	
Public school- Quintile 2	
Public school- Quintile 3	
Public school- Quintile 4	
Public school- Quintile 5	
Public technical school	
Independent (Private) school	
Independent (Private) technical school	
School for learners with special needs	

Q 3. Please indicate if you have the following career guidance activities at your school by marking with an 'X'.

		Yes	No
3.1	Community-based career exhibition		
3.2	Dedicated career guidance teachers		
3.3	Guests in the form of former learners who matriculated from your school		
3.4	Guest speakers from government departments		
3.5	Guest speakers from industry		
3.6	Guest speakers from tertiary institutions		
3.7	Internet-based career sessions		

Q 4. Please indicate your position at the school by marking with an 'X'.

Principal	
Vice Principal	
HOD	
Teacher	
Other (specify)	

Q 5. Please indicate your knowledge level of the following careers related to the construction industry by marking with an 'X'.

		Very low	Low	Average	High	Very high
5.1	Architecture					
5.2	Building Management					
5.3	Civil Engineering					
5.4	Construction Management					
5.5	Electrical Engineering					
5.6	Facilities Management					

5.7	Interior Design					
5.8	Land Surveying					
5.9	Mechanical Engineering					
5.10	Mechatronics					
5.11	Project Management					
5.12	Quantity Surveying					

Q 6. Please state to what extent you agree with the following statements by marking with an 'X'.

		Fully disagree	Disagree	Neutral	Agree	Fully agree
6.1	Facilities Management can be included as a part of the career-guidance sessions in your school					
6.2	Facilities Management can be included as an example of a career when introducing other careers in life orientation					
6.3	If Facilities Management is introduced as part of life orientation, I think the condition of the facilities at our school would improve					
6.4	I am willing to learn more about Facilities Management					

Q 7. Please answer the following question by marking with an 'X'.

	Yes	No
Do you know of any of your learners who wish to become Facilities Managers?		

Q 8. Please answer the following question and the most applicable option by marking with an 'X'.

	Once a week	Fortnightly	Monthly	3-Monthly	6-Monthly	Annually	Never
How often do you have career guidance sessions with learners?							

Q 9. Please state to what extent you agree with the following statement by marking with an 'X'.

	Fully disagree	Disagree	Neutral	Agree	Fully agree
Career-guidance sessions are effective at your school					

Q 10. Please state to what extent you agree with the following statement by marking with an 'X'.

	Not at all	Very little	Somewhat	To a great extent	Fully
Career-guidance teachers at your school are suitably qualified					

Q 11. What do you recommend could be done better by the industries in assisting with the vocation of career-guidance awareness at your school?

Q 12. What do you suggest to learners if they want to know more about the Facilities-Management environment?

Q 13. What do you think should be done to assist teachers with industry-career information?

Q 14. List five questions that you would like to ask any Facilities Manager.

Q 15. List five questions that you would like to ask any Facilities Management company.

ANNEXURE G: Questionnaire for high school learners

QUESTIONNAIRE TO LEARNERS (QL)

Q 1. Please indicate your gender by marking with an 'X'.

Male	
Female	

Q 2. Please indicate your current grade by marking with an 'X'.

Grade 9	
Grade 10	
Grade 11	
Grade 12	

Is career guidance offered at your school? If yes, proceed to complete the following questions. Please indicate by marking with an 'X' below.

Yes	No

Q 3. Please indicate to what extent you agree with the following statements by marking with an 'X'.

3.1 At what level were you introduced to career guidance?	

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3.2	Career guidance at high schools is important					
3.3	Career guidance adds value when applying at tertiary level					
3.4	Career guidance has created more awareness of what you wanted to study					
3.5	Career-guidance events have inspired you					

Q 4. Please indicate your knowledge level of the following careers related to the construction industry by marking with an 'X'.

		Very low	Low	Average	High	Very high
4.1	Architecture					
4.2	Building Management					
4.3	Civil Engineering					
4.4	Construction Management					
4.5	Electrical Engineering					
4.6	Facilities Management					
4.7	Interior Design					
4.8	Land Surveying					
4.9	Mechanical Engineering					
4.10	Mechatronics					

4.11	Project Management					
4.12	Quantity Surveying					

Q 5. Please mark the most appropriate option with an 'X'.

	Not at all	Not likely	Somewhat	Likely	Definitely
To what extend are you willing to learn more about Facilities Management?					

Q 6. How long did it take you to decide on your subject grouping (number of days)?

Q 7. Please indicate to what extent you agree with the following statements by marking with an 'X'.

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
7.1	I am certain about what I want to study after school					
7.2	My current subject grouping will enable me to achieve my chosen career					
7.3	Our career guidance teachers are definitely informed about our specific career choices					
7.4	I wish to change my subject grouping to align them to my desired career choice					
7.5	It is through career guidance that I became more aware of my career choice					
7.6	Our school spends time on career guidance at least once a week					

Q 8. What do you think motivates you when choosing a career?

Q 9. What do you suggest needs to be done to improve career guidance awareness at your school?

Q 10. What do you think is causing skill shortages in the industries?

Q 11. List five questions that you would like to ask any Facilities Manager?

Q 12. List five questions that you would like to ask any Facilities Management company?

ANNEXURE H: Language quality assurance Certification

Language Quality Assurance Practitioners

Mrs KA Goldstone

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11ᵗʰ May 2018

TO WHOM IT MAY CONCERN

We hereby certify that we have language edited the Master's treatise of Mr Tshilidzi Nephawe entitled: FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS IN THE SOUTPANSBERG WEST CIRCUIT IN THE LIMPOPO PROVINCE.

We are satisfied that, provided the changes we have made are effected to the text, the language is of an acceptable standard, fit for publication.

Kate Goldstone

BA (Rhodes)

SATI No: 1000166

UPE Language Practitioner (1975-2004)

NMMU Language Practitioner (2005)

Patrick Goldstone

BSc (Stell)

DEd (UPE)

Language Quality Assurance – Certification Statement

ANNEXURE I: Statistician Certification

Fulufhelo Mavhungu

Statistician

Cell: 073 971 7803

Fulufhelo.mavhungu@live.co.za

19 June 2018

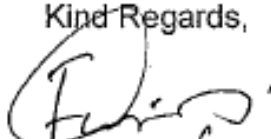**Faculty:** Faculty of Engineering, the Built Environment and Information Technology

University: Nelson Mandela University

To whom it may concern

DECLARATION BY STATISTICIAN

I, Fulufhelo Mavhungu certify that the statistical calculations for the master's treatise of Mr Tshilidzi Nephawe entitled: FACILITIES MANAGEMENT AWARENESS AMONGST HIGH SCHOOL LEARNERS AND TEACHERS IN THE SOUTPANSBERG WEST CIRCUIT IN THE LIMPOPO PROVINCE are correct.

Kind Regards,

Fulufhelo Mavhungu