

**ATTITUDES OF MEDICAL LABORATORY EMPLOYEES
TOWARDS THEIR WORK ENVIRONMENT.**

IRENE NOKULUNGA KOLOSA

**B.Ed (UNISA) BSc, HDE (UNITRA)
Nat.Dip. in Medical Technology
(Peninsula Technikon)**

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SUPERVISOR: PROF. P.T. SIBAYA

CO-SUPERVISOR: PROF. S.D. EDWARDS

12 March, 2004

DECLARATION

I hereby declare that the work on: " Attitudes of medical laboratory employees towards their work environment" is my own work both in conception and in execution and that all the sources that I have used or quoted had been indicated and acknowledged by means of complete reference.

Signature:

Date: 20/02/03



I.N. Kolosa

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In appreciation of the loving care and sacrifices to make me what I am today, I dedicate this work to:

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ABSTRACT

This study investigated the attitudes of the medical laboratory employees (MLE's) towards their work environment. The study determined from the employees whether variables of gender, age, qualifications and years of experience had influence on the attitudes of the MLE's towards their work environment.

The sample was drawn from the State Pathology Laboratory in Umtata, Eastern Cape (under the O.R.Tambo District Council). It consisted of males and females with ages ranging from 20 to 64 years, qualifications ranging from standard 10 to B.Tech. Biomedical Technology and above, years of experience ranging from 1 year to 30 years.

A structured questionnaire constructed according to a five-point scale, the Likert scale, was used to collect data from the subjects. The statistical technique used to test the hypotheses was the Chi-square. The results showed that the majority of MLE's held negative attitudes towards their work environment. The two sections of response categories reflected a weak relationship between the variables of, gender, age, level of qualification and experience in the attitudes of the MLE's towards their work environment.

Although not overwhelmingly demonstrated, there was a presumptive evidence that the work environment had an impact on the attitudes of the MLE's. There was an urgent need for improvement of certain service conditions in the medical laboratory to change the attitudes of the MLE's. Lack of fulfillment and inspiration could make the MLE's lose interest and abandon the profession as was confirmed by the informal interviews.

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CHAPTER 1

INTRODUCTION

1.1 Motivation for the study to be undertaken

In South Africa medical technology is regarded as one of the most important fields of study in the field of health sciences. As both practice and area of scientific study medical technology has evolved over the years. In practice medical technology deals with clinical laboratory testing and processing of specimens and analysis of results. This study focused on discovery, developing, and improving scientific methods of testing the specimens. In addition to this, this study dealt with the study of chemicals that were utilized to conduct these tests.

The medical laboratories, especially those in the former Homelands, had to rely on centralized handouts and were constrained by budgetary limits. These together with the external locus of control and learned helplessness were some of the attitudes that characterize employees in this field. The government laid emphasis on the duties of health service providers such as medical laboratories but left behind the responsibilities of the state to provide resources. There was also lack of awareness on the part of the public on their responsibility to use the services appropriately.

The medical laboratories in South Africa were under the National Health Laboratory Services (NHLS). This was a body that controlled the medical laboratories and employees involved in the field. This change and its impact were inevitable. The researcher had been in the field since 1981 and had noticed some changes in the profession. What was happening in the medical laboratories was the decline in numbers of employees over the years and this had drawn the researcher's attention. This could be associated with the attitude towards the work environment. This was a matter of concern for, if attitudes were positive, and if the employees enjoyed medical technology they would opt to stay. The researcher had noticed frustration and demoralization in the medical laboratory employees. There was a general feeling of insecurity and uncertainty about the future amongst the employees. *Could the decline be associated with gender, age, educational qualification or experience in the workplace?* This could also be associated with the work environment itself.

According to official records from the Human Resources there were 196 medical technologists enrolled in the Eastern Cape at the time of the investigation. These Medical Laboratory Employees (MLE's) were distributed in about 30 medical laboratories of which there were about 10 in the O.R.Tambo District Council and the State Pathology Laboratory was one of them (see page 78 for the map). At time of the investigation, the State Pathology Laboratory experienced a loss of more than 50% professional staff without replacement (from the Deputy Director's records). These MLE's either abandoned the profession or looked for jobs in other laboratories and a few had died.

In the light of the above the researcher had interest in the subject of the attitudes of the MLE's towards their work environment. It was also clear that essential elements which characterized the medical laboratory (the environment) were integrated to improve the conditions in the laboratory. These elements included the following:

- a) Technical support (resources, financial management and administration); and personnel (human resource development-training, relationships with management and conditions of service).
- b) Safety standards and security.
- c) Structural arrangements and procedures (including information flow and formal relationships).
- d) The nature of relationships, if any, between the attitudes of the MLE's and gender, age, qualifications and experience.

Marty, (1977:673) cited in the American journal of Medical Technology conducted a survey on attitudes towards two motivating factors. This study made it clear that the medical laboratory employees had different views in making contributions to the development of the profession.

Love, (1977:1135) cited in the American Journal of Medical Technology in his study concluded that medical technologists preferred a supportive, well-structured environment that provided an opportunity for them, through participation. This was in order to maintain a degree of control over their work setting.

Another study undertaken by (Yassie & Miller, 1990:231) suggested that age, type of shift worked and experiences were associated with physical and psychological manifestations or stress. Main components of stress differed related to work overload, feelings of uncertainty in the face of new technology, lack of direction from the Supervisors, and lack of influence from Management.

Handy, (1976:51-55) suggested it was easier to change behaviour than it was to change the attitudes. He also warned that changing someone's behaviour did not mean the individual's attitude would change too. It is, therefore, important for organizations such as the laboratories to foster positive attitudes, of encouraging employees to feel a sense of belonging and developing the "feel good" factor at work.

Organ and Hammer, (1982: 131-4) suggested that the relationship between job attitudes and employee behaviour concern affects of general state of mood. They also suggested that it was better to change both the attitudes and the situation in alternating and overlapping stages.

1.2 STATEMENT OF THE PROBLEM

The rapid departure of professional medical laboratory employees from their profession could be attributed to low morale and negative impact of the changes that had taken place in the health care services. Their attitudes were also a significant impediment to the

quality health service. These were some of the concerns that had prompted the researcher to undertake this study.

The unattended yet appalling circumstances, like the poor immunization program, under which the medical laboratory employees worked had also motivated the researcher to conduct a study of this nature to uncover the real facts behind the regrettable conditions.

This study was vital because it would highlight the problems encountered in the field of medical technology. The study would further shed light on the work environment in which the MLE's had to serve the public.

This study set out to examine the following research questions:

What are the factors that continually contribute to the departure of the medical laboratory employees from their profession?

Specific research questions which this study attempted to address were:

- 1) How does the work environment (and the elements comprising it) influence the attitudes of the MLE's?
- 2) Are there any relationships between the attitudes of the MLE's towards their work environment and gender, age, qualifications and experience?

1.3 Operational definition of terms or concepts

The study dealt with attitudes of medical laboratory employees towards their work environment. There were three concepts used in this study that need to be defined, namely: a) attitudes,

b) medical laboratory employees and

c) work environment.

a) Attitudes

The term **attitude** in this study will be used to refer to consistent patterns of thought, feelings and behaviour towards the work environment. This definition is based on Organ and Hammer (1982).

b) Medical Laboratory Employees (MLE's)

The term **medical laboratory employee (MLE)** will be used concurrently with the term **medical technologist/s, technicians and assistants**. The term will be used to refer to those who work in the medical laboratory and help in the observation and measurement of patient samples and their interpretation. This definition is derived from Marty (1979), Love (1977) and Government Gazette (July 1993).

c) Work environment

In this study the term **work environment** will mean the medical laboratory, in this case, the State Pathology Laboratory of the Umtata General Hospital, a medical laboratory which deals with samples of human and animal origin that are tested and analyzed for use

in health screening, diagnosis, management, prevention and prognosis. This definition is also derived from the sources cited in C above.

1.4 AIMS OF THE STUDY

The aim of the study was to explore the attitudes of the MLE's towards their work environment. Essentially, elements that characterize the environment could be viewed as specific objectives of the study:

1.4.1 To explore the attitudes of MLE's towards their work environment. Essentially, elements that characterize the environment could be viewed as specific objectives of the study.

1.4.2 To establish the nature of relationships, if any, between gender, age, qualification, and years of experience.

1.5 Hypotheses

Hypothesis 1:

Medical laboratory employees hold negative attitudes towards their work environment.

Hypothesis 2:

The following respondents' dimensions did not influence the attitudes of the MLE's towards their work environment:

- 4.1 Gender
- 4.2 Age
- 4.3 Qualification
- 4.4 Experience

1.6 Method of Investigation

The method of investigation is presented under the following headings:

- 1) literature review
- 2) research design
- 3) study sample
- 4) research instrument
- 5) method of scoring
- 6) method of analysis

1.6.1 Literature Review

A review of empirical research, reports, journal articles and literature concerning medical laboratory technology was done.

1.6.2 Research Design

The research followed a descriptive line of investigation (see chapter 3).

1.6.3 Study Sample

Employees of the State Pathology Laboratory in Umtata, O.R.Tambo region of the Eastern Cape constituted the study sample. An incidental method of sampling was used. The entire population was used excluding the employees who were used in the pilot study.

1.6.4 The research Instrument

The questionnaire was constructed. The instrument was scrutinized to ensure content validity to cover the essential elements of the environment. A pilot study was carried out before the final version was adopted.

1.6.5 Method of Scoring

The scoring procedure used in the questionnaire was a five-point scale. This will be discussed in detail in Chapter 3.

1.6.6 Method of Analysis

A wide range of statistical techniques was used. The average scores and frequencies were calculated with respect to the data collected with regards to the demographics (gender, age, qualifications and experience). The researcher made use of the Chi-square test since

this is the most frequently used non-parametric statistical test of significance. (Huysamen, 1980:89).

1.7 PLAN OF STUDY

The study is organized in five chapters presented below:

1.7.1 Chapter One

This is an introduction dealing mainly with the statement of the problem, operational definition of terms or concepts and the hypotheses.

1.7.2 Chapter Two

Chapter two presents literature review, various studies were consulted on the subject of attitudes in general and the studies on the topic done elsewhere.

1.7.3 Chapter Three

Chapter three deals with the research methods and procedures followed in choosing the sample, collecting and analyzing data and testing the hypotheses.

1.7.4 Chapter Four

This chapter presents results of the study and discusses the findings. The hypotheses formulated in chapter 1 will be tested in this chapter.

1.7.5 Chapter Five

This chapter deals with the discussion of findings.

1.7.6 Chapter Six

This chapter gives the summary of the study, limitations of the study, recommendations, avenues for future research, and the conclusion is drawn.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Naturally, the area of professional attitudes is enduring, there is a medical information overload that tends to affect the medical laboratory technology field. The purpose of this chapter is to review literature on the studies of attitudes of medical laboratory employees towards their work environment.

Organ and Hammer (1982:181) state that job attitudes can be defined as consistent patterns of thought, feelings, and behaviour towards some aspect of the job. Like attitudes in general, attitudes are described as having three components:

- 1) affective
- 2) cognitive and
- 3) behavioural

When the affect is positive it results into job satisfaction and when it is negative it results in job dissatisfaction. The cognitive component focuses on how the people think about the meaning of the work experience. The behavioural component or the tendency to promote action, indicates what people are likely to do, given what they think and feel about their jobs. For example *an action tendency to quit a dissatisfying job*.

Attitudes are one of the major individual variables that influence work behaviour. Ivancevich and Matteson (1996:126) define an attitude as a mental state of readiness learned and organized through experience, exerting a specific influence on a person's response to people, objects and situations with which it is related.

Since attitudes have been defined as positive and negative feelings towards objects, it would be interesting to know how this happens. Elms (1976:36) states that, "people come to hold positive attitudes towards anything that helps them attain their goals, and negative attitudes to anything that blocks goal attainment".

A positive behaviour and a positive attitude towards the job refers to the situation where the employee really enjoys his or her work, but when the employee feels that the salary is too low he or she develops a negative attitude towards work.

Shirvell (1995:6) states that the MLE's have a specific obligation to society to extensively evaluate their work practices for the sake of protecting the public. The effect of any change in the system of medical laboratories should be scrutinized carefully. This is to ensure that the standards of competence have not been compromised. There are uncertainties; the outcomes of the laboratory service restructuring that will define their shape based upon the requirements of clinical services assigned to facilities in the region.

2.2. Some of the Essential Elements Characterizing the Work Environment

The following are the some of the essential elements characterizing work environment:

2.2.1 Technical Support and Human Resources

This study focuses on the physical environment that the MLE's inhabit at work, how it influences their behaviour and the effect of changes in their working lives. Every physical environment places specific demands for survival on individuals and individuals will adapt in unique ways to different physical environments. South Africans display work behaviour that is different from others elsewhere in the world. In the Eastern Cape there are uncertainties regarding the outcomes of the laboratory services based on requirements of the clinical services assigned to facilities and the region.

Sundstrom and Sundstrom (1989:74) state that job satisfaction represents the individual's attitude towards the job. They further suggest that as an attitude, jobs satisfaction is a summary evaluative judgment that reflects the individual's past and present experience, including experience with the physical environment. They further hypothesize that the employee makes a judgment about the environment, weighs its importance in relation with other aspects of the job, and arrives at the evaluative judgment about the job. Consequently, an uncomfortable or harsh environment would lead to dissatisfaction and a comfortable or pleasing environment would make a job a whole more satisfying.

Milward-Oliver (1983:25) suggests that relationship with others affect the employees' attitudes. Therefore, these need to be looked after constantly. It is also suggested that environments, like people, have personalities and that how we perceive environments affects our behaviour, hence our attitudes. An effective transition from one management to another necessitates a comprehensive program of organizational change.

The need or pressure model suggests that behaviour is a function of personality needs and perceived environmental pressures. Attitudes are entirely learned like other human behaviours. Trying to change peoples' attitudes in order to change their behaviour is an integral part of the world of work. We unconsciously and constantly try to change our attitudes, both at work and we try to change other peoples' attitudes too.

(Statt, 1994:240).

Handy (1976:55) suggests that it is easier to change behaviour than it is to get them change their attitudes. He also warns that changing someone's behaviour does not necessarily mean the individual's attitude would change too. It is important for organizations like medical laboratories to foster positive attitude, of encouraging employees to feel a sense of belonging and developing the "feel good" factor at work. Sundstrom and Sundstrom (1989:83) further state the environment clearly represents an element of job satisfaction. Any change in the work environment is likely to attract employees' attention, at least for a while. A welcome change may lead to greater satisfaction with the environment. Change may create disruption until the employees adapt to the new conditions.

The study of attitudes is one's truly significant areas of human life, and resists compartmentalization of the person into cognition, affect motivation, and a divorce of the individual from his or her external environment. This study looks at the creation of a work environment which will stimulate positive professional attitudes in the MLE's. If the medical laboratories are to be successful in this new era, there must be understanding

and creation of work environments that reflect the interconnecting, often confusing needs of the advancing technologies, changing workforces with the new expectations as well as new work environment (Mezler, 1998:70).

The process of participation may provide sufficient exposure to information about the nature and consequences of change so that the feelings of insecurity and distorted rumours are laid to rest. To Organ and Hammer (1982:477) “change the situation” means a strategy of altering the technological environment or formal structure (for example, reward system, hierachial arrangements, reporting relationship) in order to change behaviour directly. The premise of this strategy is that attitude change is more likely to follow the wake of changed behaviour instead of preceding it. These authors further suggest that it is better to change both attitudes and the situation in alternating and overlapping phases. For example, one may start doing announcements that give rationale for the change, and the expected consequences before doing the basic work for structural change.

2.2.1.1 Developing Human and Social Resources

The literature surveyed showed that there is an interest in and concern for the importance of the effects of attitudes towards the work environment. Most researchers did not provide answers to their problems but were open for further enquiry. The environment and the vast amount of data to be processed are some of the forces that the medical laboratories in the region and their employees have to bear with. The MLEs need to hone their professional skills in line with the current changes.

The changes in the health care systems, including the medical laboratories and the education of health care professionals, have been driven by technological advances. Consistent with the World Health Organization Resolution WHA48.8 adopted in May 1995 the following should be considered:

The awareness that the MLE's can be of great importance in improving the relevance, quality and cost-effectiveness of health care delivery and the attainment of health for all. Current technologies in medical laboratories should be adopted in order to respond better to the health care needs of the clients using the existing resources (Hojat, Gonella, Veloski, & Erdmann (1996:110).

2.2.1.2 Professional Development

Kortlaz (1998:339) states that there is a growing demand for more health services, including laboratory testing and consequently a great demand of competent medical laboratory employees. This coupled with the introduction of the new complex methods of analysis, addition of different types of tests led to specialization in the medical laboratory disciplines. This further stimulated the training of laboratory assistants who are assigned to work under the supervision of qualified MLE's.

Another study by Yassie and Miller (1990:231) reveals that new changes in working conditions results in stress. This influences the behaviour of the MLE's.

There is a belief that the composition of the workforce is an important area to be looked at when investigating attitudes towards work. A diverse group of employees such as

many females, the youth, and older near retirees, has different concerns. It is further suggested that medical laboratories should be able to match the workload with the existing resources for the maintenance of the balance between the well-being of the laboratory and its employees. Response changes in the composition of the workforce include, flexible work schedules, new life styles and changes in the employee attitudes towards the work and time.

2.2.1.3 Motivation as a Contributing Factor in Improving Attitudes Towards the work Environment

Probably, the greatest challenge facing the authority of medical laboratories today and in future is the improvement of working conditions and motivation of the employees. This includes “unfreezing” and utilization of their maximum potential. This depends on the leadership’s contribution to the creation of a motivating environment in the manager’s or supervisor’s department or section. This entails their knowledge, skills and abilities. Nowadays, Managers’ attitude to focus on planning, directing and controlling subordinates are over. They have to motivate them to enhance commitment to their profession (Coetsee 1996:84).

Other theories including expectancy theory, equity theory and goal setting theory are regarded as much more valid explanations of work motivation than older theories. Job characteristic theory states that the characteristics of the job and the environment in which one has to perform are the keys to motivation of the employees. In the researcher’s opinion the increased motivation results in employees developing positive attitudes

towards their work environment. According to Smyth (1996:48) there is a sense of disorientation and unease while the new order becomes established. Furthermore, care work, like medical laboratory work is notoriously stressful even without imposed change. Hertzberg's motivation-hygiene theory is based on the assumption that negative attitudes towards the work environment leading to avoidance of work and satisfaction leading to commitment to work do not represent the end-point of a single continuum.

Steers and Porter (1991:36) state that organizational theories have endorsed the prescription that a happy worker is a productive worker. Fun affects work quality and the psyche. Fun fulfills needs of mastery, control and human social needs. The fundamental changes in the organizational structure should be scrutinized to reinforce positive attitudes of the employees so that the organizational objectives are attained. According to Mwamwenda (1990:56) managers can be motivating by maintaining a positive attitude towards themselves, their colleagues and their profession. Above all managers' personal characteristics can serve as a source of motivation. These include flexibility, impartiality, efficiency, kindness, patience, solicitude and constituency.

Marty (1977:673) cited in the American Journal of Medical Technology did a survey on the attitudes of two motivating factors. The study revealed that personnel of varying educational levels felt significantly different about making suggestions concerning the laboratory.

2.3 Safety Standards and Security

Safety and security will be presented under the following headings:

1) safety

2) security

2.3.1 Safety Standards

The main focus of attention in managing the running of a clinical laboratory is the management of the workflow process in the laboratory. The main elements of this workflow process are:

- collection and delivery of samples or specimens;
 - sample receiving and entry into the system;
 - test performance and quality assurance; and
 - recording and reporting of results.
- Collet and Furnham (1995:180) maintain that all individuals seek an optimal level of stimulation and will engage in efforts to increase or reduce the environmental stimulation in order to attain this level. The adaptation level theory has important implications for understanding the impact of environmental variables on attitudes. They further argue that the most obvious impact of environmental variables on individuals involves their influence on current moods or affective states. Omokhodion (1998:203) in his study on health and safety in clinical laboratory practice in Ibadan, Nigeria states that there is a need for education programs to increase the awareness in safety in the work environment. The challenge that faces the State Pathology Laboratory is to promote safety work practices among the MLE's in severe financial constraints. The Health and Safety at Work Act 1974 (HASAWA) specifies a range of duties which employers like the National

Health Laboratory services (NHLS) have to comply with. These include the following:

- responsibility for safety in the organization;
- equipment;
- material (handling, storage and transportation);
- the workplace; and
- training and information (Government Gazette of South Africa 1993:68).

According to Smyth (1996:136) the workplace regulations that were implemented in stages between 1993 and January 1996 are concerned with the complete work environment and include: space; ventilation; lighting; temperature; provision of toilets and washing facilities; drinking water; changing rooms and rest facilities and fire precaution. There is a risk of Human immune-deficiency Virus (HIV) infection among the laboratory employees. There is evidence that prolonged exposure to a concentrated virus is associated with some risk of HIV-1 infection, which is comparable to the risk of health care workers experiencing a needle prick exposure. It is suggested that strict bio-safety level 3 containment practices should be adhered to and refinement of procedures may be necessary (Weiss, Goedert, Gartner, Popovic & Waters 1988:69). As mentioned in Coulson (2000: 116) the key action areas for health promotion practices established by the National Policy include: promotion of safe environments for the people to live and work in, and to develop personal skills that are essential to equip every South African with information about epidemics such as cholera, malaria and typhoid fever. Human

Immune-deficiency Virus/ Auto Immune-deficiency Syndrome (HIV/AIDS), which is now a pandemic should also be included.

According to Grist and Emslie (1989:679) the highest rates of laboratory acquired infections related to medical laboratory scientific personnel in the department of microbiology are attributed to exposure to tuberculosis, *Salmonella typhimurium* and *Shigella flexineri*. In the researcher's opinion such exposures may lead to some employees developing negative attitudes towards their work environment.

A study that was undertaken by Campagna, Mergler, Picot, Sahuquillo, Belanger, Pleven Brun and Huel (1995:522) in France suggested that early intervention by health services before the development of irreversible effects and early neuro-physiologic alteration could be done through the detection of mood state impairment in chronic solvent exposed employees.

Sewell (1995:118) suggests that the strategies for the preventative management of laboratory associated infections are based on the containment of infectious agents by physical separation from the laboratory employee and the environment, employee education about occupational risks, availability and employee health program. Furthermore, bio-safety guidelines mandated and proposed by various governmental and accrediting agencies must be adhered to. This reduces the risk of occupational exposure to infectious agents handled in the workplace.

2.3.2 Security

Milward-Oliver (1983:25) states that hygiene factors that are contained in the environment include job-salary and security. According to Organ and Hammer (1982:309) the income, autonomy, intrinsic psychological rewards and social gratification are major determinants of job satisfaction. Working conditions, policies, supervisory treatment and perceived inequalities about salaries appear to be the major sources of active job dissatisfaction.

2.4 Structure and Procedures

The structures and procedures are based on aspects such as structural arrangements, formal communication, decision making and accountability. These aspects in turn are concerned with management styles; ensuring that the staff members (in this case, the MLE's) are well informed (this refers to transparency) and; responsibility for ones actions and dissemination of laboratory results.

Love (1977:1138) in his study of relationships between perceived organizational stratification, and individual satisfaction and adaptiveness in hospitals laboratories concluded that medical technologists prefer a supportive well structured environment that provides opportunities through participation, to maintain a degree of control over the work environment. Ogram (1995:8) argued that, "attitudes are shaped by perceptions of control: a technologist who feels able to shape or influence the work environment obviously has a greater investment in the system and in the outcome of the changes than

another who feels excluded from decision making". If the above is true then so called "participative approach" to decision making is not an option, but a necessity particularly for restructuring decisions.

2.3 The essence of the dynamic nature of technology

Mascara (1996:106) states that there is a constant change in the professional attitudes but this does not reach the pace of medical information and technological innovations. This calls for all those in health care including the MLE's, to strive for the cultivation of acceptable professional attitudes. It is also essential to assess and work to change the issues that affect gender attitudes in the male dominated world of work.

This study is a new area in the region and the concept of attitudes is complex and undefined. What proved to be the cure in other places may not prove likewise in our region due to culture and other factors.

2.4 Conclusion

The literature surveyed showed that there was an interest in and concern for the importance of the effects of attitudes of MLE's towards their work environment. Most researchers did not provide answers to their problems but were open for further enquiry. There was a clear indication that the MLE's in this area of Eastern Cape needed to hone their professional skills in line with the current changes.

There was also evidence that technological advances were the driving force behind the changes in the health care systems including the medical laboratories. The awareness that

MLEs can be of great importance in improving quality, relevance and cost-effectiveness of health care delivery could not be over emphasized. This was evidenced by studies such as the study done by Mascara, (1996:106). The present study is a new area in the region and the concept of attitude is complex and undefined. What is prescribed as a remedy in other places may not prove likewise in the area under study.

The next chapter will detail the research design and methodology of the study. Amongst the things that will be described in that chapter will be the attitude scale used in the investigation, how the information was collected, the selection of subjects, a plan for the organization and analysis of data.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals mainly with the research design, the sample, the instruments used, how the data was collected, and the statistical techniques employed. Thus, it will explain the rationale behind the methodology employed and how the research was conducted. The objective of the study was to explore the attitudes of the medical laboratory employees (MLE's) towards their work environment. It seeks to determine from the employees whether gender, age, qualifications and years of experience had influence on the attitudes on the MLE's towards their work environment. The researcher embarked on this study to throw light on the research problem. There were 50 items that were validated after the pilot study (see Appendix C).

3.2 Research Design

The researcher used a descriptive research design. In a descriptive research the researcher makes observations and description of the behaviour, the situation it occurs in, or the individuals exhibiting it. A descriptive study describes the population by reporting variables one at a time (Polansky, 1980:49-50). The pilot run was done as a for establishing validity and reliability. It is through this that the researcher knew that the instrument used was able to measure what it was supposed to measure.

3.3 Sampling

The study sample was drawn from the State Pathology Laboratory, in Umtata, O.R.Tambo region of the Eastern Cape. The Provinces in South Africa are perceived as different entities and each Province has its unique characteristic feature. For instance, Eastern Cape is rated as one of the poorest (in terms of resources) in the country (Statistics South Africa,2000).

The questionnaire was administered to twenty (20) MLE's who were randomly selected from the population in the medical laboratory. Randomization was done to avoid bias. The chosen sample consisted of fifteen (15) females and five (5) males. The MLE's who participated in the pilot run were not included in the final study.

Characteristics of the questionnaire which were considered in some detail were its readability, the adequacy of the instructions, the suitability of the format, the non-ambiguity of the items, the length of the questions and the ease of scoring the questionnaire.

Table 3.1: Distribution of subjects – Pilot Study (N=20)

| | | | |
|---------------------|------------|---|---------------------------------------|
| Gender | Males 5 | Females 15 | N/A |
| Age in years | 20-34 4 | 35-49 15 | 50-64 1 |
| Qualifications | Std10 3 | National Diploma in Medical Technology 13 | B.Tech. Biomedical Technology 4 |
| Experience in years | 1-10 2 | 11-20 17 | 21-30 1 |

3.4 Research Instruments and Procedures

These procedures are presented under the following headings:

- 1) research instruments
- 2) results of the pilot study
- 3) factor analysis of 50 items
- 4) procedures

3.4.1 Research Instruments

The measurement of attitudes more especially in the medical field is not a straightforward task. The researcher may decide on using the qualitative approach and alternatively use a quantitative instrument. If the quantitative approach is used the instrument must be reliable. This implies that, the researcher must minimize random error responses so that consistency is achieved. Validation of the instrument should also be taken into consideration. This means that the instrument must not be biased but must be the exact measure of what it is supposed to measure.

A list of elements of the work environment relevant to the medical laboratory employees' attitudes was compiled. The researcher made use of a study that was conducted in 1970 by A.M. Nzimande entitled, "A study of the attitudes of two groups of the Zulu tribe towards the Indian" to design the questionnaire for this study. The instrument was relevant for the descriptive studies since the independent variable could not be

manipulated, but the researcher was able to get the views of the subjects, what they thought and / or reported doing.

The supervisor scrutinized each and every item in the questionnaire and checked for relevance of the items and the suitability of the language used. Comments and recommendations by the supervisors were considered and utilized and included in the final version of the questionnaire. Thereafter, a pilot study was conducted to establish the validity of the instrument. The researcher was aware of the complexities and the limitations of using a questionnaire. Backed by relevant literature review, it has been found that the questionnaire was one of the most frequently used methods of data collection (Moloi, Grobler & Gravett, 2000; Hlatywayo, 1996; Ngcobo, 1998; Ndlovu, 1993). These limitations included problems such as lack of freedom of choice of answers provided. But, the questionnaire was the best means of obtaining relevant data. The questionnaire consisted of two sections A and B. Section A was to gather biographical data. There were no right and wrong answers to the statements.

Section B consisted of fifty (50) items, of which twenty-five were positively worded and twenty-five were negatively worded. These statements were intended to assess the MLE's attitudes towards their work environment.

In addition to this, a few interviews were conducted informally with the Managers in the medical laboratory. The researcher mostly used tea and lunch breaks in the staff room or the Manager's office. By doing this, the researcher aimed at exploring all the alternatives,

so that information related to attitudes could be picked up. All the interviews proved to be fruitful.

3.4.2 Results of the pilot study

One medical laboratory, the State Pathology Laboratory, in Umtata, Eastern Cape participated in the pilot study of the research instrument. The scoring was done manually. All questionnaires from the twenty MLE's were completed correctly. A total of forty-one items were retained after the process of item analysis. These items explored the following areas:

- a) Seventeen statements explored attitudes regarding technical and human resources: item numbers, 3, 6, 7, 9, 10, 14, 17, 20, 22, 23, 24, 25, 26, 29, 35 and 39.
- b) Ten statements explored attitudes regarding safety standards and security: item numbers, 1, 4, 8, 16, 18, 19, 21, 36, 40 and 41
- c) Eight statements explored attitudes regarding structural arrangements and procedures: items numbers, 2, 11, 12, 28, 32, 33, 34 and 37.
- d) Six statements explored attitudes with regards to other sources of dissatisfaction in the environment: item numbers, 5, 13, 27, 30, 31 and 38.

There were twenty-three positive statements and eighteen negative statements

3.4.2.1 Factor analysis for the 50 items.

A factor analysis was done to identify items, which belong to a particular factor and to label these factors.

Table 3.2 Verimax rotated factor pattern: Factor loading of the 50 items.

The **bold** typed indicate the highest loading on a factor.

| Item Number | Factor | Factor | Factor | Factor | Estimated Communality |
|-------------|-------------|-------------|-------------|-------------|-----------------------|
| | 1 | 2 | 3 | 4 | |
| 1 | .235 | .432 | .395 | .033 | .399 |
| 2. | .225 | .278 | .505 | -.047 | .385 |
| 3. | .420 | .393 | .122 | .273 | .420 |
| 4. | .009 | .361 | .195 | .033 | .169 |
| 5. | .025 | .046 | -.041 | .371 | .142 |
| 6. | .365 | .207 | -.131 | .162 | .219 |
| 7. | .639 | .026 | .293 | .137 | .514 |
| 8. | .404 | .468 | .113 | .452 | .599 |
| 9. | .490 | .118 | .228 | .239 | .363 |
| 10. | .583 | .223 | .229 | .332 | .553 |
| 11. | .237 | .197 | .430 | .007 | .281 |
| 12. | .190 | -.081 | .426 | .343 | .342 |
| 13. | -.003 | .392 | .205 | .585 | .539 |
| 14. | .601 | -.067 | .132 | .023 | .383 |
| 15. | .379 | .331 | .348 | .066 | .379 |
| 16. | -.012 | .541 | .114 | .184 | .340 |
| 17. | .631 | .117 | .210 | -.066 | .460 |

| | | | | | |
|-----|-------|------|------|------|------|
| 18. | -.052 | .576 | .104 | .110 | .357 |
|-----|-------|------|------|------|------|

Table 3.2 (continued)

| | | | | | |
|-----|-------|-------|-------|-------|------|
| 19. | .366 | .611 | .195 | -.082 | .552 |
| 20. | .734 | -.059 | .098 | .098 | .552 |
| 21. | -.070 | .637 | .446 | -.115 | .623 |
| 22. | .672 | .153 | .168 | .376 | .645 |
| 23. | .523 | -.135 | .360 | .238 | .478 |
| 24. | .661 | .427 | -.182 | -.162 | .679 |
| 25. | .580 | .061 | -.111 | .280 | .431 |
| 26. | .674 | .469 | -.018 | -.146 | .696 |
| 27. | .346 | .273 | .054 | .486 | .433 |
| 28. | .183 | .068 | .573 | .428 | .550 |
| 29. | .574 | .433 | -.091 | -.014 | .525 |
| 30. | -.172 | -.069 | -.036 | .476 | .262 |
| 31. | .125 | .235 | -.083 | .430 | .263 |
| 32. | .065 | .015 | .361 | -.285 | .216 |
| 33. | .127 | .138 | .580 | -.035 | .373 |
| 34. | .004 | .307 | .456 | .379 | .447 |
| 35. | .642 | -.118 | -.015 | .308 | .520 |
| 36. | .179 | .459 | -.120 | .343 | .374 |
| 37. | .101 | .292 | .509 | -.358 | .482 |

| | | | | | |
|------------------------------|-------|-------|-------|------|------|
| 38. | .306 | .000 | .032 | .518 | .364 |
| Table 3.2 (continued) | | | | | |
| 39. | .589 | -.147 | .180 | .018 | .401 |
| 40. | .205 | .476 | .088 | .099 | .286 |
| 41. | -.158 | .545 | -.051 | .095 | .333 |

Table 3.3 Validity indices

| Item | Validity index |
|-------------|-----------------------|
| 1. | .432 |
| 2. | .505 |
| 3. | .420 |
| 4. | .361 |
| 5. | .371 |
| 6. | .365 |
| 7. | .639 |
| 8. | .468 |
| 9. | .490 |
| 10. | .583 |
| 11. | .430 |
| 12. | .426 |
| 13. | .585 |

| Item | Validity indeces |
|------|------------------|
| 14. | .601 |
| 15. | .379 |
| 16. | .541 |
| 17. | .631 |
| 18. | .576 |
| 19. | .611 |
| 20. | .734 |
| 21. | .637 |
| 22. | .672 |
| 23. | .523 |
| 24. | .661 |
| 25. | .580 |
| 26. | .674 |
| 27. | .486 |
| 28. | .573 |
| 29. | .574 |
| 30. | .476 |
| 31. | .430 |
| 32. | .361 |
| 33. | .580 |
| 34. | .456 |
| 35. | .642 |

| | |
|------|------------------|
| 36. | .459 |
| Item | Validity indeces |
| 37. | .509 |
| 38. | .518 |
| 39. | .589 |
| 40. | .476 |
| 41. | .545 |

The goal of Verimax rotation is to make the factors as simple as possible by maximizing the variance of loadings across variables within factors. In this way, the loadings tended to become higher for those variables with high correlations with a factor and smaller for other variables. The Varimax rotation used in this study was probably the rotation of choice for most applications and is recommended as a default option for SPSS (Tabachnick & Fidell, 1983:401).

Table 3.2 for factor loading depicted correlation coefficients between factors and items. These coefficients represented factor loading of the items on the factor, that is, the degree to which an item was associated with a certain factor. In the table the first column contained item numbers. The second column contained loadings between 1, 2, 3, 4 and each item in turn. Each entry in the last column represented the estimated communality of an item.

Table 3.2 shows that items 3, 6, 7, 9, 10, 14, 15, 17, 20, 22, 23, 24, 25, 26, 29, 35 and 39.

had relatively highest loading on the first factor and relatively low loading on the second, third and fourth factor. Factor 1 which they measured could be labelled technical and human resources. Item numbers, 1, 4, 8, 16, 18, 19, 21, 36, 40 and 41 had relatively the highest loading on second factor and relatively low loading on the first factor. Factor 2 could be labelled safety standards and security.

Item numbers, 2, 11, 12, 28, 32, 33, 34 and 37 had relatively the highest loading on third factor and relatively low loading on the first, second and fourth factor. Factor 3 could be labelled structural arrangements and procedures.

Item numbers, 5, 13, 27, 30, 31 and 38 had relatively the highest loading on fourth factor and relatively low loading on the first, second and third factor. Factor 4 could be labelled environment.

Factor analysis had made it possible for the 50 items to group themselves into four factors. This illustrated that factor analysis had demonstrated that there are sets of items, which were homogenous and thus clustered closely around one factor.

Breakwell, Hammond and Fife-Schaw (1995: 375) recommend that the cut-off point for the selection of items to be included in the final scale be 0.35. For this study the researcher also decided to use the same cut-off point, that is, 0.35. Using this cut-off point, items 2, 7, 8, 9, 15, 16, 24, 31 and 42 were discarded. Their factor loadings were –

-.630 and .241 respectively. This means that out of fifty (50) items only nine (9) were discarded from the final scale. Therefore, the total number of items in the questionnaire for this study was forty-one (41). (See Appendix A).

3.4.3 Procedures

Permission to visit the State Pathology Laboratory was granted by the Deputy Director and the Management. A letter to both the Deputy Director and the Managers explained the purpose of the research's visit and requested them to render the necessary assistance to the researcher. The instrument was administered to all the respondents by the researcher in person. All the employees who participated in the research project did so voluntarily. The presence of the researcher made it possible for the respondents to ask questions when necessary in a relaxed atmosphere. Consequently both the researcher and the instrument were received without any skepticism and hostility. The respondents were assured of the strict confidentiality of the information collected. They were told not to write their names on the questionnaire for anonymity. The respondents were not allowed to discuss the questions with other members of the group. The researcher collected the completed questionnaires. All those selected responded to the questionnaire. The scores were coded computerized and analyzed. Data was analysed aim by aim.

3.5. Method of scoring

The respondents had to categorize the response made in relation to each statement, that is, the respondent had to indicate by means of a cross (X) whether she or he strongly agreed, agree, uncertain, disagree or strongly disagree with a given statement. The categories

were scored by arranging values 5, 4, 3, 2, and 1, respectively. This was reversed for the negatively worded statements. For each individual a total score was obtained by summing up all scores to different items. Therefore, a high total score indicates positive attitudes towards the work environment.

3.6 Data Analysis and Interpretation

The researcher was interested in the frequency responses that fell in different categories. For the distribution of the item scores the researcher used the frequency table. The relationship of gender, age, qualification and years of experience were investigated. The researcher made use of the statistical test (Chi squared) since this is the most frequently used non-parametric statistical test of significance (Huysamen, 1980:89). The chi-square test was used to check if the difference between the statistically expected and actual scores are caused by chance / accident / were they statistically significant- not caused by chance.

If the dependent variable was measured on a nominal scale, the obtained data consisted of frequencies, and the researcher had no alternative but to consider the appropriateness of Chi-square tests. The Chi square test permits hypotheses to be tested about the distribution of the individuals among a number of mutually exclusive categories. The basic assumptions underlying the chi square include the following: the chi square can only be used with frequency data; the individual events or observations must be independent of each other; no theoretical frequency should be smaller than five; there must be some basis for the way data are categorized. There should be some logical basis

in the categories, or the categories must be based on previous acceptable data and should be set up before data are collected. Using this test the researcher would then be able to compare the number of respondents that fell into each of the descriptive categories. This allowed simple classification of the problem.

Section B consisted of 41 items aimed at finding out what attitudes do the MLE's hold towards their environment. A Likert scale was used to guard against problems of communication and interpretation usually associated with interviews. The structured questionnaire was constructed according to a five-point scale, the Likert scale. This was done to quantify the attitudes of the respondents towards their work environment. The questionnaire had favourable and unfavourable statements and each respondent had to show his or her attitude towards each statement by choosing an answer from the five-point scale.

The scoring for positively worded statements was as follows:

| | | | | |
|----------------|-------|-----------|----------|-------------------|
| Strongly agree | Agree | Uncertain | Disagree | Strongly disagree |
| 5 | 4 | 3 | 2 | 1 |

For the negatively worded statements the scoring was reversed. The negative phrasing was done to reduce bias of the MLE's and to ensure some degree of reliability.

3.6 Conclusion

This chapter has presented the design and the methodology of the research. The nature of the study has highlighted that questionnaires on MLE's had to be developed. Two sections (section A and section B) constituted the instrument. The first section concentrated on the demographic aspects and the second one on the aims of the study. This exercise was performed with the aim of collecting data for the study. The next chapter focuses on the presentation and analysis of data.

CHAPTER 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

This chapter deals with presentation, analysis and interpretation of data. The statistical testing of hypotheses will also be dealt with.

4.2 The final study sample (see table 4.1, page 42)

The respondents for the study sample were drawn from the State Pathology Laboratory, in Umtata, O.R.Tambo region of the Eastern Cape. This laboratory was selected because of its accessibility to the researcher (Schumacher & McMillan, 1993:40).

Subsequent departures of MLE's after the pilot study forced the researcher to use the entire population excluding those employees who were used for the pilot run. The questionnaire was administered to 47 MLE's. The details regarding the administration of the questionnaire and the procedures employed were discussed in the previous chapter.

The sample consisted of males and females employed in the medical laboratory explained earlier. The sample was divided according to the variables of interest, namely; gender, age, qualifications and years of experience. The variable of educational qualifications ranged from standard 10 to Bachelor of Technology Biomedical Technology. The variable of age ranged between 20 and 64 years. The variable of years of experience

ranged from 1 year to 30 years. The method of scoring used in the pilot study was also used in the final study.

4.3 Presentation of data

The following table shows the distribution of the subjects in the final study sample:

Table 4.3 Distribution of the respondents in the final sample (N=47)

| | | | |
|---------------------|----------------------|---|---|
| Gender | Males 15 (31.9%) | Females 32 (68.1%) | N/A |
| Age in years | 20-34 10 (21.3%) | 35-49 32 (68.1%) | 50-64 5 (10.6%) |
| Qualification | Std 10 13 (27.7%) | National Diploma in Medical Technology 13 (27.7%) | B.Tech. Biomedical Technology 21(44.7%) |
| Experience in years | 1-10 15 (31.9%) | 11-20 21 (44.7%) | 21-30 11 (23.4%) |

The validity and reliability of the questionnaire was determined in Chapter 3. The following list indicates the results:

Number of cases = 47

| | Mean | Min | Max | Range | Max/Min | variance |
|------------------|--------|--------|--------|--------|---------|----------|
| Item means | 2.9685 | 1.7234 | 4.1064 | 2.3830 | 2.3827 | .2895 |
| Item | 1.5100 | .7077 | 3.7817 | 3.0740 | 5.3438 | .2316 |
| Variances | | | | | | |

Reliability coefficient of 50 items

Alpha = .8628

Standardized item alpha = .8681

4.4 Analysis of hypotheses

A total score of each individual was obtained by summing all scores to individual items.

There were forty-one items altogether. It was explained in chapter 3 that a high score indicated the positive attitude and that a low total score indicated a negative attitude, along the attitudinal continuum of favourability – unfavourability. A general mean score was obtained by adding the total score for the respondents and dividing the sum by the number of cases, that is, $\Sigma = 7211$ and $N = 47$

4.5 Reiteration of the hypotheses

The hypotheses to be tested are listed below:

Hypothesis I

The medical laboratory employees hold negative attitudes towards their work environment.

Hypothesis 2

“The following respondent’s dimensions do not influence the attitudes of the MLE’s towards their work environment.”

- a) gender
- b) age
- c) qualifications and
- d) years of experience

4.5.1 Hypothesis Number One

“The medical laboratory employees hold negative attitudes towards their work environment.”

4.5.2 Hypothesis Number Two

The following respondent’s dimensions did not influence the attitudes of the MLE’s towards their work environment:

- a) gender
- b) age
- c) qualifications and
- d) years of experience

4.5.3 Hypothesis Number One

“The medical laboratory employees hold negative attitudes towards their work environment.”

To test the hypotheses, Chi-square test applied to a single sample was be used since the data was categorical (see Spence, Cotton, Underwood & Duncan, 1992 page 297).

$$\chi^2 = \sum [(O-E)^2/E]$$

Where O = observed frequency

E = expected frequency

The general rule $df = \text{number of categories} - 1$ applied. The degree of freedom was determined by the number of deviations between the observed and expected frequencies that were independent; that is, were free to vary. The degree of freedom for any table that had at least 2 rows and 2 columns, and in which the marginal totals were used in determining the expected frequencies was denoted as follows: $df = (\text{number of columns} - 1)(\text{number of rows} - 1)$ Spence, et al, (1992) page302.

Let $\alpha = 0.05$

Table 4.4 The MLE's attitudes towards the work environment (N=47).

| Attitude | | | |
|----------|------------|----------|------------|
| Negative | Percentage | Positive | Percentage |
| 25 | 53% | 22 | 47% |

$\chi^2=0.19$ $df=1$ $p>0.05$

A Chi- square of 0.19 at $df=1$ is statistically not significant at 0.05 level. Since the calculated value 0.19 was less than the critical value 3.84 the decision was to retain the null hypothesis. This meant that the research hypothesis that the medical laboratory employees held negative attitudes towards their work environment was supported by the analysis. The observed difference was not due to chance factors. About 53% of the employees were negatively inclined to their work environment. The difference between a frequency of 25 and one of 22 was statistically not significant.

4.5.4 Hypotheses Two

“Gender, age, qualifications and years of experience do not influence the attitudes of the MLE’s towards their work environment”.

- (i) The researcher wanted to find out whether there was any association between gender of the respondents and their attitude towards their work environment. It was assumed that the two groups, that is, males and females, were drawn from a homogeneous population whose attitudinal tendencies towards their work environment were distributed according to the principles of a normal distribution curve. In this case a 2x2 contingency test using Chi-square was used (see Spence, et al, 1992 page302).

Table 4.5 Relationship between gender and attitudes towards the work Environment (N = 47)

| Gender | Attitude | | Totals |
|---------|----------|----------|--------|
| | Positive | Negative | |
| Males | 8 | 7 | 15 |
| Females | 13 | 19 | 32 |
| Totals | 21 | 26 | 47 |

$\chi^2=0.32$ $df=1$ $p>0.05$

$$\chi^2 = \frac{N [|ad-bc| - N/2]^2}{ABCD}$$

$$= \frac{47 [(8)(9) - (7)(13) - 47/2]^2}{(21)(26)(15)(32)}$$

$$\chi^2 = 0.32$$

The outcome of the analysis was $\chi^2_{0.05 (1)} = 0.32$ which was statistically not significant because it was less than the critical value 3.84. The null hypothesis was upheld. This suggested that there was no association between gender and the attitudes towards the work environment. Therefore, the research hypothesis that gender did not influence attitude towards work environment was supported. The alternative hypothesis (H1) was rejected.

Then the degree of association (if any) between the variable of gender could be tested by (see study guide, page 120):

$$C = \sqrt{\chi^2}$$

Divide by $N + \chi^2$

$$= \sqrt{0.32 / 47.32}$$

$$= 0.08$$

The obtained contingency coefficient was very low. This meant that the variable of gender of the respondents did influence their attitudes towards their work environment.

Interpretation

The hypothesis that gender did not influence attitudes of MLE's towards their work environment is confirmed. Researchers on the influence of gender on attitudes towards the work environment differ in their findings. Sometimes there is a positive relationship and sometimes no relationship is found. Therefore, no concrete evidence could be drawn on this issue.

(ii) The researcher wanted to determine whether the MLE's with different age groups held the same attitudes towards their work environment. The Chi-square test for independence, contingency table data was used as in Rees (1995, page 326-7).

Table 4.6 Relationship between age and attitudes towards the work Environment (N = 47)

| Age group in years | Attitude | | Totals |
|-----------------------|-----------|-----------|-----------|
| | Positive | Negative | |
| 20-34 | 2 | 7 | 9 |
| 35-49 | 17 | 15 | 32 |
| 50-64 | 2 | 4 | 6 |
| Totals | 21 | 26 | 47 |

$$\chi^2 = 3.60 \quad df = 2 \quad p > 0.05$$

A Chi-square of 3.60 at $df=2$ at 0.05 level means that the calculated test statistic was smaller than the tabulated value (5.99). The decision was to retain the null hypothesis and conclude that there was no association between age and the attitudes towards the work environment.

Then the degree of association (if any) between the variable of age could be tested by (see study guide, page 120):

$$C = \sqrt{\chi^2}$$

Divide by $N + \chi^2$

$$= \sqrt{3.6 / 50.60}$$

$$= 0.27$$

The obtained contingency coefficient was moderate. This meant that the variable of age of the respondents did influence their attitudes towards their work environment.

Interpretation

The hypothesis that age did not influence attitudes of MLE's towards their work environment was confirmed. This finding indicated that different age groups did not influence attitudes of MLE's differently. In other words, MLE's with varying ages had similar attitudes towards their work environment.

(iii) The researcher wanted to determine whether the MLE's with different qualifications held the same attitudes towards their work environment. The Chi-square test for independence, contingency table data was used as in Rees (1995, page 326-7).

Table 4.7 Relationship between qualification and attitudes towards the work Environment (N = 47)

| Qualification | Attitude | | Totals |
|--|-----------|-----------|-----------|
| | Positive | Negative | |
| Std 10 | 8 | 5 | 13 |
| National Diploma in Medical Technology | 8 | 8 | 10 |
| B.Tech. Biomedical Technology | 5 | 13 | 18 |
| Totals | 21 | 26 | 47 |

$\chi^2=3.52$ $df=2$ $p>0.05$

The outcome of the analysis was a Chi - square of 3.52 at $df=2$ at 0.05 level which was statistically not significant since the value 3.52 was less than the critical value 5.99. The research hypothesis that the level of qualification did not influence attitudes towards

work environment was upheld. The alternative hypothesis (H1) was rejected. This meant that there was no association between the level of qualification and the attitudes towards the work environment.

Then the degree of association (if any) between the variable of qualification could be tested by (see study guide, page 120).

$$C = \sqrt{\chi^2}$$

Divide by $N + \chi^2$

$$= \sqrt{3.52 / 50.52}$$

$$= 0.26$$

The obtained contingency coefficient was low. This meant that the variable of qualification of the respondents did not influence their attitudes towards their work environment.

Interpretation

The hypothesis that qualification did not influence attitudes of MLE's towards their work environment was confirmed. This finding indicated that different levels of qualification did not influence attitudes of MLE's differently. In other words, MLE's with varying qualifications have similar attitudes towards their work environment.

iv) The researcher wanted to determine whether the MLE's with different years of experience held the same attitudes towards their work environment. The Chi-square test for independence, contingency table data was used as in Rees (1995, page 326-7).

Table 4.8 Relationship between years of experience and attitudes towards the work environment (N = 47)

| Experience in years | Attitude | | Totals |
|------------------------|-----------|-----------|-----------|
| | Positive | Negative | |
| 1-10 | 4 | 11 | 15 |
| 11-20 | 12 | 10 | 22 |
| 21-30 | 5 | 5 | 10 |
| Totals | 21 | 26 | 47 |

$\chi^2 = 3.56$

df = 2

p > 0.05

The outcome of the analysis was a Chi square value of 3.56 at df=2 at 0.05 level of significance. This was statistically not significant since it was less than the critical value of 5.99. The decision was to retain the null hypothesis. This outcome suggested that there was no association between years of experience and attitudes towards work environment.

Then the degree of association (if any) between the variable of qualification could be tested by (see study guide, page 120):

$$C = \sqrt{\chi^2}$$

Divide by $N + \chi^2$

$= \sqrt{3.56 / 50.56}$

$= 0.26$

The obtained contingency coefficient was low. This meant that the variable of years of experience of the respondents did not influence their attitudes towards their work environment.

Interpretation

The hypothesis that experience did not influence attitudes of MLE's towards their work environment was confirmed. This finding indicated that different years of experience did not influence attitudes of MLE's differently. In other words, MLE's with varying years of experience had similar attitudes towards their work environment.

4.6 CONCLUSION

This chapter qualitatively described and quantitatively treated the same data relative to the research questions that were selected for this purpose. The results of the analysis of data showed that although all the factors in section B of the questionnaire were found to be closely associated with the work environment (the medical laboratory) effectiveness, the degree to which they were associated was not the same. This chapter has demonstrated that factors related to the environment serve as the source of all the problems encountered by the MLE's. The study revealed that dimensions such as gender,

age, level of qualification and experience had no influence on the attitudes of the MLE' towards their work environment.

The next chapter will be on the discussion of findings.

CHAPTER 5

DISCUSSION OF FINDINGS

The findings attempted to address the cause of the negative attitudes of the medical laboratory employees towards their work environment. It is interesting to find that though the majority of Medical Laboratory Employees (MLE's) held negative attitudes towards their work environment, no significant differences were found between those who were positively and those who were negatively inclined towards their work environment.

A number of issues emanate from this finding. Among them is the fact that MLE's are different or unique in their life experiences and the work environment may pose challenges that necessitate different responses more especially while the new order is in process.

These findings supported the previous findings by (Organ and Hammer, 1982: 309-11; Smyth, 1996: 258 and Sundstrom and Sundstrom, 1989:83). These authors suggested that working conditions; policies; supervisory treatment and perceived inequalities about pay appeared to be the major source of active job dissatisfaction. There was also a sense of disorientation and unease while the order was being established. The researcher was also of the notion that the environment clearly represented a component of job satisfaction. Change may lead to greater satisfaction or dissatisfaction with the environment and may create insecurity until the employees adapt to the conditions. There is concrete evidence that the aspects mentioned above have prompted the MLE's in the establishment under study to quit the profession or to join other medical laboratories elsewhere in the country

and abroad.

The findings of the present study revealed that gender did not influence the MLE's attitudes towards their work environment. This means that the attitudes of the MLE's towards their work environment were the same whether the MLE was male or female. These findings were in line with the study done by (Knave, 1994:78). This author argues that the workforce is a very important area to be looked at when investigating attitudes towards work and the environment since a diverse group such as the MLE's has different concerns.

The researcher argues that the current occupational exposure standards were not designed to protect males and females from reproductive toxic effects although there might be a few exceptions to this. The findings in the study were not in line with the results found by authors such as Ellenhorn and Barcerloux (1988:132-152). These authors suggested that a change in the nature of duties such as reduction in the heavy workload and the removal from the environment of toxic and carcinogenic solvents; flexibility in working hours and encouragement of rest breaks plus provision of relevant facilities were the main concern of both sexes of medical Laboratory Employees.

The current study revealed that there was no association between age and the attitudes of the MLE's towards their work environment. The findings seem to refute the results found by authors such as Yassie and Miller, (1990:231). These authors suggested that age was associated with physical and psychological manifestations or stress. Personal work

environment factors that influence attitudes of the employees included health, fatigue, work experience, drug and alcohol abuse, age and gender. In the researcher's opinion, age has influence on the attitudes of MLE's. This is evidenced by the departure of most of the young MLE's to other professional fields. Some of the older ones (interviewed informally) stated that they decided to quit because the future was bleak and could not realize their career path.

According to the findings of the study, the level of qualification did not influence the attitudes towards the work environment. This meant that there was no association between the level of qualification and the attitudes towards the work environment. The findings refuted the study done by Marty, (1977: 673) which revealed that personnel of varying levels of qualification felt significantly different about making suggestions concerning the laboratory. The study done by Kortlaz (1998: 339) highlighting the shortage of qualified personnel to counterbalance the broadening horizons of medical laboratory practice was also refuted by the findings in the study.

The study revealed that there was no association between years of experience at work and the attitudes of MLE's towards their work environment. The findings refuted the findings in the studies done by Yassie & Miller (1990: 231) and Handy, (1976:346). These authors suggested that the type of shift worked and experience were associated with physical and psychological manifestations. They maintain that these may lead to different degrees of stress, feelings of uncertainty in the face of new technology and, lack of direction and motivation from the Management.

In view of the findings in the present study there is an urgent need of enhancement of good laboratory practice at all times and, a general 'face lift' of the work environment.

The direct relationship between the work environment and retention of good employees must be appreciated.

Management should also consider regular meetings in all the departments or sections in the medical laboratory-at least one general meeting with the Managers and Directors per quarter; coordinated development through training courses in the medical laboratory. This should include all categories in the laboratory; regular workshops, seminars and journal meetings in all sections should be conducted to keep the MLE's updated. The researcher endorsed the notion that attitudes made a better workplace and reflected the surrounding community.

It had been discovered (through informal interviews with the respondents) that the medical laboratory was faced with problems of lack of direction, poor working conditions such as inadequate consumables or reagents and poor maintenance of the machinery in the laboratory. The researcher suggested that all those involved in health care, with the support of the government should try to improve such conditions and solve the problem. Medical laboratories in the underprivileged areas like the Eastern Cape should be given preferential treatment because it was the poorest of all Provinces.

Negative attitudes within the MLE's should be eradicated. This could be achieved through staff growth programmes and debates between the positively inclined and the

negatively inclined MLE's. This would give the opportunity to the MLE's to voice their opinions, argue about them and even change them.

Therefore, the researcher hoped that those in authority would appreciate suggestions concerning the improvement of attitudes of the MLE's towards their work environment. Communication and cooperation between the stakeholders would be enhanced. It was clear from the findings that there was an urgent need for the support from all the stakeholders. There should be explicit guidelines on how best to implement the new management to provide optimal care and a conducive work environment.

CHAPTER 6

SUMMARY OF THE STUDY, LIMITATIONS OF THE STUDY, RECOMMENDATIONS, AVENUES FOR FUTURE RESEARCH, AND CONCLUSION.

6.1 Introduction

This chapter concludes the study by presenting the summary, detailing recommendations, limitations and indicating avenues for future research.

6.2 Summary of the Study

The summary is presented under the following headings:

- 1) the problem.
- 2) aims of the study.
- 3) formulated hypothesis
- 4) methodology
- 5) major findings

6.2.1 The problem

The rapid departure of medical laboratory employees (MLE's) in one hospital (Umtata General Hospital) State Pathology Laboratory could be attributed to low morale and negative impact of the changes that had occurred in the health care services. Their attitudes were also a significant impediment to the quality health service. These were some of the concerns that

caused the researcher to undertake the study. The researcher intended to uncover the “real facts” behind the regrettable working conditions and to set a baseline data on the environment in which the MLE’s had to serve the public.

6.2.2 The aims of the study were:

- a) to explore the attitudes of MLE’s towards their work environment. Essentially, elements that characterized the environment could be viewed as specific objectives of the study.
- b) to establish the nature of relationships, if any, between gender, age, qualifications and years of experience.

6.2.3 The formulated hypotheses were as follows:

- a) Medical laboratory employees held negative attitudes towards their work environment.
- b) The following respondents’ dimensions did not influence the attitudes of the MLE’s towards their work environment:

- gender
- age
- qualifications
- years of experience

6.2.4 Methodology

The structure of the work consisted of chapter 1 with the motivation for the investigation in the field. Chapter 2 consisted of review of the work done in this area. Chapter 3 detailed the method of study used in the research. The measuring instrument was a questionnaire that was

constructed and standardized by the researcher. Chapter 4 contained the presentation, analysis of data and discussion of findings. In Chapter 5 the researcher dealt with the discussion of findings. Chapter 6 contained the summary of the study, recommendations, limitations and avenues for future research.

6.2.5 Major findings

In relation to aims number one and two discussed in the previous chapter, no significant differences between those MLE's who were positively and those who were negatively inclined to the work environment.

No relationship existed between gender, age, qualifications and years of experience and the attitudes of the MLE's towards their work environment.

6.3 Limitations

Few factors manifested as limits to this research project. Amongst these were the following:

- 1) financial constraints restricted the researcher so much that the research was limited to assessing the attitudes of a smaller sample than planned.
- 2) in defining the operational terms, the term attitude was defined in a number of ways by different authors. Thus, it was difficult for the researcher to choose which one defined the attribute best.
- 3) sample for the pilot and the final study tended to be biased. The researcher did not foresee that attrition would take place during the period of investigation.

- 4) although the researcher constructed a good instrument and established validity and reliability, the computed values were subject to change with a larger (more representative) sample than the one used in this study.
- 5) statistical approach used to study the attitudes could be supplemented with qualitative techniques so as to get the full picture of the attitudes since the sample used was smaller than planned.
- 6) the Chi-square test used in the study (in many occasions) was not chosen as a powerful test for analysis of data of this nature. The test merely indicated that the frequencies were not equally distributed among cells.
- 7) time and distance had some effect on the project since the researcher had to commute during tea breaks and lunch hours.
- 8) generalizing the results applicable to the entire O.R. Tambo district, let alone the Eastern Cape, raised serious doubts since the research ascertained views of only forty seven MLE's.
- 9) replication of the study using the same population might produce different results because one expression of attitude may not act with accordance with the other.
- 10) local literature on this topic was meager at its best.
- 11) limitations encountered did not in anyway diminish the high applicability of this study. The researcher's choice of the topic for the study and the variables employed lent themselves to measurement, analysis and meaningful interpretation.

6.4 Recommendations

On the basis of the outlined findings the recommendations below were made to improve the attitudes of MLE's towards their work environment:

6.4.1 Recommendations regarding aim number one

In view of the findings of the present study the following recommendations were made:

- 1) the researcher recommended that a national medical laboratory employee survey be conducted. This meant that the sample would be larger than the one used in this study. This would also facilitate the availability of funds from the government that would cater for all the expenses for the proposed study. The researcher would then redesign the method of study and restructure the instrument. It would then be easy to get transport facilities, train field workers, supervisors, research assistants and research analysts.
- 2) provisions should be made for basic facilitation infrastructure that characterizes the medical laboratory. (The researcher hoped that by the time this study was disseminated the medical laboratory might have relocated to new premises).
- 3) all the stakeholders should participate in decision-making through relatively regular meetings to ensure that all MLE's were on common ground in terms of understanding. This could also ensure that the technical and human resources were shared by all.
- 4) there should be extensive external support. Something has to be done to upgrade the medical laboratories in this region so that they could be at the same level as the others in the country.

- 5) negative attitudes had to be eradicated. A kind of intervention was necessary. A baseline study was recommended to check the availability of the essential elements of the medical laboratories. A special committee comprising of experts in the field in all disciplines including management should be set up.
- 6) the availability of essential resources should be monitored closely. These include consumables and the maintenance of the laboratory equipment. The mission statement should be accessibly displayed on the wall. Documents such as the charts for Workers' rights, Patients' rights, Code of Conduct should be accessible to all stakeholders. Other areas, including wearing of laboratory coats by MLE's, punctuality, presentativeness by the Managers as role models, are some of the ways of implementing of the mission in the laboratory.
- 7) the methods used for sending specimens to other medical laboratories for analysis should be revisited to avoid unnecessary delays that might, in many occasions, be detrimental to those cared for, that is, clients. Records on the demographics of the MLE's should be kept at hand for availability when needed.
- 8) communication should be proper. The top-down flow of information should be discouraged. A democratic ethos should reign among structures in the medical laboratory.
- 9) all stakeholders should be given a chance to voice out their fears or insecurities about their work environment.
- 10) all strategies employed for the improvement of the attitudes of MLE's towards their work environment should correspond with the identified problems. There should be feedback from the committee members to report on their observations relating to the environment.

11) these core elements (such as technical and human resources, etc) to the environment needed urgent attention. This might serve as a strategy to improve the attitudes of the MLE's towards their work environment.

6.4.2 Recommendations regarding aim two.

The following recommendations were made in relation to:

- 1) gender
- 2) age
- 3) qualification
- 4) years of experience
- 5) work environment

6.4.2.1 Recommendations in relation to gender

In relation to gender, the employer should by all means attempt to minimize the associated risks of physiological and biological hazards including reproductive health hazards. This could be done by proper handling of specimens received in the medical laboratory. There should be adequate ventilation and fume extraction facilities in appropriate locations to reduce pollution. It is also recommended that female employees work for lesser hours than males after hours since they are, traditionally, expected to take care of the household chores when off duty.

6.4.2.2 Recommendations in relation to age

In relation to age the employer should hone strategies in the attempt to recruit and retain the youth in the medical technology field. Ways to create enthusiasm, motivation and professional development should be established. It is essential that the young employees participate in decision making in the establishment. There should be proper orientation of MLE's so that they develop awareness in what is expected of them during their practice.

6.4.2.3 Recommendations in relation to qualifications

In relation to qualifications, there should be equal distribution of posts across the board, that is, from those with the lowest level of qualification to those with the highest level of qualification. Promotions should be based on an evaluation system. When doing appraisals Managers should consider, among other things, core qualifications. This could serve as a source of motivation and lead to positive attitude towards the work environment.

6.4.2.4 Recommendations in relation to years of experience

In relation to experience Managers should establish ways to use models like that of Beck and Legrys for professional development. This model should be referred to with the aim of supporting the medical technologists' development beyond the basic cognitive and technical levels. Managers could be trained on how to supervise employees on aspects such as: regular attendance and punctuality; use of computer techniques and laboratory equipment; handling of specimens and emphasis on safety guidelines; laboratory and health care management; control of routine and call duties; building self confidence and self esteem in MLE's; and introducing work policies and regulations to MLE's.

6.5 Avenues for future research

Surveying literature made it clear that there was an interest in and concern for the importance of the influence of the environment on the attitudes of the employees. Most researchers did not provide ready answers to the problem but were open for further enquiry.

In the region of Eastern Cape of South Africa no study had been conducted on medical technologists. The findings described in previous chapters of the study had highlighted some pertinent problems that warranted further investigation. For instance, two or more areas of concern could be chosen, and an in-depth study could be done on them. These included the factors that contributed to the development of negative attitudes towards the work environment; the impact of change in the management of medical laboratories in South Africa and research on those who had left the profession. So far there was not much known about these areas. An employee survey could assist the NHLS gauge employee satisfaction. It was believed that when the management indicate concern about the employees' job satisfaction and needed to build a stable work environment positive attitudes towards the work environment would improve.

6.6 Conclusion

The aim of this study was to ascertain through the use of a questionnaire, the attitudes of MLE's of the State Pathology Laboratory, in Umtata, towards their work environment. The findings revealed that the MLE's showed negative attitudes towards the work

environment. The results of the study were very important to all involved in health care. This included the National Health Laboratory Services, the Government, Managers and organisers or coordinators of in-service workshops for the MLE's should seriously consider a national medical laboratory employee survey.

Although not overwhelmingly demonstrated, there was presumptive evidence that the work environment had an impact on the attitude of the MLE's. The responses of the MLE's to the variables discussed in the previous chapter ranged from negative to uncertain or neutral which had been taken to mean negative attitude towards the work environment. It was concluded that the MLE's choose to work in a well-structured environment that would allow them to participate in decision making.

More than half of those studied showed a negative attitude. The study supported other studies done elsewhere, showing that there was a high level of job dissatisfaction among medical laboratory employees. The researcher also felt that it was important to invite participation in planning, designing and processes of carrying out change programs. This might provide sufficient exposure to information about the nature and consequences of the change so that anxiousness resulting from uncertainty was decreased or eliminated. Lack of fulfilment and inspiration could make the MLE's lose interest and abandon the profession as confirmed by some of those who were interviewed informally.

The changes in the medical laboratories were so immerse that the MLE's must start revisiting their commitment in the profession and devise means to adapt to the prevailing conditions. A plan to build up the authority of the office had to be found with the aim of

strengthening them to stand the transition turmoil. The National Laboratory Health Services and all those concerned must consider the cost of employee negative attitudes and the resulting dissatisfaction and strive to manage the medical laboratories with open minds to keep the goodwill of the remaining MLE's. It is hoped, therefore, that if these recommendations could be implemented there would be improvement in the attitudes of the MLE's towards their work environment and that services and management-employee relationships would also be improved.

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APPENDIX A: A letter to the Interim Business Manager

13 Merriman- Ndamase Place
Mbuqe Park Extension
UMTATA
5100
17 September 2001

Mr. M.M. Makanda
The Interim Business Manager
State pathology Laboratory
Private Bag x5014
UMTATA 5100

Dear Sir

Re: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am conducting a research on the **attitudes of medical laboratory employees towards their work environment**. I hereby request permission to give questionnaires to you, Sir, and employees under your control including:

Technicians, medical technologists (from junior to control), managers and supervisors.

Any information will be strictly confidential and no identification of the name of the employee will be given when the report is completed. I also would be grateful if I get your records on those who have left your establishment from 1994 to date.

Yours faithfully

I.N.Kolosa (Ms)

APPENDIX B: A letter to the Laboratory Manager

13 Merriman- Ndamase Place
Mbuqe Park Extension
UMTATA
5100
17 September 2001

Mr. M. R. Dikwayo
The Manager
State pathology Laboratory
Private Bag x5014
UMTATA 5100

Dear Sir

Re: REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am conducting a research on the **attitudes of medical laboratory employees towards their work environment**. I hereby request permission to give questionnaires to you, Sir, and employees under your control including:

Technicians, medical technologists (from junior to control), managers and supervisors.

Any information will be strictly confidential and no identification of the name of the employee will be given when the report is completed. I also would be grateful if I get your records on those who have left your establishment from 1994 to date.

Yours faithfully

I.N.Kolosa (Ms)

APPENDIX C

THE SCALE USED IN THE PILOT STUDY

A QUESTIONNAIRE ON ATTITUDES OF THE MEDICAL LABORATORY EMPLOYEES TOWARDS THEIR WORK

The questionnaire consists of **TWO** sections.

Section A deals with your views about your work environment, that is, the medical laboratory. Read each statement very carefully and pay special attention to the description of the scale points. Please respond to the statements by a cross (x) in the relevant block.

Section B deals with the biographical information. Do not write your name.

EXPLANATION OF SYMBOLS

| | |
|----|--|
| SA | Means you strongly agree with the statement |
| A | Means you agree with the statement |
| U | Means you are uncertain about the statement |
| D | Means you disagree with the statement |
| SD | Means you strongly disagree with the statement |

SECTION A

BIOGRAPHICAL INFORMATION

SEX: MALE FEMALE

AGE (in
years):

HOME LANGUAGE:

EDUCATIONAL QUALIFICATION:

OCCUPATION:

YEARS OF SERVICE IN THE STATE PATHOLOGY LABORATORY:

Please hand or send your completed questionnaire to:

I.N. Kolosa (Ms)
13 Merriman-Ndamase Place
Mbuqe Park Extension
UMTATA
5100

If you are willing to be contacted further please write your name and address.

SECTION B

For each statement, please make a cross (x) in the block of your choice on the five point scale according to your feelings about the response.

1. I sometimes think of leaving this job as a medical laboratory assistant/technologist/manager.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

2. I have no intention to resign from this job as a medical laboratory assistant/technologist/manager.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

3. I feel insecure about the future the way things happen in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

4. Laboratory safety precautions are observed in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

5. I do not feel safe working in this medical laboratory since there is no immunization programme.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

6. I have been inoculated against potential diseases that I might contract at the workplace.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

7. The managers in this medical laboratory create a work environment which encourages creativity among its employees.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

8. The medical laboratory environment exposes its employees to knowledge.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

9. I enjoy working in the medical laboratory because it has the most advanced technological equipment available in each subsection/department.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

10. There is thorough training of all the laboratory employees on the utilization of the equipment in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

11. The supervisors in our laboratory facilitate participative goal-setting session.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

12. There is no strict control on the handling of specimens in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

13. The work in this medical laboratory is not challenging.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

14. The work in this medical laboratory is challenging.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

15. There is a flexible work schedule in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

16. I support people who are always absent from this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

17. I am happy with every aspect of my work in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

18. I would not get married to a person working in a medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

19. One can not avoid infectious diseases in a medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

20. There is no in-service training in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

21. I am prepared to work in this medical laboratory until I reach my retirement age.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

22. The monetary incentives are given in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

23. The cooperation I get from the managers in this medical laboratory is marvelous.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

24. I feel I make a contribution towards a shared vision in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

25. I intend to quit as a result of job dissatisfaction from this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

26. I feel secured in the work environment of the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

27. Everyone in the establishment has sufficient opportunity to develop herself or himself.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

28. I would rather work in the gold mines than in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

29. There is a lot of motivation in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

30. The medical laboratory is the dirtiest place I have ever seen.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

31. There is insufficient encouragement for the employees in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

32. The managers of this medical laboratory create an environment in which the employees enjoy their work.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

33. There is no enhancement of job satisfaction in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

34. The employees are always well informed about the proceedings in the work environment in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

35. Lack of resources and advanced equipment in this medical laboratory makes our job burdensome.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

36. I would never encourage any of my children to work in a medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

37. Available opportunities are utilized to promote sound work ethics in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

38. Quality is never compromised in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

39. There are blockages that counteract the good quality of the work done in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

40. Employees are not allowed to make suggestions in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

41. I feel that the medical laboratory environment is burdensome to me.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

42. I wish to avoid the contagious medical laboratory environment.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

43. If I had an option I would not work in the medical laboratory environment.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

44. The employees in this medical laboratory undergo constant training and development.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

45. The poor working conditions in this medical laboratory lead to job dissatisfaction in the employees.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

46. The environment in this medical laboratory is not different from a mental institution.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

47. The morale of the employees in this medical laboratory is low.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

48. The young employees in this laboratory show enthusiasm towards their work.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

49. Some of the employees in this medical laboratory took early retirement because of ill-health.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

50. The illnesses of the employees in this medical laboratory are job related.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

APPENDIX D

THE SCALE USED IN THE FINAL STUDY

A QUESTIONNAIRE ON ATTITUDES OF THE MEDICAL LABORATORY EMPLOYEES TOWARDS THEIR WORK

The questionnaire consists of **TWO** sections.

Section A deals with your views about your work environment, that is, the medical laboratory. Read each statement very carefully and pay special attention to the description of the scale points. Please respond to the statements by a cross (x) in the relevant block.

Section B deals with the biographical information. Do not write your name.

EXPLANATION OF SYMBOLS

| | |
|----|--|
| SA | Means you strongly agree with the statement |
| A | Means you agree with the statement |
| U | Means you are uncertain about the statement |
| D | Means you disagree with the statement |
| SD | Means you strongly disagree with the statement |

SECTION A

BIOGRAPHICAL INFORMATION

SEX: MALE FEMALE

AGE (in years):

HOME LANGUAGE:

EDUCATIONAL QUALIFICATION:

OCCUPATION:

YEARS OF SERVICE IN THE STATE PATHOLOGY LABORATORY:

Please hand or send your completed questionnaire to:

I.N. Kolosa (Ms)
13 Merriman-Ndamase Place
Mbuqe Park Extension
UMTATA
5100

If you are willing to be contacted further please write your name and address.

SECTION B

For each statement, please make a cross (x) in the block of your choice on the five-point scale according to your feelings about the response.

1. I sometimes think of leaving this job as a medical laboratory assistant/technologist/manager.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

2. I feel insecure about the future the way things happen in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

3. Laboratory safety precautions are observed in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

4. I do not feel safe working in this medical laboratory since there is no immunization programme.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

5. I have been inoculated against potential diseases that I might contract at the workplace.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

6. There is thorough training of all the laboratory employees on the utilization of the equipment in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

7. The supervisors in our laboratory facilitate participative goal-setting sessions.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

8. There is no strict control on the handling of specimens in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

9. The work in this medical laboratory is not challenging.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

10. The work in this medical laboratory is challenging.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

11. I am happy with every aspect of my work in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

12. I would not get married to a person working in a medical laboratory

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

13. One can not avoid infectious diseases in a medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

14. There is no in-service training in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

15. I am prepared to work in this medical laboratory until I reach my retirement age.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

16. The monetary incentives are given in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

17. The cooperation I get from the managers in this medical laboratory is marvelous.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

18. I intend to quit as a result of job dissatisfaction from this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

19. I feel secured in the work environment of the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

20. Everyone in the establishment has sufficient opportunity to develop herself or himself.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

21. I would rather work in the gold mines than in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

22. There is a lot of motivation in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

23. The medical laboratory is the dirtiest place I have ever seen.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

24. The managers of this medical laboratory create an environment in which the employees enjoy their work.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

25. There is no enhancement of job satisfaction in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

26. The employees are always well informed about the proceedings in the work environment in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

27. Lack of resources and advanced equipment in this medical laboratory makes our job burdensome.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

28. I would never encourage any of my children to work in a medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

29. Available opportunities are utilized to promote sound work ethics in the medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

30. Quality is never compromised in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

31. There are blockages that counteract the good quality of the work done in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

32. Employees are not allowed to make suggestions in this medical laboratory.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

33. I feel that the medical laboratory environment is burdensome to me.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

34. I wish to avoid the contagious medical laboratory environment.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

35. If I had an option I would not work in the medical laboratory environment.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

36. The poor working conditions in this medical laboratory lead to job dissatisfaction in the employees.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

37. The environment in this medical laboratory is not different from a mental institution.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

38. The morale of the employees in this medical laboratory is low.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

39. The young employees in this laboratory show enthusiasm towards their work.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

40. Some of the employees in this medical laboratory took early retirement because of ill-health.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

41. The illnesses of the employees in this medical laboratory are job related.

| | | | | |
|----|---|---|---|----|
| SA | A | U | D | SD |
|----|---|---|---|----|

APPENDIX E: Particulars of the respondents

| Respondent Number | Gender 1=Male 2=Female | Age in yrs 1=20-34 2=35-49 3=50-64 | Educational qualification 1=standard 10 2=National diploma 3=B.Tech.Biomed. Tech. and above | Years of experience 1=1-10 yrs 2=11-20 yrs 3=21-30 yrs | Total score | A=Above average score B=Below average score |
|-------------------|------------------------------|---|--|---|-------------|--|
| 01 | 1 | 1 | 3 | 1 | 121 | B |
| 02 | 1 | 1 | 2 | 1 | 137 | B |
| 03 | 1 | 2 | 3 | 2 | 141 | B |
| 04 | 1 | 2 | 2 | 3 | 161 | A |
| 05 | 1 | 2 | 3 | 2 | 153 | A |
| 06 | 1 | 2 | 2 | 2 | 157 | A |
| 07 | 1 | 2 | 2 | 2 | 163 | A |
| 08 | 1 | 2 | 2 | 2 | 165 | A |
| 09 | 1 | 2 | 1 | 1 | 132 | B |
| 10 | 1 | 2 | 2 | 2 | 147 | B |
| 11 | 1 | 2 | 2 | 2 | 165 | A |
| 12 | 1 | 3 | 2 | 3 | 183 | A |
| 13 | 1 | 3 | 2 | 2 | 140 | B |
| 14 | 1 | 3 | 3 | 2 | 144 | B |
| 15 | 1 | 3 | 1 | 2 | 190 | A |
| 16 | 2 | 3 | 3 | 2 | 146 | B |
| 17 | 2 | 3 | 1 | 1 | 144 | B |
| 18 | 2 | 2 | 2 | 3 | 149 | B |
| 19 | 2 | 2 | 2 | 3 | 115 | B |
| 20 | 2 | 2 | 1 | 2 | 139 | B |
| 21 | 2 | 2 | 3 | 1 | 125 | B |
| 22 | 2 | 2 | 2 | 1 | 141 | B |
| 23 | 2 | 2 | 3 | 3 | 155 | A |
| 24 | 2 | 2 | 1 | 2 | 174 | A |
| 25 | 2 | 1 | 2 | 1 | 133 | B |
| 26 | 2 | 1 | 3 | 1 | 179 | A |
| 27 | 2 | 1 | 3 | 2 | 131 | B |
| 28 | 2 | 1 | 1 | 1 | 163 | A |
| 29 | 2 | 1 | 3 | 1 | 153 | A |
| 30 | 2 | 2 | 1 | 2 | 189 | A |
| 31 | 2 | 2 | 1 | 2 | 168 | A |
| 32 | 2 | 2 | 1 | 2 | 191 | A |
| 33 | 2 | 2 | 3 | 2 | 132 | B |
| 34 | 2 | 2 | 1 | 2 | 151 | B |
| 35 | 2 | 2 | 1 | 2 | 129 | B |
| 36 | 2 | 2 | 3 | 2 | 181 | A |
| 37 | 2 | 2 | 2 | 3 | 180 | A |

| | | | | | | |
|----|---|---|---|---------------|--------|------|
| 38 | 2 | 2 | 2 | 1 | 158 | A |
| 39 | 2 | 2 | 1 | 2 | 183 | A |
| 40 | 2 | 2 | 2 | 3 | 146 | B |
| 41 | 2 | 2 | 3 | 1 | 146 | B |
| 42 | 2 | 2 | 3 | 2 | 136 | B |
| 43 | 2 | 2 | 3 | 1 | 137 | B |
| 44 | 2 | 2 | 3 | 2 | 203 | A |
| 45 | 2 | 2 | 1 | 1 | 182 | A |
| 46 | 2 | 1 | 3 | 2 | 121 | B |
| 47 | 2 | 1 | 2 | 2 | 132 | B |
| | | | | Total score | 7211 | |
| | | | | Average score | 153,42 | A=22 |
| | | | | | 553 | B=25 |
| | | | | | | |

TABLES

Table 3.1 Distribution of respondents – pilot study (N=20).

Table 4.1. Distribution of respondents – final study (N=47).

Table 4.2 Whole sample attitudes towards work environment.

Table 4.3 Relationship between gender and attitudes towards work environment.

Table 4.4 Relationship between age and attitudes towards work environment.

Table 4.5 Relationship between qualifications and attitudes towards work environment.

Table 4.6 Relationship between years of experience and attitudes towards work environment.

Table 3.1 Distribution of respondents – Pilot Study (N=20)

| | | | |
|---------------------|------------|---|---------------------------------------|
| Gender | Males 5 | Females 15 | N/A |
| Age in years | 20-34 4 | 35-49 15 | 50-64 1 |
| Qualifications | Std10 3 | National Diploma in Medical Technology 13 | B.Tech. Biomedical Technology 4 |
| Experience in years | 1-10 2 | 11-20 17 | 21-30 1 |

Table 4.1 Distribution of the respondents in the final sample (N=47)

| | | | |
|---------------------|--------------|---|--|
| Gender | Males 15 | Females 32 | N/A |
| Age in years | 20-34 10 | 35-49 32 | 50-64 5 |
| Qualification | Std 10 13 | National Diploma in Medical Technology 13 | B.Tech. Biomedical Technology 21 |
| Experience in years | 1-10 15 | 11-20 21 | 21-30 11 |

Table 4.2 The whole sample attitudes towards the work environment (N=47).

| Attitude | | | |
|-----------------|-------------------|-----------------|-------------------|
| Negative | Percentage | Positive | Percentage |
| 25 | 53% | 22 | 47% |

$\chi^2 = 0.19$

df=1

$p > 0.05$

Table 4.3 Relationship between gender and attitudes towards the work environment (N=47).

| Attitude | | | |
|----------|----------|----------|--------|
| Gender | Positive | Negative | Totals |
| Males | 8 | 7 | 15 |
| Females | 13 | 19 | 32 |
| Totals | 21 | 26 | N=47 |

$\chi^2=0.32$

df=1

p>0.05

Table 4.4 Relationship between age and attitudes towards the work environment (N=47).

| Attitude | | | |
|-----------|----------|----------|--------|
| Age group | | | Totals |
| In years | Positive | Negative | |
| 20-34 | 2 | 7 | 9 |
| 35-49 | 17 | 15 | 32 |
| 50-64 | 2 | 4 | 6 |
| Totals | 21 | 26 | N=47 |

$\chi^2=3.60$

df=2

p>0.05

Table 4.5 Relationship between qualification and attitudes towards the work environment (N=47)

| Attitude | | | |
|---|----------|----------|--------|
| Qualification | Positive | Negative | Totals |
| Std 10 | 8 | 5 | 13 |
| National Diploma in Medical Technology | 8 | 8 | 10 |
| B.Tech. Biomedical Technology | 5 | 13 | 18 |
| Totals | 21 | 26 | N=47 |

$\chi^2=3.52$

df=2

p>0.05

Table 4.6 Relationship between years of experience and attitudes towards the work environment (N=47).

| Attitude | | | |
|---------------------|----------|----------|--------|
| Experience in years | Positive | Negative | Totals |
| 1-10 | 4 | 11 | 15 |
| 11-20 | 12 | 10 | 22 |
| 21-30 | 5 | 5 | 10 |
| Totals | 21 | 26 | N=47 |

$\chi^2 = 3.56$

df = 2

p > 0.05

FIGURES

Fig. 1 A model for professional development

Fig. 4.1 A graphical presentation of the whole sample attitudes and the work environment.

Fig. 4.2 A graphical presentation of the relationship between gender and attitudes towards the work environment.

Fig. 4.3 A graphical presentation of the relationship between age and attitudes towards the work environment.

Fig. 4.4 A graphical presentation of the relationship between level of qualification and attitudes towards the work environment.

Fig. 4.5 A graphical presentation of the relationship between years of experience and attitudes towards the work environment.

Figure 1

6. **Independent Learning:**
Enables professionals to keep
abreast of new developments
in the field of medical
technology.



5. **Socialization:**
Internalization of professional
identity.



4. **Psychosocial:**
Interpersonal skills.



3. **Attitudinal:**
Attitudes, values, ethics.



2. **Technical:**
Physical, manipulative skills.



1. **Cognitive:**
Information base, reason, ability.

From: Clinical Laboratory Education, Susan J. Beck and Vickie A. LaGry, 1988.

Figure 4.1 A graphical presentation of the whole sample attitudes towards the environment (N=47).

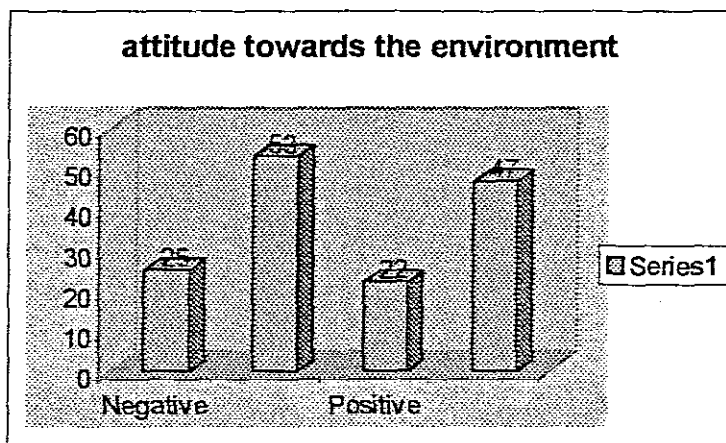


Figure 4.2 A graphical presentation of the relationship between gender and attitudes towards the work environment (N=47).

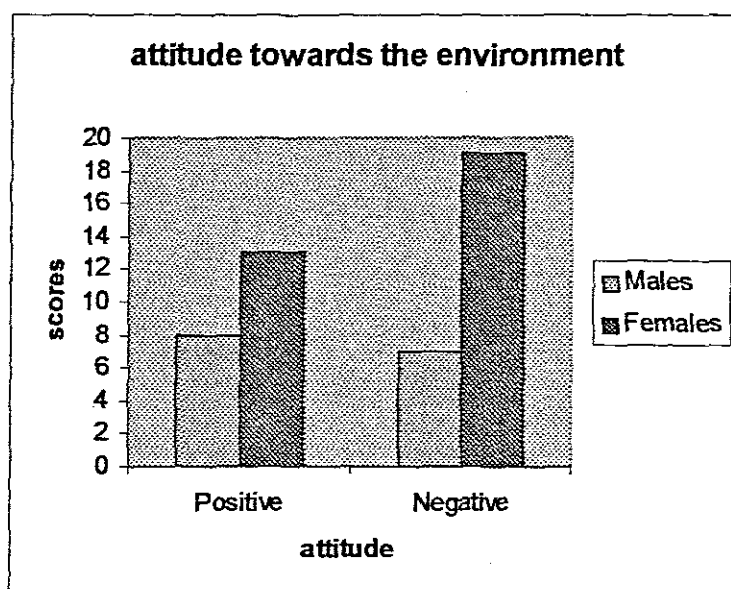


Figure 4.3 A graphical presentation of the relationship between age and attitudes towards the work environment. (N=47)

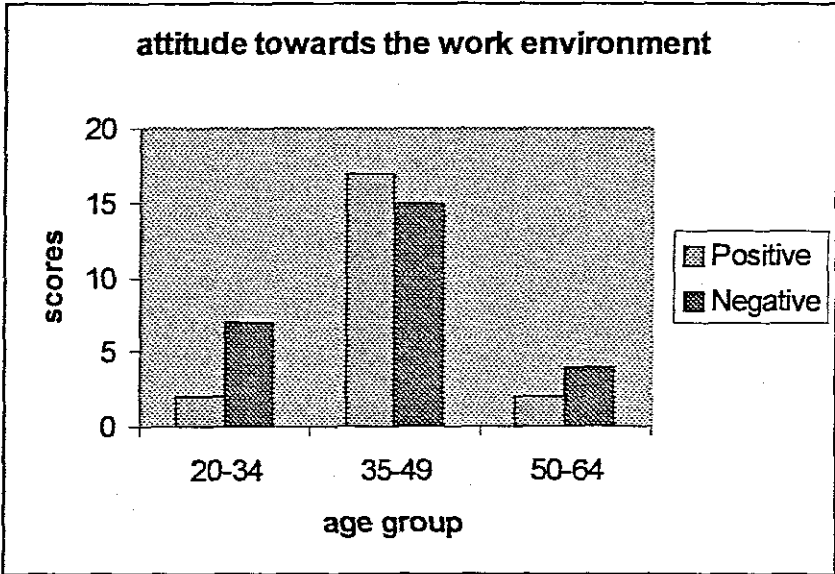


Figure 4.4 A graphical presentation of the relationship between qualifications and attitudes towards the work environment. (N=47)

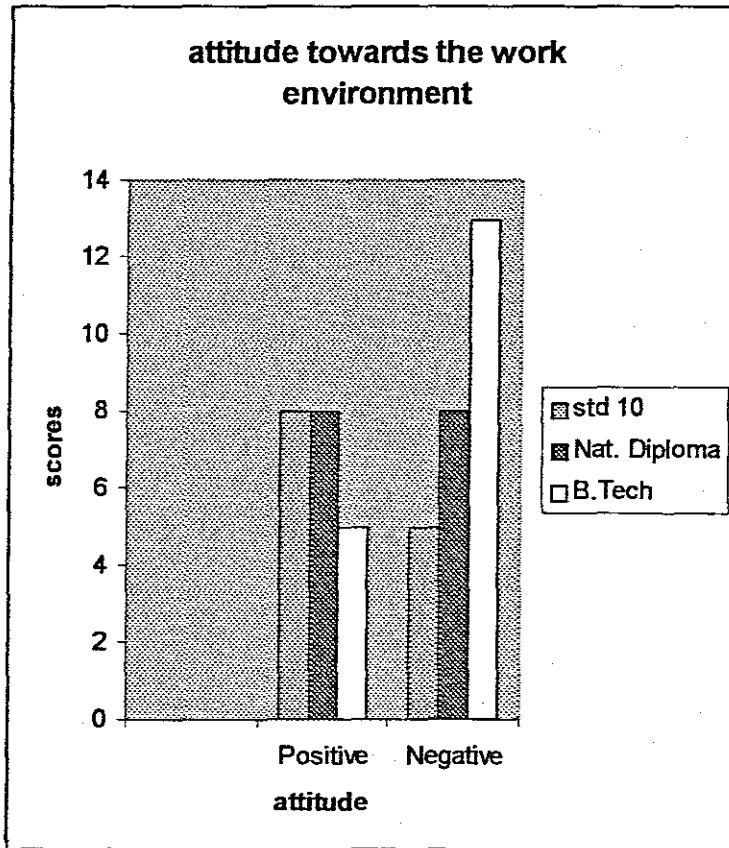


Figure 4.5 A graphical presentation of the relationship between experience and attitudes towards the work environment. (N=47)

