

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Social research has been concerned with gathering data that can help us answer questions about various aspects of society and thus can enable us to understand society.

Bailey (1994:4).

For this particular study, data is gathered about employee empowerment. This data will be utilised to develop a scale to measure employee empowerment and to develop a set of indicators which reflect levels of employee empowerment in a particular organisation.

The first chapter of this study provided an overview of the research to be conducted, while Chapter 2 presented a theoretical study and literature review on employee empowerment. The aim of this chapter is to explain and describe the research methodology that will be utilised in this study. The research methods used to develop a scale designed to measure employee empowerment will be discussed in depth. Indicator development methodology will also be explained in depth, as it is applicable to this particular study. The aim of this research is not to develop the methodology that would be used to construct a scale and indicators. The intention is to use already existing methodology in scale development and indicator development to design an employee empowerment scale and indicators which reflect employee empowerment.

This chapter will explain the research plan. This will include the research goal and objectives of this particular study. Scale development and indicator development methodology applicable to this study will be discussed in detail.

For purposes of clarification, the goal and objectives of this study are repeated here, as initially stated in Chapter 1.

3.2 GOAL AND OBJECTIVES OF THE STUDY

3.2.1 Goal

The goal of this study is to develop a system of indicators which reflects the levels of employee empowerment in an organisation.

3.2.2 Objectives

The objectives of the study can be listed as follows:

- To conduct a literature study on employee empowerment as a multi-dimensional concept within organisations with the aim of identifying the crucial components needed for an organisation to empower employees.
- To use scale development research methodology to develop a scale to measure an employee's empowerment level.
- To develop specific indicators which specify the minimum requirements which enable an organisation to empower its employees.

3.3 RESEARCH METHODOLOGY

A quantitative-qualitative research design will be followed in this study. This study started with a literature review on employee empowerment. The goal and objectives for this study are formalised on the basis of the findings of the literature review. The unit of analysis used is the employees at the factory, and the factory itself is also a unit of analysis. The employees are used as the unit of analysis when developing the scale, while the organisation forms the unit of analysis when developing the set of indicators.

The goal for this study is the application of research through the development of a scale and indicators that will have a practical application and can be used in

practice. The research objective is the development of knowledge. The knowledge gathered about employee empowerment in this study will be developed through the scale that will measure employee empowerment and through a set of indicators which reflect employee empowerment. Both these measurement tools may be utilised in practice on completion of this study. Therefore the research in this study may be viewed as developmental research.

A deductive approach is used in this study, starting with an overview of the literature and a theoretical overview about employee empowerment. This will be followed by an application of the theory to practice, in order to develop results that will benefit employees and organisations.

Faul (1995) has developed research methodology in scale development and scale validation. This study does not focus on scale development as such, but on developing a scale specifically for an organisation. It seems viable to use Faul's (1995) research methodology for this particular study, since it has been used and has been successful. According to Faul (1995:35), the research process of scale development has four phases: pre-development, development, validation and utilisation. Nine main moments are incorporated: identification of the problem, formulation of the theory, design of the scale, design of the validation study, collection of data, investigation of reliability, investigation of validity, establishment of clinical cutting scores and dissemination of information. These nine moments comprise 24 steps.

Roestenburg (1999) has developed research methodology in indicator development. Again, this study does not focus on indicator development but on identifying those indicators which enable an organisation to enhance the empowerment of employees. It seems viable to use Roestenburg's (1999) research methodology for this particular study as it was successfully implemented in his study.

According to Roestenburg (1999), the research process of indicator development has five stages: analysis of the information problem, structuring towards opera-

tionalisation of theory, indicator selection, measurement and interpretation. Each stage has its own main moments and operational elements that must be followed.

In order to follow these stages, research methodology on scale development as used in this study will be discussed, followed by a discussion of research methodology on indicator development.

3.4 SCALE DEVELOPMENT

Faul (1995) developed a research process for scale development. This process consists of phases, main moments and steps. This research process is schematically presented in Figure 3.1. Each of the phases, main moments and research steps will be explained as it relates to this particular study.

3.4.1 The Pre-development Phase

The main moments and research steps that form part of the pre-development phase are as follows:

3.4.1.1 Main Moment A: Problem identification

a. Step 1: Problem analysis

It is important to make a thorough problem analysis at this stage. It must be clearly stated why it is necessary to develop a new scale and what the problems with current scales are that justify the development of a new scale (Faul, 1995:40). Scales must be valid, reliable, short, and easy to administer and score, as well as easy to understand and interpret. Scales must not suffer from response decay when used repeatedly over a period. If a scale does not have these characteristics, it is a good reason to develop a new scale (Hudson, 1982). It can also be possible that there are no scales available to measure a specific area of interest (Faul, 1995:40).

PHASES	MAIN MOMENTS	STEPS		
PRE-DEVELOPMENT	A. PROBLEM IDENTIFICATION	1. Problem analysis		
		2. Aims of study		
	B. THEORY FORMULATION	3. Identify and describe the theoretical framework within which the scale is developed		
		4. Identify the operational assessment area(s) that will be measured by the scale		
		5. Define construct(s) to be measured		
DEVELOPMENT	C. DESIGN SCALE	6. Design items		
		7. 7.—Determine scale length		
		8. 8.—Scale the items		
		9. 9.—Develop a scoring formula		
		10. 10.—Write instructions for respondents		
		VALIDATION	D. DESIGN VALIDATION STUDY	11. 11.—Formulate research problem
				12. 12.—Select the sampling technique
				13. 13.—Determine the sample size
				14. 14.—Prepare the research package
				E. COLLECT DATA
F. INVESTIGATE RELIABILITY	16. 16.—Compute coefficient Alpha			
	17. 17.—Compute standard error of measurement			
G. INVESTIGATE VALIDITY	18. 18.—Judge face validity			
	19. 19.—Judge content validity			
	20. 20.—Assess criterion validity			
	21. 21.—Assess construct validity			
H. ESTABLISH CLINICAL CUTTING SCORES	22. 22.—Establish clinical cutting scores			
	UTILIZATION	I. DISSEMINATION OF INFORMATION		
23. 23.—Write a manual				
		24. 24.—Write a journal article		

Figure 3.1: Research Process of Scale Development

The researcher is of the opinion that employee empowerment is a multi-dimensional concept. A scale that can measure all these different dimensions can only benefit the employee and the employer. The scales mentioned in Chapter 2 (Figures 2.3, 2.4, 2.5 and 2.6) only looked at certain dimensions of employee empowerment. The “Learner Empowerment Instrument” is said to be a multi-dimensional scale, but only took Thomas and Velthouse’s (1990) four dimensions into consideration, and the other scales followed the same route.

According to the researcher there is a need to develop an employee empowerment scale that will measure all the different dimensions as discussed in Chapter 2. The new scale might have certain features that overlap other scales, but it will be able to measure the levels of employee empowerment.

b. Step 2: Aims of the study

In this phase it is important to describe the goals of the study, in other words, what kind of scale will be developed, what the scale will measure and what kinds of validation tests will be performed on the new scale (Faul, 1995:40).

According to Faul (1995), questions that must be answered in this step are:

- What is going to be measured?
- Will the scale measure only one construct, or will more than one uni-dimensional scale be developed to measure more than one construct and to be integrated into a multi-dimensional scale?
- What kinds of reliability and validity tests will be performed on the new scale to validate it for use in practice?
- What will the minimum psychometric standards of reliability and validity be that will satisfy the researcher?

- Although employee empowerment will be measured, what are the different dimensions of employee empowerment that will be used for this assessment? The different dimensions will obviously influence how employee empowerment is measured.

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- What kinds of reliability and validity tests will be performed on the new scale to validate it for use in practice?
- What will the minimum psychometric standards of reliability and validity be that will satisfy the researcher?
- Although employee empowerment will be measured, what are the different dimensions of employee empowerment that will be used for this assessment? The different dimensions will obviously influence how employee empowerment is measured.
- There will be more than one uni-dimensional scale that will be integrated into a multi-dimensional scale. Each dimension of employee empowerment will be a uni-dimensional scale that will finally be integrated into this one multi-dimensional scale.

- Scales are reliable to the extent that they are comprised of reliable items that share a common latent variable (De Vellis, 1991:41). Reliability is concerned not with what is being measured but how well it is being measured (De Vos, Strydom, Fouché & Delpont, 2002:168). The researcher must make sure that these scales are administered independently under the same conditions, and that the results will be the same.
- Not all the stages of validation will be followed in this study, only those that are directly applicable to the study. Reliability will be tested with a split-half reliability test and coefficient alpha. Validity will be tested in terms of face validity and content validity. Factor analysis as a method of content and construct validity will be utilised. The factor analysis applicable to this study is exploratory analysis.

The scale must be reliable and valid. Test-retest reliability and coefficient alpha can be used to estimate the reliability of a measuring instrument. There is no foolproof procedure to establish validity, and the validation methods used should depend on the situation. A validation strategy which combines quantitative and qualitative methods will ensure that there is no conflict between messages (Punch, 1998:101).

Reliability is the accuracy or precision of an instrument as the degree of consistency or agreement between two independently derived sets of scores and as the extent to which independent administrations of the same instrument yield the same (or similar) results under comparable conditions (De Vos, et al. 2002:168).

Validity has two parts: whether the instrument actually measures the concept in question, and whether the concept is measured accurately. The instrument must do what it is intended to do. Content validity, face validity, criteria validity and construct validity must be taken into consideration. With regard to content, it must be ensured that the concept intended to be measured is actually being measured, and that the instrument provides an adequate sample of items that represent that concept. Face validity is what the scale “appears” to measure. Criterion validity is the comparison of scores derived from an instrument with an external criterion

known to or believed to measure the concept. Construct validity is the degree to which an instrument successfully measures a theoretical construct (De Vos, et al. 2002:167).

For clarity, the terms *concept*, *construct* and *variable* are defined below:

- Concept expresses an abstraction formed by a generalisation from particulars. It is a category of perceptions or experiences.
- A construct is also a concept, but it has the added meaning of having been deliberately and consciously invented or adopted for a special scientific purpose.
- A variable is therefore a concept, or better still a characteristic, property or attribute of a concept, ~~that~~ concept that takes on different values. Numerals or values are assigned to variables (De Vos, et al. 2002:224).

3.4.1.2 Main Moment B: Theory formulation

a. Step 3: Identify and describe the theoretical framework within which the scale will be developed

It is very crucial to develop a scale within a specific theoretical framework. It is therefore necessary to identify the specific theoretical framework that will be used before the scale is developed (Faul, 1995:41).

As seen in Chapter 2, a literature study was undertaken and a theoretical framework for employee empowerment was presented. The researcher compiled a diagram (see Figure 3.2) illustrating the most important components of employee empowerment. This diagram will assist the researcher in the process of developing an initial questionnaire.

Within each dimension, the researcher placed the concepts describing that dimension. From these tables the initial large item pool was developed (see Step

6: Design items). Using this diagram, the researcher attempted to get an overall view of the theory covered in Chapter 2, in order to ensure that no important data would be omitted. Although the diagram is lengthy, it was the first draft without any condensed data.

b. Step 4: Identify the operational assessment area(s) that will be measured by the scale

This step mainly involves the identification of the specific assessment areas that are going to be measured. The theoretical framework in step 3 will lead the researcher to the identification of these areas (Faul, 1995:42).

c. Step 5: Define the construct(s) to be measured

The last step in the pre-development phase refers to the specific definition of the constructs that are going to be measured. It is important that the constructs must be defined in a clear, unambiguous way (Hudson, 1994). Rubin and Babbie (2005) distinguish three classes of things that scientists measure: The first class comprises **direct observables** – those things we can observe simply and directly, like the colour of an apple or the check mark made in the questionnaire. **Indirect observables** require relatively more subtle, complex or indirect observations, for example, the minutes of a meeting or indicators; finally, constructs are **theoretical creations** based on observations but which cannot be observed directly or indirectly, for example, intelligence. Theoretical creations are –constructed mathematically from observations of the answers given to a large number of questions on a test ... [A construct] cannot be observed directly, because it does not exist. It was made it up.

POWER	MORALE	INTRINSIC MOTIVATION	SELF-EFFICACY	MEANINGFULNESS	SELF-DETERMINATION	TRUST
<ul style="list-style-type: none"> - Responsibility - Sense of ownership - Satisfaction in accomplishment - Power over what and how things are - To give power - Capacity - Energise newer paradigm - Share power with subordinates - Granting of power - Delegation of authority - Decentralisation of decision-making - Intrinsic need for self-determination - Decisions within certain 	<ul style="list-style-type: none"> - Increase productivity through motivation - Build morale towards motivation - Communicate fully - Respond to problem immediately - Give praise and recognition - Set an example - Employees must get involved - Employees to rotate responsibilities - Develop a sense of confidence and competence - Encourage 	<ul style="list-style-type: none"> - Motivational process of an individual's experience of feeling enabled - Build ego - Listen actively - Focus on problem at hand - Reinforce position - Set firm goals - Reward performance - Adopt behaviour associated with others - Adopt values and beliefs of group - Source of motivation - Positive experiences from task produce 	<ul style="list-style-type: none"> - Belief in own ability to produce and regulate events in own life - Develop group consciousness - Sense of fate and in the collective basis of change - Reducing self-blame - Fewer destructive feelings - Sense of being capable - Can change difficult situations - Personal responsibility - Being enabled - Self-determination - No delegation 	<ul style="list-style-type: none"> - Believe in work - Care about what they do - Goals and objectives - Must have personal influence, self-efficacy and meaningfulness - Meaning creates a sense of purpose, passion, and mission - Source of energy and enthusiasm - Have meaning, become more innovative - Upwardly influential - Personally effective 	<ul style="list-style-type: none"> - Feelings of having a choice - Regulating one's own actions - Voluntarily and intentionally involved in task (not forced) - Actions are consequence of personal freedom and autonomy - Ownership of activities - Choice of method accomplishing a task - Feeling of ownership of task because can determine how its accomplished 	<ul style="list-style-type: none"> - Confident about being treated fairly - Assurance in low position; not taken advantage of - Trust implies position of vulnerability - Empowered individual; faith in no harm - Feeling that other's behaviour will be consistent, reliable and confident that promises will be kept - Training and support

<p>boundaries</p>	<p>workforce to take certain risks</p> <ul style="list-style-type: none"> - If workforce is encouraged, they will want to repeat behaviour for which they are praised - Involved in decisions - Participate in planning 	<p>motivational satisfaction</p> <ul style="list-style-type: none"> - Task assessment - Intrinsic task motivation - Satisfaction in person refers to task itself - Task is set of activities directed towards a purpose - Contribute to innovative behaviours - Believe in autonomy - Believe have an impact - Therefore creative and not strained - Environment must change and interpretation of it - Also associated with: <ul style="list-style-type: none"> • Satisfaction • Mental health 	<ul style="list-style-type: none"> - Feel able to perform work competently - Capable of performing activities with skill and success - Effort → desired level of performance - Performance produces desired outcome - Next time do better - Personal influence - Believe in "I can do" - Embrace risk - Think independently - Self-concept is positive 	<ul style="list-style-type: none"> - Sense of collective - Satisfaction in accomplishments 	<ul style="list-style-type: none"> - Choice is critical - Cope with high understanding 	
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		<ul style="list-style-type: none"> • Better performance • Greater conceptual learning • Higher self-esteem • Lower burn out 				
MEANING	COMPETENCE	SELF-DETERMINATION	IMPACT			
<ul style="list-style-type: none"> - Work goal in relation to individual - Own ideas and standards - Situated between work roles and beliefs, values, behaviour 	<ul style="list-style-type: none"> - Individual belief in own capability to perform activities with skill - Focussed on efficiency specific to work role 	<ul style="list-style-type: none"> - Mastering of behaviour - A sense of having a choice in initiating and regulating actions - Reflects autonomy in work place 	Degree to which individuals can influence strategic, administrative and operating outcomes			

Figure 3.2: Data on employee empowerment

Operationalisation is the process through which we specify precisely what we mean when we use a particular term. Everyone must understand the construct as it is defined. This definition will then guide the researcher in the design of the specific items for the scale that will measure the construct (Hudson, 1994).

The following constructs will be the main focus in this study: Power, Morale, Intrinsic Motivation, Self-efficacy, Meaningfulness, Self-determination and Trust. These constructs were identified in Chapter 2, as seen in Figure 2.1.

POWER	MORALE	INTRINSIC MOTIVATION	SELF-EFFICACY	MEANINGFULNESS	SELF-DETERMINATION	TRUST
<ul style="list-style-type: none"> -Responsibility -Sense of ownership -Satisfaction in accomplishment -Power over what and how things are -To give power -Capacity -Energise newer paradigm -Share power with subordinates -Granting of power -Delegation of authority -Decentralisation of decision-making -Intrinsic need for self-determination -Decisions within certain boundaries 	<ul style="list-style-type: none"> -Increase productivity through motivation -Build morale towards motivation -Communicate fully -Respond to problem immediately -Give praise and recognition -Set an example -Employees must get involved -Employees to rotate responsibilities -Develop a sense of confidence and competence -Encourage workforce to take certain risks -If workforce is encouraged, they will want 	<ul style="list-style-type: none"> -Motivational process of an individual's experience of feeling enabled -Build ego -Listen actively -Focus on problem at hand -Reinforce position -Set firm goals -Reward performance -Adopt behaviour associated with others -Adopt values and beliefs of group -Source of motivation -Positive experiences from task produce motivational satisfaction -Task assessment 	<ul style="list-style-type: none"> -Belief in own ability to produce and regulate events in own life -Develop group consciousness -Sense of fate and in the collective basis of change -Reducing self-blame -Fewer destructive feelings -Sense of being capable -Can change difficult situations -Personal responsibility -Being enabled -Self-determination -No delegation -Feel able to perform work competently 	<ul style="list-style-type: none"> -Believe in work -Care about what they do -Goals and objectives -Must have personal influence, self-efficacy and meaningfulness -Meaning creates a sense of purpose, passion, and mission -Source of energy and enthusiasm -Have meaning, become more innovative -Upwardly influential -Personally effective -Sense of collective -Satisfaction in accomplishments 	<ul style="list-style-type: none"> -Feelings of having a choice -Regulating one's own actions -Voluntarily and intentionally involved in task (not forced) -Actions are consequence of personal freedom and autonomy -Ownership of activities -Choice of method accomplishing a task -Feeling of ownership of task because can determine how its accomplished -Choice is critical -Cope with high understanding 	<ul style="list-style-type: none"> -Confident about being treated fairly -Assurance in low position; not taken advantage of -Trust implies position of vulnerability -Empowered individual; faith in no harm -Feeling that other's behaviour will be consistent, reliable and confident that promises will be kept -Training and support

	<p>to repeat behaviour for which they are praised</p> <ul style="list-style-type: none"> -Involved in decisions -Participate in planning 	<p>-Intrinsic task motivation</p> <ul style="list-style-type: none"> -Satisfaction in person refers to task itself -Task is set of activities directed towards a purpose -Contribute to innovative behaviours -Believe in autonomy -Believe have an impact -Therefore creative and not strained -Environment must change and interpretation of it -Also associated with: <ul style="list-style-type: none"> •Satisfaction •Mental health •Better performance •Greater conceptual learning 	<ul style="list-style-type: none"> -Capable of performing activities with skill and success -Effort → desired level of performance -Performance produces desired outcome -Next time do better -Personal influence -Believe in "I can do" -Embrace risk -Think independently -Self-concept is positive 			
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		<ul style="list-style-type: none"> •Higher self-esteem •Lower burn out 				
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MEANING	COMPETENCE	SELF-DETERMINATION	IMPACT
<ul style="list-style-type: none"> -Work goal in relation to individual -Own ideas and standards -Situated between work roles and beliefs, values, behaviour 	<ul style="list-style-type: none"> -Individual belief in own capability to perform activities with skill -Focussed on efficiency specific to work role 	<ul style="list-style-type: none"> -Mastering of behaviour -A sense of having a choice in initiating and regulating actions -Reflects autonomy in work place 	<ul style="list-style-type: none"> Degree to which individuals can influence strategic, administrative and operating outcomes

Figure 3.2: Data on employee empowerment

Operationalisation is the process through which we specify precisely what we mean when we use a particular term. Everyone must understand the construct as it is defined. This definition will then guide the researcher in the design of the specific items for the scale that will measure the construct (Hudson, 1994).

The following constructs will be the main focus in this study: Power, Morale Intrinsic Motivation, Self-efficacy, Meaningfulness, Self-determination and Trust. These constructs were identified in Chapter 2, as seen in Figure 2.1.

3.4.2 The Development Phase

The main moments and research steps that form part of the development phase are as follows:

3.4.2.1 Main Moment C: Design scale

a. Step 6: Design items

After the construct has been defined, the researcher moves to the development phase where the actual scale development will take place. This step consists of writing the items that will make up the completed assessment scale (Faul, 1995:45).

One of the most popular approaches that have been used frequently in the development of measurement tools is to ask one or more experts to each develop a number of scale items that presume to play a part in measuring the construct. All these items are then put together to create a large item pool. Once a large pool of items has been organised into a questionnaire, an item analysis is performed to eliminate poor items and to identify those items that must be retained. Factor analysis is often used at this stage to lift out the one dominant factor that is assumed to measure the construct. The final step is to create a revised, final version of the scale where only the best items remain on the scale. This method is normally referred to as the large item pool or LIP model of scale development (Faul, 1995:45).

A better alternative to the LIP approach to scale development is one that is based on a small item pool. With the small item pool model (SIP), a clear definition of the construct to be measured is essential before any items are generated. The aim of this method is to develop a uni-dimensional scale that must contain in its initial item pool not more than 20 percent of the desired number of items for the final version of the scale. With this method the scale developer must be very careful in the creation of the initial item pool, and each item is carefully tested for content validity against the definition of the construct. If an item does not conform to the definition of the construct, it is left out of the questionnaire before any data are collected (Faul, 1995:46).

In the writing up of the items, it is important to make sure that the items meet the following criteria:

- **The items must be clean and unambiguous**

Questionnaire items should be precise so that the respondent knows exactly what the researcher wants an answer to. Words should not mean different things to different individuals; this applies to vague words and particularly to slang terms, which may be known to certain groups but not to others. This can be a problem across different age levels, ethnic groups, and social classes, for example.

- **Use simple language**

The wording must be simple enough for the least educated respondent, while at the same time not insulting the intelligence of the respondent.

- **Avoid double-barrelled questions**

Whenever the word “and” appears in a question or questionnaire statement, the scale developer must be very sceptical about the item and try to establish whether two questions are being asked in one item.

- **Respondents must be competent to answer**

In asking respondents to provide information, the scale developer must ask himself/herself continually whether all respondents will be able to do so reliably.

- **The questions must be relevant to the respondents**

Every respondent must be able to give his/her opinion on each question.

- **Short items must be used**

The respondents should be able to read an item quickly, understand its intent, and provide an answer without difficulty. To be safe, the scale developer must assume that respondents will read items quickly and give quick answers; therefore clear, short items must be provided that will not be misinterpreted under these conditions.

- **Negative items must be avoided**

The appearance of a negation in a questionnaire item must be avoided, because it can lead to misinterpretation.

- **Biased items and terms must be avoided**

The meaning of someone's response to a question depends to a great extent on the wording of the question that is asked. Some questions seem to encourage particular responses more than other questions, and these must not be used (Rubin & Babbie, 2005).

For this particular study the large item pool (LIP) model of scale development is more applicable as employee empowerment and the specific dimensions will lead to a large item pool. From there, certain items can be eliminated and the remainder revised until there is a final version.

All the data in Figure 3.2 were considered. From this data the researcher developed the initial questions for the planned questionnaire. The researcher ensured that there were enough questions to cover each of the dimensions. The unrefined questions still needed to go through the process of scale development. These were considered the initial questions of the large item pool. These questions were refined and reduced by Statkon to make the study statistically viable. The fact that the respondents were illiterate and Zulu-speaking was also considered in the process of reducing the questions.

The Large Item Pool (LIP) for this study is illustrated below:

Large Item Pool (LIP)

Power

- I feel responsible for my work / outcomes.
- I feel the work done is mine.
- I feel satisfied when the job is done.
- I feel I have a say in how my work is done.
- I can share my knowledge with co-workers.
- I have new ideas.
- My ideas are used.
- I have a say in decisions being made about my work.
- I can make work-related decisions.
- I can make only certain decisions.
- I want to be involved in decisions made about my work.

Morale

- I work better when I feel motivated.
- When I am motivated I feel positive.
- I can talk to management.
- Management respond to my problems.
- I get praised for work done.
- I get recognition for work done.

- Management sets a good example.
- I feel workers must get involved in how the business is run.
- I must get the chance to have different responsibilities.
- I feel confident about my work.
- I feel competent about my work.
- Workers must be able to take certain risks.
- If I am encouraged about my work, I will want to work more.

Intrinsic motivation

- I feel enabled.
- I feel management listens to me.
- My problems are attended to.
- I know what my position is in the company.
- I know the company's goals.
- I get rewarded for work well done.
- I have the same values / beliefs / behaviours as my co-workers.
- I feel motivated when my co-workers feel the same way I do.
- I have good experiences at work.
- I like it if my work is assessed.
- I feel satisfied.
- I feel I contribute to innovative behaviour.
- I can do the work on my own.
- I make a change with the work I do.
- I am creative.
- I don't feel the company holds me back.
- My work environment stays the same / changes.
- I feel burned out.

Self-efficacy

- I feel I have control over events in my life.
- I have the same understanding of the company as my co-workers.
- I have no control over change.
- I don't blame myself.

- I don't have destructive feelings.
- I feel capable.
- I feel I can change difficult situations.
- I feel responsible for myself.
- I feel enabled.
- I have self-determination.
- I can do my work.
- I can work competently.
- I can perform my activities with skill / successfully.
- The effort I put in is the desired level the company wants.
- My performance produces the outcomes I want.
- If I am unsuccessful I try again.
- I have an influence on my work.
- I have an "I can do" attitude about my work.
- I will take risks at work.
- I can think on my own.
- I believe in myself.

Meaningfulness

- I believe in my work.
- I care about my work.
- I have goals / objectives in my work.
- My work has a purpose / passion / mission for me.
- My work gives me energy / enthusiasm.
- I am innovative in my work.
- I have an influence on higher levels.
- I am effective as a person.
- I get satisfaction in my accomplishments.

Self-determination

- I feel I have a choice in my work.
- I can regulate my own actions.
- I am not forced to work.

- I am volunteering to do my work.
- I am doing my work intentionally.
- I have autonomy in my work.
- I have personal freedom in my work.
- I take ownership for my activities.
- I have a choice in the methods I use.
- I have a choice in how I accomplish a task.
- I feel a sense of ownership in a task that I have done.
- I can determine how the task is accomplished.
- I can make choices when necessary.
- I can understand decisions made from top management.

Trust

- I believe I am treated fairly.
- Management won't take advantage of me.
- I am in a vulnerable position.
- I have faith that no harm will come to me.
- I feel other people's behaviour will be consistent / reliable.
- I am confident that promises will be kept.
- I get trained.
- I get support.

b. Step 7: Determine scale length

Generally shorter scales are good because they place less of a burden on respondents. Longer scales, on the other hand, are good because they tend to be more reliable (De Vellis, 1991:86).

The law of diminishing returns is applicable here: the gain in reliability is greater when one moves from 1 to 10 questions than when one moves from 11 to 20 questions, and even smaller when one moves from 21 to 30 questions.

It is clear that shorter scales are more valuable than longer scales. Shorter scales can be administered more frequently. The scale should not have more than 20 to 30 items.

The researcher held a focus group with seven management members of Allwear. An interview schedule with nine open-ended questions was used (see Appendix A). The researcher made field notes and an audio recording. The audio recording was transcribed. From the field notes and transcripts the researcher made an analysis schedule (see Appendices B, C and D). The results of the analysis schedule were used to develop more questions to include in the questionnaire. These questions were also refined and reduced with the assistance of Statkon.

c. Step 8: Scale the items

After a number of items have been designed, the next step is to scale the items. Scaling items has to do with the development of a specific rule for assigning values to them. The reason is to obtain an indication of the level or magnitude of the variable for a specific person. When values are assigned, a small value must indicate that the person has a low level or magnitude of the variable that is being measured and a large number must indicate that the person has a high level or magnitude of the variable (Hudson, 1982).

Different approaches can be used to assign values to scale items, like binary item scaling, magnitude estimation scaling or Likert scaling. Likert scaling consists of breaking up a continuum into a collection of equal intervals or categories. With this kind of scaling, a common problem in the social sciences, namely to assign values for a single item in such a way that the resulting item scale is a truly continuous variable, is overcome by portioning the score continuum into a small number of categories (Faul, 1995:51).

For this study the Likert format will be used. It is a straightforward method of scale construction and is widely used in instruments measuring opinions, beliefs and attitudes. A good Likert item should state the opinion, attitude, belief or other construct under study in clear terms (De Vellis, 1991:69). In the case of employee

empowerment, if the questions are stated in clear terms, it will then be the employee's beliefs and attitudes that are measured. Faces and not numbers can be used for illiterate respondents. The Likert scales application is therefore most appropriate for this study.

d. Step 9: Develop a scoring formula

Hudson (1982) suggests a universal scoring formula that can be used in the scoring of multi-item measurement tools. With this formula, the final score will always range from 0 to 100, and provision is made for respondents who did not complete all the questions. This formula replaces missing items with the mean item score. Total scores should not be computed unless 80% or more items have been completed. The development of such a simple scoring formula is important because a specific feature of econometrics is that the measurement tools must be easy to score (Hudson, 1987).

e. Step 10: Write instructions for respondents

One of the most common problems in constructing a scale reflects the mistaken assumption that people will know how to complete the instrument. If the respondents do not understand how to answer the items, serious errors may be introduced. To avoid this kind of error, every measurement tool should contain clear instructions and introductory comments where appropriate (Faul, 1995:56).

Hudson (1994) gives the following guidelines with regard to instructions for the respondent:

- Keep it simple.
- Explain what is being measured.
- Show a response key.
- Explain where to put responses.
- Explain that there are no right or wrong answers.

The researcher is of the opinion that the instructions must not only be simple, but be short as well. The respondent must not be discouraged by too many explanations. Stating that there are no wrong or right answers takes a lot of pressure away from the respondents. Asking them to give their honest opinion shows faith in them, and they will want to be honest in their responses in return. Giving an example is important to provide clarity and to show the respondent what is expected of him/her. Placing a number beside each question makes it easier for the respondent to answer the questions, and may make the questionnaire seem less threatening.

For this particular study the respondents will not complete the questionnaire themselves as most of them are illiterate and are only fluent in Zulu. Ten Zulu-speaking fieldworkers were asked to work with the respondents to complete the questionnaires. The fieldworkers were third- and fourth-year social work and psychology students. They received training from the researcher on how to complete the questionnaire. The questionnaire was translated into Zulu and then back again in English. This was to ensure that the meaning of the Zulu questionnaire was the same as the original (see Appendices E, F and G).

Expert reviews of items must be obtained. The inclusion of linguistic experts into the expert review of the instrument should be strongly recommended. Using scales across people who have different home languages presents significant problems. An obvious solution is to ensure that all scale materials are available in the home language of the respondents (Van Breda, 2004:34,343).

For a better understanding of how to answer the questionnaire, happy and sad faces were used to assist the respondents in answering the questions (see Appendix L).

3.4.3 Validation phase

The main moments and research steps that form part of the validation phase are detailed below.

3.4.3.1 Main Moment D: Design validation study

Once the instrument has been designed, a study must be made to investigate the reliability and validity of the scale (Faul, 1995:60).

According to Rubin and Babbie (2005), any research process consists of the following phases:

- Problem formulation
- Designing the study
- Data collection
- Data processing
- Data analysis
- Interpreting the findings
- Writing the research report.

Main moments D, E, F, G and H will cover all the above phases of the newly developed scale.

a. Step 11: Formulate research problem

With this step, it is important to identify the specific problem for which more knowledge is needed. A question, called the research question, is posed. When a study is designed, the arrangements will depend on the issues addressed in the research problem. The research problem will indicate how the study will be designed. Issues about sampling, sources and procedures for collecting data are decided with the research problem in mind (Rubin & Babbie,2005).

The aim of this study is only to investigate the reliability and validity of a specific measurement tool. Therefore the research questions are:

- “Is the newly developed scale reliable?”
- “Is the newly developed scale valid?”

Faul (1995:61).

The scale developed in this study will only be taken through early validation and not the full process.

Factor analysis and reliability analysis will be used as validity and reliability measures. After completion of the study, more in-depth validity and reliability measures can be undertaken.

The aim of this study is to develop a scale to measure an employee's empowerment level and to develop specific indicators which reflect the nature and structure of an organisation which empowers its employees.

Both of these instruments must be reliable and valid. Therefore the study must be designed, and the data collected and analysed, in such a way as to achieve reliability and validation.

b. Step 12: Select the sampling technique

As the concept of sampling is one of the most crucial to the research project, it is imperative that we understand it clearly. Sampling means taking any portion of a population or universe as representative of that population or universe. In other words, it is taking a portion of the population and considering it to be representative (De Vos, et al. 2002:198).

The size of the sample will also be influenced by the relative homogeneity or heterogeneity of the population and the desired degree of reliability for the purposes of the investigation (De Vos, et al. 2002:198). What is important is to obtain enough diversity and variability to permit examination of the reliability and validity of the newly developed measurement tool. Cronbach's coefficient Alpha that is used to test for reliability is based on inter-item correlations, and its value can be affected by homogeneity of subject responses to scale items. Therefore heterogeneity in the sample in terms of experiences in the construct being measured is very important so that estimates of reliability and validity will not be

artificially alternated by small standard deviations on inter-item correlations within the scale (Faul, 1995:62).

The population at Allwear is homogeneous. The majority of the ~~workforce~~ are workforce is illiterate, Zulu-speaking women. For this reason the study won't be able to make certain generalisations. However, recommendations will be made to repeat the study in a more heterogeneous factory.

The population for the development of the scale in this study is from Allwear. The sampling can be probability or non-probability sampling. Stratified random sampling is a type of sampling that is suitable for heterogeneous populations because inclusion of small subgroups percentage-wise can be ensured (De Vos, et al. 2002:205). With stratified random sampling, employees from different levels will be included in the sample and will be more representative of the population.

c. Step 13: Determine the sample size

The size of the sample will be influenced by the heterogeneity of the population, the desired degree of accuracy, the type of sample, the available resources and the number of variables in terms of which the data are grouped (De Vos, et al. 2002:199). Stoker (1989) gives some indication of what the size of a sample should be, depending on how big the population is.

For this study, the size of the sample was ± 300 respondents. The population at Allwear is 1 500 employees. The researcher received a list from Allwear indicating the different departments in the factory, with an indication of the number of employees in each department (see Appendix J). The researcher took a percentage of respondents from each department to ensure the respondents represent Allwear. All respondents in the factory were allocated a number (see Appendix K). Stokers' (1989) random number table was used to determine which respondents, according to their numbers in each department, would be the respondents for this study. The sample size was thus determined together with those respondents from the factory who would be asked to participate in the study.

d. Step 14: Prepare the research package

The first step is to design a covering letter that can be used to explain the purpose of the research and to introduce the research bodies who are conducting the research. The covering letter must be an integral part of the questionnaire and should comprise the first page of the questionnaire. The assurance should be given that responses are anonymous and will only be used for research purposes (De Vos, et al. 2002:175).

The second step is to design a background information sheet. The aim of this is to describe the sample. This information consists of questions regarding age, gender, education, marital status, income, etc. (Hudson, 1982).

This information is fundamental to the study. Within a big organisation, people are employed at different levels. Employee's empowerment levels might differ from department to department, or among bottom, middle and top management. Differences in age and marital status, as well as the distinction between permanent and non-permanent workers, can affect empowerment levels. It is crucial to know whether any one of these influences empowerment levels.

3.4.3.2 Main Moment E: Collect data

The design that was developed in the previous main moment must be implemented.

a. Step 15: Administer research package to sample

Once the research package has been prepared it is relatively easy to obtain a convenient sample to complete the scales. The sample must be heterogeneous.

Using different samples from different settings is therefore a good idea as it ensures that there is not too much homogeneity (Faul, 1995:64).

It was not easy to obtain a heterogeneous sample for this study because the population tended to be homogeneous. The researcher attempted to overcome this problem by ensuring that the respondents represented all the different levels and departments in the factory.

3.4.3.3 Main Moment F: Investigate reliability

A few important aspects with regard to reliability, namely a definition of reliability, reliability standards and the different kinds of reliability, are explained below.

a. Definition of reliability

Reliability has been defined as the accuracy or precision of an instrument; as the degree of consistency or agreement between two independently derived sets of scores; and as the extent to which independent administrations of the same instrument yields the same (or similar) results under comparable conditions. Synonyms for reliability are dependability, consistency, predictability, accuracy, reproducibility, repeatability and generalisability. Thus an instrument is reliable to the extent that independent administrations of it or of a comparable instrument consistently yield similar results (Hudson, 1981). Reliability is primarily concerned not with what is being measured but with how well it is being measured (De Vos, *et al.* 2002:168).

In this study, reliability is very important in the sense that independent administrations of the scale following its development must be consistent. It must be applied elsewhere in order to measure levels of employee empowerment with the same results. Following this study, companies must be able to use the scale to determine levels of empowerment as accurately as possible.

b. Reliability standards

Reliability estimates can range from 0.0 to 1.0, and it is important to know how high this estimate must be for the scale developer to claim that a reliable measurement tool has been developed. A satisfactory level of reliability depends on how a measure is used (Faul, 1995:66). For large scientific work, a reliability coefficient of .60 or greater is considered acceptable.

c. Kinds of reliability

There are basically three kinds of reliability measures commonly employed in standardising a new measurement device. These are referred to as test-retest measures, parallel form measures and internal consistency measures (Hudson, 1982).

For this study Cronbach's Alpha coefficient, Guttman split-half coefficient and Spearman Brown coefficient was used for reliability.

d. Step 16: Compute Alpha coefficient

Cronbach's Alpha coefficient has a number of highly desirable characteristics as summed up by Hudson (1994):

- The coefficient Alpha is easy to compute from the standard deviations for items and the standard deviation of the total score on a measurement scale.
- Alpha is the mean of all possible split-half reliability coefficients and can be used to estimate parallel test reliability.
- Alpha serves as a confirmation of unidimensionality when its values for a given instrument exceed .90.
- Cronbach's Alpha can be derived from the older Generalised Spearman Brown (GSB) formula.

Alpha coefficient equation:

$$\alpha = (k/k - 1) \left(1 - \frac{\sum s^2}{s_0^2} \right)$$

where k = number of items
 s^2 = variance of items
 s_0^2 = variance of total scores.

(De Vellis, 1991:26).

This step therefore involves using the equation and computing the Alpha coefficient on the data gathered.

e. Step 17: Compute standard error of measurement

Reliability coefficients based on correlations can be influenced by differences in the variance and standard deviation of a measurement scale that may occur between samples. Homogeneous samples can therefore affect the reliability coefficients by giving lower estimates of reliability, and can therefore be seen as one of the critical shortcomings of these coefficients. When the Alpha coefficient is studied closely, it is clear that a specific feature of this coefficient is that it is based on inter-item correlations through its derivation from the GSB formula. Its value can therefore be affected by homogeneity of subject responses to scale items (Hudson, 1982).

In order to counteract the above-mentioned problem with reliability coefficients, it is recommended that the standard error of measurement or SEM is also computed before final conclusions are made with regard to the reliability of a measurement tool. A great advantage of the SEM is that its value is not influenced by differences in the variance and standard deviation of a measurement tool from one sample of population to the next. The SEM is an estimate of the standard deviation of the errors of measurement and is computed according to the following formula (Hudson, 1982):

$$SEM = S_0 * \text{Sqrt}(1 - r_{tt})$$

where S_0 = standard deviation of the observed scores

r_{tt} = coefficient Alpha.

Faul (1995) warns against a premature conclusion that a new measurement tool is unreliable, judged on the basis of a low coefficient Alpha. It is important to always compute the values of coefficient Alpha and the SEM. If it turns out that the measurement tool has a very low Alpha and a very high SEM, it can be concluded that the instrument does not have good measurement error characteristics. If, on the other hand, it turns out that the measurement tool has a low Alpha but also a small SEM, it can be concluded that the instrument has good or at least acceptable measurement error characteristics. A low coefficient Alpha could have resulted from homogeneity in the item responses.

The method outlined above will not be used in this study.

3.4.3.4 Main Moment G: Investigate validity

The definition of validity, validity standards, different kinds of validity and the different steps taken to assess validity are discussed in this section.

a. Definition of validity

The definition of validity has two parts: firstly, that the instrument actually measures the concept in question, and secondly, that the concept is measured accurately. Obviously it is possible to have the first without the second, but not vice versa. That is, a concept cannot be measured accurately if some other concept is being measured instead. Validity refers broadly to the degree to which an instrument is doing what it is intended to do – and an instrument may have several purposes, which vary in number, kind and scope (De Vos, et al. 2002:166).

A measurement tool cannot be either valid or invalid. Like reliability, validity is seen as a matter of degree. Two measurement tools can both be valid in terms of the construct that is being measured, but one can be seen as a more valid tool

than the other because it does a better job than the other of measuring the construct in question (Faul, 1995:75).

Validity and reliability are related to each other. It is impossible to have validity without reliability, although it is possible to have reliability without validity. High reliability does not guarantee validity. Reliability can only show that something is being measured consistently, but that “something” may or may not be the variable that the measurement tool is trying to measure. On the other hand, if a measurement tool measures what it claims to measure, then, by definition, it must be reliable. Although a valid measure with low reliability is more useful than a measure with high reliability and low validity, it is important to make every effort to maximise both properties of any measurement tool (Rubin & Babbie, 2005).

b. Validity standards

Nurius and Hudson (1993) recommend that one may regard any measurement tool with a validity coefficient in excess of .60 as valid. A median of .50 can be used as a criterion for validity standards. A measurement tool with a validity coefficient higher than .50 can therefore be seen as among the best 50% of all scales in terms of its validity.

The different steps which should be followed to establish the different kinds of validity are outlined below.

c. Step 18: Judge face validity

Face validity is ultimately a matter of judgement and consists largely of the unsupported claim that a measurement tool seemingly does what it is supposed to do. Face validity is simply assessed by the scale developer studying the concept to be measured and determining, according to his or her best judgement, whether the instrument arrives at the concept adequately. If the item does not seem to be measuring any recognisable concept other than the one it is supposed to be measuring, the instrument can be said to have face validity (Bailey, 1994).

d. Step 19: Judge content validity

Content validity is concerned with the representativeness or sampling adequacy of the content of an instrument. To determine content validity we ask two questions: Is the instrument really measuring the concept we assume it to be measuring? Does the instrument provide an adequate sample of items that represent that concept? (De Vos, et al. 2002:167).

e. Step 20: Criterion validity

This involves multiple measurements and is established by comparing scores on an instrument with an external criterion known to or believed to measure the concept, trait or behaviour being studied. It is essential in this approach to validation that there be one or more external or independent criteria with which to compare the scores on an instrument. It should be apparent that the criterion used should itself be reasonably valid and reliable (De Vos, et al. 2002:167).

f. Step 21: Construct validity

Of the three major approaches to validation, construct validity is perhaps the most difficult because it involves determining the degree to which an instrument successfully measures a theoretical construct. The difficulty arises in part from the highly abstract nature of constructs. As a construct cannot be seen, felt or heard, and cannot be measured directly, its existence must be inferred from the evidence at hand. Alienation and its dimensions such as normlessness and powerlessness are typical examples of constructs (Hudson, 1981:112).

3.4.3.5 Main Moment H: Establish clinical cutting scores**a. Step 22: Establish clinical cutting scores**

In order to develop a useful cutting score, the assumption is made that a measurement tool will produce the same, or approximately the same, cutting score for a very large proportion of respondents (Faul, 1998:94).

The basic methodology for establishing the cutting scores for a newly developed measurement tool is similar to the method used to investigate concurrent known-groups validity.

This method will not be used in this study.

3.4.4 The utilisation phase

3.4.4.1 Main Moment I: Dissemination of information with regard to new scale

It is very important to distribute knowledge to academics, researchers and practitioners within the social work profession (Faul, 1995:98).

a. Step 23: Write a manual

With regard to scale development, a research report usually takes the form of a technical manual where the newly developed scale is described and the research findings reported. It is very important to provide information about at least the following in such a manual:

- The theoretical framework that was used to develop the scale.
- A formal definition of the construct that was measured.
- Information with regard to the administration of the scale.
- Information with regard to the scoring of the scale.
- Information with regard to the interpretation of the scale.
- Information with regard to the reliability of the scale.
- Information with regard to the validity of the scale.

(Faul, 1995:98).

b. Step 24: Write a journal article

Newly developed scales will never be used if practitioners are not informed about their existence. Therefore, apart from a technical manual, it is important to write a scientific article about the newly developed scale and to send it to a social work journal for publication. This is the most effective way of letting practitioners know about newly developed scales that can be used in practice (Faul, 1995:99).

3.5 INDICATOR DEVELOPMENT

Roestenburg (1999) developed a research process for indicator development. This process consists of five stages, sixteen main moments and operational elements. This research process is schematically presented in Figure 3.3. Each of the stages, main moments and operational elements will be explained as it relates to this study.

3.5.1 Stage 1: Analysis of an information problem

a. Identify need for an Indicator System

Underlying all systems is an identified need for a monitoring system to measure empowerment conditions. The identified need may be for an information system that is capable of supporting decision-making that measures the effects of programmes, provides information about empowerment goal areas or accommodates a wide range of information needs. Methodologically, it is thus of critical importance at the outset to know exactly what is required of an indicator system (Roestenburg, 1999:90).

In the case of this study, the indicator system must show what the organisation does or doesn't do to enhance employee empowerment. It must indicate the level of employee empowerment in an organisation. This level of employee empowerment will in turn denote whether the organisation is doing all the "right" things to enhance employee empowerment.

b. Describe view of empowerment

It is important to conceptualise employee empowerment, as in Chapter 2. Throughout the theoretical investigation, employee empowerment is seen as a multi-dimensional concept. An organisation needs to follow certain principles to enhance empowerment in an organisation.

STAGES	MAIN MOMENTS	OPERATIONAL ELEMENTS
<p>Stage 1: Analysis of the information problem</p>	<p>a) Identification of need b) A notion of empowerment c) Domain selection d) Goal-statement</p>	<ol style="list-style-type: none"> 1. Advance of pre-development stage 2. Formulate a description of empowerment. 3. Use empowerment as guideline for further development. 4. In absence of empowerment notion use pragmatic approach. 5. Determine main dimensions and sub-dimensions to be operationalised.
<p>Stage 2: Structuring towards operationalisation of theory</p>	<p>a) Structural decisions</p>	<ol style="list-style-type: none"> 1. Structure choice largely depends on choice of framework: <ul style="list-style-type: none"> ➤ Framework 1. Consensus approach ➤ Framework 2. Goal area based structure ➤ Framework 3. –Descriptive theoretical structure ➤ Framework 4. –Explanatory theoretical structure ➤ Framework 5. –Dimension operationalised structure

STAGES	MAIN MOMENTS	OPERATIONAL ELEMENTS
<p>Stage 3: Indicator selection</p>	<p>a) Key area selection b) Criteria for indicator selection c) Objective indicator selection d) Subjective indicator selection</p>	<ol style="list-style-type: none"> 1. Determine all key areas of the structure to be measured. 2. Use Koskiahho's six steps of indicator selection. 3. For subjective indicator selection, determine availability of data. 4. If no data exists, use five development stages by Moller, Schlemmer and Du Toit (1987) to derive a qualitative indicator measurement instrument. 5. Ensure that selected potential indicators comply with criteria for effective indicators.
<p>Stage 4: Measurement</p>	<p>a) Data source selection b) Select level of disaggregation c) Value weighting d) Selection of time-series intervals of measurement.</p>	<ol style="list-style-type: none"> 1. Decide on data collection methods to be used, used and also on which data is to be used. 2. Decide on levels of disaggregation of data required. 3. Perform measurements and analytical procedures. 4. Perform value-weighting procedures for data. 5. Decide on time-series measurement option for future research.
<p>Stage 5: Interpretation</p>	<p>a) Empirical interpretation b) Create reports c) Formulation of a system of indicators</p>	<ol style="list-style-type: none"> 1. Apply data analysis procedures to data. 2. Make interpretations. 3. Report results of analysis. 4. Compile a list of measured indicators.

Figure 3.3: Summary of the main design stages in indicator development

programmes, provides information about empowerment goal areas or accommodates a wide range of information needs. Methodologically, it is thus of critical importance at the outset to know exactly what is required of an indicator system (Roestenburg, 1999:90).

In the case of this study, the indicator system must show what the organisation does or doesn't do to enhance employee empowerment. It must indicate the level of employee empowerment in an organisation. This level of employee empowerment will in turn denote whether the organisation is doing all the "right" things to enhance employee empowerment.

b. Describe view of empowerment

It is important to conceptualise employee empowerment, as in Chapter 2. Throughout the theoretical investigation, employee empowerment is seen as a multi-dimensional concept. An organisation needs to follow certain principles to enhance empowerment in an organisation.

c. Select suitable domain

The concept domain refers to one of several different aspects that make up empowerment reality. Domains are the known components of empowerment. Since measurement becomes more complicated as the number of domains covered increases, simultaneously the number of possible correlations also increases, adding to the richness of the data. The number of domains to be measured is determined by the operational domain of those requiring the information system, or the projected scale of the indicator system. Once the domain is selected, it can be divided into relevant dimensions (Roestenburg, 1999:91).

The domain for this study will be as discussed in Chapter 2. The main domain will be organisation functioning. This domain focuses on the dimensions of empowerment as different constructs.

d. Specify problem and state goal

The goal statement of this particular study is to develop a system of indicators that reflects the levels of employee empowerment in an organisation. This set of indicators should be a measurement tool which assesses the current status indirectly. The aim is not to implement a survey every time an assessment is done.

Employee empowerment may be described as a multi-dimensional concept. The goal of the indicator system could be to measure empowerment inputs made by the organisation.

3.5.2 Stage 2: Structuring through operationalisation of theory or practical concerns

a. Convert theory or concerns into an Indicator Structure

The preliminary notion of empowerment has to be operationalised and structured to provide a list of areas that will be measured. A type of structural framework must be chosen for the development of indicators. The type of structural framework is determined to a large extent by the scale of measurement required as well as the nature of the problem-statement. Four different types of structural frameworks are outlined below (Roestenburg, 1999:92).

➤ Framework 1: Programme determined structure

In this type of framework, indicators are structured around the measurement of programme outcomes. These systems are specifically structured to fulfil programme evaluation needs on a micro or agency level.

➤ Framework 2: Goal area based structure

In this type of framework, measurement is structured around empowerment goals, sub-goals and objectives that are formulated for specific domains as outlined in a particular organisation. Measurement would attempt to determine whether a

particular goal had been achieved. This is an example of an action oriented indicator system, as it measures the extent to which actions taken lead to goal achievement.

➤ **Framework 3: Particular theoretical based structure**

In this framework, theory is combined with pragmatic aspects. Although a lifecycle perspective is used as the theoretical foundation, the various dimensions of measurement are practically determined, and depend on what developers see as relevant dimensions of the framework.

➤ **Framework 4: Theoretically based structure**

Operationalisation of the problem-statement by means of theoretical models of causality represents a relatively new direction in the development of indicators. Theoretical models attempt to find explanations for problems. The focus of models is on the inter-relationships between specifically identified variables. Models are used to make predictions regarding changes in some aspects of the model.

The above four structural frameworks may be applied separately or together, and are often combined with other more pragmatic approaches. Operationalising several dimensions of empowerment develops the fifth type of indicator system outlined below.

➤ **Framework 5: Operationalised dimensions**

In some systems, selecting various dimensions that can be classified in the domain often operationalisesoperationalizes the selected areas of measurement. This type of framework is also highly compatible with other types of framework since it often represents a theoretical model (Roestenburg, 1999).

Framework 2 or 3 seems to be most applicable to this study. These measurements would determine whether the organisation has achieved

enhancement of employee empowerment. The domains were discussed in Chapter 2.

3.5.3 Stage 3: Indicator selection

a. Select key areas for indicators

In the course of the following stage – social theory – identified sub-concerns or social phenomena are further divided into key areas of measurement. The selected key areas of measurement are listed and categorised so that those described items can be matched with possible indicators or data options. The choice of possible indicators is often influenced by the availability of suitable data and data sources that will provide the necessary information (Roestenburg, 1999:97).

The number of indicators is also influenced by other considerations. Erasmus (1992:3) refers to the following:

- **Ideological interference:** The extent to which current ideologies may influence the interpretation of an indicator has to be considered. The level of interference is largely dependent on the notion of empowerment or the framework that is used.
- **Data availability:** Lack of data, manpower, or institutional capacity may lead to extensive analysis of poor quality data, resulting in erroneous conclusions and reports.
- **Indicator availability:** Sometimes no indicators are available for the selected problem or intended measurement to be carried out.
- **Unbalanced planning:** Discovering that no data is available to carry out measurement after having developed an extensive framework with several indicators, will inevitably ~~invalidate~~invalidates the study.

Data regarding what an organisation requires in order to be able to empower its employees were considered in Chapter 2. Ideological interference has been minimised, since the possible “indicators” were drawn from a number of different

sources. This study builds on the literature review, from which the scale and indicators can be developed. Given that the literature referred to was derived from different authors doing research on employee empowerment, the researcher believes that the analysis is not based on poor quality data. Through the literature study, possible indicators were identified (vision, transparency and teamwork, discipline and control, support and security, responsibility, information rewards, decision-making and training). On the basis of these indicators, it was possible to plan how the measurement should best be structured. The development of a framework with indicators depends significantly on the availability of data.

As seen in Figure 3.4, the researcher formulated a table of data from Chapter 2. This table will assist the researcher to formulate indicators for the indicator system to be developed. It will also make the identification process easier.

All the dimensions indicating an empowered organisation were placed in Figure 3.4, together with the literature applicable to each dimension. From each dimension, initial questions were formulated for the questionnaire. By means of this process, the researcher made sure that all the theory in Chapter 2 was covered in the course of developing the questions.

b. Apply criteria to potential indicators

According to Roestenburg (1999), the following criteria are important with regard to potential indicators:

- **Conceptual significance:** Whether the indicator represents a conceptually important aspect or element of the phenomenon under study.
- **Objectivity:** This criterion holds true for objective indicators, whilst subjective indicators should at least provide a reliable picture of the circumstances that are to be measured.
- **Reflectability:** Selected indicators should reflect as accurately as possible the empowerment concerns that are to be measured.
- **Ease of data collection:** In this instance data should be readily available.

Closely related data availability areis:

- ❖ Validity: Data should be valid by actually measuring the concern that it is supposed to measure.
- ❖ Reliability: Indicators should be reliable. In this respect reliability is once more dependent on data-collection procedures. Data should not be subject to measurement errors due to features such as indeterminate methods of measurement.
- ❖ Replicability: This criterion implies consistency in measurement procedures and accuracy of data with repeated measurements.
- ❖ Specificity: Selected indicators should be specific in measuring the condition each is selected for. Other similar criteria are scalability and coverage of indicators.

Vision	Transparency and teamwork	Discipline and control	Support and security	Responsibility	Information	Rewards
<ul style="list-style-type: none"> • Clear vision • Clear challenge • Know management vision/strategy • Milestone means to end • Measurable • Coach to vision • Vision (clear, compelling, communicated) • Employees share sense of direction • Strategic vision: multifaceted, addressing needs, proactive • Strategic options – flexible • Encourage 	<ul style="list-style-type: none"> • Employees feel part of organisation • Proud and committed to company • Work together in units • All employees involved in achieving organisation's goals • Access to information: <ul style="list-style-type: none"> ○ Strategic goals ○ Changes in environment • Employees must see big picture • Big picture communicated through 	<ul style="list-style-type: none"> • Clear goals • Clear lines of authority • Employees must have autonomy and boundaries • Have responsibilities 	<ul style="list-style-type: none"> • Reinforce employees • Climate in organisation shapes behaviour • Value of human capital • Employees' creativeness and innovative ideas to be used • Help cross boundaries 	<ul style="list-style-type: none"> • Employees make decisions according to skills • Think for self • Help each other achieve goals • Must have responsibility to implement organisation's vision • Not unsure what is expected of them • Must feel confident not fearful • Must understand role in organisation • Delegate responsibility 	<ul style="list-style-type: none"> • Make information available at all levels • Will extend employees • Information creates sense of meaning and purpose • Employees can align with the organisation's mission • Employees need to know how their unit performs • Information shared through communication • Raises trust • Creates sense of ownership 	<ul style="list-style-type: none"> • Individual contributions recognised • Employees must be compensated for responsibility and accountability • Motivate employees

commitment	vision and mission <ul style="list-style-type: none"> • Teamwork • Sense of ownership • Manager to “fit” teams • Teams share ownership and responsibility 					
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Decision-making	Training	Empowerment and Management
<ul style="list-style-type: none"> • Employees should be involved in decision-making • All levels involved • Need not to be followed but listened to • Employees feel listened to 	<ul style="list-style-type: none"> • Training very important • Must have information available • Training ongoing and support constantly available • Employee will feel confident about skills • Proper training • Improvement of employees must be realistic • Training through modelling • Skills-based training 	<ul style="list-style-type: none"> • Does not work, requires too much of organisation and current managers • Everybody must be empowered – bottom to top • Bureaucratic constraints and hierarchical approach • Managers take personal responsibility for organisation’s success • Managers provide atmosphere of encouragement • Give up control, share decision-making, rewards, goal setting • Managers steer boat, not high profile • Everybody gets credit for success – work in groups • Leaders learn how to learn • Participative management • Releasing control • Do away with power • Open minded – deal with mistakes – make sure employees are qualified

Figure 3.4: Data on employee empowerment in an organisation

- ❖ ~~Reliability: Indicators should be reliable. In this respect reliability is once more dependent on data collection procedures. Data should not be subject to measurement errors due to features such as indeterminate methods of measurement.~~
- ❖ ~~Replicability: This criterion implies consistency in measurement procedures and accuracy of data with repeated measurements.~~
- ❖ ~~Specificity: Selected indicators should be specific in measuring the condition each is selected for. Other similar criteria are scalability and coverage of indicators.~~
- ❖ Predictability: Although not inherently a characteristic of the technical ability of an indicator, indicators should at least be relevant in portraying empowerment conditions and be wide enough in coverage to allow predictions for the future. No predictions for the future can be accurate. However, basing such predictions on facts, research and literature improves the likelihood of accuracy.
- ❖ Sensitivity: Indicators should be sensitive to changes in circumstances. It is only when indicators react to changes brought about by policies or programmes that they are regarded as valuable.
- ❖ Relevance: Selected indicators should be relevant to the condition being measured. Redundant indicators that no longer provide meaningful data should be discarded.
- ❖ Efficiency: Selected indicators should be precise in eliciting the required information.
- ❖ Sufficiency: The ability of one indicator to replace a few others. The level of sufficiency depends on the correlation between indicators and the overall notion of empowerment.
- ❖ Balance: Maintain a balance between indicators in different areas of measurement, or between economic and non-economic indicators.
- ❖ Comparability: Indicators should ideally be comparable with international indicators.

Most indicators will be found to perform high on some criteria but low on others. No indicators will therefore display characteristics of all of the above criteria, but selection should be supported by balanced and logical judgement. Although

inadequate indicators may be selected early on in development, it is often preferable to carry out selection at a later stage of development, and then to test the selected indicators. Furthermore, an indicator is only as good as the quality of the data that is used (Roestenburg, 1999:99).

For this study, these criteria must be made applicable to the indicators that will be used in this study. –By basing these criteria on the literature survey, the indicators should be objective, as they will have been derived from previous research.

The indicators that will be developed must be reflective of the company to be used for this research. In developing these indicators, the company's concerns and needs will be taken into consideration. Quantitative-qualitative research methods will be used to ensure the validity and reliability of the indicators. The indicators must be specific enough that the company will be able to use these to their benefit once the research has been completed. Although the indicators will be sensitive to changes in circumstances in the company, not all changes can be foreseen. The relevance of the indicators is very important, since these go hand in hand with the scale to be developed at the same time. Both the indicators and the scale must be relevant to the organisation to make it worthwhile.

c. Select objective indicators

The selection of indicators consists of drawing up a table with a number of columns displaying the main concern, sub-concerns and possible indicators (Roestenburg, 1999:100). Szalai and Andrews (1981:165) have further refined this tabular arrangement, and have proposed five basic steps to be followed in the selection of indicators. These steps are outlined below:

Step 1: Draw up a structure of the phenomena to be measured. For the successful development of the structure, reliable sources should be used.

As already mentioned, the results of the literature survey will be used in this study as a reliable source, together with input from the organisation where the research will be conducted as to what they want and what their needs are.

Step 2: Expand the structure to include empowerment goal areas, or the aspects noted to resolve empowerment problems or concerns.

This study will be done at a specific organisation. Empowerment problems and concerns will not play a significant role. But certain organisation problems or concerns may be taken into consideration as they arise.

Step 3: The two structures should be adjusted by applying criteria from theory and practice to make them comparable and balanced. This entails linking problems with goals or searching for interrelationships between problems and goal areas.

The theory in Chapter 2 and the organisation will definitely be used together through the indicator process to reach a stage where indicators are presented that are comparable, balanced and will be able to link problems with goals. The organisation must be able to apply the indicators developed in practice. This was illustrated in Figure 3.4

Step 4: A matrix should next be constructed to facilitate ordering of possible indicators. This matrix should actually be in the form of a quadrangular table. This means that sub-concerns make up the rows of the table, whilst the components of well-being that are to be measured make up the columns. This table then becomes an input/output matrix. Different indicators are then placed into the cells, representing the variables that are to be measured.

Step 5: A certain balance is sought from the matrix in that equal representation of all variables is regarded as desirable.

d. Select subjective indicators

This step is about the selection of relevant subjective items for the measurement of employee empowerment. Subjective perceptual information is intended to

supplement objective information, and the way in which perceptual items are formulated becomes quite important (Hilhorst & Klatter, 1985:194).

Compiling a survey instrument is similar to the design of a survey instrument in any research in that it consists of scaled items to which respondents can indicate their choices (Roestenburg, 1999:101).

For the purposes of this study, a questionnaire will be used to select relevant subjective items for the measurement of indicators of employee empowerment. This information will be subjective but, because the items are scaled, it will give objective-like information. This information will only be applicable to the organisation itself.

The questionnaire intends to generate data regarding people and consumer's perceptions of phenomena, products and services (De Vos, *et al.* 2002:307). The same is intended in the case of this questionnaire. The participant's perceptions will help to generate data, and thereby to lead the researcher to a set of indicators.

Although the questions in the questionnaire that will be possible indicators can be measured by a yes or no, it is necessary to measure the correct response. These questions should represent a concrete empowerment-related event and not perceptual questions or opinions. This is where Figure 3.4 is important. All the data in this figure were drawn from the employee empowerment data in Chapter 2. This data therefore relates to concrete empowerment events and not opinion-related questions or perceptual questions.

The following initial questions were developed on the basis of the data in Figure 3.4. These questions were representative of all the different dimensions. These questions comprised the first set of unrefined questions. The first task was to make sure the answer could only be "yes" or "no". These questions were then reduced to 20 questions.

❖ **Vision**

- Does the company have a clear vision?

- As an employee do you have a clear challenge?
- Do you know what management's vision is?
- Do you know what management's strategy is?
- Do you know how to accomplish this vision?
- Have you been coached to accomplish the vision?
- Is the vision clear to everyone?
- Is the vision communicated to everyone?
- Is the strategic vision multifaceted?
- Does the organisation encourage commitment?

❖ **Transparency and teamwork**

- As an employee do you feel part of the organisation?
- Are you proud of the organisation?
- Are you committed to the organisation?
- Do you work in units?
- Are all employees involved in achieving goals?
- Do you have access to information about strategic goals?
- Do you have access to information about changes in the organisation's environment?
- Do you see the bigger picture for the organisation?
- Is this bigger picture communicated to everyone?
- Is this bigger picture communicated through the vision/mission of the organisation?
- Is there teamwork?
- Do you have a sense of ownership?
- Does your manager fit your team?
- Does your team share ownership?
- Does your team share responsibility?

❖ **Discipline and control**

- Are the goals clear?
- Are there clear lines of authority?
- Do you have autonomy?
- Do you know your boundaries?

- Do you have responsibilities?

❖ Responsibility

- Do you make decisions?
- Do you make decisions according to your skills?
- Can you help others achieve goals?
- Can you implement the organisation's vision?
- Are you certain what isare expected of you?
- Do you feel confident?
- Do you feel fearful?
- Do you understand your role in the organisation?
- Do you delegate responsibility?

❖ Information

- Do you have access to organisational information?
- Do all levels have access to this information?
- Do you know enough to work towards the mission of the organisation?
- Do you know how your unit is performing?
- Is information communicated to you?
- Do you feel trusted when information is shared?
- Do you feel a sense of ownership?

❖ Rewards

- Do you get recognition for your work?
- Do you get help with your work?
- Do you get reinforced at work?
- Do you feel motivated?

❖ Decision-making

- Are you involved in decision-making?
- Are all levels included in decision-making?
- Do you feel listened to?

❖ Training

- Do you think training is important?
- Is information made available?
- Is training ongoing?
- Is there support?
- Do you feel confident about your skills?
- Is training done properly?
- Does the training improve your skills?
- Is the training realistic?

❖ Empowerment and management

- Must everybody be empowered?
- Must managers take personal responsibility?
- Must managers provide encouragement?
- Must managers give up control?
- Must managers share decision-making?
- Must managers share rewards?
- Must managers set goals?
- Must managers have a high profile?
- Must everybody get credit for success?
- Must employees work in groups?
- Must leaders learn how to learn?
- Must management be participative?
- Must managers release their control?
- Do organisations have to do away with power?
- Must managers deal with mistakes?
- Must managers make sure employees are qualified?

After this stage, indicators will be selected; data will be collected and the measurement process will then start.

3.5.4 Stage 4: Measurement

Once objective indicators have been selected, data will be collected as part of a research package to determine the value of these indicators in view of the original goal. The subjective indicators that were selected in the previous stage are also included in the data collection stage. Measurement has the primary objective to establish interrelationships between variables, whether objective or subjective in nature (Roestenburg, 1999:102).

a. Select indicator data source

Depending on the nature of data required, several data sources may be approached. Some sources may be statistics; a wide range of quantitative data may be obtainable from various local authorities or private market research bodies, household consumer surveys, social organisations and specialised information bodies. Many sources may even be able to provide data in various levels of disaggregation (Roestenburg, 1999:103).

In the case of this study, the respondents were the main source and not the organisation.

b. Select level of disaggregation

A decision has to be taken on the geographical level on which indicator data should be collected. Questions such as “should data be collected on a programmatic, local, regional, provincial or national level” are determined by the nature of the indicator system. Data collection may be disaggregated to a regional level and later aggregated on a national level.

The organisational level was employed for this study.

c. Select a method of value weighting

Since most indicator information is in some respect value laden, totally value free information does not exist. It is therefore important to select a value-weighting

scheme that will at least reflect a balanced normative interpretation base. The type of value weighting scheme selected may be mathematical value weighting, or, by comparison with international norms, local norms as obtained by application of need typologies, in which opinions are asked, or by panel evaluation (Roestenburg, 1999:104).

In this study the norms will be organisational specific. A mathematical model indicating the relative weight for each indicator will be developed.

d. Select time-series intervals of measurement

The value of an indicator system lies in the repeated measurement of a phenomenon over time. After completion of the indicator development study and measurement of a system of empowerment indicators, further research should be conducted in which time series measurement is involved. The objective of such research is to apply the indicators to measure empowerment in the organisation.

A decision should then be taken on the intervals between measurements. In cases where existing data are used, the intervals will be subject to periods following data collection. This may be a limitation for the successful implementation of an indicator system, since measurements are far apart, but may be the only option in the case of a bigger system. An important methodological aspect is the selection of suitable data sources (Roestenburg, 1999:105).

This aspect will be decided upon after completion of this study. This suggests approach number two.

In this particular study the main data source was theory. A literature study was conducted on employee empowerment and organisational empowerment. On the basis of this literature study, subjective indicators were selected.

3.5.5 Stage 5: Interpretation

a. Interpret data

During the last stage, the collected data are empirically interpreted and compared with the identified variables. The objective would be to determine the validity of data to serve as indicators for a specific variable.

Once data have been matched with the variables of measurement, empirical analysis is used to determine the validity of data to serve as indicators, and to determine interrelationships among aspects of the data. From these results, it is possible to construct an empirical model of relevant indicators (Roestenburg, 1999:105).

Since this approach is mostly applicable to large national indicator systems, such comparison is not rendered feasible for a small system as is planned for this study. Since very little empowerment data is assumed to exist, it is more feasible to keep the system organisational specific.

b. Create reports

A list of indicators based on reports of empirical data analysis and interpretations are compiled for integration with theory. Closely followed by the next stage, which is the formulation of an indicator system, this stage marks the empirical interpretation and conclusions reached (Roestenburg, 1999:105).

c. The last stage focus on the formulation of a system of social indicators

This is the stage where data is made meaningful and becomes information that is of value to decision makers. From a research point of view, empirical data has to be reduced for integration with the original non-measurable empirical structure. Indexing information according to different variables provides categories where

data are compared or reflected against other data, in the process of which meaning is attached to the data.

This step will be conducted after the completion of this study. It involves the development of a report to be provided to the host organisation as well as consultation and training to facilitate the implementation of this model.

3.6 CONCLUSION

The final goal of the study is to test and partly validate the scale. Furthermore, the intention is to develop a small indicator model that the organisation can apply within their boundaries. This study is not applicable on a bigger scale as it is organisation specific. The development of the scale and indicators are also organisation specific, and not applicable to a bigger environment. Scale development and indicator development go hand in hand and should be done simultaneously as in this study. Not all the phases were followed since this would have made this study unnecessarily cumbersome and complex. A further aim of this chapter was to reflect on the methodology of scale development and indicator development.

It is necessary to include background information on the company Allwear in this study. Although it is not crucial to the study, it gives the reader a better picture of the organisation and how it operates. It will also give the reader the reason why this specific factory was used for this study. The following chapter therefore provides an overview of the nature and structure of Allwear.