

The influence of cross generational management in creating agricultural learning organisations

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ABSTRACT

Title: The influence of cross-generational management in creating agricultural learning organisations

The purpose of the study was to determine whether agricultural organisations are learning organisations and what the influence of cross-generational management is in creating learning organisations. The results obtained from cross-generation management were also compared to determine trends and biases pertaining to why agricultural organisations do not become learning organisations.

The assessment tool used was available online and was compiled by the Harvard Business School. The assessment tool was distributed among 200 managers from three different agricultural organisations and 138 responses were received, leading to a response rate of 69%.

The results obtained from the analysis of data showed that agricultural organisations are not learning organisations and activities and processes needed to become learning organisations were not articulated very well in these agricultural organisations. Very high values for the standard deviation were recorded, indicating that the generational cohorts differed largely in opinion while rating the descriptors. The results from the cross-generation managers differ considerably with regard to the importance of the descriptors rated under each composite. The characteristics of the generational cohorts, as described in the literature study, were confirmed with the Baby Boomers showing much more involvement in the organisation, Generation X much more individuality, and Generation Y more importance pertaining to work-life balance. The results also showed that the Baby Boomers and Generation Y are much closer to each other than the Baby Boomers and Generation X are. The characteristics of the generational cohorts, as described in the literature study, were confirmed

Limitations of the study were identified and recommendations made for the organisation, cross-generation managers and future research.

KEYWORDS: Learning organisation, organisational learning, generational cohorts, Baby Boomers, Generation X, Generation Y

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LIST OF ABBREVIATIONS

CEO	-	Chief Executive Officer
CKM	-	Customer knowledge management
HBR	-	Harvard Business Review
HR	-	Human Resource
HRM	-	Human resources management
KM	-	Knowledge management

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I hereby declare that I language edited the above-mentioned mini-dissertation by Mr MC Bester (student number: 10350462).

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THE INFLUENCE OF CROSS-GENERATIONAL MANAGEMENT IN CREATING AGRICULTURAL LEARNING ORGANISATIONS IN SOUTH AFRICA

CHAPTER 1: INTRODUCTION AND PROBLEM STATEMENT

The aim of this study was to determine whether agricultural organisations are learning organisations and, if not, what the possible impediments would be towards becoming learning organisations. The results from managers from different generations were compared to try and establish a trend between the managers from the different generations towards biases to becoming learning organisations.

In Chapter 1, the introduction, background and problem statement are provided. Details pertaining to the scope of the study, research objectives and methodology that were implemented were discussed and will highlight the significance and benefits of the study as well as the limitations of the study. Chapter 1 concludes with an overview of the ensuing chapters.

1.1 BACKGROUND

1.1.1 Problem statement

The value of organisational learning is widely recognised by both research (Bass, 2000:18; Dar-El, 2013:3; McNiff, 2014:223) and practice, as managers view knowledge as a key corporate asset, to be leveraged and exploited for competitive purposes. Organisations that do not learn continuously, make adaptations constantly and execute learning resiliently, will probably be thrown into disorder and turmoil by continuous change and competition (Senge, 1990:3). Managers see best practice as sources of superior productivity and growth, to be disseminated in organisations as quickly as possible. They consider creative ideas and innovative thinking essential to success in emerging, rapidly changing markets. Garvin indicates that it is hard to find a manager today who does not give at least lip service to the importance of building a learning organisation. Organisations and managers lack tools for assessing how learning is benefiting the organisation and whether their teams are learning (Garvin, *et al.*, 2008:1).

However, what is a learning organisation then? Senge (1990:3) claims that learning organisations are:

...organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.

According to Garvin, managers, despite their importance, do not necessarily know how to build a learning organisation, because they do not know the precise steps to build a learning organisation. Organisations and managers lack tools for assessing how learning is benefiting the organisation and whether their teams are learning (Garvin, *et al.*, 2008:1).

In the November 2015 issue of HBR (Harvard Business Review, November 2015:110-118), Francesca Gino and Bradley Staats outline that even companies that are driven by continuous improvement and learning struggle to stay on the road. Research suggests that it is because of its intricate biases: We focus too much on success, do too fast, try too hard to adjust and depend too much on outside experts.

This is articulated by Tanmay Vora (Vora, 2015) stating that there must be more than just formal learning if one truly wants to build a learning organisation. Vora continues by emphasising that there must be a culture that promotes informal learning and that individuals learn the most from each other (Senge, 1990:139).

It is essential to create an environment that is conducive to learning and where biases are overcome. In order to become a learning organisation, it is important to destigmatise making mistakes and rather see mistakes as learning opportunities, and encourage reflection and experiential learning after doing. The lack of a learning culture can be one of the biggest impediments in how organisations learn and apply what they learn in order to create significant outcomes (Gino & Staats, 2015:1-22). Investing in formal learning, tools and methods will prove to be wasteful if a culture where people are encouraged to share and learn without any fear or prejudice is not present in the organisation. In a learning organisation with a learning culture, informal learning will take place by way of reflection and experiential learning.

Gino and Staats (2015:1-22) identify some specific impediments to becoming a learning organisation. Impediments outlined are the biases manifested by managers themselves in certain circumstances, as well as a surrounding environment that impedes learning. Biases may include being afraid of failure, a fixed mindset, past performance, deficient reflection, being convinced of a need to conform, and insufficient frontline participation and action in addressing problems.

A further impediment worth studying is the generation (Baby Boomers 1946-1964, Generation X 1965-1976, Generation Y 1977-1994, Generation Z 1996-2010) to which a manager is born (The Center for Generational Kinetics, 2016).

Previous studies (Wong *et al.*, 2008:878; Zemke *et al.*, 2000:29), for instance, suggest that there are significant differences among cross-generational managers regarding family values and situations, core values and attributes, workforce values, education, communication and dealing with money.

The demographic profile of the agricultural sector displays a large tendency towards having the bulk of employees and managers from Generation X, thereby creating a predominant Generation X organisation. The majority of agricultural organisations are also managed by managers from the Generation X era (managers with ages ranging from 41 to 52 years in 2017 (The Center for Generational Kinetics, 2016)). Could cross-generational management styles, therefore, influence the ability of agricultural organisations to learn?

According to Gino and Staats (2015:1-22), managers could use several different strategies to prevent biases. This would require the changing of old culture and establishing a new culture where mistakes would be seen as learning opportunities, planning more breaks into programmed schedules, assisting employees to identify and apply their personal strengths, and encouraging employees to own problems that affect them. The challenge lies in identifying problems, finding solutions and implementing the solutions.

Research with regard to learning organisations within the South African context is limited and the previous study in this regard was conducted to determine the extent to which a learning organisation culture influences employee engagement (Knox-Davies, 2010:1-80). Research with regard to the agricultural environment is limited to the extent that it has never been done.

1.1.2 Research questions

On completion of this study, an attempt was made to answer the following research questions:

1. Are agricultural organisations learning organisations?
2. Is organisational learning influenced differently by managers from different generational cohorts?

1.2 RESEARCH OBJECTIVES

1.2.1 Primary objective

The aim of this study was to determine whether agricultural organisations are learning organisations and, if they are not, what the possible impediments would be towards becoming learning organisations.

1.2.2 Secondary objective

The secondary objective of the study was how organisational learning is influenced by cross-generational perspectives. The perspectives of managers from different generations were assessed for any statistical or practical similarities or differences when comparing mean scores between the different generations.

1.3 EXPECTED CONTRIBUTION OF THE STUDY

Agriculture is essential to supplying the basic food needs of South Africa and the world. If agricultural organisations do not become learning organisations, they will not survive in the new competitive, globally connected world where organisations have to be high-performance organisations in the face of fierce challenges (Shieh, 2011:791). If the challenges to becoming learning organisations can be identified, strategies could be researched, suggested and implemented to address the need to become learning organisations. This can create a culture that promotes informal learning in the organisation through reflection and experiential learning. We have to create learning organisations that are able to create and recreate some sustainable competitive advantages over time (Michie & Zumitzavan, 2012:607). Creating a learning organisation must be part of the strategy of an organisation (Noruzy *et al.*, 2013:1073), whereby a strategic advantage is being created in a fiercely competitive environment locally and globally. This study can therefore directly contribute towards the more effective management of a strategic resource by providing valuable information on

how to become a learning organisation and how to develop strategies to maximise the involvement and contribution of managers from all the different generational cohorts.

1.4 SCOPE

The scope of the study falls within the organisational behaviour discipline and seeks to determine what the influence of cross-generational managers (junior, middle, senior, top management and directors) are on whether organisations within the specific target groups involved in the agricultural sector will become learning organisations and, if not, what the reasons could be. A set of predetermined biases will be tested and the results will indicate what impediments there are that either promote or hinder the agricultural organisations to becoming learning organisations.

1.5 RESEARCH METHODOLOGY

1.5.1 Research design

This study was a cross-sectional study, as comparisons were drawn at a single point in time with no need for a follow-up analysis. One of the features of a cross-sectional study is that it can compare different population groups and, in the case of this study, different generations at a single point in time. Findings were drawn from data collected at a specific time from whatever fits into the frame. A cross-sectional design benefitted this study as it enabled me to compare many different variables at the same time (Bryman *et al.*, 2014:59).

The sampling strategy was a convenience sampling strategy, which suggests sampling as many of the managers as possible employed by OBARO, KLK Landbou Group and Suidwes Landbou. The reason for this was to get as much information as possible from each generation of managers as the number of employees from the Baby Boomers generation is starting to decline because of age and retirement. The method of collecting data was through a survey. OBARO's head office is in Brits in the North West Province; KLK Landbou Group's head office is in Upington, Northern Cape and Suidwes Landbou has its head office in Leeudoringstad, North West Province. Information will be in the public domain. Although the head offices are situated in the provinces as indicated, the retail stores are spread over a large number of provinces.

1.5.2 Participants

The study population was managers employed in the agricultural sector and related industries at three of the biggest companies in the agricultural sector, namely Obaro, KKK Landbou Group and Suidwes Landbou. These organisations and industries are spread over several provinces, and therefore a vast diversity of agricultural activities will be included in the study. The aim will be specifically the employees in managerial positions, whether it is junior, middle, senior or top management.

1.5.3 Measuring instrument

The unit of analysis was a diagnostic survey and this assessment tool is known as the **Learning Organization Survey**, developed by Garvin, Edmondson and Gino (Garvin *et al.*, 2008:1-9). This assessment tool was available online and was developed to determine how well your company functions as a learning organisation. At Harvard Business School (los.hbs.edu), the complete interactive version can be accessed, including all the self-assessment statements. There are three sections representing the three building blocks of a learning organisation. The first two blocks require a participant to rate his/her organisation on a seven-point scale on how accurate the statements are with regard to the organisational unit they are working in. The third block requires rating how often a certain behaviour is exemplified by the managers (or manager) to whom they report (Garvin *et al.*, 2008:4).

Benchmark scores for the learning organisation survey were derived from large groups of senior executives from a variety of different industries, who took the survey during a management programme at Harvard Business School. The survey was conducted for the first time during the spring of 2006 with 100 executives in order to evaluate the statistical properties of the survey and to assess the underlying constructs. During autumn of the same year, another 125 senior executives were surveyed to use as the benchmark data (Garvin *et al.*, 2008:7).

During the study, evidence was found that this survey has previously been conducted in South Africa by Barrie Knox-Davies in November of 2010 at GIBS. The **Learning Organization Survey** assessment tool was used in order to determine the extent to which a learning organisation culture influences employee engagement. The assessment tool was found to be reliable and valid (Knox-Davies, 2010:31). During

the study by Barrie Knox-Davies, the following Cronbach alpha reliability coefficient values were recorded:

Table 1: The Cronbach alpha reliability coefficient values recorded for the research by Barrie Knox-Davies in November of 2010 at GIBS

		Cronbach's alpha
Building block 1	Supportive learning environment	0.88
	Psychological safety	0.74
	Appreciation of differences	0.49
	Openness to new ideas	0.73
	Time for reflection	0.79
Building block 2	Concrete learning processes & practices	0.95
	Experimentation	0.79
	Information collection	0.90
	Analysis	0.77
	Education & training	0.93
	Information transfer	0.93
Building block 3	Leadership that reinforces learning	0.88

Cronbach's alpha values between 0 and 1 are regarded as reliable and all composites across the survey for the study by Barrie Knox-Davies are considered as measuring in a reliable manner. No further evidence was found that similar studies have been done. The measuring instrument or assessment tool is discussed in full detail in Chapter 3.

1.5.4 Procedure

Permission was obtained for the questionnaires to be administered in an online internet survey to the participants from the different CEOs of the different organisations. The results of the study are to be provided to the board of directors of Obaro, KKL Landbou Group and Suidwes Landbou for their own internal review. The results will also be presented to the directors of the said companies on a date to be determined.

The method of collecting data was through an online internet survey, and a cover letter explaining the purpose of the research was provided to the participants. The completion of the questionnaire was completely voluntary and anonymous, and the sample was representative of the study population. Survey questionnaires were sent out via an online internet service provider to all participants, as the agricultural businesses are scattered across several provinces. The collection of data was made easier by doing it in this manner, and it was possible to retrieve the data directly from the online internet service provider.

1.5.4.1 Ethical considerations

Survey questionnaires did not request personal information and detail, and all information gathered was treated as confidential. The following project number **EMSPBS16/06/03-01/33** was assigned to this study. This proposed research was considered as being of nominal risk if all requirements of anonymity, confidentiality and informed consent are met. Anonymity and confidentiality were ensured in that the participants had to provide a reference code to their data (Table 2). The reason for using a code was to group the different groups and responses to each other. This research can also lead to the secondary use of data and information for publications and secondary studies.

Table 2: The reference code for the data input from the participants

Code information	Example	Your code information
Your mother's first name initial	W	
Last initial of your surname	S	
Your father's first name initial	L	
Year of birth	1961	
Sex: M or F	M	
Reference code	WSL1961M	

The survey included a confidentiality agreement, attached as Appendix A. The agricultural companies will receive a copy of the final conclusions and recommendations as feedback of the results of the research conducted.

1.5.5 Statistical analysis

The collected data was analysed by the North-West University's Statistical Consultation Services. The study was objective, with deductive reasoning used to analyse the data. Outputs from the data analyses allowed the drafting of meaningful conclusions from the results. The software program used to analyse the data was the **SPSS®** (Statistical Package for Social Sciences, 2016, version 23).

The validity and reliability of the results of the survey were established and correlations between building blocks and the biases to becoming a learning organisation were analysed. The grouping of the different generations of managers was done and an attempt was made to demonstrate a positive relation and correlation between the managers of the different generations towards the variables. The second set of results was analysed according to ANOVA, the independent t-test and Cohen's effect size to analyse the responses from the generational cohorts.

1.6 VALUE ADDED

The results of the research may produce information that will advocate additional probing and investigations into the research field as to whether other organisations from other disciplines are learning organisations and what the influence of managers from different cultures and genders is on becoming learning organisations. The survival and continued existence of agricultural organisations may rely on the mere fact of sharing experiences and reflecting on the past to attempt to influence the present and the future.

Recent changes in mindset towards human capital and human resource development made this an excellent time to conduct this study and to add value. It contributes, for example, to a better understanding of generational differences within the South African context in that it provides further comparisons and possibilities on how generational differences manifest within different organisational contexts as well as inter-organisational contexts. Research on this topic is extremely limited from a South African perspective, and this research may contribute to filling the existing gap in available research.

The study also provides new information about how generational disparities in the agricultural sector manifest, and this forms a new addition to the pre-existing literature concerning an organisational learning culture. In addition, comparisons between

generations and learning organisations make it very much a contribution that can influence how organisations think about the role of managers from the different future generational cohorts. The influence of managers from the different generational cohorts on the future of organisations can either be detrimental to the existence of the organisation or be beneficial to organisations. The problem with intergenerational management is also increasing because, for the first time in history, five generational cohorts will be part of the workforce.

The growing percentage of younger people in South Africa makes it essential to specifically understand what their views and opinions are pertaining to specific trends and issues. This study can contribute, through the findings of this research, to what the important issues are for the different generational cohorts. Another contribution of this study is finding different shared trends in a cohort and to compare trends between the cohorts and find ways to apply these findings to maximise the contributions of the different cohorts and to ensure that they can work together in an organisation.

Lastly, but not least important, and due to the data being available, a further contribution would be to draw a comparison between the different genders. This contribution would also be of utmost importance as it is determined by law in South Africa that women should form part of management teams of organisations.

The focus of the study will be on agricultural organisations, as these organisations can contribute towards national food security in South Africa and Africa. The expertise of South Africa's agricultural organisations and training programmes for young and upcoming farmers makes agricultural organisations key partners in reducing food shortages and hunger in the South Africa and the southern African regions.

1.7 LIMITATIONS AND ANTICIPATED PROBLEMS

The study was limited to only managers employed by three of the biggest companies in the agricultural sector. The study only wanted to determine whether agricultural organisations are learning organisations and what cross-generational managers' influence would be on whether the agricultural organisations are learning organisations or not.

During the study, the following assumptions were made: It was assumed that managers participating answered truthfully, and anonymity and confidentiality would be preserved.

1.8 CHAPTER DIVISION

The chapter division is as follows:

Chapter 1: Introduction to the research

Chapter 1 provides a brief introduction to the background and content of this study. The chapter starts with defining the problem statement, and proceeds with the research objectives, the expected contribution of the study, the scope, research methods, value added and limitations of the proposed study.

Chapter 2: Literature review

Chapter 2 aims to provide a review of the concepts of learning organisation and a multigenerational management structure by providing definitions for the purpose of better understanding the theoretical aspects of the study.

Chapter 3: Empirical research

Chapter 3 provides a description of the implementation phase. The research method, measuring instrument, the procedure for gathering data, statistical analysis, research objectives and probable ethical issues for consideration are discussed.

Chapter 4: Discussion of results

Chapter 4 provides details of data collected and analysed, statistical means and the discussion of results.

Chapter 5: Conclusions and recommendations

Chapter 5 draws conclusions based on the detailed results of the data analysis, and presents recommendations for future research, as well as a summary of the study's outcomes for Rand Water.

Chapter 5 consists of the conclusions drawn from the detailed data analysis and results from the study, and discusses future recommendations for management and further research.

1.9 CHAPTER SUMMARY

This chapter presented the context and background of the research. It covered the problem statement, research objectives and scope of the study, research methodology, and limitations. Finally, it presented a layout of the chapters contained in the document.

Chapter 2 deals with the relevant literature related to the study and will include literature that scrutinises and enquires into the different themes and aspects related to the research objectives.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of the literature review is to provide insight into and define the two key concepts relevant to this study, namely what a learning organisation is, and secondly, to provide some insight into the study of the different generations represented in the workplace. The literature review starts with defining what a learning organisation is, as well as what the differences are between organisational learning (OL) and a learning organisation, and continues with relevant issues such as why organisations need to become learning organisations. Other issues that followed are what the role of leaders are in learning organisations, the importance of becoming a learning organisation, as well as characteristics and advantages of being a learning organisation. The overview on learning organisations is concluded with impediments to becoming a learning organisation and a sketch note to give more clarity on the issue.

The second part of the literature review deals with the notion of generations and what the different criteria are for the birth years of the different generations with specific reference to generational cohorts within the South African context. Furthermore, some of the characteristics of the different generations were clarified.

2.2 LEARNING ORGANISATION

2.2.1 What is a learning organisation?

Just what establishes a learning organisation is a matter of some discussion and it was in this circumstances that Peter Senge (1990:3) began to inquire into “The art and practice of the learning organization”. In the decade following the publication of the book, *The Fifth Discipline* (1990:3), in excess of 750 000 copies were sold and this book is probably the most noteworthy factor in creating the popularity of the idea of the learning organisation. Sandra Kerka observed in 1995 that there is no accord on the definition of a learning organisation, supported by a recent observation by Garvin (2009) that a plain, uncomplicated definition of a learning organisation proved to be difficult to find (Naik, 2011:64).

Three definitions of a learning organisation:

Learning organizations are organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of

thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together (Senge, 1990:3).

The Learning Company is a vision of what might be possible. It is not brought about simply by training individuals; it can only happen as a result of learning at the whole organization level. A Learning Company is an organization that facilitates the learning of all its members and continuously transforms itself (Pedler et al., 1991:1).

Learning organizations are characterized by total employee involvement in a process of collaboratively conducted, collectively accountable change directed towards shared values or principles (Watkins & Marsick, 1992:118).

Senge (1990:3), in his original pioneering work, describes personal capability, intellectual methods, shared vision, team learning and systems thinking as the basis of a learning organisation (Peterson, 2015:60). In a learning organisation, there is a continuous process of generating, obtaining and conveying knowledge (Garvin *et al.*, 2008:1), and it has a culture that supports learning and innovation by both individuals and the organisation (Aggestam, 2006:295; Indra & Manohar, 2016:21), meaning a form of organisation that allows the learning of its members and creates positive results such as innovation, efficiency, improved alignment with the environment, and competitive advantage (Langer, 2005; Dewah, 2015:61; Indra & Manohar, 2016:21). Both Senge (1990) and Langer (2005) emphasise the pivotal role the organisation plays in the learning of its members by organising, planning and facilitating learning (Dewah, 2015:61). Moilanen (1999) stated that learning is a vital component of the vision, values, goals, operations and the assessment processes consciously managed in a learning organisation (Moilanen, 1999:1; Maniam, 2013:67; Dewah, 2015:61). Moilanen added that all definitions place an emphasis on people and processes rather than on organisations as learning environments (Moilanen, 2001:18).

Senge describes a learning organisation as having ceaseless innovation and progression, with all members learning to conduct common learning and longing to continuously learn (Senge, 1994:16; Indra & Manohar, 2016:21). A learning organisation can have strategic objectives, which are reliant on continuous learning or trial and error (Shieh, 2011:791). In the transformation process of an organisation, members search for processes to solve problems and difficulties, and to promote

purposeful improvement to intensify the organisation's competitiveness (Daft, 2001:200).

Moilanen (2001:18) further defines a learning organisation as a holistic concept addressing an organisation as a learning environment or as an infrastructure (Moilanen, 2001:18), including viewing the organisation as an expert entity at changing its conduct as well as that of its managers and subordinates, through creating, obtaining and conveying knowledge, and continuously changing behaviour to reflect newly acquired knowledge and understanding as a result of the learning process. Therefore, a learning organisation can be seen as an organisation with a learning organisational structure, and that facilities and a learning environment where managers act as change agents (Senge, 1990:69) and play a key role in leading and managing the learning of the organisation as a whole as they build and sustain the organisation as a learning organisation (Maniam, 2013:67).

According to Vello (1995), a learning organisation sets out to build on the knowledge and understanding of its own structures and processes in time, starting with encouraging and then using learning at individual level (Malizia, 2012:13). To find an organisation in which the learning process is totally blocked is quite difficult, but is not merely enough to invest in training and mobilise professional training to be defined as a learning organisation (Malizia, 2012:13).

2.2.2 Organisational learning versus learning organisation

The terms organisational learning and learning organisation are often used synonymously and interchangeably. For the purpose of this research, it is relevant and important to differentiate between these two terminologies. Swart and colleagues refer to organisational learning as "...employs enabling abilities to create a permanent cognitive and behavioural change in the system", thereby describing the process whereby an individual, a group or individuals representing an organisation learn. A learning organisation is viewed as an organisation skilled at creating, acquiring and transferring knowledge, and accordingly change behaviour to reflect new knowledge and insights (Swart *et al.*, 2005:46). Swart and fellow researchers conclude that the crucial role of the process of knowledge creation forms an underlying basis or principle of the learning organisation paradigm (Swart *et al.*, 2005:46).

The literature on organisational learning has focused on the separate collection and analysis of the processes within an organisation involved in individual and collective learning, whereas in learning organisations, the literature is action driven and, where applicable, evaluation methods and tools are used to evaluate and promote learning processes (Govender, 2009:364). According to Singh (2011:353), there seem to be clearly visible difficulties with the entire belief of organisation learning. Evidence indicates clearly that organisational learning does take place throughout the course of dynamic interactions among individuals, groups and the organisation itself (Akgun *et al.*, 2003:839; Chan, 2003:223; Singh, 2011:353).

2.2.3 Learning organisations: The need of the time

The concept of organisational learning first came to academic literature in 1958 when March and Simon did their pioneering work on the complexities of organisations. Since then, there have been numerous authors contributing to the development of this knowledge; however, the acceptance of this paradigm was not easy and therefore there is still a great deal of confusion on both the definition and term organisational learning (Edmondson & Moingeon, 1998:5; Easterby-Smith *et al.*, 1998:259; Singh, 2011:353). The facilitation of organisational learning was frequently associated with the learning organisation (Easterby-Smith *et al.*, 1998:259).

Pressure on organisations to change resulted in management studies during the 1980s and 1990s giving prominence to organisational learning and attracted increasing attention in business practice and academic circles (Shrivastava, 1983:7; Levitt & March, 1988:319). Long-term activities building competitive advantage over time requiring sustained management attention, commitment and effort may be considered to be organisational learning (Singh, 2011:353).

It is the prerogative of leadership to build a learning organisation. In Garvin's view, a learning organisation is an organisation capable of creating, acquiring and transferring knowledge, and changing its behaviour to reflect new knowledge and insights (Garvin, 1993:78). The process through which organisations alter themselves to be able to adapt to changes, internal and external, and to retain sustainable existence and competencies through the continuous acquiring of knowledge are viewed as organisational learning (Chen, 2005:4). Garvin (1993:78) states that in order to achieve all these important competencies, it is time to provide clearer guidelines to

managers for practices and operational excellence and rather move away from high ambitions and fascinating advice given to managers (Singh, 2011:353). As a further matter, leading learning organisations have specially developed training for employees designed for developing/sharpening behavioural skills rather than technical skills with a short shelf-life (Kiernan, 1993:7).

Organisations may face a learning overload as it is critical in the new economy to gain a competitive advantage through the capability of organisational learning (Goh, 2003:16). According to Garvin (2003), organisations that learn are experts in adapting their behaviour through the ability to create, acquire and transmit knowledge, and this indicates the relationship between organisational learning (OL) and knowledge management (KM). It can, therefore, be said pertinently that the economy of today requires firms to continuously get into the organisational learning mode (Singh, 2011:353).

To critically reflect on the experiences and insights logged within organisational memory is a widely accepted essential capability of organisational learning (Argote & Miron-Spektor, 2011:1124; Wood & Reynolds, 2013:150). In an attempt by large organisations to be more adaptable and responsive to change, organisational learning became a fashionable concept (Appelbaum & Goransson, 1997:115; Aktharsha & Anisa, 2011:26).

According to Templeton *et al.* (2002:175), a set of actions that intentionally and unintentionally influence changes in an organisation can be viewed as organisational learning. These actions can be knowledge acquisition, information distribution, information interpretation, and organisational memory (Templeton, 2002:175; Noruzy *et al.*, 2013:1073). Organisational learning is also defined as a collective capability based on cognitive processes and involves knowledge acquisition, knowledge sharing, and knowledge utilisation based on experience. Organisational learning is currently explained and considered within the context of strategic management, and is considered a competitive advantage (Noruzy *et al.*, 2013:1073).

According to Cyert (1992:60), organisational learning takes two directions, from the individual to the organisation and from the organisation to the individual. From the individual to the organisation, knowledge of the employee is identified, made explicit, documented and institutionalised. From the organisation to the individual,

organisational knowledge is made available to allow employees to internalise this knowledge (Cyert, 1992:60; Ruiz-Gutiérrez, 2012:57).

2.2.4 The role of Leadership in creating Learning organisations

In the shaping and maintaining of organisational culture, leadership plays an important role (Michie & Zumitzavan, 2012:607), and an important aspect of organisational learning is the learning of leaders (Grewal & Salovey, 2005:330; Lagrosena & Lagrosen, 2012:13). Real leadership is needed for changes in the creation of organisational learning (Senge, 2006:15). Organisations seeking to transform into learning organisations need predominant, significant leadership (Michie & Zumitzavan, 2012:607). The role of the manager in building and sustaining a learning organisation was well vented by Teare and Dealtry (1998:47), in that the first step in diagnosing the interactions that occurred in the learning environment is to investigate the contribution of managers and related behaviours (Teare & Dealtry, 1998:47). Managers have to act as change agents and have to carry different roles, i.e. catalyst, solution giver, process helper and resource linker (Havelock, 1973:3), and to bring about building, sustaining and developing the organisation as a learning organisation involve a massive amount of learning at managerial level (Maniam, 2013:67).

Although executives realise that their workforces do need more skills today and in future, learning leaders will have to research and investigate to determine why executives are not interested in the development offerings already available. It will take some persuasion to bring about a mind shift to convince leaders to invest in learning (Dearborn, 2015:58). Learning efforts must be focused through deep knowledge of the end user. This is more critical than ever and, according to the U.S. Bureau of Labour Statistics, there will be five generations in the workplace by the year 2020, and millennials will make up half of all workers. Therefore, learning leaders need all the information they can gather to make it easy to align employee and organisational priorities (Dearborn, 2015:58). As learning professionals, we must advocate that learning and development must be an expected outcome of the work that happens every day. Signs of a true learning culture are to get employees to think about what can be done differently or better, inspire and motivate employees to ask the questions: *How can we work together more collaboratively next time?* and *What have I learned today that will make me better tomorrow?* These actions will lead to a learning culture

taking hold, and individual and organisation performance will increase (Dearborn, 2015:58).

In order to develop a learning organisation, the commitment and leadership are of utmost importance, as leadership in every organisational field is quantified in terms of performance, stakeholder communication, every action they take and the values of the organisation (Govender, 2009:364).

2.2.5 Why is it important to become a learning organisation?

Building a learning culture is not easy, but it is necessary to close skills gaps and to minimise the talent management misery that hurts so many organisations (Dearborn, 2015:58). The large global environment of organisations is characterised as dynamic and sophisticated and requires learning organisations capable of ceaseless innovation and breakthroughs as this is the basis to survive competition. The key success factor affecting organisational performance is the mechanism of a learning organisation to train the organisational members' capabilities of participation and innovation (Shieh, 2011:791). Considering this, an organisation with high performance has to be a learning one, because of the ability to promptly adapt to environmental changes, and a learning organisation with customer knowledge management (CKM) will have to be so in the face of fierce challenges (Shieh, 2011:791).

Like people, organisations should learn to adapt successfully to the ever-changing business reality, and therefore it is a critical success factor for an organisation to gain any kind of competitive advantage to have the ability to learn and exploit its existing knowledge base (Singh, 2011:353).

2.2.6 What are the characteristics of a learning organisation?

To have many classes available and to send people to courses is not a culture of learning, but rather employees and leaders recognising and prioritising that learning has to be embedded into everyday roles. A foundation has to be laid and an environment created whereby employees can take advantage of great opportunities for professional development, making employees available, reimbursing them for participating and recognising their development (Dearborn, 2015:58). Other characteristics of a learning organisation include personal mastery, the improving of mental models, the building of a shared vision, and communication and cooperation (Shieh, 2011:791).

The sum of learning from various individuals does not constitute learning at organisational level (Marsick & Watkins, 2003:132). A learning organisation is the one that continuously learns and transforms itself. Learning is a process strategically used and integrated into daily activities and roles, and takes place in individuals, organisations and communities influenced by them. The results of learning are knowledge, beliefs and behavioural changes, which change the organisations' outcomes with regard to growth and innovation (Heraty, 2004:449; Ortenbiad, 2002:213; Tortorella & Fogliatto, 2014:4623).

Another characteristic of a learning organisation is that such an organisation should be able to consistently sustain innovation or learning in order to improve quality, production and operational efficiency to maintain or increase business profitability, calling on individuals to expand their capacity to continuously learn together and create the results desired (Huysman, 2000:91; Tortorella & Fogliatto, 2014:4623). This is reiterated by Senge's view that a learning organisation is characterised by people learning together to create the results they truly desire, while new and expansive patterns of thinking are nurtured (Senge, 1990:3). New challenging thoughts necessitate an organisation filled with trust (Senge *et al.*, 2005), and a common vision should be developed to be able to achieve this (Senge, 1990:3).

Smart strategies and a successful position obtained do not define an organisation as a learning organisation. There are three necessary conditions for a company to define itself as a learning organisation (Malizia, 2012:13):

1. Structural condition: In a learning organisation, the way of thinking must be diffused. Thinking is not only through its hierarchical summits, but at all its levels, and is easily transmitted through the whole structure.
2. Functional condition: People working tirelessly for continuous improvement and quality.
3. Teleonomic condition: A company must have the explicit and professed aim of realising learning at a wide level and of wanting to learn (Malizia, 2012:13).

Peter Senge, in his original pioneering work, describes personal mastery, mental modes, shared vision, team learning and systems thinking as the basis of a learning organisation (Senge, 1990:69).

2.2.7 What are the advantages of being a learning organisation?

The benefits and advantages of organisational learning are well acknowledged in developing competence (Peddler, 2002:523), improving innovation (Chanal, 2004:56) and achieving and sustaining change (Boyce, 2003:119). Continuous learning will lead to success over the long term when captured knowledge gives leverage when applied to reality; it will increase innovative knowledge giving a competitive advantage (Liedtka, 1999:5; Singh, 2011:353).

Intensified market competition and globalisation lead to organisations facing a high customer flow rate and high costs to acquire customers. Through managing CKM, customer satisfaction and loyalty can be improved, gaining more profit from existing customers (Shieh, 2011:791). The sharing of knowledge and information inside an organisation accordingly improves work performance, effectively strengthening the communication and interaction between customer and organisation through CKM, and therefore CKM dramatically improves the efficiency of an organisation (Shieh, 2011:791). Studies conducted on 25 companies implementing the learning organisation found that productivity, profit, market share, and customer satisfaction were raised in these companies. All indicators of organisational performance were raised (Bennett & O'Brine, 1994:41). Other studies revealed that the ability of an organisation to develop new knowledge assets that create core competencies governs competitive success (Pemberton & Stonehouse, 2000:184; Aktharsha & Anisa, 2011:26).

Organisational learning needs to enhance productivity levels to be able to sustain a competitive advantage (Dunphy *et al.*, 1997:232; Nicholas, 2005:1054; Ghobadian & O'Regan, 2006:555) and is able to manage change, increase energy, joy and commitment of human resources in work (Binza, 2005:105).

2.2.8 How to become a learning organisation

Studies suggest that, if only learning without structure is encouraged, there is a risk of excessive autonomy and there is also a risk of lack of thoroughness (Wood & Reynolds, 2013:154). It is suggested that although this learning is for the organisation to be reflexive, there should be a set of general procedures, continually refining its methods, theories and logics, offering a space for conversation and action away from the larger organisation (Boland & Tenkasi, 1995:350; Wood & Reynolds, 2013:154).

Organisational learning comes from direct experience with failure through two mechanisms where learning is incorporated as part of employee teams and individuals to increase the performance of the organisation (Parast, 2013:2805). Direct learning through trial and error is the first learning. Organisations accumulate experience through their activities such as normal operation and production; its individuals continuously generate new knowledge on how to improve these activities. Secondly, learning takes place as organisations accumulate experience through failures, and this knowledge is stored in the organisational memory (Wang & Noe, 2010:115). This may also be used to improve performance in succeeding similar assignments, consisting of routines, symbols or work procedures.

Since organisations accumulate experience with failures. there is the knowledge stored in the organisational memory (Wang & Noe, 2010:115), which may be used to improve performance in subsequent iterations of similar assignments, consisting of routines, symbols or work procedures (Desai, 2011:1; Tortorella & Fogliatto, 2014:4623).

Another important issue on how to become a learning organisation is that organisational learning is affected by way of sharing information and knowledge. The sharing of information among organisational members enables the organisation and individuals to reflect on their behaviours and actions, as well as the consequences of their behaviour, to gain insight into the environment where the organisation operates, to understand the organisational environment and consequently to understand and interpret the meaning thereof and react to it in a more accurate manner (Jones *et al.*, 2003:49; Singh, 2011:353).

2.2.9 What are the impediments to becoming a learning organisation?

Organisations should identify and aggressively remove barriers that prevent individuals in an organisation to use their expertise. Other impediments are bias towards success, bias toward experts, bias toward action and bias toward fitting in (Gino & Staats, 2015:1-22).

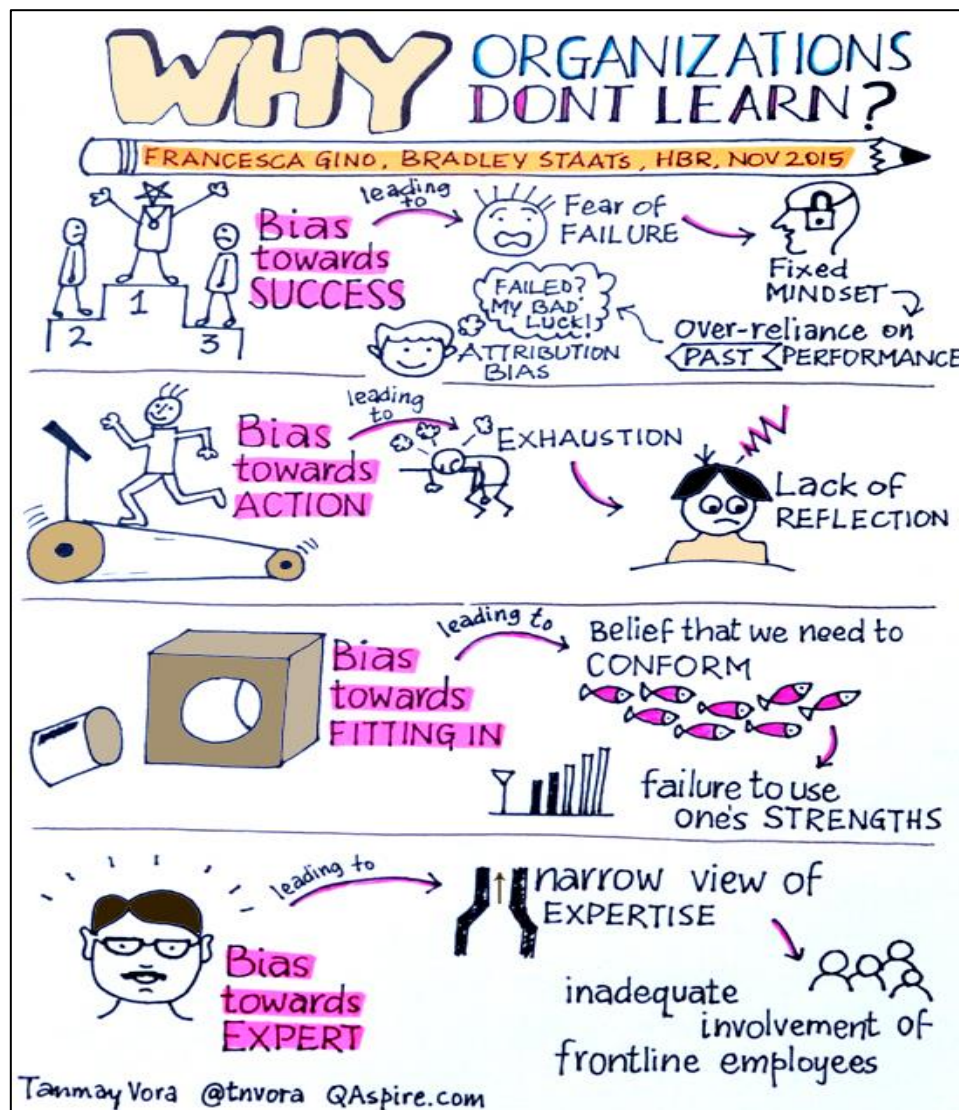
Organisations remain adherent to their original mental models and this will challenge learning through the accumulation of experiences (Wong & Tjosvold, 2006:299) Additional to this is that inhibitions in individuals will prevent individuals to discuss and learn from their experience, remaining opposed to new realities and rigidly committed

to their current practices. It is therefore essential to investigate and understand the way interactions between individuals take place in order to promote learning (Burke & Ng, 2006:86; Wang & Noe, 2010:115; Tortorella & Fogliatto, 2014:4623).

Studies show that to build a learning culture is a necessity; however, it is not easy, but can be done. According to Dearborn (2015:58), not enough employees get opportunities to learn, companies are not prioritising mentoring opportunities, fewer than one-quarter of companies use learning to boost retention, and only 23% of executives offer education to keep employees loyal and engaged (Dearborn, 2015:58).

2.2.10 Why organisations do not learn. A #Sketchnote by Tanmay Vora

Figure 1: A # Sketchnote by Tanmay Vora (Tanmay, 2015)



2.3 GENERATIONS

2.3.1 Reviewing the notion of ‘generations’

A generation is a group of people born in a particular consecutive series of years, sharing the same experiences, events and stages of life in the socio-cultural environment during their forming years or historical time frame in which they grew up (Kupperschmidt, 1998:36; Kupperschmidt, 2000:65; Kowske *et al.*, 2010:267; Hoole & Bonnema, 2015:3). This definition views a generation as a group that is identifiable by years of birth and significant life events at critical stages of development such as going to educational institutions more or less at the same time, starting working more or less at the same time, getting involved in marriage and reaching retirement age at the same time. Although researchers differ slightly about the precise years of birth to differentiate between the different generations, most agree that there are four broad generations of employees: Veterans (1925-1944), Baby Boomers (1945-1964), Generation X (1965-1981), and Generation Y (1982-2000) (Hart, 2006:38; Wong *et al.*, 2008:878). The way that people in a generation develop is shared by historical and social life experiences, certain happenings and phenomena, and this distinguishes one generational group from another (Schewe & Noble, 2000:131). It was put forward by Smola and Sutton (2002:363) that a person's feelings towards authority, their values and beliefs about organisations, their work ethic, why and how they work and their goals and aspirations for their work life are impacted by the social context within which a generational group develops (Smola & Sutton, 2002:363). Furthermore, it is likely that each generation will develop its own distinct preferences or traits that distinguish their feelings toward work and what they desire from work (Jurkiewicz, 2000:55; Kupperschmidt, 2000:65).

2.3.2 What are the criteria for the selection of generational groups?

The generational cohort theory explains the differences and changes across generations (Edmunds & Turner, 2005:559; D'Amato & Herzfeldt, 2008:929). According to this theory, the values, attitudes, beliefs and inclinations of individuals are affected by important historical events and social changes. Inclusive into these events are traumatic occurrences such as wars, huge shifts in resource distribution, heroic figures such as Martin Luther King, or huge experiences, e.g. Woodstock that symbolises an ideology (Sessa *et al.*, 2007:47). Especially consequential are the events during the formative rather than the later years of individuals. Moreover,

individuals corresponding to the same cohort or born during a specific period in time often share specific inclinations and cognitive styles. It is assumed that, over time, these effects will persist (Jurkiewicz & Brown, 1998:18).

Alternatively to the generational cohort theory is to assume that values, attitudes, beliefs, and inclinations are primarily a function of age and maturity rather than generation. The perspective from where the generational cohort theory diverges is that changes across generations are fundamentally a function of social events rather than biological processes (Sessa *et al.*, 2007:47).

2.3.3 The South African context

According to the Center for Generational Kinetics, there are currently five generations that make up society (The Center for Generational Kinetics, 2016), and by the year 2020, all five generations will be represented in the workplace (Dearborn, 2015:58). It is well articulated that the history of a certain demographic is the core determinant of the generational cohorts (Sessa, *et al.*, 2007:47). South Africa is no exception and its recent history, such as the Bush war, the socio-political landscape, as well as heroic and iconic figures such as Nelson Mandela should not be any different in determining generational cohorts. Studies show that there are distinct differences between the cohorts of different regions or countries (Kupperschmidt, 1998:36; Kupperschmidt, 2000:65). For this reason, the birth years described by the Center for Generational Kinetics fit the best into the South African history. Here are the birth years of each generation:

- Generation Z, iGen, or Centennials: Born 1995 and later
- Millennials or Generation Y: Born 1977 to 1994
- Generation X: Born 1965 to 1976
- Baby Boomers: Born 1946 to 1964
- Traditionalists or Silent Generation: Born 1945 and before

The cohort or demographic reason specific to South Africa for the birth years are:

- Baby Boomers: Born 1946 to 1964 – Time period after the end of World War II. The term Baby Boomer was coined because, after World War II, the United States saw a dramatic increase in the number of births – a literal baby boom.

- Generation X: Born 1965 to 1976 – The 16 June, 1976 uprising that began in Soweto and spread countrywide profoundly changed the socio-political landscape in South Africa. This incident made headlines around the world that have since become known as the Soweto uprising. 16 June is now a public holiday in South Africa, named Youth Day (Anon., 2013).
- Millennials or Generation Y: Born 1977 to 1994 – In South Africa, 1995 marks the birth of the first so-called Born-free generation. This was one year after the first democratic South African general elections in 1994. General elections were held in South Africa on 27 April 1994 and the new National Assembly's first act was to elect Nelson Mandela as President, making him the country's first black chief executive. The date 27 April is now a public holiday in South Africa, Freedom Day.
- Generation Z, iGen, or Centennials: Born 1995 and later – Generation Z have not yet had any significant contribution to the work environment and are only coming of age.

2.3.4 Characteristics of different generational groups in managerial roles

Baby Boomers (born 1945-1964)

Baby Boomers grew up after WWII during a period of economic growth, also characterised by political and ideological unrest in the 1960s, and are currently the largest number of employees in the workforce (Hornbostel *et al.*, 2011:10). Baby Boomers value on-job security and a stable working environment (Hart, 2006:38; Smola & Sutton, 2002:363; Loomis, 2000). Another characteristic of the Baby Boomers is that they are most likely to remain loyal and attached to an organisation, are idealistic, optimistic and driven (Hart, 2006:38; Loomis, 2000). Baby Boomers are also described as diligent on the job (Yu & Miller, 2003:23), and as having a high degree of power in the organisation (McCrindle & Hooper, 2006:1). Baby Boomers have, among other things, been stereotyped as being excellent mentors and are more likely to focus on consensus building (Hart, 2006:38; Kupperschmidt, 2000:65; Wong *et al.*, 2008:878). Baby Boomers are currently nearing retirement (Parry & Urwin, 2009:26).

Generation X (born 1965-1976)

Generation X are the first generation to grow up without parental supervision or with minimal supervision while their parents worked, and therefore Generation X are considered independent (Hornbostel *et al.*, 2011:10; Hoole & Bonnema, 2015:4). Cynical, pessimistic and individualist are typical characteristics of people in Generation X (Kupperschmidt, 2000:65; Smola & Sutton, 2002:363). Generation X's are not likely to display loyalty, as they are portrayed as comfortable with change and diversity. In the workplace, they are more independent and self-sufficient than people from previous generations (Hart, 2006:38), resulting them being more likely to leave one job and seeking other more challenging options, or a higher salary, or improved benefits (Hays, 1999:44; Loomis, 2000). Comparing Generation X with Baby Boomers, Generation X require immediate, continuous feedback and are seen as unimpressed with authority and being sceptical (Hart, 2006:38). The work approach has been characterised as having a strong work-life balance as a value (Howe, *et al.*, 2000:1), implicating that it is likely that organisational goals are regarded as less important than personal values and goals.

Generation Y (born 1977-1994)

Generation Y grew up with technology and in the era of social media and cyber space, and in terms of technological skills, Generation Y have a significant advantage over the Baby Boomers (Deal, *et al.*, 2010:194; Hoole & Bonnema, 2015:4). Job security in the workplace is a less important factor and they are comfortable with change (Hart, 2006:38). Generation Y value skill development and enjoy the challenge of new opportunities. Generation Y, similar to the Baby Boomers, are viewed as driven, more likely to be optimistic and can be demanding of the work environment (Huntley, 2006:1; Smola & Sutton, 2002:363; Wong *et al.*, 2008:878). Other characteristics attributed to Generation Y are that they are highly socialised (team players) and enjoy collective action with a strong desire to be included in groups (Hart, 2006:38; Smola & Sutton, 2002:363; Tulgan & Martin, 2001:1; Hoole & Bonnema, 2015:4). Other characteristics that Generation Y value are having input into decisions and actions, and having responsibility (McCrindle & Hooper, 2006:1).

Generation Z (1995 and later)

Members from Generation Z are still to be assessed because they are mainly children and adolescents and their adult characteristics are not yet determined. Indications are that they will be more self-aware, more self-reliant, more innovative and more goal oriented. Generation Z also appear to be more practical, sensible and down-to-earth than their Generation X predecessors, but it still remains to be seen what will happen when they become employees, consumers, investors and voters. Very important is that Generation Z do not remember a time before social media and therefore live much of their entire lives online interacting with family and friends, and making major purchases via smartphones. This could have profound implications for everything from their relationships and how they learn to virtual reality training and problem-solving (The Center for Generational Kinetics, 2016).

2.4 CHAPTER SUMMARY

In this chapter, the definition of the concept of being a learning organisation was set out. The role of leaders in becoming a learning organisation, the importance of becoming a learning organisation, characteristics and advantages, how to become a learning organisation and what may prevent an organisation from becoming a learning organisation were discussed.

Included in this chapter, the concept of the different generations was introduced and the different cohorts explored and defined. Unique characteristics and traits of the different generations were briefly discussed and demographics within the South African context explained.

In Chapter 3, the empirical research phase of the research will be described.

CHAPTER 3: EMPIRICAL RESEARCH

3.1 INTRODUCTION

The focus in Chapter 3 was on the research process by describing the research method, research design and procedures followed to collect data for statistical analysis. A detailed explanation of the ethical considerations, the assessment tool, population, sample size and method of analysis is provided in fulfilment of the research objectives stated in Chapter 1.

3.2 RESEARCH APPROACH

The research is quantitative because the data generated was quantified into numerical data and the numerical data was transformed into usable statistics. Researchers refer to quantitative methods as random experiments and sample surveys (Cook & Reichardt, 1979:9), and this technique allows the quantifying in numbers of the outcome by providing a measurement that allows a more exact form (Zikmund, 2003:111).

One of the features of this research is that it compared the opinions of different participants at a single point in time. Underlying reasons, perceptions, opinions, motivations and other defined variables were quantified into measurable data, and form the basis of this research, and data was then used to formulate facts and uncover patterns. It provides insight into the problem and is also used to uncover trends in thought and opinions. Therefore, to achieve the research objectives, questionnaires were used for the collection of the data.

3.3 RESEARCH DESIGN

Research design is the plan or strategy according to which objectives will be achieved, information collected and problems solved (Blumberg *et al.*, 2005:15; Welman *et al.*, 2011:147; Creswell, 2003:247). It is the layout defining the method and procedures for collecting information (Tustin *et al.*, 2005:75), and refers to a planned and structured investigation to answer research questions (Blumberg *et al.*, 2008:94).

This research will be a cross-sectional survey through a questionnaire, and participants will only be required to answer questionnaires once. The collection of data

was done over a specific period of time to distinctly address the research problem (Tustin *et al.*, 2005:89).

3.4 SAMPLE

A research population is defined as the total collective unit of focus from which the researcher would like to make generalisations for the purpose of drawing conclusions (Welman *et al.*, 2005:52). Employees from three different agricultural organisations formed the population from which a sample was drawn for the purposes of the research. The sample consisted of a subgroup of employees, namely employees in management positions from the total population (Tustin *et al.*, 2005:337).

The target population was employees working in organisations in the agricultural environment and not all participants were known to the researcher before the commencement of the research. Some of the organisations have been in business for more than 85 years, with the culture within these organisations well established over time.

The target population was spread over seven of the nine provinces of South Africa, and the only way they could be reached was through an online survey. There was no control over the completion of the questionnaire and participation was completely voluntary. Two hundred questionnaires were sent out, and 138 were returned after completion.

3.5 VALIDITY AND RELIABILITY

3.5.1 Validity and reliability of measuring instruments

During data collection for the purposes of research, it is important to consider the reliability and validity factors (Leedy, 1997:32). Practical implementation involves the development and construction of measuring instruments to test variable components. Key indicators such as validity and reliability are indicative of the quality of the measuring instrument (Kimberlin & Winterstein, 2008:2276).

3.5.2 Validity of the measuring instrument

The validity of the measuring instrument will depend on the appropriateness of the research findings and, based on the test scores, inferences will be made and this will represent whether the measuring instrument did what it was designed and intended for

(Johnson & Christensen, 2012:143; Welman *et al.*, 2005:142). Although there are several types of validity applicable, construct validity and criterion validity are the two main types of validity (Welman *et al.*, 2005:142).

Construct validity is based on consistency of the measuring instrument, which relates to the ability of the measuring instrument to provide consistent results when used in a variety of different studies. Criterion validity, on the other hand, measures the compatibility and consistency between scores related to the same construct measured by the instrument or similar latent constructs (Kimberlin & Winterstein, 2008:2276). The validity of the measuring instrument is discussed under 3.6 below.

3.5.3 Reliability of the measuring instrument

Reliability is associated with to what degree test scores from a measuring instrument are error free; in other words, the credibility of the results (Welman *et al.*, 2005:145). Moreover should the measuring instrument be implemented under different circumstances, the extent to which similar results would be obtained and therefore uphold the reliability of the measuring instrument and reduce measurement error are important (Kimberlin & Winterstein, 2008:2276). The Cronbach alpha values for the assessment tool used in previous studies measured the assessment tool to be reliable (Knox-Davies, 2010:31-33).

3.6 MEASURING INSTRUMENT

This diagnostic survey, which was taken online through an internet service provider, was designed by Garvin, Edmondson and Gino (2008:4), and was designed to help to determine how well your company functions as a learning organisation. The survey is divided in to three sections, each representing one building block of the learning organisation. In the first two blocks, you have to rate on a seven-point scale how accurately each statement describes the organisational unit in which you work. In the third block, you have to rate how often the managers (or manager) to whom you report exemplify the behaviour described (Garvin *et al.*, 2008:6). Items with an asterisk (*) should be reverse scored.

3.6.1 Benchmark scores for the learning organisation survey

The initial data gathered to compile benchmarks scores was collected by asking senior managers from a wide variety of industries to take the survey during a management

programme attended by them at the Harvard Business School. Dynamic scores synthesise the ratings (unwanted behaviour ratings are reverse scored) and provide an estimated score for each subcomponent and building block. Synthetic scores are then processed to a zero-to-100 scale to allow scores to be compared between employees in the same unit or in other units in the organisation. In addition, the scores can also be compared to benchmark data, as set out in Table 3.

After completion of the survey, the average scores of the population were compared to the benchmark scores from the initial study. The benchmark scores on the zero-to-100 scale were diverted back to the raw scores on the seven-point scale and five-point scale for further comparisons for the purpose of this study. The comparison of scores determined in which of the five quartiles – bottom, second, median, third or top – the organisation resorted in. According to the quartile the organisations fall in, some suggestions were made to possibly strengthen the position of the organisation, and organisations should incorporate these results into their strategic planning and goals.

Table 3: Benchmark scores for the learning organisation survey, zero-to-100 scale

Building blocks and their subcomponents	Scaled scores				
	Bottom quartile	Second quartile	Median	Third quartile	Top quartile
Supportive learning environment					
Psychological safety	31-66	67-75	76	77-86	87-100
Appreciation of differences	14-56	57-63	64	65-79	80-100
Openness to new ideas	38-80	81-89	90	91-95	96-100
Time for reflection	14-35	36-49	50	51-64	65-100
Learning environment composite	31-61	62-70	71	72-79	80-90
Concrete learning processes and practices					
Experimentation	18-53	54-70	71	72-82	83-100
Information collection	23-70	71-79	80	81-89	90-100
Analysis	19-56	57-70	71	72-86	87-100
Education and training	26-68	69-79	80	81-89	90-100

Information transfer	34-60	61-70	71	72-84	85-100
Learning processes composite	31-62	63-73	74	75-82	83-97
Leadership That Reinforces Learning Composite					
Composite for this block	33-66	67-75	76	77-82	83-100

Note: The rating for learning environment and learning processes has been calculated by multiplying the score on the seven-point scale by 100 and then dividing it by seven. For leadership, which only had a five-point scale, the divisor was five.

Table 4: Benchmark scores for the learning organisation survey – raw scores

Building Blocks and Their Subcomponents	Raw Scores				
	Bottom quartile	Second quartile	Median	Third quartile	Top quartile
Supportive learning environment					
Psychological Safety	2.17-4.62	4.69-5.25	5.32	5.39-6.02	6.09-7.00
Appreciation of differences	0.98-3.92	3.99-4.41	4.48	4.55-5.53	5.60-7.00
Openness to new ideas	2.66-5.60	5.67-6.23	6.30	6.37-6.65	6.72-7.00
Time for reflection	0.98-2.45	2.52-3.43	3.50	3.57-4.48	4.55-7.00
Learning environment composite	2.17-4.27	4.34-4.90	4.97	5.04-5.53	5.60-6.30
Concrete Learning Processes and Practices					
Experimentation	1.26-3.71	3.78-4.90	4.97	5.04-5.74	5.81-7.00
Information collection	1.61-4.90	4.97-5.53	5.60	5.67-6.23	6.30-7.00
Analysis	1.33-3.92	3.99-4.90	4.97	5.04-6.02	6.09-7.00
Education and Training	1.82-4.76	4.83-5.53	5.60	5.67-6.23	6.30-7.00
Information transfer	2.38-4.20	4.27-4.90	4.97	5.04-5.88	5.95-7.00
Learning processes composite	2.17-4.34	4.41-5.11	5.18	5.25-5.74	5.81-6.79
Leadership That Reinforces Learning Composite					
Composite for this block	1.65-3.30	3.35-3.75	3.80	3.85-4.10	4.15-5.00

Note: The raw scores for learning environment and learning processes were computed by multiplying each synthesised score on the 100-point scale by seven and dividing it by 100. For leadership, which was based on a five-point scale, the multiplier was five and the divisor was 100.

3.6.2 Understanding the three building blocks of a learning organisation

3.6.2.1 BUILDING BLOCK 1: Supportive learning environment

An environment that supports learning has four distinguishing characteristics (Garvin *et al.*, 2008, 1-9).

Psychological safety

Psychological safety is how safe employees feel to differ from others, to ask naive questions, to make mistakes without fear of being belittled or punished, and to give an opinion even if it is in the minority.

- In this unit, it is easy to speak up about what is on your mind.
- If you make a mistake in this unit, it is often held against you.*
- People in this unit are usually comfortable talking about problems and disagreements.
- People in this unit are eager to share information about what does and does not work.
- Keeping your cards close to your chest is the best way to get ahead in this unit.*

Appreciation of differences

Appreciation of differences deals with the recognition of opposing ideas.

- Differences in opinion are welcome in this unit.
- Unless an opinion is consistent with what most people in this unit believe, it will not be valued.*
- This unit tends to handle differences of opinion privately or off-line, rather than addressing them directly with the group.*
- In this unit, people are open to alternative ways of getting work done.

Openness to new ideas

Openness to new ideas gives employees the opportunity to take risks and explore the unknown.

- In this unit, people value new ideas.
- Unless an idea has been around for a long time, no one in this unit wants to hear it.*
- In this unit, people are interested in better ways of doing things.
- In this unit, people often resist untried approaches.*

Time for reflection

Time for reflection deals with creating time and opportunities where employees can analyse, evaluate and assess the organisation's processes.

- People in this unit are overly stressed.*
- Despite the workload, people in this unit find time to review how the work is going.
- In this unit, schedule pressure gets in the way of doing a good job.*
- In this unit, people are too busy to invest time in improvement.*
- There is simply no time for reflection in this unit.*

3.6.2.2 BUILDING BLOCK 2: Concrete learning processes and practices

A learning organisation does not come about by itself, but is a result of a series of deliberate, concrete steps and diverse activities or processes. Learning processes involve the generation, gathering, interpretation and dissemination of information. Included in these processes are experimentation to develop new services and products; the collection of information to keep up with competitors, clients and technological changes; sustained interpretation and analysis to identify and solve problems; and education and training to develop both new and established employees (Garvin *et al.*, 2008, 1-9).

A learning organisation has formal processes to:

- Generate, gather, interpret and distribute information.
- Experiment with new trends and offers.
- Gather information about competitors, clients and technological trends.
- Identify and solve obstacles and problems.
- Develop and expand knowledge and skills of employees.

Experimentation

- This unit experiments frequently with new ways of working.
- This unit experiments frequently with new product or service offerings.
- This unit has a formal process to conduct and evaluate experiments or new ideas.
- This unit frequently employs prototypes or simulations when trying out new ideas.

Information collection

- This unit systematically collects information on competitors.
- This unit systematically collects information on customers.

- This unit systematically collects information on economic and social trends.
- This unit systematically collects information on technological trends.
- This unit frequently compares its performance with that of competitors.
- This unit frequently compares its performance with that of best-in-class organisations.

Analysis

- This unit engages in productive conflict and debate during discussions.
- This unit seeks out dissenting views during discussions.
- This unit never revisits well-established perspectives during discussions.*
- This unit frequently identifies and discusses underlying assumptions that might affect key decisions.
- This unit never pays attention to different views during discussions.*

Education and training

- Newly hired employees in this unit receive adequate training.
- Experienced employees in this unit receive periodic training and training updates.
- Experienced employees in this unit receive training when switching to a new position.
- Experienced employees in this unit receive training when new initiatives are launched.
- In this unit, training is valued.
- In this unit, time is made available for education and training activities.

Information transfer

- This unit has forums for meeting with and learning from experts from other departments, teams or divisions.
- This unit has forums for meeting with and learning from experts from outside the organisation.
- This unit has forums for meeting with and learning from customers and clients.
- This unit has forums for meeting with and learning from suppliers.
- This unit regularly shares information with networks of experts within the organisation.
- This unit regularly shares information with networks of experts outside the organisation.
- This unit quickly and accurately communicates new knowledge to key decision-

makers.

- This unit regularly conducts post-audits and after-action reviews.

3.6.4.1 BUILDING BLOCK 3: Leadership that reinforces learning

Leadership that reinforces learning

The leaders of an organisation:

- Are willing to listen to alternative points of view.
- Demonstrate the importance of spending time on the identification of problems, transferring knowledge and applying reflection.
- Are involved in active interrogation and listening.

Leadership that reinforces learning

- My managers invite input from others in discussions.
- My managers acknowledge their own limitations with respect to knowledge, information or expertise.
- My managers ask probing questions.
- My managers listen attentively.
- My managers encourage multiple points of view.
- My managers establish forums for and provide time and resources to identify problems and organisational challenges.
- My managers provide time, resources and venues to reflect and improve on past performance.
- My managers criticize views different from their own point of view.*

3.7 PROCEDURE

3.7.1 Initial preparations

Initially, five companies in the agricultural sector were contacted requesting permission from the chief executive officers via the human resource managers to engage employees in managerial positions in the study. The purpose of the study was discussed briefly with the various human resource managers and a cover letter was sent to the human resource managers. Three agricultural companies, i.e. Obaro, Suidwes Landbou Groep and KLK Landbou, gave their permission to allow their employees to participate. After obtaining the necessary permissions (Annexure A),

and giving a guarantee of anonymity, the human resource departments supplied the e-mail addresses of all the employees in managerial positions as well as the directors. An e-mail introducing myself and the purpose of the study was then sent to all participants explaining the process (Annexure B). The survey started with a unique coding system, which enables the analysis of birth year and gender.

The **Learning Organization Survey** questions were then loaded into an online service provider to enable participants to take the survey online. A total of 200 requests were sent to possible participants, and 138 responses were received back, leading to a response rate of 69%.

3.7.2 Administration of the questionnaires

All proposed participants were informed through e-mail that they will receive a survey request form from an online service provider the day prior to the start of the survey. The survey was then sent via an online service provider (free online questionnaire and survey software) for participants to take the survey online. Part of the online service provided is a function whereby participants who have not yet responded could be prompted to take the survey. The survey was available for completion for three weeks and participants received reminders and requests to take the survey three times a week.

3.7.3 Data capturing and feedback

The data from the completed questionnaires was collected through an online service provider. As part of the software provided by the online service provider, the information would be exported and downloaded to a Microsoft® Office Excel spreadsheet. This function was beneficial to the facilitation of the statistical analysis.

All the CEOs of the different organisations requested feedback from the results of the study, and a commitment was made to the organisations that they would receive a copy of results and, if needed, a personal presentation to the board of directors, if that would be more desirable.

3.8 STATISTICAL ANALYSIS

For the purposes of the statistical analysis of the data, two different statistical programs were used, namely **SPSS®** and ANOVA.

The processing and analysis of the statistical data were done with the support of the Statistical Consultation Services of the North-West University to ensure that the statistical analyses are of high quality. The **SPSS®** is the package used by the Statistical Consultation Services. The **SPSS®** program is well above the scope of Microsoft Excel's capabilities, and focuses much more on extraordinary and advanced statistical analysis (Wagner, 2007:12).

Analysis of variance (ANOVA) is used to test the differences between two or more means according to statistical methods and models. The name ANOVA is appropriate because assumptions about the means are made by analysing the variance. The statistical test, ANOVA, in its simplest form, compares whether the mean of several groups is equal and therefore generalises the t-test in more than two groups. ANOVAs are therefore useful for comparing the mean of three or more groups or variables (test) for statistical significance. In concept, the ANOVA test is very similar to the multiple two-sample t-tests, but because the ANOVA test is more conservative, it is much more suitable for a wide range of practical problems.

Where ANOVA tests the variance between two or more means (Rosner, 2000:512), Cohen's effect size test uses averages to determine differences between more than one average. To explain the effect size, the following values are used as guidelines, namely that a difference of 0.2 is considered a small effect size, 0.5 represents a medium effect size and 0.8 a large effect size.

3.9 RESEARCH OBJECTIVES

The following research objectives were formulated for the purposes of this study:

3.9.1 Primary objective

The primary objective of the research was to determine whether agricultural organisations are learning organisations and, if not, what possible impediments there could be towards becoming learning organisations. The main research question for this study is: "Are agricultural organisations learning organisations"?

3.9.2 Secondary objective

The secondary objective of the study was how organisational learning is influenced by cross-generational perspectives. The perspectives of managers from different generations were assessed for any statistical or practical similarities or differences

when comparing mean scores between the different generations. The secondary research question to be answered was formulated as: “Is organisational learning influenced differently by managers from different generational cohorts?”

3.10 CHAPTER SUMMARY

This chapter explains the methods used in terms of the research design and approach that were followed, who the participants were in the research and why it was important to test for reliability as well as validity. The operation of the assessment tool and what was measured in each building block are explained, and statistical methods for analysing the data are provided. Chapter 4 deals with the analysis of results.

CHAPTER 4: ANALYSIS OF RESULTS

4.1 INTRODUCTION

Chapter 3 provided a description of the methodology that was applied during the empirical research and, in Chapter 4, the results of the empirical research are reported, analysed and discussed. Firstly, the demographics of the respondents will be discussed, and thereafter, the results of the different building blocks to becoming a learning organisation. A second set of results will also be analysed according to ANOVA, the Welch's t-test and Cohen's effect size to analyse the responses from the generational cohorts. Lastly, the differences between the genders will be analysed and discussed.

4.1 BIOGRAPHICAL INFORMATION

The sample of the study is made up of 138 respondents, who are employees in managerial positions, i.e. junior-, middle-, senior- and top management, as well as directors, all in the agricultural sector. The percentage of respondents was very high at 69%.

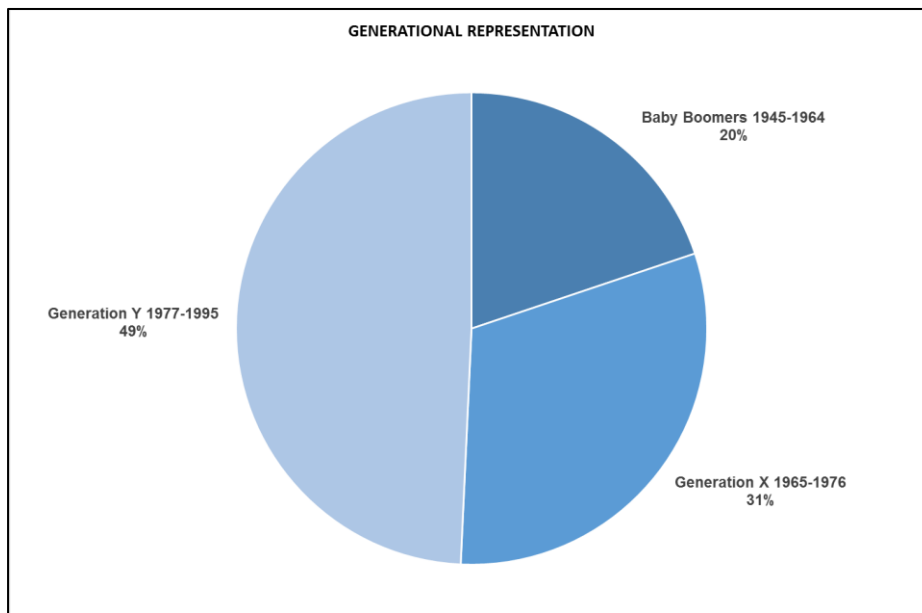
4.1.1 Learning organisation

A total of 138 responses out of 200 were received and we were able to use all of the 138 responses to evaluate whether the organisations are learning organisations.

4.1.2 Respondents' generational distribution

Only 136 responses could be used for the data analysis for the generational differences with regard to becoming a learning organisation. The composition of the different generations was as follows: Generation Y was 49% (67), Generation X 31% (42) and Baby Boomers 20% (27).

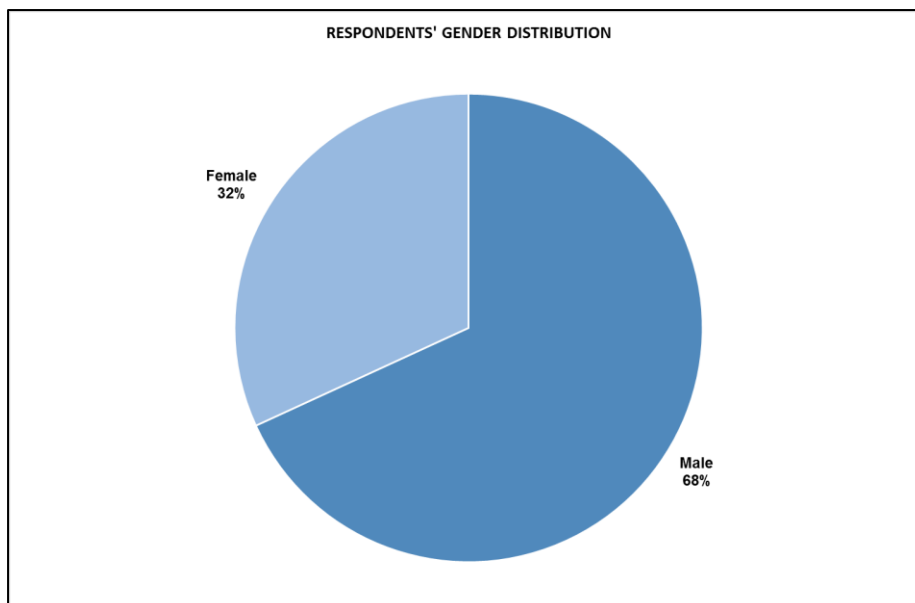
Figure 2: Respondents' generational representation



4.1.3 Respondents' gender distribution

A total of 135 responses were analysed from the data for the gender cohort of which 92 were male and 43 female. There were three questionnaires incorrectly completed in terms of the unique identification code.

Figure 3: Respondents' gender distribution



4.2 LEARNING ORGANISATION

In order to determine whether agricultural organisations are learning organisations, the assessment tool designed by Garvin, Edmondson and Gino was administered. In the first two blocks, a seven-point scale is used to rate how accurately each statement describes the organisational unit in which you work. In the third block, it is rated how often the managers (or manager) to whom you report exemplify the behaviour described.

4.2.1 Building block 1: Supportive learning environment

For building block 1: Supportive learning environment, the following composites, namely psychological safety, appreciation of differences, openness to new ideas and time for reflection were assessed.

4.2.1.1 Psychological safety

Table 5: Psychological safety: Table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Psychological safety	1	2	3	4	5	6	7	Mean	SD
In this unit, it is easy to speak up about what is on your mind	7 (5.1)	9 (6.5)	6 (4.3)	5 (3.6)	20 (14.5)	56 (40.6)	35 (25.4)	5.39	1.70
If you make a mistake in this unit, it is often held against you. (R)	31 (22.5)	26 (18.8)	13 (9.4)	13 (9.4)	30 (21.7)	21 (15.2)	4 (2.9)	3.46	1.922
People in this unit are usually comfortable talking about problems and disagreements.	7 (5.1)	9 (6.5)	9 (6.5)	9 (6.5)	29 (21.0)	56 (40.6)	19 (13.8)	5.09	1.641
People in this unit are eager to share information about what does and does not work.	3 (2.2)	9 (6.5)	6 (4.3)	6 (4.3)	21 (15.2)	57 (41.3)	36 (26.1)	5.52	1.534
Keeping your cards close to your chest is the best way to get ahead in this unit. (R)	29 (21.0)	32 (23.2)	16 (11.6)	21 (15.2)	12 (8.7)	20 (14.5)	8 (5.8)	3.34	1.928

To determine the psychological safety in the agricultural organisations, five descriptors were given that participants had to rate. In order to determine the mean score for

psychological safety, those descriptors marked with an (R) are reverse scored. Below is an analysis of the results:

- In this unit, it is easy to speak up about what is on your mind. Most of the participants rated this descriptor high, with 56 (40.6%) of the participants rating at 6 and the second highest rating at 7, 35 (25.4%). The mean for this descriptor is at 5.39 on the scale of 1 to 7.
- If you make a mistake in this unit, it is often held against you (R). This scenario was reverse scored. Although the highest rating indicates that it will not be held against you when you make a mistake, it was still fairly low at only 31 (20.2%) participants scoring this the highest. The result for this scenario further indicates that participants were not convinced that a mistake will not be held against you as the mean for this is at 3.46 out of a possible 7. When reverse scoring was applied, the mean remained low at 3.54.
- People in this unit are usually comfortable talking about problems and disagreements. The highest rating for this descriptor was at 6 with 56 (40.6%) participants, and the second highest at 5 with 29 (21%) participants. The mean for this descriptor is at 5.19.
- People in this unit are eager to share information about what does and does not work. This scenario was rated the highest mean at 5.52 and most participants 57 (41.3%) gave a rating of 6. At the second highest, 36 (26.1%) participants gave a rating of 7.
- Keeping your cards close to your chest is the best way to get ahead in this unit (R). A reverse scoring was applied to this descriptor and the mean is 3.34 and reverse score at 3.66. A very even distribution was recorded with 77 participants scoring 5 and above and 61 scoring from 4 and below.

Calculating the average of all the means in the psychological safety composite, the average mean is at **4.64**.

The following table shows the analysis done to determine the reliability and validity of the psychological safety composite:

Table 6: Reliability and validity for the psychological safety composite

Statement	Factor 1	Factor 2	Communalities
In this unit, it is easy to speak up about what is on your mind.	0.633		0.641
People in this unit are usually comfortable talking about problems and disagreements.	0.845		0.780
People in this unit are eager to share information about what does not work as well as to share information about what does work.	0.890		0.744
Keeping your cards close to your chest is the best way to get ahead in this unit.		0.737	0.620
If you make a mistake in this unit, it is often held against you.		0.904	0.775
Cronbach's alpha	0.764	0.603	<i>Between 0-1</i>
Kaiser-Meyer-Olkin (KMO)	0.697		<i>0.6 to 0.9</i>
Bartlett's test of sphericity	$p < 0.0001$		<i>P < 0.05</i>
Determinant	0.275		<i>Less than 1</i>
Total variance explained	71.18%		<i>Above 50%</i>

For the psychological safety composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy measured 0.697. Values between 0.6 and 0.7 are considered to be mediocre values, but the exploratory factor analysis is still appropriate for the datasets. The p-value for Bartlett's test of sphericity was calculated to be smaller than 0.05, which is an indication of a sufficiently large correlation between the statements, and therefore an exploratory factor analysis is suitable to perform. The determinant correlation matrix measured 0.275, which indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha values, measuring internal consistency, were 0.764 and 0.603, and are acceptable to measure the construct in a reliable manner.

4.2.1.2 Appreciation of differences

Table 7: Appreciation of differences: Table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Appreciation of differences	1	2	3	4	5	6	7	Mean	SD
Differences in opinion are welcome in this unit	3 (2.2)	9 (6.5)	11 (8)	12 (8.7)	44 (31.9)	39 (28.3)	20 (14.5)	5.04	1.489
Unless an opinion is consistent with what most people in this unit believe, it will not be valued. (R)	22 (15.9)	27 (19.6)	18 (13)	24 (17.4)	23 (16.7)	19 (13.8)	5 (3.6)	3.55	1.792
This unit tends to handle differences of opinion privately or off-line, rather than addressing them directly with the group. (R)	8 (5.8)	18 (13)	12 (8.7)	18 (13)	33 (13.9)	34 (24.6)	15 (10.9)	4.54	1.752
In this unit, people are open to alternative ways of getting work done.	5 (3.6)	9 (6.5)	9 (6.5)	5 (3.6)	35 (25.4)	51 (37)	24 (17.4)	5.21	1.582

To evaluate the degree where to differences are appreciated the following descriptors were rated. An analysis of the results showed the following:

- Differences in opinion are welcome in this unit. This component resulted in most of the participants, 44 (31.9%), giving a rating of 5, and second to this was 39 (28.3%) at a rating of 6 and the mean 5.04.
- Unless an opinion is consistent with what most people in this unit believe, it will not be valued (R). A reverse score was applied for this scenario. The highest number of participants, 24 (17.4%), was at the rating of 4, and the second highest rating at 5 with 23 (16.7%) of the participants. The mean rating is 3.55 and the reverse score is 3.45.
- This unit tends to handle differences of opinion privately or off-line, rather than addressing them directly with the group (R). The mean rating for this component is at 4.54, and applying the reverse score, the mean is very low at 2.45. On aggregate, 82 out of a possible 138 (59.4%) participants gave a rating of below 4.

- In this unit, people are open to alternative ways of getting work done. This descriptor was rated the highest, with the mean at 5.21. The bulk of the participants rated this above 4. The rating of the participants was 51 (37%) at the rating of 6, and 35 (25.4%) rating at a score of 5.

Calculating the average of all the means in the appreciation of differences composite, the mean is at **4.03**.

The following table shows the analysis done to determine the reliability and validity for the appreciation of differences composite:

Table 8: Reliability and validity for the appreciation of differences composite

Statement	Factor 1	Factor 2	Communalities
Differences in opinions are welcomed in this unit.	0.933		0.849
In this unit, people are open to alternative ways of getting work done.	0.874		0.702
Unless an opinion is consistent with what most people in this unit believe, it will not be valued.		0.338	0.946
This unit tends to handle differences of opinion privately or off-line, rather than addressing them directly as a group.		0.977	0.745
Cronbach's alpha	0.816	0.817	Between 0-1
Kaiser-Meyer-Olkin (KMO)	0.621		0.6 to 0.9
Bartlett's test of sphericity	p < 0.000		P < 0.05
Determinant	0.292		Less than 1
Total variance explained	81.05%		Above 50%

For the appreciation of differences composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy measured 0.621. Values between 0.6 and 0.7 are considered to be mediocre values. Therefore, the exploratory factor analysis is still appropriate for the datasets. The p-value of Bartlett's test of sphericity was smaller than 0.05, indicating a sufficiently large correlation between the statements, and therefore an exploratory factor analysis is suitable to be performed. The determinant correlation matrix measured 0.292, which

indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha values for this composite measured between 0.816 and 0.817, and are considered great values, indicating that this construct was measured in a reliable manner.

4.2.1.3 Openness to new ideas

Table 9: Openness to new ideas: Table indicating the frequency and valid percentage for each question as well as the mean and standard deviation.

R=Question is reverse scored.

Openness to new ideas	1	2	3	4	5	6	7	Mean	SD
In this unit, people value new ideas.	3 (2.2)	8 (5.8)	10 (7.2)	8 (5.8)	28 (20.3)	48 (34.8)	33 (23.9)	5.36	1.552
Unless an idea has been around for a long time, no one in this unit wants to hear it. (R)	28 (20.3)	30 (21.7)	23 (16.7)	21 (15.2)	17 (12.3)	14 (10.1)	5 (3.6)	3.22	1.772
In this unit, people are interested in better ways of doing things	3 (2.2)	6 (4.3)	8 (5.8)	7 (5.1)	23 (16.7)	54 (39.1)	37 (26.8)	5.54	1.485
In this unit, people often resist untried approaches. (R)	9 (6.5)	20 (14.5)	20 (14.5)	31 (22.5)	29 (21)	24 (17.4)	5 (3.6)	4.04	1.600

Openness to new ideas was evaluated, and the following analysis of the results of the four descriptors, which participants had to rate, was done:

- In this unit, people value new ideas. Most of the participants, 48 (34.8%), gave a rating of 6, and the rating just below saw 33 (23.9%) of participants scoring at 7. The mean is high at 5.36.
- Unless an idea has been around for a long time, no one in this unit wants to hear it (R). A very evenly distributed rating was returned when this descriptor was rated. However, most of the participants gave a rating above the median of 4. The highest rating was at 6 at 30 (21.7%) of the participants, and this is still very low. The reverse score value for the mean is at 3.78.
- In this unit, people are interested in better ways of doing things. A large number of participants agreed to this descriptor as 114 out of 138 (82.6%) gave a rating between 5, 6 and 7. The mean is high at 5.54.

- In this unit, people often resist untried approaches (R). Applying the reverse score, the mean dropped down from 4.04 to a very low 2.96. Participants seem to not agree with this scenario, as 31 (22.5%) gave a rating of 4, 29 (21%) a rating of 3, and 24 (17.4%) of participants a rating of 2.96.

Calculating the average of all the means in the openness to new ideas composite, the mean is at **4.54**.

The following analyses were done to determine the reliability and validity for openness to new ideas:

Table 10: Reliability and validity for the openness to new ideas composite

Statement	Factor 1	Factor 2	Communalities
In this unit, people value new ideas.	0.801		0.641
Unless an idea has been around for a long time, no one in this unit wants to hear it.	-0.789		0.623
In this unit, people are interested in better ways of doing things.	0.787		0.619
In this unit, people often resist untried approaches.	-0.611		0.374
Cronbach's alpha	-0.128	-0.104	<i>Between 0-1</i>
Kaiser-Meyer-Olkin (KMO)	0.649		<i>0.6 to 0.9</i>
Bartlett's test of sphericity	p < 0.000		<i>P < 0.05</i>
Determinant	0.327		<i>Less than 1</i>
Total variance explained (68)	56.40%		<i>Above 50%</i>

For the openness to new ideas composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy measured 0.649, and values between 0.6 and 0.7 are considered to be mediocre values. The exploratory factor analysis is still appropriate for this dataset. The p-value of Bartlett's test of sphericity was calculated to be less than 0.05, and an exploratory factor analysis is suitable to perform. This question only formed one factor, which is highly desirable. The determinant correlation matrix measured 0.327, which indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha values were between

-0.128 and -0.104 measuring internal consistency, and are extremely poor values. All the (R) questions were reverse scored and the reverse scoring was therefore a problem when calculating the Cronbach alpha values. Calculating the Cronbach alpha value for the two positive questions (0.791) and separately calculating a Cronbach alpha value for the two negative questions (0.675) is good. The factor analysis indicates that all the questions load onto one factor, which is desirable.

4.2.1.4 Time for reflection

Table 11: Time for reflection: The table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Time for reflection	1	2	3	4	5	6	7	Mean	SD
People in this unit are overly stressed. (R)	9 (6.5)	32 (23.2)	20 (14.5)	19 (13.8)	24 (17.4)	22 (15.9)	12 (8.7)	3.95	1.810
Despite the workload, people in this unit find time to review how the work is going.	4 (2.9)	8 (5.8)	8 (5.8)	12 (8.7)	39 (28.3)	49 (35.5)	18 (13)	5.12	1.477
In this unit, schedule pressure gets in the way of doing a good job. (R)	13 (9.4)	43 (31.2)	15 (10.9)	19 (13.8)	23 (16.7)	21 (15.2)	4 (2.9)	3.54	1.747
In this unit, people are too busy to invest time in improvement. (R)	16 (11.6)	29 (21)	19 (13.8)	23 (16.7)	21 (15.2)	26 (18.8)	4 (2.9)	3.71	1.768
There is simply no time for reflection in this unit. (R)	22 (15.9)	30 (21.7)	32 (23.2)	20 (14.5)	21 (15.2)	9 (6.5)	4 (2.9)	3.22	1.621

The analysis for the subcomponent of time for reflection showed the following results:

- People in this unit are overly stressed (R). Firstly, when taking the mean into consideration, and applying reverse scoring, the mean will be at 3.05, which is low. There is a number of almost equal ratings 32 (23.2%), 20 (14.5%), 19 (13.8%), 24 (17.4%) and 22 (15.9%). Even the top and bottom scores do not differ that much; top 9 (6.5%) and bottom 12 (8.7%).
- Despite the workload, people in this unit find time to review how the work is going. Participants felt that this scenario was moderate to slightly accurate. 49 (35.5%)

participants felt that this scenario was moderately accurate, and the second largest group of participants 39 (28.3%) felt it was slightly accurate. The mean is at 5.12.

- In this unit, schedule pressure gets in the way of doing a good job (R). The reverse score rule is applicable, and therefore the mean is at 3.46. Although the highest rating of participants 43 (31.2%) believe that this descriptor is moderately inaccurate, the balance of the scores dominated by lower scores shows the opposite, believing that the descriptor is slightly to moderately accurate.
- In this unit, people are too busy to invest time in improvement (R). The rating of this descriptor shows that 64 (46%) of the participants believed that this statement is inaccurate as opposed to those not sure and those who believe this is accurate. Those not sure and those who believe this is accurate represent 74 (53.6%) of the participants. That is the reason for the mean being 3.71 and the applied reverse score mean being 3.29.
- There is simply no time for reflection in this unit (R). The larger number of participants 84, or 61%, believe that this scenario is inaccurate. By applying the reverse score for this scenario, the mean is at 3.78.

Calculating the average of all the means in the time for reflection composite the mean is at **3.91**.

The following analyses were done to determine the reliability and validity of the time for reflection composite:

Table 12: Reliability and validity for the time for reflection composite

Statement	Factor 1	Factor 2	Communalities
People in this unit are overly stressed.	0.858		0.658
Despite the workload, people in this unit find time to review how the work is going.	0.811		0.346
In this unit, schedule pressure gets in the way of doing a good job.	0.810		0.737
In this unit, people are too busy to invest time in improvement.	0.708		0.501
There is simply no time for reflection in this unit.	-0.588		0.657
Cronbach's alpha	0.584		<i>Between 0-1</i>

Kaiser-Meyer-Olkin (KMO)	0.823		<i>0.6 to 0.9</i>
Bartlett's test of sphericity	$p < 0.0001$		<i>P < 0.05</i>
Determinant	0.178		<i>Less than 1</i>
Total variance explained	57.97%		<i>Above 50%</i>

For the time for reflection composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measured 0.823, and these are considered to be great values, and therefore exploratory factor analysis is highly appropriate for the datasets. The p-value of Bartlett's test of sphericity was calculated to be less than 0.05, and therefore an exploratory factor analysis is suitable to be performed. This question only formed one factor, which is highly desirable. The determinant correlation matrix measured 0.178, which indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha value is at 0.584, and is a poor value. The Cronbach alpha value can be increased to 0.826 if the question "despite the workload, people in this unit find time to review how the work" is left out. Because the factor analysis indicates that all the questions load onto one factor, and for the purpose of this study, the Cronbach alpha value of 0.584 will be accepted as reliable.

4.2.1.5 Summary for the learning environment composite

For the learning environment composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values, and therefore all results for building block 1 were accepted in analysing the results from the data gathered. Questions where reverse scoring was applied were a challenge for the participants, as shown by the results for time for reflection. The standard deviations for all composites and all questions relating to the composites were larger than 1, and this is indicative of big disagreements from participants. In terms of answering to the research question to determine whether agricultural organisations are learning organisations, the results seem positive at first sight, but could be misleading and further analysis against the benchmark scores was done.

4.2.2 Building block 2: Concrete learning processes and practices

The following composites, i.e. experimentation, information collection, analysis, education and training, and information transfer were assessed for building block 2, concrete learning processes and practices.

4.3.2.1 Experimentation

Table 13: Experimentation: The table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Experimentation	1	2	3	4	5	6	7	Mean	SD
This unit experiments frequently with new ways of working.	3 (2.2)	9 (6.5)	13 (9.4)	14 (10.1)	38 (27.5)	42 (30.4)	19 (13.8)	5.01	1.511
This unit experiments frequently with new products or service offerings.	3 (2.2)	8 (5.8)	4 (2.9)	13 (9.4)	34 (24.6)	48 (34.8)	28 (20.3)	5.34	1.462
This unit has a formal process for conducting and evaluating experiments or new ideas.	7 (5.1)	11 (8)	10 (7.2)	21 (15.2)	41 (29.7)	36 (26.1)	12 (8.7)	4.70	1.583
This unit frequently employs prototypes or simulations when trying out new ideas.	7 (5.1)	18 (13)	9 (6.5)	38 (27.5)	33 (23.9)	25 (18.1)	8 (5.8)	4.30	1.568

To determine to what extent experimentation takes place, four descriptors were given, which participants had to rate. Below is an analysis of the results:

- This unit experiments frequently with new ways of working. A total of 99 (72%) of the participants felt that this is accurate. 42 felt that it is moderately accurate, 38 felt it was slightly accurate, and 19 felt it was highly accurate. The mean is high at 5.01.
- This unit experiments frequently with new products or service offerings. Participants rated this determinant the highest, with a mean at 5.34. Of the 80% of the participants, 48 (34.8%) rated this scenario as moderately accurate, 34 (24.6%) rated this as slightly accurate, and 28 (20.3%) gave a rating of highly accurate.

- This unit has a formal process for conducting and evaluating experiments or new ideas. Although the rating by the participants reflects a positive attitude towards experimenting, they were not sure whether there is a formal process for conducting and evaluating experiments or new ideas, and 21 or 15.2% indicated that they were not sure and the bulk of participants 41 (29.7%) indicated that this descriptor was only slightly accurate. The mean is at 4.70.
- This unit frequently employs prototypes or simulations when trying out new ideas. Standing out is that most of the participants, 38 (27.5%), indicated this scenario as neither accurate nor inaccurate, meaning they are not sure. The second largest score was recorded at 5, slightly accurate, with 33 (23.9%), and thirdly, moderately accurate by 25 (18.1%) of the participants. The mean is 4.30.

Calculating the average of all the means in the experimentation composite, the mean is at **4.84**.

The following analyses were done to determine the reliability and validity for experimentation:

Table 14: Reliability and validity for the experimentation composite

Statement	Factor 1	Factor 2	Communalities
This unit experiments frequently with new ways of working.	0.868		0.754
This unit experiments frequently with new product/service offerings.	0.855		0.731
This unit has a formal process for conducting and evaluating experiments or new ideas.	0.763		0.582
This unit frequently employs prototypes or simulations when trying out new ideas.	0.644		0.415
Cronbach's alpha	0.789		<i>Between 0-1</i>
Kaiser-Meyer-Olkin (KMO)	0.690		<i>0.8 to 0.9</i>
Bartlett's test of sphericity	$p < 0.000$		<i>P < 0.05</i>
Determinant	0.217		<i>Less than 1</i>
Total variance explained (68)	62.03%		<i>Above 50%</i>

For the Experimentation composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha

values. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy measured 0.690, and is considered to be mediocre, but the exploratory factor analysis is still appropriate for the datasets. The p-value of Bartlett's test of sphericity was calculated to be smaller than 0.05, which is an indication of a sufficiently large correlation between the statements and therefore an exploratory factor analysis is suitable to perform. The determinant correlation matrix measured 0.217, indicating that there is no severe multi-collinearity present in the data. The Cronbach alpha value is 0.789, and is acceptable, and therefore measuring this construct in a reliable manner. This question only formed one factor, which is highly desirable.

4.3.2.2 Information collection

Table 15: Information collection: The table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Information collection	1	2	3	4	5	6	7	Mean	SD
This unit systematically collects information on competitors	4 (2.9)	6 (4.3)	6 (4.3)	10 (7.3)	28 (20.3)	55 (39.9)	29 (21)	5.41	1.478
This unit systematically collects information on customers	4 (2.9)	2 (1.4)	3 (2.2)	5 (3.6)	19 (13.8)	62 (44.9)	43 (31.2)	5.83	1.316
This unit systematically collects information on economic and social trends (R)	6 (4.3)	3 (2.2)	6 (4.3)	10 (7.2)	29 (21)	51 (37)	33 (23.9)	5.45	1.509
This unit systematically collects information on technological trends	5 (3.6)	3 (2.2)	8 (5.8)	8 (5.8)	32 (23.2)	45 (32.6)	37 (26.8)	5.48	1.500
This unit frequently compares its performance with that of competitors	5 (3.6)	7 (5.1)	2 (1.4)	8 (5.8)	32 (23.2)	48 (34.8)	36 (26.1)	5.49	1.525
This unit frequently compares its performance with that of best-in-class organisations	4 (2.9)	9 (6.5)	5 (3.6)	11 (8)	26 (18.8)	48 (34.8)	35 (25.4)	5.39	1.582

To determine how well agricultural organisations collect information, six descriptors were given that participants had to rate. In order to determine the mean score for psychological safety, those descriptors marked with an (R) are reverse scored. Below is an analysis of the results:

- This unit systematically collects information on competitors. This descriptor was rated second highest of the six descriptors and very high, with 55 (39.9%) of participants rating at 6 (moderately accurate) and 29 (21%) at 7 (highly accurate). The mean is at 5.41.
- This unit systematically collects information on customers. This descriptor was rated the highest of the six. The mean is at 5.83. 62 participants gave a rating of 6 and 43 a rating of 7. Of the 138 participants, 105 or 76.1% of participants gave a score of 6 or 7.
- This unit systematically collects information on economic and social trends (R). Although participants struggled throughout with the questions that were reverse scored, in this scenario, it seems that they interpreted the question accurately. The scoring was high with 51 (37%) giving a rating of 6 and 33 (23.9%) giving a rating of 7 and the mean was determined at 5.45.
- This unit systematically collects information on technological trends. 82% of participants rated this descriptor as accurate, 32 (23.2%) gave a rating slightly accurate or 5, 45 (32.6%) gave a rating moderately accurate or 6, and 37 (26.8%) of participants gave a rating of highly accurate or 7. The mean is at 5.48.
- This unit frequently compares its performance with that of competitors. In terms of comparing performance to that of others, 84.1% of participants gave a rating of accurate, 32 (23.2%) slightly accurate, 48 (34.8%) moderately accurate, 36 (26.1%) highly accurate, with only 10.1 % giving a rating of inaccurate. The mean is at 5.49.
- This unit frequently compares its performance with that of best-in-class organisations. 79% of the participants felt that this descriptor was accurate, 8% of participants were unsure and 13% felt it was inaccurate. The mean is at 5.39.

Calculating the average of all the means in the appreciation of differences composite, the mean is at **5.51**.

The following analyses were done to determine the reliability and validity of the information collection composite.

Table 16: Reliability and validity for the information collection composite

Statement	Factor 1	Factor 2	Communalities
This unit systematically collects information on competitors	0.890		0.780
This unit systematically collects information on customers	0.883		0.551
This unit systematically collects information on economic and social trends (R)	0.867		0.792
This unit systematically collects information on technological trends	0.857		0.724
This unit frequently compares its performance with that of competitors	0.851		0.751
This unit frequently compares its performance with that of best-in-class organisations	0.742		0.734
Cronbach's alpha	0.923		<i>Between 0-1</i>
Kaiser-Meyer-Olkin (KMO)	0.830		<i>0.6 to 0.9</i>
Bartlett's test of sphericity	$p < 0.000$		<i>P < 0.05</i>
Determinant	0.006		<i>Less than 1</i>
Total variance explained	72.18%		<i>Above 50%</i>

For the Information collection composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measured 0.830, and is considered to be a great value. The exploratory factor analysis is therefore appropriate for the datasets. The exploratory factor analysis only gave one set of values, which is desirable. The p-value of Bartlett's test of sphericity was calculated to be smaller than 0.05, and therefore an exploratory factor analysis is suitable to perform. The determinant correlation matrix measured 0.006, which indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha value was 0.923, and is therefore acceptable measuring this construct in a reliable manner.

4.3.2.3 Analysis

Table 17: Analysis: The table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Analysis	1	2	3	4	5	6	7	Mean	SD
This unit engages in productive conflict and debate during discussions.	7 (5.1)	10 (7.2)	7 (5.2)	13 (9.4)	31 (22.5)	54 (39.1)	16 (11.6)	5.01	1.623
This unit seeks out dissenting views during discussions.	3 (2.2)	15 (10.9)	9 (6.5)	11 (8)	37 (26.8)	47 (34.1)	16 (11.6)	4.95	1.577
This unit never revisits well-established perspectives during discussions. (R)	12 (8.7)	42 (30.4)	24 (17.5)	24 (17.5)	26 (18.8)	7 (5.1)	3 (2.2)	3.31	1.518
This unit frequently identifies and discusses underlying assumptions that might affect key decisions.	1 (0.7)	6 (4.3)	10 (7.2)	18 (13)	33 (23.9)	55 (39.9)	15 (10.9)	5.18	1.319
This unit never pays attention to different views during discussions. (R)	33 (23.9)	35 (25.4)	31 (22.5)	15 (10.9)	18 (13)	3 (2.2)	3 (2.2)	2.79	1.535

To evaluate how analytical agricultural organisations are, the following descriptors were rated. Those descriptors marked with an (R) are reverse scored. Below is an analysis of the results:

- This unit engages in productive conflict and debate during discussions. Most of the participants (101) gave a rating of accurate, 31 (22.5%) slightly accurate, 54 (39.1%) moderately accurate and 16 (11.6%) highly accurate. Only 24 participants (17.5%) felt that this was inaccurate. The mean is at 5.01.
- This unit seeks out dissenting views during discussions. 72.5% (100 participants) felt that they can hold or express opinions that are at variance with those commonly or officially held, 8% of participants felt uncertain and 19.6% (27) felt that this is inaccurate and that you may not hold or express opinions that are at variance with those commonly or officially held. The mean is at 4.95.
- This unit never revisits well-established perspectives during discussions (R). Although the largest number of participants, 42 (30.4%), rated this descriptor at 6 (moderately accurate), it is noted that the second highest number of participants

26 (18.8%) gave a rating of 4, which is neither accurate nor inaccurate, indicating uncertainty. This descriptor is reverse scored with the mean low at 3.69.

- This unit frequently identifies and discusses underlying assumptions that might affect key decisions. It is noted that 121 participants out 138 gave a rating of between 4 and 7. The 39.9% or 55 participants rating at 6 are the highest for this composite. The mean is the highest of all the descriptors of this composite at 5.18.
- This unit never pays attention to different views during discussions (R). This descriptor is reverse scored, and therefore 99 (71.8%) participants felt that this descriptor is inaccurate. This descriptor is reverse scored with the mean at 4.21 (2.79).

Calculating the average of all the means in the appreciation of differences composite, the mean is at **4.60**.

The following analyses were done to determine the reliability and validity for the analysis composite

Table 18: Reliability and validity for the analysis composite

Statement	Factor 1	Factor 2	Communalities
This unit engages in productive conflict and debate during discussions.	0.912		0.825
This unit seeks out dissenting views during discussions.	0.893		0.856
This unit never revisits well-established perspectives during discussions.	0.828		0.820
In this unit, we frequently identify and discuss underlying assumptions that might affect key decisions.		0.927	0.667
This unit never pays attention to different views during discussions.		0.770	0.728
Cronbach's alpha	0.860	0.859	Between 0-1
Kaiser-Meyer-Olkin (KMO)	0.675		0.8 to 0.9
Bartlett's test of sphericity	p < 0.000		P < 0.05
Determinant	0.118		Less than 1
Total variance explained	77.90%		Above 50%

For the analysis composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy measured 0.675, and is considered to be a mediocre value. The exploratory factor analysis is appropriate for the datasets. The p-value of Bartlett's test of sphericity was calculated to be smaller than 0.05, which is an indication of a sufficiently large correlation between the statements, and therefore an exploratory factor analysis is suitable to be performed. The exploratory factor analysis only gave two sets of values, which is not that desirable. The determinant correlation matrix measured 0.118, which indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha values were 0.860 and 0.859, measuring internal consistency for factor 1 and factor 2, respectively, and are therefore acceptable and can consequently be considered to measure this construct in a reliable manner.

4.3.2.4 Education and training

Table 19: Education and training: The table indicating the frequency and valid percentage for each question as well as the mean and standard deviation.

R=Question is reverse scored.

Education and Training	1	2	3	4	5	6	7	Mean	SD
Newly hired employees in this unit receive adequate training.	8 (5.8)	11 (8)	6 (4.3)	11 (8)	22 (15.9)	51 (37)	29 (21)	5.15	1.763
Experienced employees in this unit receive periodic training and training updates	7 (5.1)	5 (3.6)	9 (6.5)	11 (8)	33 (23.9)	44 (31.9)	29 (21)	5.22	1.615
Experienced employees in this unit receive training when switching to a new position	9 (6.5)	13 (9.4)	10 (7.2)	13 (9.4)	29 (21)	42 (30.4)	22 (15.9)	4.84	1.793
Experienced employees in this unit receive training when new initiatives are launched.	7 (5.1)	12 (8.7)	8 (5.8)	9 (6.5)	29 (21)	45 (32.6)	28 (20.3)	5.09	1.745
In this unit, training is valued.	4 (2.9)	4 (2.9)	4 (2.9)	8 (5.8)	15 (10.9)	56 (40.6)	47 (34.1)	5.77	1.446
In this unit, time is made available for education and training activities.	5 (3.6)	7 (5.1)	7 (5.1)	11 (8)	30 (21.7)	42 (30.4)	36 (26.1)	5.35	1.601

To determine how education and training were conducted and applied, participants had to rate six descriptors. For the education and training composite, no descriptors were reverse scored. Below is an analysis of the results:

- Newly hired employees in this unit receive adequate training. Participants agreed with this scenario, with 51 (37%) participants rating at 6 and 29 (21%) at 7. The mean is at 5.15.
- Experienced employees in this unit receive periodic training and training updates. 76.8% (106) participants agreed that this descriptor is accurate, to 15.2% (21) rating this descriptor as inaccurate. The mean is at 5.22.
- Experienced employees in this unit receive training when switching to a new position. A rating of 5 or slightly accurate was given by 29 (21%) participants. The largest number of participants felt that this scenario was moderately accurate in their business unit, as 42 (30.4%) gave a rating of 6, and 22 (15.9%) participants gave a rating of 7. The mean is at 4.84.
- Experienced employees in this unit receive training when new initiatives are launched. 81.6% of participants rated this descriptor as accurate. By far the most participants, 45 or 32.6%, gave a rating of 6, and 28 or 20.3% a rating of 7. The mean is at 5.09.
- In this unit, training is valued. 118 of participants (85.6%) rated this descriptor as being accurate, 56 (40.6%) felt that this is moderately accurate, and 47 (34.1%) of participants regarded this as highly accurate of the unit they are working in. The mean for this descriptor is high at 5.77.
- In this unit, time is made available for education and training activities. This descriptor was also rated high, with 108 (78.3%) indicating that this is accurate. A rating of 6 was given by 42 (30.4%) of the participants, and a rating of 7 by 36 (26.1%) of the participants. The mean is 5.35

Calculating the average of all the means in the appreciation of differences composite, the mean is at **5.24**.

The following analyses were done to determine the reliability and validity of the education and training composite.

Table 20: Reliability and validity for the education and training composite

Statement	Factor 1	Factor 2	Communalities
Newly hired employees in this unit receive adequate training.	0.910		0.722
Experienced employees in this unit receive periodic training/updating.	0.871		0.749
Experienced employees in this unit receive training when shifting to a new position.	0.866		0.734
Experienced employees in this unit receive training when new initiatives are launched.	0.857		0.828
In this unit, training is valued.	0.850		0.568
In this unit, time is made available for education and training activities.	0.754		0.759
Cronbach's alpha	0.924		<i>Between 0-1</i>
Kaiser-Meyer-Olkin (KMO)	0.882		<i>0.6 to 0.9</i>
Bartlett's test of sphericity	$p < 0.000$		<i>P < 0.05</i>
Determinant	0.010		<i>Less than 1</i>
Total variance explained	72.70%		<i>Above 50%</i>

For the education and training composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measured 0.882, and is considered to be a great value, and therefore exploratory factor analysis is appropriate for the datasets. The p-value of Bartlett's test of sphericity was calculated to be smaller than 0.05, which is an indication of a sufficiently large correlation between the statements, and therefore an exploratory factor analysis is suitable to be performed. This question only formed one factor, which is highly desirable. The determinant correlation matrix measured 0.010, which indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha value was 0.924, measuring internal consistency, and is therefore acceptable, and therefore, measuring this construct in a reliable manner.

4.3.2.5 Information transfer

Table 21: Information transfer: The table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Information transfer	1	2	3	4	5	6	7	Mean	SD
This unit has forums for meeting with and learning from experts from other departments, teams, or divisions	11 (8)	5 (3.6)	7 (5.1)	9 (6.5)	24 (17.4)	52 (37.7)	30 (21.7)	5.22	1.758
This unit has forums for meeting with and learning from experts from outside the organisation	7 (5.1)	6 (4.3)	7 (5.1)	14 (10.1)	33 (23.9)	44 (31.9)	27 (19.6)	5.17	1.612
This unit has forums for meeting with and learning from customers and clients	4 (2.9)	7 (5.1)	10 (7.2)	14 (10.1)	33 (23.9)	44 (31.9)	26 (18.8)	5.18	1.539
This unit has forums for meeting with and learning from suppliers	5 (3.6)	5 (3.6)	7 (5.1)	12 (8.7)	36 (26.1)	38 (27.5)	35 (25.4)	5.34	1.545
This unit regularly shares information with networks of experts within the organisation.	3 (2.2)	7 (5.1)	7 (5.1)	9 (6.5)	34 (24.6)	48 (34.8)	30 (21.7)	5.38	1.471
This unit regularly shares information with networks of experts outside the organisation.	11 (8)	14 (10.1)	9 (6.5)	24 (17.4)	31 (22.5)	33 (23.9)	16 (11.6)	4.54	1.772
This unit quickly and accurately communicates new knowledge to key decision-makers.	3 (2.2)	6 (4.3)	5 (3.6)	7 (5.1)	35 (25.4)	56 (40.6)	26 (18.8)	5.44	1.383
This unit regularly conducts post-audits and after-action reviews.	2 (1.4)	5 (3.6)	9 (6.5)	17 (12.3)	29 (21)	50 (36.2)	26 (18.8)	5.32	1.404

To determine the composite of information transfer, eight descriptors had to be rated by participants. In this composite, no descriptors were reverse scored. Below is an analysis of the results:

- This unit has forums for meeting with and learning from experts from other departments, teams, or divisions. Participants rated this descriptor as accurate. 24 (17.4%) gave a rating of 5 or slightly accurate, 52 (37.7%) a rating of 6 or moderately accurate, and 30 (21.7%) gave a rating of 7, highly accurate. The mean is 5.22.
- This unit has forums for meeting with and learning from experts from outside the organisation. A positive rating was awarded to this descriptor, as 104 out of 138

deemed this as accurate. 33 participants (23.9%) gave a rating of slightly accurate, 44 participants (31.9%) gave a rating of moderately accurate, and 27 of the participants (19.6%) gave a rating of highly accurate. The mean is at 5.17.

- This unit has forums for meeting with and learning from customers and clients. This descriptor was rated highest at 6 with 44 (31.9%) participants. The mean is at 5.18.
- This unit has forums for meeting with and learning from suppliers. The rating of this descriptor gave an almost even distribution at 5, 6 and 7. 36 (26.1%) participants at 5, 38 (27.5%) of the participants at 6, and 35 (25.4%) participants at 7. The mean is at 5.34.
- This unit regularly shares information with networks of experts within the organisation. The mean (5.38) for this descriptor is the highest for this composite. 112 (81.2%) participants felt that this descriptor was accurate.
- This unit regularly shares information with networks of experts outside the organisation. Participants were not convinced that this descriptor is accurate. 58 participants (41.3%) indicated that this was inaccurate. For this composite, the mean for this scenario is at 4.54, and the lowest for this composite.
- This unit quickly and accurately communicates new knowledge to key decision-makers. This descriptor was rated accurately with 117 or 84.1% of participants giving a rating of accurate. The mean is at 5.44, and is the highest for this composite.
- This unit regularly conducts post-audits and after-action reviews. Only 16 out of a possible 138 participants felt that this descriptor is inaccurate, 17 were not sure whether this was inaccurate or accurate, and 105 felt this was accurate. The mean is at 5.32.

Calculating the average of all the means in the appreciation of differences composite, the mean is at **5.20**.

The following analyses were done to determine the reliability and validity of the information transfer composite.

Table 22: Reliability and validity for the information transfer composite

Statement	Factor 1	Factor 2	Communalities
This unit has forums for meeting with and learning from experts from other departments, teams, or divisions	0.904		0.762
This unit has forums for meeting with and learning from experts from outside the organisation	0.878		0.816
This unit has forums for meeting with and learning from customers and clients	0.873		0.642
This unit has forums for meeting with and learning from suppliers	0.834		0.577
This unit regularly shares information with networks of experts within the organisation.	0.801		0.770
This unit regularly shares information with networks of experts outside the organisation.	0.768		0.554
This unit quickly and accurately communicates new knowledge to key decision-makers.	0.760		0.696
This unit regularly conducts post-audits and after-action reviews.	0.744		0.589
Cronbach's alpha	0.929		<i>Between 0-1</i>
Kaiser-Meyer-Olkin (KMO)	0.918		<i>0.8 to 0.9</i>
Bartlett's test of sphericity	$p < 0.000$		<i>P < 0.05</i>
Determinant	0.002		<i>Less than 1</i>
Total variance explained	67.58%		<i>Above 50%</i>

For the information transfer composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy measured 0.918. Values higher than 0.9 are considered to be superb values, and therefore the exploratory factor analysis is highly appropriate for the datasets. The exploratory factor analysis only gave one set of values, which is desirable. The p-value of Bartlett's test of sphericity was calculated to be smaller than 0.05, and therefore an exploratory factor analysis is suitable to be performed. The determinant correlation matrix measured 0.002, which indicates that there is no severe multi-collinearity present in

the data. The Cronbach alpha value was 0.929, measuring internal consistency, and can therefore be considered to measure the construct in a reliable manner.

4.3.2.6 Summary for the concrete learning processes and practices composite

For the concrete learning processes and practices composite, the results were both valid and reliable. All the results from the data gathered for building block 2 were accepted in analysing the results. Of all the questions asked under this composite, only two instances were questions where reverse scoring was applied, and that gave rise to better results in terms of validity and reliability as well as the average mean achieved. The standard deviation for all composites and all questions relating to building block 2: concrete learning processes and practices were larger than 1, meaning that participants had substantial differences in opinion. Conclusions were drawn only after results were compared to benchmark scores.

4.2.3 Building block 3: Leadership that reinforces learning

The following leadership that reinforces learning questions were assessed.

4.3.3.1 Leadership that reinforces learning

Table 23: Leadership that reinforces learning: The table indicating the frequency and valid percentage for each question as well as the mean and standard deviation. R=Question is reverse scored.

Leadership that reinforces learning	1	2	3	4	5	Mean	SD
My managers invite input from others in discussions.	1 (0.7)	8 (5.8)	19 (13.8)	52 (37.7)	58 (42)	4.14	0.917
My managers acknowledge their own limitations with respect to knowledge, information, or expertise.	2 (1.4)	13 (9.4)	28 (20.3)	53 (38.4)	42 (30.4)	3.87	1.002
My managers ask probing questions.	2 (1.4)	6 (4.3)	18 (13)	50 (36.2)	62 (44.9)	4.19	0.925
My managers listen attentively.	2 (1.4)	18 (13)	19 (13.8)	46 (33.3)	53 (38.4)	3.94	1.086
My managers encourage multiple points of view.	3 (2.2)	15 (10.9)	27 (19.6)	48 (34.8)	45 (32.6)	3.85	1.066
My managers establish forums for and provides time and resources for identifying problems and organisational challenges.	5 (3.6)	10 (7.2)	25 (18.1)	56 (40.6)	42 (30.4)	3.87	1.045

My managers provide time, resources, and venues for reflecting and improving on past performance.	6 (4.3)	7 (5.1)	29 (21)	53 (38.4)	43 (31.2)	3.87	1.052
My managers criticise views different from their own point of view. R	7 (5.1)	22 (15.9)	36 (26.1)	37 (26.8)	36 (26.1)	3.53	1.185

To evaluate the leadership that reinforces learning, the following descriptors were rated on a scale of 1 to 5. Those descriptors marked with an (R) are reverse scored. Below is an analysis of the results:

- My managers invite input from others in discussions. The highest rating was at 5, with 58 (42%) participants stating that managers always invite input from others. The mean is at 4.14.
- My managers acknowledge their own limitations with respect to knowledge, information, or expertise. For this scenario, 53 (38.4%) participants felt that managers often acknowledge their own limitations, and 42 (30.4%) participants felt that managers always acknowledge their own limitations. The mean is at 3.87.
- My managers ask probing questions. The highest number of participants 62 or (44.9%) felt that their managers always ask probing questing. This descriptor was rated the highest by the participants. The mean is 4.19.
- My managers listen attentively. The largest number of participants, 53 (38.4%), felt that their managers always listen attentively. For this descriptor, the mean is at 3.94.
- My managers encourage multiple points of view. 48 (34.8%) participants gave a rating of 4, and 45 (32.6%) participants a rating of 5. The mean is at 3.85.
- My managers establish forums for and provide time and resources for identifying problems and organisational challenges. Participants felt that managers often (56, 40.6%) or always (42 or 30.4%) establish forums for and provide time and resources for identifying problems and organisational challenges. The mean is at 3.87.
- My managers provide time, resources, and venues for reflecting and improving on past performance. The rating indicated that managers often or always reflect on past performance, with 53 (38.4%) participants rating at 4, and 43 (31.2%) participants rating at 5. The mean is 3.87

- My managers criticise views different from their own point of view (R). Participants felt that managers sometimes, often or always criticise views different from their own point of view. This descriptor was reverse scored and the mean is very low at 1.47.

Calculating the average of all the means in the appreciation of differences composite, the mean is at **3.65**.

The following analyses were done to determine the reliability and validity of the leadership that reinforces learning composite.

Table 24: Reliability and validity for the leadership that reinforces learning composite

Statement	Factor 1	Factor 2	Communalities
My managers invite input from others in discussions.	0.888		0.768
My managers acknowledge their own limitations with respect to knowledge, information, or expertise.	0.876		0.689
My managers ask probing questions.	0.876		0.677
My managers listen attentively.	0.870		0.757
My managers encourage multiple points of view.	0.838		0.703
My managers establish forums for and provide time and resources for identifying problems and organisational challenges.	0.830		0.788
My managers provide time, resources, and venues for reflecting and improving on past performance.	0.823		0.767
My managers criticise views different from their own point of view. R	0.386		0.149
Cronbach's alpha	0.915		Between 0-1
Kaiser-Meyer-Olkin (KMO)	0.884		0.8 to 0.9
Bartlett's test of sphericity	p < 0.000		P < 0.05
Determinant	0.001		Less than 1
Total variance explained	66.23%		Above 50%

For the leadership that reinforces learning composite, the results were both valid, according to the Kaiser-Meyer-Olkin (KMO) analysis, and reliable, according to the

Cronbach alpha values. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy measured 0.884, and is considered to be a great value, and therefore the exploratory factor analysis is appropriate for the datasets. The p-value of Bartlett's test of sphericity was calculated to be smaller than 0.05, and therefore an exploratory factor analysis is suitable to be performed. This construct only formed one factor, which is highly desirable. The determinant correlation matrix measured 0.001, which indicates that there is no severe multi-collinearity present in the data. The Cronbach alpha value was 0.915 and is acceptable, measuring this construct in a reliable manner. The rating for this composite was done on a five-point scale and accordingly interpreted.

4.3.3.2 Summary for the leadership that reinforces learning composite

For the composite leadership that reinforces learning, the results were both valid and reliable according to the Kaiser-Meyer-Olkin (KMO) analysis and the Cronbach alpha values. All the results from the data gathered for building block 3 were accepted in analysing the results. Only one question asked under this composite was reverse scored, resulting in a low mean score for that specific question, namely: "My managers criticise views different from their own point of view". Only for two questions the standard deviations were lower than 1. The standard deviations for the remaining questions relating to building block 3: leadership that reinforces learning were larger than 1, meaning that participants had notable differences in opinion.

4.2.4 Analysis of results for learning organisation

The data in Table 23 represents the benchmark scores. The achieved mean scores for each composite, as well as the average mean score for each composite were compared. The baseline data used to create the benchmark scores for the underlying constructs was derived from surveys of large groups of senior executives in a variety of industries (Garvin *et al.*, 2008:7).

Table 25: Comparison of achieved ratings against the benchmark scores.

Building blocks and their subcomponents	Scaled scores or Benchmark score					
	Bottom quartile	Second quartile	Median	Third quartile	Top quartile	Achieved
Supportive learning environment						
Psychological safety	2.17-4.62	4.69-5.25	5.32	5.39-6.02	6.09-7.00	4.64
Appreciation of differences	0.98-3.92	3.99-4.41	4.48	4.55-5.53	5.60-7.00	4.03
Openness to new ideas	2.66-5.60	5.67-6.23	6.30	6.37-6.65	6.72-7.00	4.54
Time for reflection	0.98-2.45	2.52-3.43	3.50	3.57-4.48	4.55-7.00	3.91
Learning environment composite	2.17-4.27	4.34-4.90	4.97	5.04-5.53	5.60-6.30	4.28
Concrete learning processes and practices						
Experimentation	1.26-3.71	3.78-4.90	4.97	5.04-5.74	5.81-7.00	4.84
Information collection	1.61-4.90	4.97-5.53	5.60	5.67-6.23	6.30-7.00	5.51
Analysis	1.33-3.92	3.99-4.90	4.97	5.04-6.02	6.09-7.00	4.60
Education and training	1.82-4.76	4.83-5.53	5.60	5.67-6.23	6.30-7.00	5.24
Information transfer	2.38-4.20	4.27-4.90	4.97	5.04-5.88	5.95-7.00	5.20
Learning processes composite	2.17-4.34	4.41-5.11	5.18	5.25-5.74	5.81-6.79	5.08
Leadership that reinforces learning composite						
Composite for this block	1.65-3.30	3.35-3.75	3.80	3.85-4.10	4.15-5.00	3.65

For the benchmark scores, datasets were divided into four equal parts. The first quartile (also called the lower quartile) is the number below which lies the 25 percent of the bottom data. The second quartile (the median) divides the range in the middle and has 50 percent of the data below it, meaning that 50% of participants scored all composites below the median. The third quartile for a set of data is the same as the

median of the part of the data, which is greater than the median equal to a 75th percentile.

For the learning environment composite, the achieved average mean of **4.28** placed the participants of this study in the second quartile (**4.34-4.90**) for this composite. This is lower than the median of **4.97**. Participants achieved an average mean of **5.08** for the learning processes composite. Compared to the benchmark scores, the **5.08** average mean achieved for this composite falls into the second quartile (**4.41-5.11**) and below the median of **5.18**. For the leadership that reinforces learning composite, the achieved average mean of **3.65** places the participants in the second quartile (**3.35-3.75**) and below the median of **3.80**. The lower mean and median scores for the leadership that reinforces learning composite is due to the lower rating of 1-5 for this composite.

In terms of the quest to answer the primary research question, analysis against the benchmark scores was done (Table 23) to determine whether agricultural organisations are learning organisations and the results clearly showed that agricultural organisations are not learning organisations.

4.3 GENERATIONS

The first research objective was to determine whether agricultural organisations were learning organisations. During this part of the research, we will attempt to answer the second research question, namely: Is organisational learning influenced differently by managers from different generational cohorts? In order to answer the second research question, a comparison was drawn between managers from the different generations.

4.3.1 A comparison of the mean, standard deviation, ANOVA, Welch's t-test and Cohen's effect size values from the different generational cohorts

A comparison between the scores of managers from the different generations measured against the different composites from the three building blocks.

Table 26: The mean, standard deviation, ANOVA, Welch's t-test and Cohen's effect size scores of the managers form the different generational cohorts measured against the different composites from the three building blocks

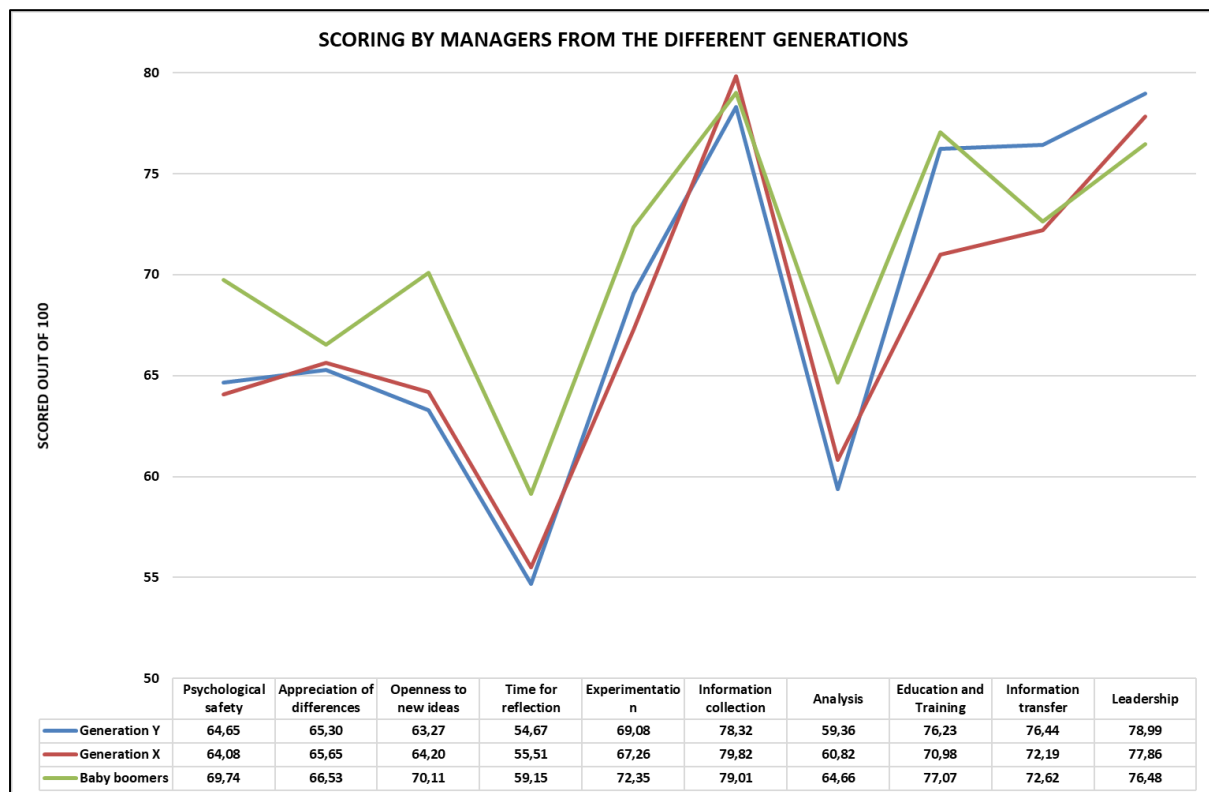
Building blocks	Generation	Mean	Std. deviation	ANOVA p-value	Welch's t-test p-value	Cohen's effect size	
						Gen Y	Gen X
Psychological safety	Generation Y	64.65	9.88	0.086	0.16		
	Generation X	64.08	11.60			0.05	
	Baby Boomers	69.74	13.08			0.39	0.43
Appreciation of differences	Generation Y	65.30	9.13	0.886	0.92		
	Generation X	65.65	10.34			0.03	
	Baby Boomers	66.53	15.54			0.08	0.06
Openness to new ideas	Generation Y	63.27	10.53	0.021	0.02		
	Generation X	64.20	11.39			0.08	
	Baby Boomers	70.11	10.40			0.65	0.52
Time for reflection	Generation Y	54.67	14.35	0.415	0.51		
	Generation X	55.51	13.71			0.06	
	Baby Boomers	59.15	17.77			0.25	0.21
Experimentation	Generation Y	69.08	17.28	0.490	0.53		
	Generation X	67.26	15.54			0.11	
	Baby Boomers	72.35	19.60			0.17	0.26
Information collection	Generation Y	78.32	16.83	0.915	0.91		
	Generation X	79.82	17.54			0.09	
	Baby Boomers	79.01	21.42			0.03	0.04
Analysis	Generation Y	59.36	11.02	0.141	0.15		
	Generation X	60.82	12.35			0.12	
	Baby Boomers	64.66	12.05			0.44	0.31
Education and training	Generation Y	76.23	19.80	0.345	0.38		
	Generation X	70.98	22.31			0.24	
	Baby Boomers	77.07	18.55			0.04	0.27
	Generation Y	76.44	17.45	0.433	0.43		

Information transfer	Generation X	72.19	17.63			0.24	
	Baby Boomers	72.62	21.50			0.18	0.02
Leadership	Generation Y	78.99	17.03	0.794	0.82		
	Generation X	77.86	14.51			0.07	
	Baby Boomers	76.48	18.20			0.14	0.08

The data in Table 24 was interpreted according to the following statistical methods, i.e. the mean, standard deviation, ANOVA, Welch's t-test and Cohen's effect size test. Standard deviation expresses how much the individual members of a group differ from the mean value for the group. ANOVA, or analysis of variance (ANOVA), is a statistical method that tests the differences between two or more averages. The Welch's t-test is a more robust test that is also used to test the differences between two or more averages. The Cohen's effect size test tests the differences between two or more averages.

The graph (Figure 4) illustrates the difference in scoring between the different generations for the different composites, scored out of 100.

Figure 4: Comparison in the form of a graph to illustrate the scoring between the different generations for the different composites, scored out of 100



The calculated mean values, as depicted in Table 24 and illustrated in the graph (Figure 4), are the totals scored out of 100 for the different composites; for instance, psychological safety, appreciation of differences, etc. A standard deviation value close to 0 shows that the values are all very close to the average and are also called the expected values and therefore indicate a broad match of opinions within a particular group. A standard deviation value greater than 1 indicates different views spread out over a wider range. It is noted that the standard deviation shows very high values for all the constructs and these high values are visible throughout on all dimensions, indicating that there are large variations in opinions between participants from the same generational cohorts. It is therefore clear that everyone in a particular group does not necessarily share the same views and as a result one can only perceive a tendency, and findings must therefore be relative rather than definitive. The ANOVA p-values and the p-values of the Welch's t-test show very small differences and therefore only the ANOVA values were used for this analysis. With ANOVA p-values, a significance level of $p < 0.05$ indicates a risk of concluding that a difference exists when there is no actual difference. If there is a p-value equal to the significance level

of $p < 0.05$, or is less than 0.05, a conclusion can be made that not all of the population means are equal.

The Cohen's effect size test tests the differences between two or more averages. The effect size guideline values indicate that a difference of 0.2 should be considered a small effect size, 0.5 represents a medium effect size and 0.8 a large effect size. A comparison of the values and results of the effect size of Cohen's d-values between the scores of manager's from the different generations measured against the different composites from the three building blocks. In analysing the statistical results for the mean, standard deviation, the ANOVA p-value and Cohen's effect size values per construct, the following inferences were made:

4.3.1.1 Psychological safety

For the psychological safety construct, the ANOVA p-value for this composite was (0.086), which is close to the statistically significant value of $p < 0.05$. Although not under the significance level, there is a certain indication that a difference exists between the generational cohorts. It was very interesting to note that the participants of Generation Y are much more in line with their views on the importance of psychological safety than the Baby Boomers and Generation X are. The Baby Boomers show the biggest mutual disagreement about how important psychological safety is for them, and although the other two generations also show widespread differences in opinions, there are greater agreements from them on how important or unimportant psychological safety is for them. For this composite, the average mean score is the highest for the Baby Boomers, in spite of showing the biggest variation in opinion.

The Cohen's d-value effect size values showed very little difference between the participants of Generation X and Generation Y. In line with the statistically significant ANOVA results for this construct, as discussed above, Cohen's effect sizes confirm that the psychological safety-related behaviour of Baby Boomers would also lean towards visible differences on a practical level, as contrasted to Generation X (0.43) as well as Generation Y (0.39). The effect size difference between Generation X and Generation Y is very small at 0.05.

The Baby Boomers clearly show that they are much more loyal to an organisation than the younger generations are, and therefore they will not leave the organisation's

service as easily as the later generations. Baby Boomers are also much more involved in all aspects of the organisation and objectives of the organisation, and will set the organisation's goals above their own; a direct consequence of the fact that they were raised by the Veterans who lived through tremendous difficult and unstable times like the great depression and the Second World War. Due to these unstable circumstances, the Veterans have raised the Baby Boomers with the idea that the solutions to life's challenges are through education and training and loyalty to the organisation or career that they follow. This characteristic (psychological safety) of the Baby Boomers stood out in the results. In contrast to the other generations, it is indicative that the Baby Boomers are much more involved in the organisations in which they work, and therefore are very idealistic, optimistic, driven, diligent and excellent mentors. The Baby Boomers, however, are reaching the end of a very long career and organisations will do well to try and use the Baby Boomers' characteristics to change or build the culture of the organisation while they are still available. This could be implemented by using the Baby Boomers as mentors of the younger generations to instil the desired characteristics into the culture of the organisation.

4.3.1.2 Appreciation of differences

With regard to appreciation of differences, Generation Y recorded the lowest standard deviation as well as the lowest mean score. The lowest mean score indicates that participants from Generation Y see appreciation of differences as more unimportant than the other groups, but they are also as a group more in agreement that it is unimportant, relatively speaking to the views of their predecessors about this. The Baby Boomers are by far the group most in disagreement with this construct. The mean score for this construct differed very little between the different cohorts. The ANOVA p-value for this composite is 0.886, above the significance level of 0.05, indicating that there is an insignificant difference between the generations.

With regard to appreciation of differences, the Cohen's effect sizes showed that there was only a small size effect or difference between all three the generational cohorts, indicating that they all agree on the importance of appreciation of differences and that appreciation of differences is of equal importance to all the cohorts.

Appreciation of differences deals with the recognition of opposing ideas and there may be different reasons for the different generations to score very evenly for this

composite. The Baby Boomers were raised to be optimistic, diligent and loyal to the organisation and to always put the organisation above their own interests. Therefore, the Baby Boomers will accept decisions very easily and without questioning why these decisions were made. Generation X are characterised by being individualistic and they do not care about loyalty to an organisation and are not afraid of changes. This clearly indicates that there is an attitude of not caring and they accept any ideas with the same attitude. The characteristics of Generation X also indicate a low level of participation and involvement and, clearly, they will not partake in new opposing ideas. Work-life balance is the outstanding characteristic of Generation Y. Own goals are valued above those of the organisation, resulting in Generation Y being uninvolved and they will not be involved in the recognition of opposing ideas as such.

4.3.1.3 Openness to new ideas

According to the standard deviation values for the construct openness to new ideas, the Baby Boomers had the lowest standard deviation and the highest mean score for this construct. The low standard deviation recorded by the Baby Boomers indicates that they shared the same opinion on the importance of openness to new ideas. The Baby Boomers also recorded a mean score that was significantly higher than that of the other generations for this composite, and together with the standard deviation it is indicative that the Baby Boomers as a group agree that openness to new ideas are important. Contrary to the perceived tendency that the Baby Boomers always differ more in opinion than all the other generations, the scoring for this construct can be seen as outside the said perceived tendency. For this construct, openness to new ideas, the standard deviation scores for the different generations differ very little, exhibiting that all participants share the same opinion with their peers in the same generational cohorts. The ANOVA p-value for this composite is 0.021, and is below the significance level of $p < 0.05$, and, therefore, there exists a statistically significant difference between the generational cohorts.

Cohen's d-value effect size values recorded almost no difference (0.08) between Generation X and Generation Y for this construct. A practically meaningful difference of 0.52 was recorded between the Baby Boomers and Generation X, and a practically meaningful difference of 0.65 between the Baby Boomers and Generation Y in terms of openness to new ideas was noted from the results.

This is a practically visible difference between the Baby Boomers and the younger generations towards openness to new ideas, indicating the willingness of employees towards opportunities to take risks and explore the unknown or new ideas. The significance of the low score towards openness to new ideas from the younger generations is that they are the generations that grew up in a rapidly changing world with technology changes characterising modern organisations. The working career of Generation X and Y will therefore be characterised by continued rapid changes, which may prove difficult for them to deal with. The careers of Baby Boomers started in the early 1960s, an era when there was no technology. The Baby Boomers witnessed many changes in the field of mechanisation and technology, such as computers. They had to adapt constantly to an ever-changing world, causing them to become the generation that had no other option than to constantly adapt to changes.

4.3.1.4 Time for reflection

For the time for reflection construct, it was noted that the participants of Generation X had the lowest standard deviation score, but more interesting is that although there was still disagreement among all participants from all the generations, the mean score for all generational cohorts indicated that time for reflection was unimportant to all of them. The ANOVA p-value for this composite is 0.415, and is above the significance level of $p < 0.05$, indicating that there is not a difference of note between the different generations.

For the time for reflection construct, it was noted from the Cohen's d-value effect size effect values that the participants from Generation X and Generation Y showed only an extremely small size effect 0.06 or difference to each other. It is also noted that the effect size between the Baby Boomers and the Generation X (0.21) and Generation Y (0.25) on the importance of time for reflection is above the 0.2 mark, moving towards a medium effect size and, from the graph (Figure 4), it is clear that time for reflection is regarded the least important composite of all the cohorts.

The composite, time for reflection, deals with creating time and opportunities where employees can analyse, evaluate and assess the organisation's processes. The scoring for this composite did not yield any surprises, as the Baby Boomers are characterised as being the generation more involved with the organisation and therefore recorded an almost medium size difference than Generation X and Y.

Generation X, being cynical, pessimistic and individualistic, are therefore not that involved in the organisation itself. What really came as a surprise is that Generation Y scored as low as Generation X. The criteria here are opportunities where employees can analyse, evaluate and assess the organisation's processes, which are leadership functions, and Generation Y tend to want to be very involved in the leadership of the organisation, as the results indicated. Characteristics such as enjoying the challenge of new opportunities, being driven, optimistic, having input into decisions and actions and having responsibility attributed to Generation Y, make it hard to believe that Generation Y are not more involved with analysing, evaluating and assessing the organisation's processes.

4.3.1.5 Experimentation

Generation X recorded the lowest standard deviation score for experimentation, as well as the lowest mean score for this composite, and therefore, as a group, the Generation X cohorts consider experimentation as not important. The other generations, despite the big differences in opinion, rated experimentation much higher than Generation X, especially the Baby Boomers. The ANOVA p-value for this composite is 0.490, and above the significance level of $p < 0.05$, exhibiting that there is not a significant difference between the cohorts.

The Cohen's d-value effect size values for experimentation indicated only a small size effect or difference for the experimentation composite between Generation X and Y, at 0.11. On the other hand, the Baby Boomers and Generation X recorded a 0.26 effect size, which is a small to medium effect size. The baby Boomers and Generation Y only recorded a small effect, 0.17, showing that the Baby Boomers and Generation Y are closer to each other.

This descriptor forms part of the second building block, seeking to find deliberate, concrete steps and diverse activities or processes in the learning organisation. Experimentation is part of the activities and processes of gathering and generating information, analysing results and the transferring of information. Generations X and Y do not regard these activities and processes as important, which is aligned with their attitude of not being that involved in the activities and goals of the organisation. On the other hand, the Baby Boomers, true to the importance of the organisation to them,

tend to regard experimentation and the accompanying activities and processes of handling the acquired information of greater importance than the younger generations.

4.3.1.6 Information collection

Information collection is the construct where all the participants of all generations felt that it is the most important construct, despite the high values of standard deviation. Generation Y have agreed, according to the standard deviation, the most of all the generational cohorts on the importance of information collection. Although there were also big differences in the opinions of the other generations, Generation X felt that information collection is the most important, recording the highest mean score for information collection. The ANOVA p-value for this composite is 0.915, and well above the significance level of $p < 0.05$, indicating that there is no noteworthy difference between the different generations.

All the generational cohorts showed little size effects or difference for the Cohen's d-value effect size values for information collection, recording results such as the difference between Generation X and Y as 0.09, the difference between the Baby Boomers and Generation Y as 0.03, and the difference between the Baby Boomers and Generation X as 0.04. The difference between the Cohen's d-value effect size values is so small for this construct that the inference was made that information collection is of equal importance to all cohorts. The graph (Figure 4) also illustrates that this composite was rated by all the generational cohorts as the most important of all the composites.

Information collection forms part of the second building block, seeking to find deliberate, concrete steps and diverse activities or processes in the learning organisation. It is very interesting to note that all the generational cohorts regard information collection almost of equal importance when there are such big differences between the characteristics of the generations. Understandably, Generation X will be able to use technology to their advantage and even more so Generation Y that grew up with technology. This makes it easier, almost natural for Generation Y to gather information. In sharp contrast to this is the Baby Boomers with no or limited access to technology while growing up, and only being exposed to technology later in their working careers. Despite this shortcoming, the Baby Boomers also value information collection very highly.

4.3.1.7 Analysis

Analysis was considered the second least important of all constructs when looking at the mean values. The standard deviation values, although high, show only minor differences between generations. Generation Y, in comparison to the other two generations, strongly agree that according to them analysis is not important, while analysis is the most important for the Baby Boomers. The ANOVA p-value for this composite is at 0.141, and above the significance level of $p < 0.05$, meaning that there is not a notable difference between the cohorts.

There was little effect or difference between the Generation X and Generation Y cohorts for analysis, at 0.12. The Cronbach alpha values recorded showed an almost medium-size effect difference between the Baby Boomers and Generation X, at 0.31, and between the Baby Boomers and Generation Y (0.44). This result leans significantly over to the medium effect size values constituting a significant difference between the Baby Boomers and the younger generations for this composite.

Being part of the second building block, the composite for analysis must form part of the activities and processes in the organisation. The personal involvement in the goals of the organisations regarding the younger generations is very low, and therefore they will not spend time on analysing activities and processes within the organisation. They are more than willing and content to continue without doing any analysis. The characteristics of the Baby Boomers of being driven, diligent and focused on consensus building within the organisation confirms why analysis is very important to them.

4.3.1.8 Education and training

For the education and training construct, it was noted that the participants from the Baby Boomers are much more in line with their views on the importance of education and training than the Generation X and Generation Y are. Generation X showed the biggest mutual disagreement about how important education and training are for them and although the other two generations also show widespread differences in opinions, there is greater agreement between them on how important or unimportant education and training are. For this composite, there is little difference between the average mean scores for the Baby Boomers and Generation Y. The ANOVA p-value for this

composite is 0.345, and is higher than the significance level of $p < 0.05$, indicating that a noteworthy difference between the different generational cohorts does not exist.

According to the Cronbach alpha values, there was a small effect size difference between the Baby Boomers and Generation Y (0.04) for this composite, indicating that education and training are much more important for the Baby Boomers and Generation Y than for Generation X. The effect size between Generation X and Y was recorded at 0.24, and between the Baby Boomers and X at 0.27, and the inference was made that education and training are the least important to Generation X. Very interesting is to note that the Baby Boomers and Generation Y are the closest to each other for education and training, which forms part of the activities or processes of a learning organisation. The importance of obtaining an education after the Second World War instilled into the Baby Boomers by the Veterans who raised them seems to be lacking in Generation X. This generation, not viewing education and training as important, later realised their lack thereof and raised Generation Y differently to themselves with an emphasis on education and training.

4.3.1.9 Information transfer

It was noted that, for the information transfer construct, the participants from Generation Y had the lowest standard deviation and are more in line with their views on the importance of information transfer than the Baby Boomers and Generation X are. Generation Y indicated that information transfer is far more important to them than for the other generations, and the Baby Boomers showed the biggest mutual disagreement on how important information transfer is for them. Although the Baby Boomers and Generation X showed widespread differences in opinions among their peers, there is greater agreement from them on how important or, in this instance, unimportant information transfer is for them. The ANOVA p-value for this composite is 0.433, and above the significance level of $p < 0.05$, showing that no clear difference exists between the different generations.

For the information transfer construct, the Cohen's d-value effect size value between Generation Y and Generation X was 0.24, showing a small to medium size effect or difference. A very small effect or difference (0.02) was noted between the Baby Boomers and Generation X, and the assumption was made that information transfer is of far greater importance to the younger Generation Y than for the older generational

cohorts. The effect size difference between Generation Y and the Baby Boomers was notable at 0.18.

Part of the second building block, information transfer is one of the activities and processes. Generation Y are the generation that grew up with technology as a defining characteristic, and being able to use technology with great efficiency, they are able to research, find and transfer information via technology with great ease, and therefore information transfer is of great importance to them.

4.3.1.10 Leadership

For the construct leadership, the Baby Boomers had the highest standard deviation and the lowest mean score for this construct. According to the standard deviation values, which, for all the cohorts, were very high, there was substantial disagreement among participants. Generation X recorded the lowest standard deviation score for this composite. Comparing the mean scores, it was obvious that leadership became more important towards the younger generations. The ANOVA p-value for this composite is 0.794, well above the significance level of $p < 0.05$, indicating that there is no difference between the different generations.

The Cohen's d-value effect size values for the construct leadership showed only a small effect size or difference between the cohorts. The effect size difference between the Baby Boomers and Generation Y is 0.14, and between the Baby Boomers and Generation X, 0.08. The effect size between Generation X and Y is very small at 0.07. Studying the graph (Figure 4), it is clear and obvious that leadership becomes progressively more important towards the younger generations and it was interesting to note that this composite is the most important for Generation Y. This result also corroborates with the characteristics of Generation Y as set out in Chapter 2 that Generation Y value having input into decisions and actions and having responsibility. Generation X showed more interest in leadership than the Baby Boomers did. The Baby Boomers, reaching the end of their long working careers, are most probably settled in positions that they wanted to achieve and are content to stay in their current positions for the next couple of years before retirement.

4.4 GENDER

Analysing the gender cohort was not part of the initial research objectives, but it was part of the unique code participants had to complete. The data for the gender cohort was analysed and interpreted and the following inferences were drawn.

Table 27: Comparison of the mean and standard deviation between genders measured against the different building blocks

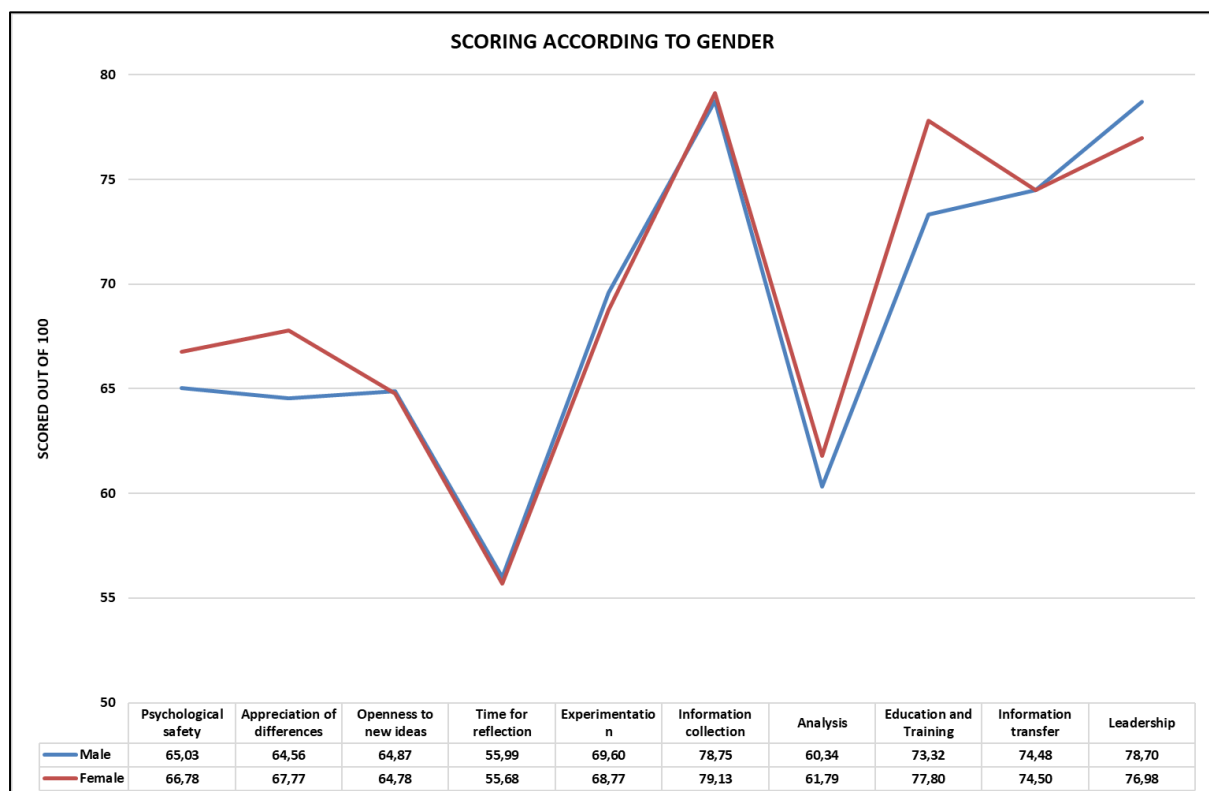
Gender		N	Mean	Std. deviation	Independent t-test p-value	Cohen's effect size
Psychological safety	Male	92	65,03	11,10	0,401	0,152
	Female	43	66,78	11,48		
Appreciation of differences	Male	92	64,56	9,81	0,113	0,248
	Female	43	67,77	12,96		
Openness to new ideas	Male	92	64,87	11,30	0,967	0,007
	Female	43	64,78	10,70		
Time for reflection	Male	92	55,99	14,64	0,910	0,020
	Female	43	55,68	15,52		
Experimentation	Male	92	69,60	18,07	0,794	0,046
	Female	43	68,77	15,41		
Information collection	Male	92	78,75	18,56	0,911	0,020
	Female	43	79,13	16,59		
Analysis	Male	92	60,34	11,84	0,506	0,123
	Female	43	61,79	11,70		
Education and training	Male	92	73,32	20,92	0,237	0,214
	Female	43	77,80	19,30		
Information transfer	Male	92	74,48	17,86	0,994	0,001
	Female	43	74,50	19,76		
Leadership	Male	92	78,70	15,75	0,575	0,095
	Female	43	76,98	18,16		

The totals for the different composites, for instance, psychological safety, appreciation of differences, etc. were calculated and these variables were scored out of 100 represented in Table 25 as the mean values. The expected value for standard deviation is close to 0 and a standard deviation value close to 0 indicates that participants in the same cohort largely share the same opinions within that particular group. A standard deviation value greater than 1 indicates different views spread out over a wider range within a particular group. The independent t-test checks whether there is a statistically significant difference between the means in two unrelated groups. When the p-value for the independent t-test is less than 0.05, the conclusion

is that the two means do indeed differ significantly. The Cohen's effect size test tests the differences between two or more averages. The effect size guideline values indicate that a difference of 0.2 should be considered a small effect size, 0.5 represents a medium effect size and 0.8 a large effect size.

The following graph, Figure 5, was included as an illustration of the results of the data as recorded in Table 25.

Figure 5: Comparison in form of a graph to illustrate the scoring between the different genders for the different composites, scored out of 100



After interpreting the data as analysed in Table 25 and the graph, the following conclusions were drawn:

4.4.1 Standard deviation

The values of the standard deviation for all the composites were well over 1 for all of the composites, and it was concluded that there were widespread differences of opinion within the same particular gender groups.

4.4.2 Independent t-test p-value

If the independent t-test p-value is less than 0.05, the conclusion is that the two means differ significantly. The p-values recorded for the independent t-test for this dataset are

well above 0.05 and the conclusion is drawn that the two means compared for the different unrelated groups (genders) do not differ significantly.

4.4.3 The Cohen's effect size test

- The Cohen's effect size test values showed only trivial differences between the genders for the composites openness to new ideas, time for reflection, experimentation, information collection and information transfer
- Although the effect size is very small, female participants scored higher than their male counterparts for psychological safety and analysis.
- For the composites appreciation of differences and education and training, the female participants recorded a small to medium effect size difference to their male counterparts.
- The effect size scored by male participants for leadership shows only a small difference, and it is noted that the male participants scored higher than the females for the composite leadership.

4.5 DISCUSSION

The primary objective of the study was to determine whether agricultural organisations are learning organisations, and the secondary objective of the study was to compare managers from different generations to try and establish trends between managers from different generations. In order to achieve the primary and secondary objectives, a questionnaire was administered and through the administration of this assessment tool, it was attempted to answer these objectives.

Various statistical properties of the data from the assessment tool were determined, namely Cronbach's alpha, Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity and, in this study, all descriptors and composites were found to be reliable. The validity, reliability, and inter-correlations of the descriptors of all the composites were determined and used in answering the research objectives. Demographic data collected by the questionnaire was analysed and presented to provide a perspective of the population sample in terms of generation and gender.

4.5.1 Primary objective.

The primary objective of the study was to determine whether agricultural organisations are learning organisations. The processed data from the assessment tool were compared against the baseline data used as benchmark scores. For the composites learning environment (4.28), learning processes (5.08) and leadership that reinforces learning (3.65), the mean was determined to be in the second quartile for all the mentioned composites and well below the median for each. The results of this research showed, therefore, that agricultural organisations are not learning organisations.

4.5.2 Secondary objectives

4.5.2.1 Correlation

Although low reliability scores for some of the composites and descriptors were recorded, the reliability of the results was within the acceptable range of reliability, and therefore correlations between managers from the same generational cohorts could be established. The high mean scores between managers from the same generational cohorts merely indicated that managers within the same generational cohort do not share the same opinion.

4.5.2.2 Managers from the different generations

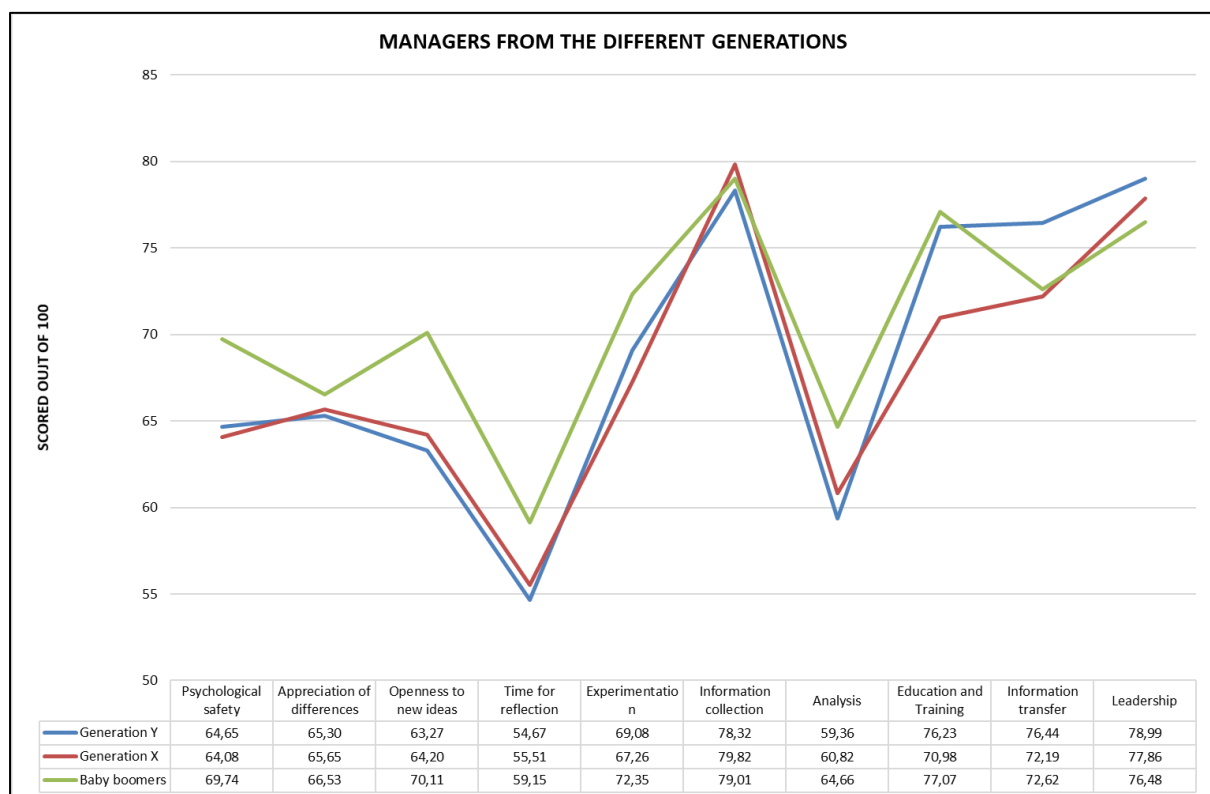
The secondary objective of the study was to compare the answers to the composites and descriptors from managers from the different generations. Demographics from the responding managers showed that there were 49% managers from Generation Y, 31% managers from Generation X and 20% managers from the Baby Boomers. It is clear that the Baby Boomers (born 1945-1964) have on average a higher average mean score of 70.11 than Generation X, with an average mean score of 64.20 and Generation Y with an average mean score of 63.27. This research corroborates the characteristics of the different generational cohorts as described in Chapter 2.

It is noted that the standard deviation shows very high values for all the constructs and these high values are visible throughout on all dimensions, indicating that there are large variations in opinions between participants from the same generational cohorts. Another interesting pattern observed is that Baby Boomers show mostly the highest standard deviation of all the generational cohorts and that the variance in opinions within groups tends to decrease to the younger generations and, although still large,

they are roughly considered likely to be more uniform in their minds. Generation Y seem to be the most inclined to uniformed thinking, while Generation X tend to have greater individuality of opinions similar to the Baby Boomers.

Figure 6 is a graph drafted to visually illustrate the differences between the managers from the different generations.

Figure 6: A comparison of the answers to the composites calculated out 100 for managers from the different generations



The following very interesting inferences were made after studying the results from the data and the graph (Figure 6):

- The classification of the different generational cohorts was done in accordance with Western countries.
- The standard deviation shows high values for all composites, meaning that the generational cohorts differ largely in opinion, but it is noteworthy that the Baby Boomers show the greatest differences in all generations. Although the results showed that the Baby Boomers and Generation Y are closer than the Baby

Boomers and Generation X are, the big differences in opinion between the Baby Boomers and Generation Y in the workplace may complicate cooperation between these two cohorts.

- Surprisingly, the results showed that the Baby Boomers and Generation Y are closer in their ratings of the importance or unimportance of the measured composites than the Baby Boomers and Generation X are. This trend may be because successive generations are raised by the previous generation. After the war, the veterans raised the Baby Boomers to have a life other than themselves, and therefore stable conditions and education and training were very important to them. Based on their experience in the workplace, the Baby Boomers may realise that education and training may not be so important, and therefore they have raised Generation X such that education and training are not important. This tendency repeats itself and therefore education and training are again important for Generation Y. An important factor to take into account is that the previous generation makes its next generation, from its experience and view of life. This trend will have the effect that the Baby Boomers will be more like Generation Y.
- For appreciation of differences, there was little difference between the generational cohorts showing that appreciation of differences is of equal importance to all of the cohorts. This may have important implications for diversity management in the workplace.
- It is clear that time for reflection is the least important composite and all the cohorts indicated that time for reflection was unimportant to all of them. In order to become a learning organisation, it is crucial that there must be time for reflection to share experiences in order to be a learning organisation.
- Information collection is the construct where all the participants of all generations felt that it is the most important construct of all.
- Information transfer is much more important for Generation Y than for other generations, because it is so much easier for them because they are the e-zine generation that has grown up with technology, unlike the Baby Boomers who feared the use of technology. A disadvantage of this is that Generation Y's conversational and writing capabilities may not be as well developed as the generations before them. They may also not recognise the value of interpersonal communication and would prefer to talk electronically or via the internet. Where

three different generations have to sit in a meeting and discuss matters and make decisions, it can lead to great irritation and disagreement.

Baby Boomers

Baby Boomers value on-job security and a stable working environment and this is evident by looking at the psychological safety composite where they scored well above the other generational cohorts. Characteristics such as being idealistic, optimistic and driven are enhanced by a practically meaningful difference in scores between Baby Boomers and Generation X and Generation Y in terms of openness to new ideas. The characteristics of Baby Boomers that they are excellent mentors and are more likely to focus on consensus building are further underlined by their scores for time for reflection, experimentation, analysis, and education and training. Figure 5 clearly underlines these findings. The Baby Boomers scored higher than the Generation X and Generation Y participants for most of the composites. This illustrates that for the Baby Boomers their work is extremely important to them and they are more involved with the goals of the organisation than the younger generations are.

Generation X

Generation X (born 1965-1976) are cynical, pessimistic and individualistic and the fact that they scored the lowest for psychological safety indicates that they are not likely to display loyalty towards the organisation. Generation X tend to have greater individuality of opinions similar to the Baby Boomers, something to consider in the workplace. This may result in Generation X having difficulty to adhere to organisational goals. The work approach for Generation X has been characterised as having a strong work-life balance as a value implicating that it is likely that organisational goals are regarded less important than personal values and goals, confirmed by a much lower scoring than the Baby Boomers for most of the composites.

The importance of having a strong work-life balance also resulted in Generation X seeing experimentation as being the least important, and that they do not want to be bothered with change and organisational goals. Work is only a means to earn money to do something else. It is noted that Generation X scored the highest of all cohorts for information gathering, enhancing the notion that personal values and goals are more important than other goals (Figure 6). Generation X scored lower than Generation Y for the descriptors psychological safety, experimentation, education and training,

information transfer and leadership. Generation X felt information collection is the most important composite of all, recording the highest mean score for information collection. This is extraordinary, because they did not grow up in the technological era and education and training are not important to them either.

Generation Y

Generation Y (born 1977-1994) scored low for psychological safety, confirming the characteristic that job security in the workplace is a less important factor and they are comfortable with change. Generation Y seem to be the most inclined to uniform thinking, meaning that they are the most uniform with their peers and this will be advantageous in a working environment with mutual goals. High scores for information collection, education and training and information transfer fit the characteristic of Generation Y that they value skill development and enjoy the challenge of new opportunities. Generation Y scored the highest of all the cohorts for the descriptors information transfer and leadership. The high score by Generation Y for the leadership cohort is in line with the characteristics that Generation Y value having input into decisions and actions and having responsibility (Figure 6). Generation Y scored the lowest of all the cohorts for appreciation of differences, openness to new ideas, time for reflection, information collection analysis.

4.5.2.2 Managers from different genders

In order to determine the impact that gender had on the participants' responses, ANOVA and a t-test were done on the descriptors of the composites. P-values and effect sizes displayed that male managers versus female managers had a practically meaningful difference between male and female participants in terms of appreciation of differences, and education and training.

4.6 CHAPTER SUMMARY

In Chapter 4, the information provided by the Statistical Consultation Services after they statistically converted the data that was provided into presentable information was illustrated and analysed and conclusions drawn with reference to the research objectives. Cronbach's alpha, Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity were within acceptable ranges, and therefore the assessment tool was deemed reliable. In Chapter 5, recommendations for management and future research are made.

CHAPTER 5: CONCLUSION

5.1 INTRODUCTION

Chapter 5 provides an overview of this study as well as conclusions with regard to the results presented in Chapter 4 on the primary and secondary objectives for this research. Limitations identified during the study are dealt with and recommendations made for both the organisation and further research opportunities.

5.2 OVERVIEW OF THIS STUDY

The research questions of this study were whether agricultural organisations are learning organisations, and secondly, whether organisational learning is influenced differently by managers from different generations. To answer these research questions, specific objectives were set for this study and information gathered during this study will provide comprehensive insight of importance that is useful regarding the value of this study to organisations and managers.

In Chapter 2, a literature review was done on learning organisations, why learning organisations are needed, the role of leadership in creating learning organisations, why it is important to become learning organisations, characteristics and advantages of learning organisations, how to become learning organisations and the impediments to becoming learning organisations. The literature review further explained the notion or idea of generations and the criteria for the selection of generational cohorts, especially within the South African context and characteristics of people born in the different generational cohorts.

During this research, a quantitative approach was followed, as discussed in Chapter 3. The design, participants (population), measuring instrument and procedure followed were explained in Chapter 3, as well as how the statistical analysis will be done and the research objectives defined.

The results of this research were statistically analysed and discussed in Chapter 4. These results gave a clear insight into whether the objectives of this study had been reached.

5.3 CONCLUSIONS

To assess whether the study has answered all of the research questions, this section will analyse each research question with an explanation from the empirical results.

5.3.1 Primary objective conclusions

The main research question of this study was formulated as follows:

“Are agricultural organisations learning organisations”?

In the quest to find the answer to this research question, an assessment tool, developed by Garvin *et al.* (2008:3), was used. This assessment tool is divided into three broad factors or building blocks that are essential for organisational learning and adaptability, namely a supportive learning environment, concrete learning processes and practices, and leadership behaviour that provides reinforcement (Garvin *et al.*, 2008:3). The first factor or building block 1 investigated how supportive of a learning environment these organisations were. The composites studied under building block one were psychological safety, appreciation of differences, and openness to new ideas, and time for reflection. The second factor or building block 2 explored concrete learning processes and practices, and consists of the following composites: experimentation, information collection, analysis, education and training and information transfer. The third factor or building block 3 inquired into leadership that reinforces learning.

Table 28: Benchmark scores for the learning organisation survey: zero-to-100 scale

Building blocks and their subcomponents	Scaled scores				
	Bottom quartile	Second quartile	Median	Third quartile	Top quartile
Supportive learning environment					
Learning environment composite	31-61	62-70	71	72-79	80-90
Concrete learning processes and practices					
Learning processes composite	31-62	63-73	74	75-82	83-97
Leadership that reinforces learning composite					
Composite for this block	33-66	67-75	76	77-82	83-100

For the learning environment composite, the achieved average mean of **61.1** was recorded, which was on the zero-to-100 scale benchmark score between **62 and 70**, for the learning processes composite the average mean achieved was **72.5**, which was on the benchmark score on the zero-to-100 scale between **63 and 73**. For the leadership that reinforces learning composite, the achieved average mean was **73**, which was on the zero-to-100 scale benchmark score between **67 and 75**. Based on the results as compared to benchmark scores provided (Garvin *et al.*, 2008:7) and reported in Chapter 4, it is confirmed that the agricultural organisations studied during this research are not learning organisations.

The large values for standard deviation recorded, well over 1, are a further indicator that the descriptors in question were not clear and evident in the organisations, giving no other choice as to conclude that participants are either not aware of these processes or not part of these processes, which is hard to believe, because only managers were used in the collecting of the data. The obvious inference was made that none of the activities and processes involved in a learning organisation are absent.

5.3.2 Secondary objective conclusions

The secondary research question of this study was formulated as follows:

“Is organisational learning influenced differently by managers from different generational cohorts?”

Although the assessment tool was not specifically designed to measure the influence of managers from different generational cohorts to the assessment criteria in the assessment tool, the results did show an inclination, or natural tendency, from managers from the same generational cohorts to behave in a particular way different to the other cohorts, and this behaviour and characteristics were well supported during the literature study in Chapter 2. Deriving from the results as measured against the benchmark scores and comparisons drawn between the results of the different generational cohorts as reported in Chapter 4, indications are that managers from the different generational cohorts will have different influences on organisational learning based on the characteristics of the generational cohort that they are born to, as supported in the literature in Chapter 2. To answer the research question as stated above, it is abundantly clear that the answer is yes, managers from different

generational cohorts will influence organisational learning in accordance with the characteristics of their generational cohort.

5.3.3. Tertiary objective conclusions

Although not included in the initial research objectives, part of the data collected was the gender of the participants. A total of 138 responses were collected, of which 135 responses were analysed for the data for the gender cohort, of which 92 were male and 43 female. Based on the results, as discussed in Chapter 4, it is concluded that there is a meaningful difference between male and female managers.

5.2.4 Conclusion

In terms of the research objectives and the outcomes reached, it was firmly established that the agricultural organisations studied during this research are not learning organisations. Furthermore, it was also clear, without any doubt, that managers will influence organisational learning in accordance with the characteristics of their generational cohort.

5.4 LIMITATIONS OF THE STUDY

The size of the sample group is a limitation in that it is too small to be representative of all agricultural organisations in South Africa; moreover, no generalisation could be done with regard to agricultural organisations in general with regard to the larger population. Distribution of the number of managers represented per generational cohorts was uneven, with 27 Baby Boomers, 42 Generation X'ers and 67 Generation Y'ers. Furthermore, the sampling procedure was a convenience sampling strategy used in the study, which may have significant limitations in terms of applying generalisations of the findings to larger populations. The researcher is an employee of one of the organisations and although all precautions and undertakings were given regarding anonymity and confidentiality, there was still an opportunity for employees within the organisations to respond with prejudice or fear of victimisation, as the internet survey was conducted through the e-mail services of the different agricultural companies. Using the e-mail services of the companies, an enormous stumbling block was the safety precautions (built-in firewalls) preventing the surveys and messages from the online service provider to be delivered to the inboxes of the intended participants. The surveys were based on self-report measures based on rating scales and individuals could have been inherently biased with their responses.

5.5 RECOMMENDATIONS

The recommendations will be done in four parts; the first part will concentrate on recommendations for becoming learning organisations; the second part will focus on recommendations made for managers from different generational cohorts; thirdly, some recommendations will be made for managers from different genders; and lastly, some recommendations for future studies.

5.4.1 Recommendations on how agricultural organisations can become learning organisations

It was argued in Chapter 2 that when an organisation wants to become a learning organisation, it should not only concentrate on formal, structured classroom learning, but that there must be a culture that promotes informal learning because individuals learn the most from each other through reflection and experiential learning.

In order to achieve these informal learning opportunities and to really become learning organisations, the following should be considered as emphasised through the application of the assessment tool: Is yours a learning organisation?

5.4.1.1 Building block 1: Recommendations on how to create a learning environment within an organisation

The first aspect of creating a learning environment within an organisation is psychological safety. It is recommended that the working culture in an organisation must create opportunities where employees feel safe to speak their mind and even differ from peers and management without fear of prejudice or that such actions will be detrimental to their career. Employees must be comfortable and safe to admit to mistakes without fear of being belittled or marginalised.

The second composite with regard to creating a learning environment is the appreciation of differences. A recommendation in this regard is to create opportunities for employees to reflect and share experiences whereby employees will become aware of opposing ideas and this would then be how subsequent learning occurs. New ideas and views initiate different ways of thinking and prevent lethargy and drift.

Openness to new ideas is the third composite in creating a learning environment. Employees should be encouraged to take risks and explore the unproven and

unknown and to exercise skill in creating new *modus operandi*. Openness to new ideas is not about correcting mistakes or solving problems.

The fourth composite is about creating time for reflection. This is a very difficult composite to change the culture of, as employees are normally judged by numbers and/or deadlines. It is either the number of tasks completed, the number of sales made or the number of hours worked. Employees are overstressed by deadlines and schedules and this leads to compromising creativity and analytical thinking. A recommendation would be to create and allow time for a pause and use this break to review the organisational processes and encourage employees to reflect and share experiences.

5.4.1.2 Building block 2: Recommendations on how to create concrete learning processes and practices

Creating a learning organisation is not cultivated effortlessly, but is rather a series of intentional steps and activities distributed over a wide range of learning processes, such as generation, collection, interpretation and dissemination of information. These learning processes include the development and testing of new products and services (experimentation), gathering of information (knowledge management) to keep track of trends such as competitors, customers and technology, identifying and solving of problems through analysis and interpretation, and developing new and old employees through education and training (Garvin *et al.*, 2008:5)

I would strongly recommend that in order to maximise the impact of having concrete learning processes and practices, gathered information and knowledge must be shared in clearly defined ways such as reflection and experiential learning. The sharing of information can be among individuals or different groups of employees, and can move laterally or vertically through the organisation. Knowledge sharing or knowledge management can focus internally, for example after the completion of an audit the reviews should be shared with others in similar positions. Externally, the organisation should engage with experts and customers on different forums to gain their views on the activities and challenges of the company. Having concrete processes in place should ensure that essential information moves quickly and efficiently into the hands and heads of those who need it.

Learning processes are framed by four simple questions that can assist organisations to create concrete learning processes and practices: What did we set out to do? What actually happened? Why did it happen? What do we do next time? (Which activities do we sustain, and which do we improve?).

5.4.1.3 Building block 3: Recommendations on how leadership can reinforce learning

As organisational learning is strongly influenced by the behaviour of leaders, leaders should be educated and trained to actively question and listen to employees. Leaders should prompt and encourage debate from employees in the organisation. It is strongly recommended that managers should spend time on the identification of problems, the transfer of knowledge and reflecting on post-audits. These activities are likely to start to flourish and employees will feel encouraged to learn. Managers should be encouraged to demonstrate, through their behaviour, a willingness to accommodate alternative points of view whereby employees will feel the courage and confidence to offer new ideas and options.

5.4.2 Recommendations on how managers from different generational cohorts can influence learning

The number of participants from the three generations that participated in this research is 27 Baby Boomers, 42 Generation X'ers and 67 Generation Y'ers. The significance of this figures is that the figures represent the current status of what is noticeable in the workforce. It is clear and obvious that the numbers of the Baby Boomers are declining, followed by that of Generation X and with Generation Y as the young and upcoming managers.

Baby Boomers (born 1945-1964) value job security and a stable working environment. They will remain loyal and attached to an organisation and are driven, diligent and have a high degree of power in organisations. They have been stereotyped as being excellent mentors and that they focus on consensus building. A recommendation for the Baby Boomer managers will be that they are the generation that most probably will be able to change the culture of an organisation and have the biggest chance of success in creating a learning organisation by changing the culture of an organisation. The Baby Boomers are reaching the end of their working careers and their excellent mentoring skills must be applied and transferred to the next generations to the benefit of the organisation.

Generation X individuals (born 1965-1976) are not likely to display loyalty towards the organisation as they are portrayed as comfortable with change and diversity. They are more likely to leave one job and seek other more challenging options, or a higher salary, or improved benefits. Their work approach has been characterised as having a strong work-life balance as a value, implicating that it is likely that organisational goals are regarded as less important than personal values and goals. I would recommend efforts to get Generation X employees more involved and interested in the organisation through team-building events, use of technology, leadership, coaching and mentorship programmes. They have scored the lowest for the education and training composite indicating that education and training are not important to them. Programmes forcing managers from Generation X to get involved in learning activities should be developed. Managers from Generation X scored the highest for information collection and a recommendation would be to use them in the learning processes of the development and testing of new products and services, gathering of intelligence (trends, competitors, customers and technology) and identifying and solving problems through analysis and interpretation.

Generation Y (born 1977-1994) value technology as, for a large part of their lives, they grew up with technology. Job security is seen as a less important factor and they are comfortable with change. Generation Y value skill development and enjoy the challenge of new opportunities, are highly socialised and enjoy collective action. Other characteristics Generation Y value are having input into decisions and actions and having responsibility. Although job security is not that important to managers from Generation Y, their characteristic to value skills development can be used to keep them in an organisation by giving them bursaries to study and commit them through the opportunity. Their high value of education and training will also contribute to creating a learning organisation and it would be recommended to get them involved in the learning processes through the decision-making processes, actions and giving them responsibility.

5.4.3 Recommendations on the influence of managers from different genders

It is recommended that female managers must be more involved in issues pertaining to psychological safety, appreciation of differences and education and training. Female managers will be better at creating opportunities where employees will feel safe to speak their mind and even differ from peers and management without fear of prejudice

or that such actions will be detrimental to their careers. Employees will be more likely to admit and own up to mistakes without fear of being belittled or marginalised towards female managers.

Female managers have displayed more openness to new ideas and therefore would be better at creating opportunities for employees to reflect and share experiences through which learning then occurs. Opportunities must be found for female managers to foster new ideas and views, initiate different ways of thinking and prevent lethargy and drift as they will excel in such opportunities. It was noticeable that female managers have a higher regard for education and training than their male counterparts, and a further recommendation would then be to involve the female managers more in education and training than the male managers.

5.4.4 Future studies

Notwithstanding the limitations of the present study, the study provides ample opportunities for future research.

The demographics covered in the scope of this study were limited to managers in the agricultural organisations and provide for future comparable research to be conducted in different industries and a different set of employees such as employees in non-managerial positions.

It is recommended to use a larger sample or population and a different sample design and strategy in order to allow for the generalisation of findings.

The opportunity exists for more comprehensive research to explore the differences between male and female managers as this was not fully explored during this research. This concept can be researched further and future results can build on the research and findings presented in this study.

Knowledge management to achieve organisational goals by making the best use of knowledge through a multidisciplinary approach is needed. Knowledge management is the process of creating, sharing, using and managing the knowledge and information of an organisation as set out in the literature study in Chapter 2.

Future studies are needed to determine how agricultural organisations work to prepare the workforce to meet the critical 21st century competitiveness and skills requirements,

namely collaboration and teamwork, creativity and imaging, critical thinking and problem-solving.

5.6 CHAPTER CONCLUSION

In Chapter 5, conclusions are drawn based on the findings of the study, and both of the research questions were answered successfully. The limitations of the study were discussed and recommendations made on how agricultural organisations can become learning organisations. The influence of managers from the different generational cohorts on creating a learning organisation was detailed, as well as how managers from both genders compare with each other in creating a learning organisation. Recommendations for potential future studies were made.

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ANNEXURES

Annexure 1: Solemn declaration and permission to submit



Higher Degrees Administration

SOLEMN DECLARATION AND PERMISSION TO SUBMIT

1. Solemn declaration by student

I, **Meyer Cornelus Bester**

declare herewith that the thesis/dissertation/mini-dissertation/article entitled (**exactly as registered/approved title**),

The influence of cross-generational management in creating agricultural learning organisations

which I herewith submit to the North-West University is in compliance/partial compliance with the requirements set for the degree:

Master of Business Administration

is my own work, has been text-edited in accordance with the requirements and has not already been submitted to any other university.

LATE SUBMISSION: If a thesis/dissertation/mini-dissertation/article of a student is submitted after the deadline for submission, the period available for examination is limited. No guarantee can therefore be given that (should the examiner reports be positive) the degree will be conferred at the next applicable graduation ceremony. It may also imply that the student would have to re-register for the following academic year.

My Ethics number is:

EMSPBS16/06/03-01/33

My ORCID is:

0000-0001-5265-8515

Signature of Student

University Number 10350462

Signed on this 23 day of November of 2018

2. Permission to submit and solemn declaration by supervisor/promoter

The undersigned declares that the thesis/dissertation/mini-dissertation complies with the specifications set out by the NWU and that:

- the student is hereby granted permission to submit his/her mini-dissertation/ dissertation/thesis:
☒ Yes ☐ No
- that the student's work has been checked by me for plagiarism (by making use of TurnItIn software for example) and a satisfactory report has been obtained:
☒ Yes ☐ No

Signature of Supervisor/Promoter

Marita Heyns

Digitally signed by
Marita Heyns
Date: 2018.11.22
13:57:29 +02'00'

Date

23 November

Original details: Marietjie Ackermann(10512187) R/Support doc's/SOLEMN DECLARATION AND PERMISSION TO SUBMIT.docm 28 July 2017

File reference: 7.1.11.3.2/3

Annexure 2: Authorisation to conduct research OBARO



OBARO GROEP / GROUP

Van Veldenstraat / Street 45, 1ste Vloer / 1st Floor, Plaza Gebou / Building
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Tel: +27 (0) 12 381 2800 E-pos / Email: info@obaro.co.za / www.obaro.co.za

In lyn met die boer / Aligned with the farmer

15 May 2017

To whom it may concern

Dear Sir/Madam

RE: AUTHORISATION TO CONDUCT RESEARCH

As the Managing Director of OBARO I have no objection to Meyer Bester conducting a survey with any employee of OBARO

The data may be used for secondary research purposes provided that the anonymity of the participants is protected.

Yours faithfully.

Name: Nic Bronkhorst

Managing Director: OBARO

Annexure 3: Authorisation to conduct research Suidwes Group



12 October 2017

To whom it may concern

Dear Sir/Madam

RE: AUTHORISATION TO CONDUCT RESEARCH

As the Chief Executive Officer of SUIDWES LANDBOU INVESTMENTS (PTY) LTD I have no objection to Meyer Bester conducting a survey with any employee of SUIDWES LANDBOU INVESTMENTS (PTY) LTD.

The data may be used for secondary research purposes provided that the anonymity of the participants is protected.

Yours faithfully

HD VAN SCHALKWYK
SUIDWES GROUP: CHIEF EXECUTIVE OFFICER

SUIDWES BELEGGINGS EIENDOMS BEPERK. Reg. nr. 1998/007601/07
Geregistreerde adres / Registered address: Voortrekkerstraat / Voortrekker Street Leeudoringstad 2640
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Direkteure / Directors: J J Viljoen (Voorsitter / Chairman), F E Marx (Ondervoorsitter / Vice-Chairman),
A Botha, P F Delpoit, G T Geldenhuys, J J le Roux, G L Malherbe, (me) B Mathews
(Dr) H D van Schalkwyk (Groep Hoof Uitvoerende Beampte / Group Chief Executive Officer), G Potgieter (Groep Hoof Finansiële Beampte / Group Chief Financial Officer),
D Linde (Groep Hoof Regsbeampte / Group Chief Legal Officer & Groepsekreteris / Group Secretary)

Annexure 4: Authorisation to conduct research KLK

From: Cobus Booysen [<mailto:personeel@klk.co.za>]

Sent: 08 September 2017 04:47 PM

To: 'Meyer Bester' <meyerb@obaro.co.za>

Subject: RE: The influence of cross-generational management in creating agricultural learning organisations

Hallo Meyer

Ons gaan nie die Direksie bemoei met 'n vraelys nie. Ons as Exco sal jou help maar Stephen wil eers die vraelys sien.

Groete

Cobus Booysen

Bestuurder Menslike Hulpbronne / Human Resources Manager | Hoofkantoor / Head Office

| A Karakoelstr. 14, Uppington | T 054 337 6218 | F 086 657 5612



Annexure 5: Cover letter to the respondents

SURVEY: IS YOURS A LEARNING ORGANISATION?

Dear participant

Thank you for your time and your willingness to participate in the completion of this survey. By completing this survey, you also declare that you are an adult and you have completed this survey voluntarily.

This survey is done to collect data to complete an MBA degree at the North-West University. It is therefore an independent study and is not done on behalf of your company or any other company. The results and outcomes of the joint data will be discussed with the employees' companies concerned.

This diagnostic survey is designed to help determine how well your company functions as a learning organisation and to determine the impact of managers from different generations in creating agricultural learning organisations.

The data or information collected by this survey will be treated as strictly confidential, and the anonymity of participants will be strictly maintained. It will be appreciated if you could answer all questions without prejudice or fear of victimisation, as it will contribute to the validity and reliability of the data or information collected by this survey.

Thank you in advance.

A handwritten signature in black ink, appearing to read 'Meyer Bester'.

Meyer Bester

Annexure 6: Ethical clearance letter from the NWU School of Business and Governance



NORTH-WEST UNIVERSITY
YUNIBESITHI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT

10350462
BESTER MC, MR

NWU School of Business & Governance

North-West University
Private Bag X6001, Potchefstroom
South Africa 2520

Prof CJ Botha

Tel: (018) 299 1672

Email: christoff.botha@nwu.ac.za

22 May 2017

ETHICAL CLEARANCE

This letter serves to confirm that the research project of BESTER MC has undergone ethical review. The proposal was presented at a Faculty Research Meeting and accepted. The Faculty Research Meeting assigned the project number EMSPBS16/06/03-01/33. This acceptance deems the proposed research as being of minimal risk, granted that all requirements of anonymity, confidentiality and informed consent are met. This letter should form part of your dissertation manuscript submitted for examination purposes.

Yours sincerely

Prof CJ Botha

Manager: Research - NWU Potchefstroom Business School

Original details: Wilma Pretorius(12090298) C:\Documents and Settings\Administrator\My Documents\Briefe MBA(2017)

Annexure 7: Example of the unique coding system that enabled the analysis of birth year and gender.

SURVEY: IS YOURS A LEARNING ORGANISATION?

To help provide a reference code to your data input, please provide the following information in the table. The reason for using a code is that this research can lead to the secondary use of data and information for publications and secondary studies.

Code information	Example	Your code information
Your mother's first name initial	W	
Last initial of your surname	S	
Your father's first name initial	L	
Year of birth	1961	
Sex: M or F	M	
Reference code	WSL1961M	

Annexure 8: Example of the survey questionnaire that was sent to the participants

SURVEY

For each of the following questions, please refer to the unit you work in. All questions in this survey will refer to this unit.

Please respond to each item in terms of how descriptive it is of the unit that you work in.

	Highly Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Neither Accurate Nor	Slightly Accurate	Moderately Accurate	Highly Accurate
In this unit, it is easy to speak up about what is on your mind.	1	2	3	4	5	6	7
If you make a mistake in this unit, it is often held against you.	1	2	3	4	5	6	7
People in this unit are usually comfortable talking about problems and disagreements.	1	2	3	4	5	6	7
People in this unit are eager to share information about what does not work as well as to share information about what does work.	1	2	3	4	5	6	7
Keeping your cards close to your chest is the best way to get ahead in this unit.	1	2	3	4	5	6	7
Differences in opinions are welcomed in this unit.	1	2	3	4	5	6	7
Unless an opinion is consistent with what most people in this unit believe, it will not be valued.	1	2	3	4	5	6	7
This unit tends to handle differences of opinion privately or off-line, rather than addressing them directly as a group.	1	2	3	4	5	6	7
In this unit, people are open to alternative ways of getting work done.	1	2	3	4	5	6	7
In this unit, people value new ideas.	1	2	3	4	5	6	7
Unless an idea has been around for a long time, no one in this unit wants to hear it.	1	2	3	4	5	6	7

In this unit, people are interested in better ways of doing things.	1	2	3	4	5	6	7
In this unit, people often resist untried approaches.	1	2	3	4	5	6	7
People in this unit are overly stressed.	1	2	3	4	5	6	7
Despite the workload, people in this unit find time to review how the work is going.	1	2	3	4	5	6	7
In this unit, schedule pressure gets in the way of doing a good job.	1	2	3	4	5	6	7
In this unit, people are too busy to invest time in improvement.	1	2	3	4	5	6	7
There is simply no time for reflection in this unit.	1	2	3	4	5	6	7
This unit experiments frequently with new ways of working.	1	2	3	4	5	6	7
This unit experiments frequently with new product/service offerings.	1	2	3	4	5	6	7
This unit has a formal process for conducting and evaluating experiments or new ideas.	1	2	3	4	5	6	7
This unit frequently employs prototypes or simulations when trying out new ideas.	1	2	3	4	5	6	7

This unit systematically collects information on:

	Highly Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Accurate Nor Inaccurate	Slightly Accurate	Moderately Accurate	Highly Accurate
Competitors	1	2	3	4	5	6	7
Customers	1	2	3	4	5	6	7
Economic and social trends	1	2	3	4	5	6	7
Technological trends	1	2	3	4	5	6	7

This unit frequently compares its performance to:

	Highly Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Accurate Nor Inaccurate	Slightly Accurate	Moderately Accurate	Highly Accurate
Competitors	1	2	3	4	5	6	7
Best-in-class organisations	1	2	3	4	5	6	7

Please respond to each item in terms of how descriptive it is of your work unit:

	Highly Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Neither Accurate Nor	Slightly Accurate	Moderately Accurate	Highly Accurate
This unit engages in productive conflict and debate during discussions.	1	2	3	4	5	6	7
This unit seeks out dissenting views during discussions.	1	2	3	4	5	6	7
This unit never revisits well-established perspectives during discussions.	1	2	3	4	5	6	7
In this unit, we frequently identify and discuss underlying assumptions that might affect key decisions.	1	2	3	4	5	6	7
This unit never pays attention to different views during discussions.	1	2	3	4	5	6	7
Newly hired employees in this unit receive adequate training.	1	2	3	4	5	6	7
Experienced employees in this unit receive periodic training/updating.	1	2	3	4	5	6	7
Experienced employees in this unit receive training when shifting to a new position.	1	2	3	4	5	6	7
Experienced employees in this unit receive training when new initiatives are launched.	1	2	3	4	5	6	7

In this unit, training is valued.	1	2	3	4	5	6	7
In this unit, time is made available for education and training activities.	1	2	3	4	5	6	7

This unit has forums for meeting with and learning from:

	Highly Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Neither Accurate Nor	Slightly Accurate	Moderately Accurate	Highly Accurate
Experts from other departments/teams/divisions	1	2	3	4	5	6	7
Experts from outside the organisation	1	2	3	4	5	6	7
Customers/clients	1	2	3	4	5	6	7
Suppliers	1	2	3	4	5	6	7

Please respond to each item in terms of how descriptive it is of your work unit:

	Highly Inaccurate	Moderately Inaccurate	Slightly Inaccurate	Neither Accurate Nor	Slightly Accurate	Moderately Accurate	Highly Accurate
This unit regularly shares information with networks of experts within the organisation.	1	2	3	4	5	6	7
This unit regularly shares information with networks of experts outside the organisation.	1	2	3	4	5	6	7
This unit quickly and accurately conveys new knowledge to key decision-makers.	1	2	3	4	5	6	7
This unit regularly conducts post-audits and after-action reviews.	1	2	3	4	5	6	7

Please respond to each item in terms of how descriptive it is of the manager(s) to whom you report, using the following scale:

	Never	Infrequently	Sometimes	Often	Always
My manager(s) invite(s) input from others in discussions.	1	2	3	4	5
My manager(s) acknowledge(s) his/her own limitations with respect to knowledge, information or expertise.	1	2	3	4	5
My manager(s) ask(s) probing questions.	1	2	3	4	5
My manager(s) listen(s) attentively.	1	2	3	4	5
My manager(s) encourage(s) multiple points of view.	1	2	3	4	5
My manager(s) establish(es) forums for and provide(s) time and resources for identifying problems and organisational challenges.	1	2	3	4	5
My manager(s) establish(es) forums for and provide(s) time and resources for reflecting and improving on past performance.	1	2	3	4	5
My manager(s) criticize(s) views different from his/her own.	1	2	3	4	5