



FUTURISTIC WHOLE-BRAIN SUCCESS PROFILE FOR THE ADMINISTRATIVE PROFESSIONAL IN A SOUTH AFRICAN CONTEXT

by

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Thesis submitted in fulfilment of the requirements for the degree

Doctor Technologiae: Office Management and Technology

in the Faculty of Business

at the Cape Peninsula University of Technology

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**Cape Town Campus
Date submitted: August 2018**

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DECLARATION

I, Aletta Johanna Venter, declare that the contents of this dissertation represent my own unaided work, and that the dissertation has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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ABSTRACT

The rapid economic developments of the last decade have been driven by the impact of the revolutionary developments in information and communications technologies. The increasingly complex and specialised effect of this explosion of information technology and its diversity has not been limited to the business environment and educational and training institutions. These technological developments irreversibly and significantly affected the role of the administrative professional with regard to the assimilation, processing and utilisation of information. Administrative professionals are, therefore, expected to align their knowledge and skills with the characteristics and requirements of the new world of work. They have had to adjust from the role of executing duties on the instructions of the manager during the service economy to an economy based on the demand for innovation and creativity skills to contribute towards the creation of unique value and experiences for consumers, referred to as the experience economy. The relationship economy has prompted a shift towards another conformation, namely interpersonal and intuitive skills. An immense skill disruption, which has set the stage for the sharing economy, is evident in skills such as social, cognitive abilities, technical, resource management, process, content, system and complex problem-solving, but also requires one to be flexible and able to adapt to change. Being flexible and adaptable are skills required for the Fourth Industrial Revolution (4IR), taking into consideration the technological advances that are driven by extreme automation and connectivity through artificial intelligence. The purpose of the study was to investigate the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional. This was achieved by means of a national skills survey conducted among administrative professionals in the public and the private sectors, followed by constructing a futuristic whole-brain success profile for administrative professionals in the South African context.

The study used a mixed methods approach, combining both qualitative and quantitative data. An electronic structured questionnaire was employed to achieve the primary purpose of the study, in order to assess the impact of the global key drivers of change on administrative professionals becoming whole-brain thinkers in executing their role effectively. The survey questionnaire was distributed through a professional association using nonprobability sampling of the population, namely members in the public and the private sectors in all the provinces. The questionnaire was completed by 219 respondents. The findings revealed that the global and national key drivers of change and transformation has not negatively affected the current knowledge and skills set of administrative professionals at national level. The only skill shortages identified were in the category of web-based applications.

In addition, qualitative data were gathered by means of semi-structured interviews conducted with five individuals in order to investigate the perspectives of various stakeholders on the current gap in the literature regarding the required competencies and capabilities of administrative professionals (participants) in the public and the private sectors. It has been found that the mentioned skills continue to be important skills to remain effective within the next ten years.

The current knowledge and skills required by administrative professionals, which have been determined by an international investigation and research studies, were compared to the directives of key drivers of change. These directives consist of models such as the Lifelong Learning Skills, Future Work Skills 2020 and the Workforce Strategy for the Fourth Industrial Revolution. Existing theories and approaches pertaining to whole-brain human information processing selected to frame this study, were Herrmann's Whole Brain® Model, Taggart's whole-brain human information processing theory, Sternberg's theory of thinking styles and Kirton's model of cognitive style. These whole-brain human information processing theories and approaches were applied to discover and interpret the perceived impact of the global key drivers of change and transformation on administrative professionals for effective performance in the changing world of work from a whole-brain perspective. Concurrent with the aim of the study, the Whole Brain® Model of Ned Herrmann served as the conceptual framework within which to construct a futuristic whole-brain success profile for the administrative professional in the South African context.

The data gathered from both of the international and national investigations have been combined with the data gathered from the literature review to construct a futuristic whole-brain success profile for the administrative professional. The future success profile involves three different gathering processes, namely the first phase that summarises the skills and knowledge gaps that emerged from the international investigation. The skills and knowledge gaps that emanated from the literature are summarised as Phase 2, followed by the findings of the national skills survey summarised as Phase 3. One of the conclusions derived from the research study was that this future success profile has definite implications for the individual administrative professional, administrative professionals' associations and educational institutions.

ACKNOWLEDGEMENTS

The experience of completing this research report was challenging, extremely rewarding and a valuable learning experience. I would not have been able to undertake this work alone and would like to express my gratitude to the following individuals:

- First and foremost, praises and thanks to our God, the Almighty, for His showers of blessings throughout my research work to complete the research successfully.
- A word of thanks to you, Dr Maupi Letsoalo, for your advice and development of the survey questionnaire and to integrate the data emanating from the survey questionnaire to facilitate its analyses and interpretation.
- To Dr Liezel Korf, not only for the statistical analysis, but also for your invaluable advice, recommendations and guidance with the interpretation thereof.
- I am extending my thanks to Hugo van der Walt for his input and guidance with the computer software in terms of the transcriptions of the qualitative data.
- To Dr Hein van der Watt for his patient guidance and constructive inputs throughout.
- I am grateful to the professional association, OPSA, for distributing the link of the survey questionnaire to its members.
- A special word of thanks to my friend Johanna Greyling for the interest shown in my research and her continuous encouragement.
- The financial assistance of the National Research Foundation towards this research is acknowledged. Opinions expressed in this thesis and the conclusions arrived at, are those of the author, and are not necessarily to be attributed to the National Research Foundation.

DEDICATION

This study is dedicated to:

Dr Wynand van Wyngaard, my esteemed and beloved life partner and confidant who has supported me immeasurably in so many ways

and to

my precious father, Petrus Venter, and devoted companion Lucca, the two souls whose unconditional love has meant so much to me.

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LIST OF ABBREVIATIONS AND ACRONYMS

AAPNZ	Association of Administrative Professionals New Zealand Inc.
CEO	Chief Executive Officer
EEG	Electroencephalographic Device
4IR	Fourth Industrial Revolution
HBDI	Herrmann Brain Dominance Instrument
IAAP	International Association of Administrative Professionals
OECD	Organisation for Economic Co-operation and Development
OPSA	Association for Office Professionals of South Africa
SAS	Statistical Analysis Systems
SPSS	Statistical Package for the Social Sciences
VAS	Visual Analogue Scale

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 ORIENTATION

The economic characteristics of the world have shifted dramatically (Pompidou, 2007:2-11; Silke, 2011:51). Humanity is living in an interconnected world where human innovation and progress continue to transform the global economy, the demography, geopolitical developments and societal demands. Cilliers, Hughes and Moyer (2011:xv) state that “we have seen so many changes in the last four decades and therefore should recognise that the world would, by 2050, be very different indeed”. When considering possible future events, it will be beneficial to present a brief overview of the complex and dynamic changes over the last century.

Many modern societies in the world have evolved from a group of farmers known as the agrarian economy of the first Industrial Revolution to an alliance of factory workers during the industrial economy in the Second Industrial Revolution. This was achieved with the introduction of early automation through mechanical production based on water and steam. The industrial economy enabled mass production by means of electrical energy. Furthermore, quality and productivity were fostered (Bloem, Van Doorn, Duivesteyn, Excoffier, Maas & Van Ommeren, 2014:11; Kamel, Melo, De Souza, Lima & Lopes, 2008:1-12; UBS, 2016:10). Rowson and McGilchrist (2013:21) observed that the result of industrialisation terminated stable communities and the loss of practical skills. The rise of the digital age, with the emphasis on electronics and information technology characterised the Third Industrial Revolution (UBS, 2016:11-12). The implications of the digital age intensified global competition, technological developments and organisational change. This created the platform for a knowledge-based society within the Service Economy. Proficiency and the delivering of appropriate services to consumers have become important to organisations (Ferreira & Teixeira, 2013:1-7; OECD, 2000:3-8¹; Seltzer & Bentley, 1999:1). Pine and Gilmore (1998:97-106; 2001:2-13) and Hosany and Witham (2010:4-8) had already proposed that at the end of the 20th century, a paradigm shift was required from the delivery-focused service economy to stage the experience economy.

¹ The Organisation for Economic Co-operation and Development (OECD) organises Business and Industry Policy Forums to address issues related to realising the potential of the Service Economy: facilitating growth, innovation and competition.

At the onset of the 21st century, consumers regarded memorable, extraordinary and long-lasting personal experiences as valuable. Pink (2005:50) and Smith (n.d.:53-64) refer to creators and the empathisers. The conceptual age in the experience economy involves the understanding of human interaction and finding joy in oneself. These memorable experiences transitioned into the current relationship economic realm. Consumers are still interested in great experiences, but currently the emphasis is on sharing their experiences with others (Stanfield & O'Hare, 2013:2). Information technology advances set the stage for the Fourth Industrial Revolution (4IR), driven by extreme automation and connectivity through artificial intelligence. Also known as the sharing economy, the impact of developments in genetics, robotics, nanotechnology, 3D printing and biotechnology will forever change how individuals, businesses and educational institutions cognate and navigate the world through cyber-physical Internet-based systems (Anderson & Rainie, 2012:25; Bloem *et al.*, 2014:5; Quilligan, 2015:1-13; UBS, 2016:11-12). The 4IR, also known as the Internet of Things and Services, has begun to emerge since 2010 (Anderson & Rainie, 2012:25; Bloem *et al.*, 2014:13; World Economic Forum, 2016:5-6).

Revisiting the impact of global changes on various economic developments over the last century constitutes the point of departure for this study. The researcher will focus on the impact of the global key drivers of change in the South African context and the impact thereof on administrative professionals. The implication of this will have a negative impact on highly repetitive low- and medium-skill occupations (UBS, 2016:11-12). South Africa is a young participant in these global trends (as discussed on page 3) that have a significant impact on the current political and economic dialogue. Recognising the impact of changing economic structures on the future will continue to expand the ability of South Africa to grow globally by placing a competitive impetus on all South Africans (Cilliers *et al.*, 2011:xii; Fear, Botha, Young, Rautenbach & Groenewald, 2009:1-27; Silke, 2011:12).

The rapid economic progress (as discussed in the second paragraph of page 1 and first paragraph on this page) is driven by the impact of the revolutionary development of information and communications technologies² over decades. Owing to the recent information and communications technology developments of the 21st century, the world is facing the transition from the experience economy to the relationship economy. It has become apparent that individuals, businesses, educational institutions and governmental policy makers should rather demonstrate foresight in navigating this rapidly shifting landscape to forecast future trends (Davies, Fidler & Gorbis, 2011:13; Silke, 2011:127).

² Information and communication technology entails software applications, e.g. MSWord; mobile devices such as tablet computers (e.g. iPad, Smartphone) and mobile applications (apps); social networking sites (e.g. Facebook); Internet phone services (e.g. Skype); and electronic records managements (e.g. Cloud, Dropbox).

The rapid transition between economies plays a pivotal role in the rise of research institutions. These research institutions promote the exploration and identification of emerging trends and policy interventions including human capability development and sustainability (Cilliers *et al.*, 2011:xv).

Examples of these research institutions are as follows:

- (i) The African Future Project, in collaboration with the Institute for Security Studies
- (ii) The Frederick S Pardee Center for International Futures
- (iii) The Institute for Futures Research, located at the University of Stellenbosch
- (iv) The Apollo Research Institute (Davies *et al.*, 2011:1)

The Department of Higher Education and Training compiled the *National Skills Development Strategy III (NSDS III) Progress Report 2011-2016* to serve as a key driving force in improving the effectiveness and efficiency of the skills development system. The National Skills Development Strategy III promotes partnerships between employers and public education institutions, namely, Technical Vocational Education and Training Colleges, Universities, Universities of Technology, private training providers and Sector Education and Training Authorities (National Skills Development Strategy III Progress Report 2011-2016; 2011:5-7; Skills Development Facilitator Guide 2013). Recent research by the Apollo Research Institute (Davies *et al.*, 2011:1-13) report on drivers reshaping how people think about work, on what constitutes work and determines the future skills required to be productive contributors in the new world of work (also see Appendix A for a detailed list of the Future Work Skills 2020). The six key drivers of change in the approaching decade are as follows:

- (i) The rise of smart machines and systems, with workplace automation not requiring human workers doing repetitive tasks by rote.
- (ii) A new media ecology that requires new media literacies to leverage the text-based Internet in order to transform a more visual communication media for persuasive communication.
- (iii) The computational world, with massive increases in sensors and processing power that are transforming the world into a programmable system.

- (iv) Superstructured organisations³ that utilise new technologies and social media platforms to drive new forms of production and value creation.
- (v) The globally connected world, in which increased global interconnectivity puts diversity and adaptability at the centre of organisational operations.
- (vi) Extreme longevity, with increasing lifespans that change the nature of careers and learning globally.

These future key drivers of change serve as a guide to test the impact of the global and national key drivers of change and transformation on the application of new knowledge and skills⁴ of administrative professionals in the South African context.

Supporting the above reasoning, authors such as Domeyer (2005:9) and Rorbak (2012:110-112) confirm that the increasingly complex and specialised effects of the explosion of information technology and its diversity in the business environment not only challenge existing work behaviours, but require administrative professionals to acquire more knowledge on a variety of subjects and to apply more skills than at any other point in the history of the profession. Technological changes have also had a significant impact on the administrative professional's role with regard to the assimilation, processing and utilisation of information. A combination of technical expertise and desirable personal attributes contributes to the career success and effectiveness of the administrative professional. Several researchers (Herson, Dirks, Kotter, Cummings & Pierce in Ensminger, Surry, Porter & Wright, 2004:3-5; Hollis-Turner, 2008:ii) emphasise the importance of "a perceived need to change old methods" and "the need for developing psychological ownership and competencies by employees in order to successfully facilitate change within an organisation". Appendix A summarises the comparison made between the Future Work Skills 2020 as discussed in the previous section (Davies *et al.*, 2011:1-13), the Lifelong Learning Skills as discussed in paragraph 4.2.1.1 of Chapter 4 (Burton & Shelton, 2014:41) and the gaps in knowledge and skills identified in the literature as discussed in paragraphs 4.3.5.1 to 4.3.5.17 of Chapter 4. The comparisons as illustrated in Appendix A are used as the conceptual framework for discussion (also see Figure 1.1).

³ To "superstruct" means to create structures that go beyond the traditional forms and processes with which people are familiar.

⁴ Definitions for "knowledge and skills", according to the *Webster's Comprehensive Reference Dictionary and Encyclopedia* and the *Collins Cobuild Essential English Dictionary*, are as follows: "(a) knowledge is a clear perception of a truth or fact; skill from practice; information and understanding about a subject; or human theories; and (b) skill is expertness in any art or science; aptitude; or the knowledge and ability that enables you to do something well."

In recent research, Venter (2011:149) investigated the ideal thinking style preference profile of the contemporary administrative professional. The results revealed that the current preferred thinking styles of administrative professionals might be inadequate for performing effectively in the newly developing world of work. The necessity for administrative professionals to develop from a predominantly left-brain thinking preference to become whole-brain thinkers by incorporating right-brain thinking in executing their roles effectively, emerged from this study. The contemporary administrative professional will continue to need left-brain thinking skills to function effectively. However, based on these findings, such thinking will need to be augmented with right-brain thinking in order for the administrative professional to function more effectively in the new world of work (Venter, 2011:149).

Studies regarding the specific functions of the two brain hemispheres started with the research of neurobiologist Robert Sperry on the split brain (Herrmann, 1995:8-15; Neethling & Rutherford, 1996:68). He discovered that, under certain conditions, each hemisphere can hold different thoughts and intentions (Carter, 2014:8-12). MacLean's triune brain theory allocates the specialised functions of the brain, based on human evolution. Accordingly, the human brain developed sequentially as a reptilian brain and then as a mammalian brain, that was eventually capped by the neocortex. Herrmann combined the elements of the theories of MacLean and Sperry into a four-part model representing the Herrmann Whole Brain® Model.⁵ Additionally, the researcher, being an administrative professional with the personal experience of the impact of technological advances of more than 30 years, also observed the necessity for administrative professionals to integrate new skills, knowledge and attitudes into the new world of work. The researcher's observation encouraged the endeavour to determine the impact of this phenomenon on the future whole-brain success profile for optimal effectiveness of the administrative professional in the future work environment.

Whole-brain thinking equips a person to develop the skills to interpret managerial styles as well as resolving business problems pertaining to production, planning, communication, teamwork, and reaching goals. Whole-brain thinking also provides an invaluable basis for understanding processes of thinking as well as the interrelation of knowledge, skills and competence (Herrmann & Herrmann-Nehdi, 2015:16; Neethling & Rutherford, 2005:257). Herrmann (1995:76) asserts that "competence to perform a given task comes through training and experience and can be developed to reasonable, even superior, levels whether or not the person is attracted to that task".

⁵ The Whole Brain® Model is a metaphor for how humans' thinking works and is based on brain research conducted with an electroencephalographic (EEG) device, along with observable evidence and psychometric validity studies (Herrmann-Nehdi, 2015:16).

Jensen (2007:48) concurs that research has proved that the brain constantly changes when it learns a new skill set, for example, a technical or a financial skill. These selected examples of research studies provide clear evidence that, once the process of thinking is understood and utilised to support and enhance the effectiveness of employees, problem solving, innovation, communication and achieving individual and company goals in the work environment will be promoted. Professionals will be able to adapt to the continuous pace and the extent of change more effectively, and they will have access to the different thinking styles that could provide appropriate responses to fluctuating situations (Harypursat, 2005:1-5; Herrmann, 2005:251). Samuel and Kohun (2010:34-35) state that, although individuals choose to solve problems in their preferred thinking style, access to all the thinking styles is necessary to solve most complex problems. Although Sternberg (1994:36-40) concurs with the above statements, he believes that individuals can adopt different thinking styles, according to different tasks and situations. Whole-brain thinking encourages a person to augment less preferred thinking style preferences instead of disregarding the lack of necessary skills that may cause anxiety and stress (Kruger, 2008:21; Neethling & Rutherford, 2005:3-4; Van Niekerk, 2007:7). The new world of work encourages a shift within educational institutions and the workforce. The historically separate worlds of work and learning originally focused internationally on predominantly left-brain thinking and teaching (De Boer & Van den Berg, 2001:119-129). This was evident in the service economy where knowledge workers excelled in left-brain thinking. They are distinguished for their “ability to acquire and to apply theoretical and analytical knowledge” (Pink, 2005:16).

In the emergence of an interconnected world, a different workforce is required, suggesting a different educational system to promote different thinking – that of whole-brain thinking. An analysis done by De Boer and Van den Berg (2001:119-129) revealed and supported this concept. They conclude that “future employers demand students who can think holistically; be innovative; work in teams; synthesise information; integrate environmental and societal values and ethics into their work; communicate effectively and solve problems in creative ways”. A diversity of cultural perspectives and context should be embraced by educational institutions, businesses and individuals in the South African context to acknowledge a multicultural political and educational dispensation. With the emergence of a multicultural, political and educational dispensation in the new South Africa, a new approach that can accommodate a diversity of cultural perspectives and contexts should be followed (De Boer & Van den Berg, 2001:119-129).

It has been documented that effective learning takes place if all four thinking quadrants are involved in learning (Herrmann, 1996:150-155). This learning approach provides employees with a valuable learning application in the workplace (Herrmann, 1996:154).

The relevance of Herrmann's Whole Brain® Teaching and Learning Model (Herrmann, 1996:155) in the new world of work, specifically the application thereof in the work arena of the administrative professional, is briefly addressed in Chapters 2 and 4.

In this study, the aim is to construct a futuristic whole-brain success profile for the administrative professional in the South African context.

1.2 RATIONALE

As described in the previous section (paragraph 1.1), the rapid economic developments of the last decade were driven by the impact of the revolutionary development of information and communications technologies. These developments have had an irreversible impact on the set of skills and thinking processes of administrative professionals, who are expected to apply 20th-century skills and knowledge in a new world of work arena. Therefore, administrative professionals have to adjust from the role of executing duties on the instruction of the manager during the service economy, to an economy based on the demand for innovation and creativity skills to contribute towards the creation of unique value and experiences for consumers, referred to as the experience economy. The relationship economy prompted a shift towards another conformation, namely interpersonal⁶ and intuitive skills.⁷ Consumers are sharing their experiences of the trademarks and services provided by companies on social media. Therefore, social media create a different platform for administrative professionals to communicate and connect with clients. Consumers are still interested in great experiences, but the emphasis is on sharing their experiences with others. Flexibility and adaptability are skills required not only for the sharing economy but also with the transition into the 4IR. Considering that the 4IR is driven by extreme automation and connectivity through artificial intelligence, it is evident that administrative professionals should obtain a skills set that is beyond skills (in order of demand), such as social skills, cognitive abilities, technology skills, resource management, processing (e.g. active listening, critical thinking, monitoring self and others), content skills (e.g. active learning, oral expression, reading comprehension, written expression, information, communication and technology literacy), system skills (e.g. judgement and decision making and system analysis) and complex problem-solving skills.

⁶ Interpersonal skills are also referred to as human skills and are based on several other skills, including communicating skills, team skills, diversity skills, power, political, negotiation and networking skills, motivation skills, conflict management skills and ethics skills.

⁷ Intuitive means having the ability to understand or know something without any direct evidence or reasoning process.

As an administrative professional, the researcher is well aware of the many challenges that administrative professionals face, especially within the South African context. With South Africa being a young global participant, administrative professionals are suddenly being exposed to the international economy. Administrative professionals have had to adapt their abilities, attributes, roles and responsibilities from routine work to obtain skills in computer literacy, becoming independent workers. This means that important decision-making and additional responsibilities have left the administrative professional feeling unfulfilled, ineffective and incapable. Exposed for centuries to a predominantly left-brain thinking culture, administrative professionals have had to become whole-brain thinkers, incorporating right-brain thinking to execute their roles effectively. Research studies (e.g. Robert Sperry and Paul MacLean, as well as Joseph Bogen and Michael Gazzanaga) with regard to the functioning of the brain, and specifically the metaphor of whole-brain thinking (e.g. Ned Herrmann and Kobus Neethling), have been published.

However, apart from the study by Venter (2011:5), very little research has been done on the possible supportive role of the Whole Brain® Model for administrative professionals. The significance of this study, therefore lies in its attempt to determine the impact of the global and national key drivers of change and transformation (listed and discussed on page 3 & 4) on the future whole-brain success profile for optimal effectiveness of the administrative professional in the future world of work.

1.3 STATEMENT OF PURPOSE

The aim of this study is to construct a futuristic whole-brain success profile for the administrative professional in the South African context.

The **primary purpose** of the study is to assess the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional in the future world of work. This was done by means of a national skills survey to identify the current level of knowledge and skills of administrative professionals within South African organisations.

A **secondary purpose** was to gather qualitative data by means of semi-structured interviews that investigated the perspectives of the following stakeholders: an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner.

The qualitative data provide context to the primary data obtained in the national skills survey. This statement of purpose was accomplished by means of the following specific research objectives.

1.3.1 Specific objectives

The research objectives are to:

- (i) examine in organisations, nationally and internationally, the key drivers of change and transformation and their implications on the future whole-brain success profile;
- (ii) collate the current knowledge and skills requirements for the administrative professional within South African organisations by means of a survey questionnaire;
- (iii) understand the impact of the sharing economy on new knowledge and skills for the administrative professional;
- (iv) investigate how the whole-brain thinking metaphor equips the administrative professional with the acquisition of new knowledge and skills; and
- (v) develop a futuristic whole-brain success profile for the administrative professional in the South African context.

1.3.2 Potential contribution of the study

The potential contribution of the study is that it may:

- (i) conduct a national skills survey for the first time among administrative professionals in the public and the private sectors;
- (ii) construct a futuristic whole-brain success profile for the administrative professionals in the South African context;
- (iii) advise education and training professionals on the content of occupational standards; and
- (iv) provide a framework to curriculum practitioners involved in the development and training of administrative professionals.

1.4 RESEARCH QUESTIONS

1.4.1 Main research question

Based upon the statement of purpose of this study, the main research question can be formulated as follows:

What is the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional?

1.4.2 Secondary research questions

- (i) What is the current knowledge and skills set of administrative professionals within South African organisations?
- (ii) What are the requirements for the future knowledge and skills set of South African organisations with respect to their future needs?
- (iii) How can the Whole Brain® Model and theory serve as a useful and valid basis to aid administrative professionals to enhance their competencies and capabilities?
- (iv) How do the managers rate the current ability of administrative professionals to comply and perform in accordance with the requirements of the changing world of work?

1.5 DEFINITION OF CONCEPTS

In order to ensure a clear understanding of concepts, definitions of the key concepts in the context of the proposed study are provided next.

1.5.1 Futuristic

Studies of the future have existed since the 1920s and the projection of future possibilities continues to occur in the contemporary world (Toffler & Toffler in Wells, 2000:29). According to Wells (2000:1), future studies “can be described as an empirical and scientifically based approach to understand the future”. There have been different views regarding the definition of the concepts of “futuristic”; “foresight” and “forecast”. However, coherence could be found in the research works of Sardar (2009:177-184) and Wells (2000:1-53), in which it is reasoned that the “future cannot be ‘predicted’ but alternative futures can be ‘forecast’ and preferred futures ‘envisioned’ and ‘invented’ continuously”. Owing to the fact that the future is governed by change, futurists have developed different methodologies for future consciousness, for example, theories of the future to explain and describe the future, and ideologies referring to a set of values regarding a preferable future (Wells, 2000:16-20).

In an attempt to construct a futuristic whole-brain success profile for the administrative professional in the South African context, the researcher was guided by the “theories of the future” and “ideologies of a preferable future”. The theories of the future describe where humans are (the impact of the global and national key drivers of change on the work arena of the administrative professional); how humans got here (the historical view of the economic changes); and where humans are heading (the revolutionary developments serve as a guide to determine the impact of these on the application of the whole-brain success profile for possible optimal effectiveness of administrative professionals in the future work environment).

In this study, the researcher used different techniques to gain knowledge of what is known of the future with specific reference to the future world of work that the administrative professional will have to face. Furthermore, the researcher envisioned the success profile that is required to be effective in the new future world of work. In this study, “futuristic” is defined as the next five to ten years.

1.5.2 The whole brain

Herrmann and Herrmann-Nehdi (2015:15) state that the Whole Brain® Model “identifies four quadrants of thinking preferences, and a visual metaphor for the specialised thinking clusters of the brain”. The brain is made up of two hemispheres. Popularisation of this left brain/right brain theory was informed by clinical evidence provided by Robert Ornstein, Roger Sperry, Joseph Bogen and Michael Gazzanaga (Herrmann, 1996:11-12). These two hemispheres communicate with one another by means of connectors called the corpus callosum, the hippocampal commissure, and the anterior commissure. Herrmann combined the elements of MacLean’s triune brain model and Sperry’s theories of a four-part model representing the Whole Brain® Model (Herrmann, 1996:15) as shown in Figure 2-12 of Chapter 2. Herrmann (1996:12-15) states: “This four-quadrant model serves as an organising principle of how the brain works: four thinking styles metaphorically representing the two halves of the cerebral cortex (Sperry) and the two halves of the limbic system (MacLean).” Figure 2-11 in Chapter 2 illustrates that the cerebral mode represents the cognitive modes associated with the cortex. This representation is displayed as “A” and “D” in the Herrmann Whole Brain® Model. The “B” and “C” represent the more visceral and emotional modes associated with the limbic system (Herrmann, 1996:12-15).

The Whole Brain® Model of Ned Herrmann serves as a conceptual framework to construct a futuristic whole-brain success profile for the administrative professional in the South African context. The whole brain success profile is based on the results emanating from the national skills survey.

1.5.3 Administrative professional

The International Association of Administrative Professionals (IAAP, 2007) defines “administrative professional” as follows: “An administrative professional is an individual who is responsible for administrative tasks and co-ordination of information in support of an office-related environment and who is dedicated to furthering their personal and professional growth in their chosen profession.”

In the study, the administrative professional is referred to as a female person; therefore, the dual gender reference of “his/her” is omitted.

1.6 BRIEF LITERATURE OVERVIEW

To address the statement of purpose in paragraph 1.3, arguments are supported by accessing the sources given below.

The primary source for the proposed study originated from the researcher's recommendations in a previous study by Venter (2011:149). Based on the recommendations (as discussed in paragraph 1.1), the researcher conducted a preliminary investigation with associations for administrative professionals (listed in paragraphs 3.2 and 3.4 of Chapter 3) to ensure that the proposed purpose statement was feasible. National and international administrative professionals' associations were identified from an Internet search and published books, such as *The Definitive Personal Assistant and Secretarial Handbook* (France, 2012:143) and *The Elite Secretary* (Rorbak, 2012:233).

The investigation obtained an international and national perspective concerning the current knowledge and skills required by administrative professionals to comply with and perform, according to the requirements of the changing world of work. The results emanated from a spectrum of international surveys underpinned the questions in the national skills survey, *inter alia*, the IAAP Benchmarking Survey (2013) (the headquarters of the IAAP situated in Kansas City, America), the CFA Business Skills @ Work (2012) (no full term for "CFA" is given in any of their documents) and the OfficeTeam located in the United Kingdom. Findings derived from dissertations and articles are included to support the evidence of the aforementioned surveys. Examples are Ethelwyn Lloyd's Master of Education thesis (2010:64) and the study of Vivienne Kermode and Ethelwyn Lloyd pertaining to the filling of the knowledge gap for administrative professionals in New Zealand (discussed in paragraph 3.2.2 of Chapter 3). The outcome of the preliminary investigation by the researcher is that there is at present a gap in the literature regarding the current level of knowledge and skills of administrative professionals within South African organisations.

Consistent with calls for future studies, many virtual research institutions (as discussed and listed in paragraph 1.1) have arisen to conduct exploratory studies in order to examine the effect of the key drivers of change that transform the global society and marketplace. An increasing number of Internet articles synthesise the impact that the global key drivers of change have had on the ability, knowledge and skills for the future workforce. The literature reviews reveal the understanding of a futuristic world of work in which the administrative professional has to function. As a result of the rapid development of information and communication technologies and their impact, more Internet articles than books could be found. The researcher adopted the key drivers of change framework compiled by Davies *et al.* (2011:13) (see Appendix A).

Further to the rationale discussed in paragraph 1.2, that administrative professionals have to become whole-brain thinkers, the researcher did some research and found various theories dealing with thinking preferences and human information processing. For the purpose of this study, the researcher decided on the well-known whole-brain model of Ned Herrmann, namely, the Herrmann Whole Brain® Model, for the reasons set out below.

Ned Herrmann took the leading role during 1977 in the business world with the organising principle of mental processes. Known as the whole-brain approach, an understanding of key business and leadership issues are provided. The assessment tool, the Herrmann Brain Dominance Instrument (HBDI) (also see Footnote 23 on page 63 of Chapter 2), was developed in 1981 to measure learning style preferences for each of the thinking preference styles of the Whole Brain® Model (Herrmann, 1996:3-11). The validity of the HBDI tool is discussed in Appendix A of *The creative brain* (Herrmann, 1995:337-379). Ned Herrmann's four quadrants of thinking preferences are well-grounded on his research of the brain. The Whole Brain® Model, although a metaphor, is formulated inclusively on the functioning and structures of the brain. The premise of the Whole Brain® Model is based on the transferring of information, collaboration and integration between the specialised structures, *inter alia* the left and right neocortex, the left and right limbic system and the interconnections and mental functioning of the brain (Herrmann, 1995:63-65). The emergence of the Whole Brain® Model is discussed in depth in paragraphs 2.4 and 2.5 of Chapter 2. Over and above the success that Ned Herrmann had with the Whole Brain® Model in the business world, researchers such as *inter alia* Coffield, Moseley, Hall and Ecclestone (2004:1-171) found that the Whole Brain® Model is also the most suitable for the teaching and learning environment. The impact of the global key drivers of change on educational and training institutions and the importance of these to this study, together with the application of the Whole Brain® Teaching and Learning Model are discussed in paragraphs 4.3.2 and 4.3.3 of Chapter 4.

As mentioned earlier in this section, the researcher found a variety of human information processing theories. Thus, Sternberg's theory of cognitive styles, Taggart's whole-brain human information processing theory and Kirton's model of cognitive style underpin this study (Coffield, *et al.*, 2004:1-171). Therefore, the theories of Herrmann, Sternberg, Taggart and Kirton are used to frame this research and are discussed in paragraph 2.2 of Chapter 2.

The literature review comprised the following: books, such as authored by Herrmann – *The creative brain* (1995) and *The Whole Brain business book* (1996), Pink – *A whole new mind* (2005), Ratey – *A User's Guide to the Brain* (2002) and Hannaford – *Smart Moves* (1995); dissertations (e.g. Venter, 2011), surveys and Internet articles, such as CFA Business Skills @ Work (2012), the IAAP Benchmarking Survey (2013), Lai and Viering (2012), Lloyd (2010) and OfficeTeam Survey (2012).

An overview of the literature on whole-brain thinking has convinced the researcher that the administrative professional needs to develop different thinking processes for success in the future world of work. These models of whole-brain thinking are discussed in an in-depth literature review following in Chapter 2. Investigations to ensure that the proposed purpose statement is feasible were not limited to literature reviews. The researcher personally liaised with the worldwide administrative professionals' association, the IAAP. The researcher met the team of the association during a visit in October 2013 to the headquarters of the IAAP in Kansas City, United States of America. The researcher paid a visit to the chairperson of the IAAP Johannesburg Chapter as well.

From the preceding discussions, it is clear that recent research findings support and justify further investigation in determining the impact of the global and national key drivers of change and transformation on the future whole-brain success profile for optimal effectiveness of the administrative professional in the future world of work.

1.7 THEORETICAL FRAMEWORK

Theoretical frameworks serve as epistemological⁸ guides in producing and interpreting the knowledge presented in a study. These guidelines also serve as a mechanism defining the existing knowledge or theories from the literature to project and predict possible relationships that may have an impact on the outcome (Agherdien, 2007:17; Sinclair, 2007:39). Literature reviews have significantly shown how the global key drivers of change have specifically had an impact upon the domain encompassing administrative professionals. Special reference is made to the new set of skills and thinking processes of administrative professionals to comply with and perform according to the requirements of the changing world of work. The theoretical framework therefore guides the attempt to discover and interpret the impact of the global and national key drivers of change and transformation on administrative professionals becoming whole-brain thinkers in executing their roles effectively.

The theory underpinning this study proposes to test the interpretation of characteristics in their natural states, namely administrative professionals in the business world. Existing theories used to frame this research include Herrmann's Whole Brain theory, Sternberg's theory of thinking styles, Taggart's whole-brain human information processing theory and Kirton's model of cognitive style (Coffield *et al.*, 2004:1-171). The theoretical framework concludes with a discussion of the significance of these theories in the application of new knowledge and skills.

⁸ Epistemology refers to "how we gain knowledge of what we know". The elements of the different paradigms are discussed in Table 1-2.

Against this background of the theoretical framework, the following conceptual framework was deemed suitable to link the main concepts guiding the study.

1.8 CONCEPTUAL FRAMEWORK

In the conceptualisation of this study, the researcher drew constructs from the literature, namely the impact of the phenomenon that administrative professionals should become whole-brain thinkers in executing their roles effectively. The conceptual framework of this study draws together all these concepts, forming an interlinking structure that guides the exploration of the linkages between whole-brain thinking and the required competencies and capabilities thereof. Figure 1-1 illustrates the interlinking of the different constructs to form the conceptual framework of this study. These areas of exploration assisted in answering the main research question, which is:

What is the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional?

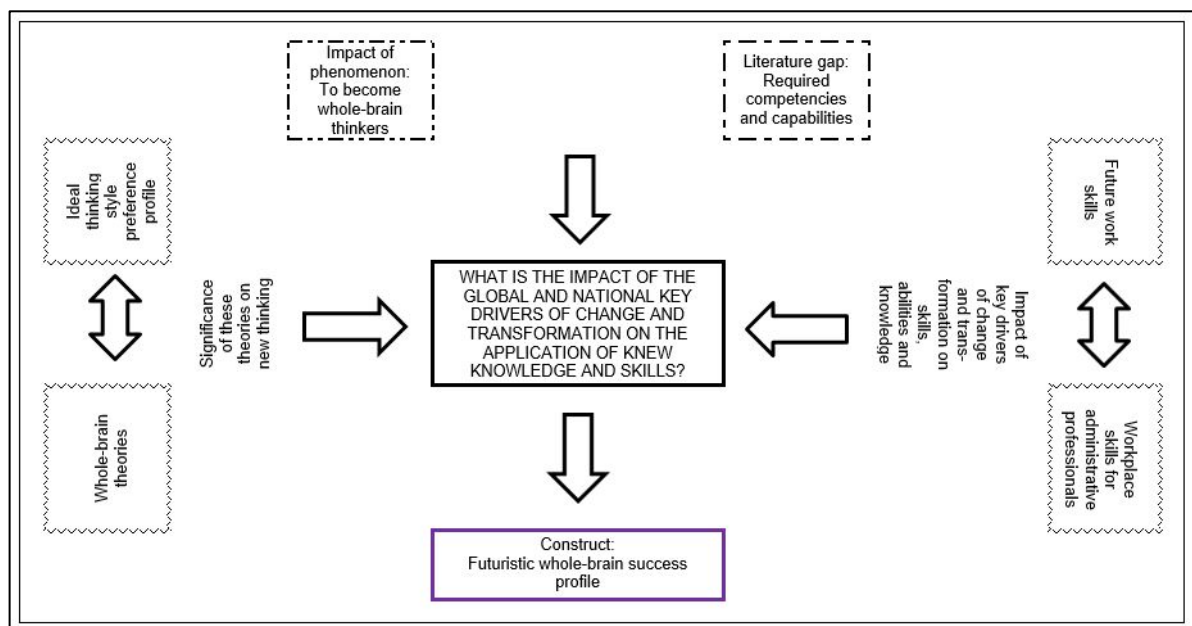


Figure 1-1
Mapping of conceptual framework

1.9 PARADIGMATIC PERSPECTIVE

A research study requires a foundation for its inquiry, and inquirers need to be aware of the implicit paradigms (worldviews) they bring to their studies. The paradigms are the philosophical foundation of the different methods of conducting research, and behind each study are assumptions which the researcher makes about reality, how knowledge is obtained, and the methods of gaining knowledge.

The following paradigms exist: postpositivism, constructivism, advocacy, participatory and pragmatism (Creswell & Clark, 2007:21-22). Pragmatism as a paradigm underpin most mixed methods research of which its focus is summarised in Table 1-1. The different paradigms have common elements but adopt different stances on these elements. They represent different views on (Creswell & Clark, 2007:23):

- (i) the nature of reality, *inter alia* ontology;
- (ii) how researchers gain knowledge of what they know, *inter alia* epistemology;
- (iii) the role values play in research, *inter alia* axiology;
- (iv) the process of research, *inter alia* methodology; and
- (v) the language of research, *inter alia* rhetoric.

Table 1-1
Paradigms adapted and modified
(Creswell & Clark, 2007:22)

PRAGMATISM FOCUS	DESCRIPTION	IMPLICATION ON THE STUDY
Consequences of actions:	Results of the research study	Results of national skills survey
Problem-centered:	Primary importance of the question asked rather than methods	The impact of the global and national key drivers of change and transformation on the future whole-brain success profile for optimal effectiveness of the thinking processes of the administrative professional in the future world of work
Pluralistic:	Multiple methods of data collection inform the problems under study	Embedded Mixed Method <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">QUAN(qual)</div>
Real-world practice-orientated:	“What works” in practice	Natural work environment of the administrative professional

The different stances listed above influence how the researcher conducted and reports her inquiries. The pragmatist approach chosen for this research and the way the elements and paradigms were translated into practice are shown in Table 1-2.

Table 1-2
Common elements of worldviews and implications for practice
(Adapted from Creswell & Clark, 2007:34)

WORLDVIEW ELEMENT	PRAGMATISM	IMPLICATION ON THE STUDY
Ontology What is the nature of reality?	Singular and multiple realities, e.g., researchers test hypotheses and provide multiple perspectives	Quantitative: by means of a national skills survey
		Qualitative: by means of semi-structured interviews
Epistemology	Practicality, e.g., researchers collect data by "what works" to address research question	Quantitative: researcher is independent from that being researched, e.g., anonymous on-line questionnaire
	What is the relationship between the researcher and that being researched?	Qualitative: researcher interacts with that being researched, e.g., visit small number of respondents
Axiology What is the role of values?	Multiple stances, e.g., researchers include both biased and unbiased perspectives	Quantitative: unbiased, e.g., researcher will report facts from evidence gathered
		Qualitative: values and biased, e.g., researcher will adopt both objective and subjective points of view
Methodology What is the process of research?	Combining, e.g., researchers collect both quantitative and qualitative data and mix them	Quantitative: deductive process; develop generalisations leading to prediction, explanation and understanding; accurate and reliable through validity and reliability
		Qualitative: inductive process; context bound – information lead to patterns, theories developed for understanding; accurate and reliable through verification
Rhetoric What is the language of research?	Formal or informal, e.g., researchers may employ both formal and informal styles of writing	Quantitative: formal language based on set definitions (define concepts and variables); impersonal voice
		Qualitative: evolving decisions (understanding, discover, meaning); personal voice

1.10 RESEARCH DESIGN AND METHODS

1.10.1 Mode of inquiry

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a design, it involves philosophical assumptions that guide the direction to collect and analyse qualitative and quantitative data in many phases in the research process (Creswell & Clark, 2007:5; Miller & Brewer, 2003:326; Teddlie & Tashakkori, 2006:12-28). Creswell and Clark (2007:59-67) note the following types of mixed methods designs: the triangulation design, the embedded design, the explanatory design and the exploratory design. The embedded design is a mixed methods design in which one data set provides a supportive, secondary role in a study based primarily on the other data type.

This design is particularly useful when a researcher needs to embed a qualitative component within a quantitative design, as in the case of an experimental or correlational design. Although there are different embedded design models, Creswell and Clark (2007:69-70) discuss only two variants, namely the experimental model and the correlational model. The most suitable model for this study was the correlational model. In order to determine if the two types of data show similar results from different perspectives, the researcher collected qualitative data (semi-structured interviews and literature reviews) as part of the correlational study (national skills survey) to explain how the mechanisms work in the correlational model in this study. The primary intent of this investigation was to address the current gap existing in the literature regarding the current level of knowledge and skills of administrative professionals within South African organisations. A survey questionnaire was used as a quantitative instrument to achieve the primary purpose of this study, that is, to assess the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional (discussed in paragraph 1.10.3.2).

A secondary purpose was to gather qualitative data, by means of semi-structured interviews, that investigated the perspectives of stakeholders, namely: an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner. These five interviews were conducted in the researcher's environment and from the industry. The qualitative data provided context to the primary data obtained in the national skills survey (discussed in paragraph 1.10.3.1).

1.10.2 Research sites and sampling

1.10.2.1 *The quantitative sampling procedure*

The aim of a research design is to optimise the use of resources, and drawing a sample is one of the ways to achieve this. The sample for completion of the survey questionnaire was chosen in such a way that this smaller group of people is representative of the larger group of people chosen. To select a number of people to participate in a survey does not necessarily ensure an acceptable sample. A researcher is able to use the data regarding the population to generalise if the sample is representative of the greater group. The sample therefore, reflects the characteristics of the group which the researcher wants to consider (Creswell & Clark, 2007:112; Rossouw, 2003:107).

In this study, the sampling frame that reflects the population of subjects and constitutes the focus of the research are administrative professionals in the public and the private sectors.

The organisation and the office where the administrative professional is employed define the job titles and job descriptions. It is important to recognise the various levels and diverse functions of the administrative professional. The two categories of group administrative professionals are entry-level positions and advanced (second-tier) positions. The latter is defined by the complexity of tasks that the administrative professional has to perform (Burton & Shelton, 2014:14; Harcourt, 2001:20-28). The complexity of entry-level and advanced positions differ, and so the focus of this study is on the generic abilities of an administrative professional.

The researcher utilised the databases of the administrative professionals' associations for sampling purposes. In nonprobability sampling, the researcher cannot forecast that each element of the population is represented in the sample. Of the six types of nonprobability sampling, the researcher has "deliberately obtain units of analysis in such a manner that the sample they obtain may be regarded as being representative of the relevant population" (Welman *et al.*, 2012:69).

The criterion for the purposive selection of participants is being a member of an administrative professionals' association. The researcher contacted the two administrative professionals' associations to determine the number of members. One of the two administrative professionals' associations responded and reported that they have 7 218 members of whom 4 404 are secretaries. Thus, the subjects in this study are approximately 4 404 administrative professionals who are members of an administrative professional association in all South African companies. The software used to determine the sample size is RaoSoft. With a margin error of 5%, a confidence interval of 95%, a target population of 4 404 and the response distribution of 50%, the recommended sample size is at least 354.

1.10.2.2 *The qualitative sampling procedure*

In qualitative research, the inquirer purposefully selects individuals and sites that can provide the necessary information. Purposeful sampling means that researchers intentionally select participants who have experience with the central phenomenon or the key concept being investigated (Creswell & Clark, 2007:112).

For the purposes of the semi-structured interviews, the researcher intentionally selected an education and training professional, a manager, an administrative professional, an academic advisory committee member, a member of an administrative professionals' association, and a curriculum practitioner. All of the foregoing has experience with the central phenomenon, the current gap in the literature regarding the current level of knowledge and skills of administrative professionals (participants) within South African organisations.

The small number of purposeful sampling (to gather qualitative data) provided in-depth views of individuals and the specific contexts wherein they hold these views. As indicated in paragraph 1.3, these views were obtained by means of semi-structured interviews. The data collection procedures that were followed to address the research questions (detailed discussion in paragraphs 5.3 and 5.5.3 of Chapter 5) are as described below.

1.10.3 Data collection

1.10.3.1 *Collecting qualitative data*

The qualitative data collection method for the proposed study built a more detailed understanding of the quantitative results (Blaikie, 2010:204 & 216; Creswell & Plano Clark, 2011:9). The initial phase of the data collection, that involves books, research articles, the Internet and theses, was done in the following way:

- (i) A literature review was conducted on the impact into the future scenarios of the changing world of work on the administrative professional's application of new knowledge and skills and the impact of skills on the thinking processes and thinking styles preferences of the administrative professional.
- (ii) Data were gathered from an international and national investigation on the current level of knowledge and skills of administrative professionals to comply with and perform, according to the requirements of the future world of work.

The qualitative approaches identified by Denzin and Lincoln (2011:3) are case studies, personal experiences, introspection, life stories, interviews, artefacts, cultural texts and productions, as well as observational, historical, interactional and visual texts. The ensuing phase of collecting qualitative data consisted of semi-structured interviews conducted with a small number of respondents to investigate their perspectives on a particular idea or situation. The ensuing phase is known as the second data collection procedure that has a lower weighting than the primary data collected (Boyce & Neale, 2006:3; Creswell & Plano Clark, 2011:9 & 121). Semi-structured interviews were conducted with an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner to provide context to the data obtained from the national skills survey.

1.10.3.2 Collecting quantitative data

The quantitative research approach is the intensive study of many features of a number of phenomena in order to build an in-depth understanding of it (Miller & Brewer, 2003:193). The quantitative data collection involves a survey research design as it denotes the investigation of the existence of a relationship between variables (Welman *et al.*, 2012:94).

The quantitative research approach was applied to assess the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional. This was done by means of a survey questionnaire to identify the current level of knowledge and skills of administrative professionals within South African organisations. A survey questionnaire was constructed as a measuring instrument by the researcher and personally administered to the respondents as this type of data collection method is less time-consuming and less expensive.

The self-constructed survey questionnaire is based on:

- (i) data emanating from the international investigation (as discussed in Chapter 3);
- (ii) futuristic models, such as the Lifelong Learning Skills and the Future Work Skills 2020 (as displayed in Figure 4-1); and
- (iii) the secondary data analysis (Chapter 3) and the literature review (Chapter 4).

Specialised measurements based on scales and indices are applied in the survey questionnaire. Rossouw (2003:14) states that “a scale is used to determine the intensity, direction, level or strength of a variable construct by placing the responses or observations on a continuum”. It is used especially for measuring attitudes and can consist of one or more indicators or items. Except for the demographic information section of the survey questionnaire and the open-ended questions, the Visual Analogue Scale (VAS) was applied in this survey questionnaire. The VAS is a measuring instrument dealing with subjective characteristics or attitudes that cannot easily be measured directly (Svensson, 2001:47-48). This measuring instrument is a unipolar or bipolar 100 mm continuous (or “analogue”) horizontal scale line that connects two opposing textual anchors with two modifiers, “not at all” and “extremely” (Green & Taylor, 2009:2; Hasson & Arnetz, as cited in Musangu & Kekwaletswe, 2012:63-64). In this study, the survey questionnaire has a series of unipolar questions (Tiplady, 2008:1-6). The scores range from 0 to 10, with the “0” score indicating the “not at all” response and the “10” the “extreme” response. Participants can, therefore, select a number or adjective and then indicate that preference (Couper, Tourangeau, Conrad & Singer, 2007:227-232).

In the survey questionnaire of this study, the administrative professionals selected the number that best describes their perception of effectiveness or proficiency with regard to various identified skills. The VAS measurement instrument is known for inclining the possibility of participants to select ratings in the middle of the response scale. This has a significant impact on the quality of data. The responses are calculated based on the sum total of the scale (Cowley & Youngblood, 2009:1-5; Welman *et al.*, 2012:227-229).

The VAS was originally developed as a self-administered survey. The selected choices of participants were captured onto a spreadsheet. A summary of the responses was provided to a statistician to analyse the data by means of statistical computer packages (Couper *et al.*, 2007:227-232). Figure 1-2 illustrates textual anchors in VAS.

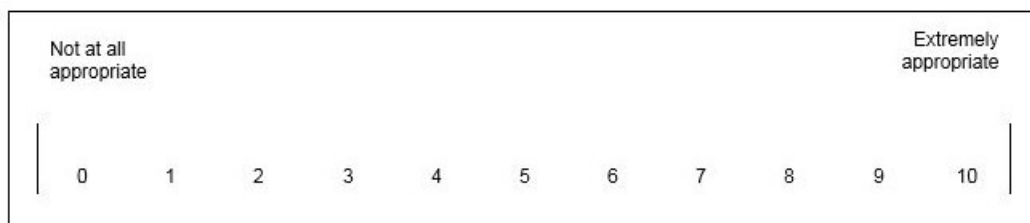


Figure 1-2
Example of unipolar VAS
(Cowley & Youngblood, 2009:2)


As discussed in paragraph 1.3.2(i) a skills survey was conducted nationally with administrative professionals in the public and the private sectors. Considering the number of respondents participating in the national skills survey, it would be a time-consuming process to capture the results on a spreadsheet. An investigation by the researcher concerning online assessment survey tools revealed a number of advantages attached to online assessment tools. An assessment regarding online survey tools by Marra and Bogue (2006:1-11) showed that one of the benefits of online survey tools is that support is provided for the data collection process. The responses are automatically stored in the provider's database to download when convenient. This eliminates the need for manual data entry.

The researcher decided on SurveyMonkey™ as an online assessment tool for the following reasons:

- (i) The tool offers the VAS, as illustrated in Figure 1-3.
- (ii) The researcher personally funded the utilisation of this online assessment tool.

- (iii) Furthermore, SurveyMonkey™ allows the exporting of data into programs such as Statistical Analysis Systems (SAS) or Statistical Package for the Social Sciences (SPSS)⁹ for more complex analysis.
- (iv) It is designed to be easy to use.

* 1. Office administration, organisational and time management:
 The office environment in 2015 is remarkably different than that of 2000. The technological changes have had a significant impact on efficient governing regarding office administration (daily, weekly and monthly schedule for office functions), organisational and time management (planning, organising and prioritising workload).

Select the number that best describes how effective are your: 

	Not effective at all												Extremely effective
	0	1	2	3	4	5	6	7	8	9	10		
Planning skills to meet daily, weekly and monthly objectives?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		

Figure 1-3
Example of VAS on SurveyMonkey™

The online survey was developed to gain geographical and industry coverage and to seek demographic data, plus some initial descriptive data to answer the research questions. The survey questionnaire was designed with SurveyMonkey™, an online survey package that is available in the public domain. Only one of the three administrative professionals' associations considered provided consent to distribute the survey questionnaire to their members. The survey questionnaire was distributed electronically with a hyperlink to the website in e-mails (see Appendix D). SurveyMonkey™ served as a diagnostic and anonymous tool to administer the questionnaire. The researcher obtained permission from the respondents to participate in the survey by means of implied consent. Implied consent occurs when a person freely co-operates in a process without discussion or formal consent. This type of consent also protects the anonymity of the participants. Online consent is referred to as implied consent. A statement on the first page of SurveyMonkey™ explained the nature and purpose of the survey. The statement also included an agreement that the participant acknowledges that the statement has been read and understood and therefore agrees to participate in the survey. Agreement to participate could be confirmed by clicking an icon indicating their participation. It would therefore not be necessary for the participants to complete and sign an Information leaflet and informed consent letter. The data were collected independently and concurrently during a two- or three-month period.

⁹ Statistical Analysis Systems and Statistical Package for the Social Sciences are Windows-based programs that assist with drawing conclusions from data by statistically analysing the data. These statistical programs are capable of handling large amounts of data and can create tables and graphs.

According to Welman *et al.* (2012:148-149), it is essential to test survey questionnaires. The pilot study entailed administering the instrument on a smaller scale and is used to test logistics and gather information, prior to undertaking a more comprehensive study in order to improve the quality and efficiency of the comprehensive study. In this study, the survey questionnaire was pre-tested with a limited number of respondents from the target population for comprehensibility and efficiency as a data-capturing tool.

1.10.4 Data analysis

1.10.4.1 Qualitative data analysis

The qualitative data are derived from steps set out in the data analysis techniques of Creswell and Clark (2007:129), namely to organise and prepare the data, read the data, start to analyse the data in detail, identify subjects and sub-subjects, discuss the subjects and interpret and explain the data. The researcher followed the same procedure as the quantitative data analysis discussed in paragraph 5.5.4.2 of Chapter 5. The findings obtained from the semi-structured interviews conducted with an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner, provided context to the primary data obtained from the national skills survey and the literature study.

1.10.4.2 Quantitative data analysis

The raw data were converted into a form useful for data analysis, for example scoring the data by assigning numeric values to each response and cleaning the data entry errors from the database. Within the ensuing phase, the quantitative data analysis proceeds from a descriptive analysis to an inferential analysis, and multiple steps in the inferential analysis built a more refined analysis, for instance from interaction effects to main effects to *post hoc* group comparisons. To depict the trends and distribution of the data, the researcher mostly used tables and a bar chart to present the quantitative results in a visual form. Furthermore, the results and findings are interpreted into larger coherent quantities by formulating theories that account for observed patterns and trends in the data (Creswell & Clark, 2007:130-133; Mouton, 2008:108).

1.10.5 Quality assurance including validity and reliability

1.10.5.1 Validity

Validity differs in qualitative and quantitative research, but in both approaches, it serves the purpose of checking the quality of the data and the results (Creswell & Clark, 2007:133-146; Joppe in Golafshani, 2003:599).

Validity, within a mixed method context means that the researcher can draw meaningful and accurate conclusions from all of the data in the study. This reinforces the idea of “inference quality”, namely the accuracy with which researchers draw inductive and deductive conclusions from a study.

As assessment of the validity, a statistician evaluated the:

- (i) content validity (whether the items or questions are representative of possible items);
- (ii) criterion-related validity (whether the scores relate to some external standard, such as scores on a similar instrument); or
- (iii) construct validity (whether the scores are consistent or measure what they intend to measure).

To enhance the validity in this mixed method study, potential threats listed in Table 5-3 of Chapter 5 that may arise during data collection and analysis, will be taken into consideration.

1.10.5.2 Reliability

Creswell and Clark (2007:133) define the reliability of quantitative research as follows:

The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of the study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

In the current study, the researcher needs to check for the reliability of scores (through statistical procedures of internal consistency) and any test-retest comparisons. In qualitative research, there is more of a focus on validity to determine whether the account provided by the researcher and the participants is accurate, can be trusted, and is credible (Creswell & Clark, 2007:134). Reliability plays a minor role in qualitative research and relates primarily to the reliability of multiple coders on a team to reach agreement on codes for passages in text.

1.11 ROLE OF THE RESEARCHER

In qualitative studies, the researcher is a vehicle by means of which the data were collected and interpreted. In quantitative research, the researcher collects data specifically related to one or a few variables. Each variable is measured by specific predetermined methods. Detailed attention is paid to the validity and reliability of the measuring instruments, and the researcher remains objectively separated from the subject matter.

1.12 ETHICAL CONSIDERATIONS

Since human subjects were used in the research, ethical standards are of critical importance. Researchers require permission to collect data from individuals and sites. Research Boards at tertiary institutions have been established to protect the rights of individuals participating in research studies and to assess the risk and potential harm of the research to these individuals. Permission can be gained at different levels (Anderson & Poole, 2001:30; Creswell & Clark, 2007:113-114; Leedy & Ormrod, 2005:101).

1.12.1 Permission from the Ethics Committee

Obtaining access to people and sites requires obtaining permission from those individuals in charge of sites (Creswell & Clark, 2007:113). The researcher obtained written consent from the Research Ethics Committee of the Cape Peninsula University of Technology (Appendix B(i)) to engage with human participants in the public and the private sectors.

1.12.2 Permission from associations for administrative professionals

The researcher also obtained written consent (Appendix B(ii)) from an association for administrative professionals, namely the Association for Office Professionals of South Africa (OPSA) that they would distribute the survey questionnaire to their members (as discussed in paragraph 1.10.2.1) on behalf of the researcher for the quantitative gathering processes. The Association for OPSA provided the hyperlink to the SurveyMonkey™ website in e-mails.

1.12.3 Permission from participants

The researcher obtained agreement from the respondents to participate in the survey by means of implied consent (Appendix C). Implied consent occurs when a person freely co-operates in a process without discussion or formal consent. This type of consent also protects a participant's anonymity. Online consent is referred to as implied consent. The implied consent letter stipulates the purpose and requirements of the study and potential benefits of participating as well as the individuals' rights regarding voluntary participation, regarding confidentiality and the anonymity of the survey.

1.13 LIMITATIONS AND CONTRIBUTIONS

The range of the study is limited in that the whole population of administrative professionals were not part of the study.

1.14 KEYWORDS

Changing workplaces; key drivers of change; future; higher-level of skills; whole-brain success profile.

1.15 CHAPTER PLANNING

The structure of this research study appears below.

1.15.1 Chapter 1: Orientation to the study

This chapter outlines the background, problem statement, research aims and objectives, research design and methodology, concept clarification, division of chapters and a summary.

1.15.2 Chapter 2: Theoretical framework of thinking styles and whole-brain thinking

Chapter 2 provides a clear understanding of the theory of thinking styles or preferences and the concept of whole-brain thinking. The most prominent perspectives regarding thinking styles and whole-brain thinking were discussed in terms of several theories, namely the split brain theory of neurobiologist Robert Sperry, MacLean's triune brain model and Ned Herrmann's Whole Brain® Model. The relation of whole-brain thinking and the changing world of work are discussed.

1.15.3 Chapter 3: International and national investigation

The aim of this chapter is to report on the data gathered from an international and national investigation conducted by the researcher on the current level of knowledge and skills of administrative professionals. As part of the investigation, the researcher contacted various international and national associations for administrative professionals to determine whether they did a formal audit on the current level of knowledge and skills to comply with, and perform according to, the requirements of the new world of work.

1.15.4 Chapter 4: The new world of work and its impact on administrative professionals

This chapter expounds on the impact of the global key drivers of change over the last four decades on the thinking processes of the administrative professional. More specifically, it considers how the administrative professional needs to adopt or develop different thinking processes for success in the future world of work.

The discussion in this chapter concerning the future global and national key drivers of change and transformation, serves as a guide to test the perceived impact on the application of new knowledge and skills of administrative professionals within South African organisations.

This chapter concludes with a summary of the identified gaps in knowledge, noting the lack in skills and the significance of this in relation to the future world of work. This relates to the primary aim of the study to assess the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional.

1.15.5 Chapter 5: Research design and methods

In this chapter, the researcher presents the research design and methodology of the study. The research methodology regarding the mode of inquiry, the research sites and sampling, data collection, data analysis of qualitative and quantitative research approaches and the quality assurance are addressed in this chapter. The trustworthiness of the research, the role of the researcher and limitation of the study are observed.

1.15.6 Chapter 6: Data analysis, findings and interpretation

Chapter 6 aims to present the results and to triangulate the qualitative and quantitative data gathered.

1.15.7 Chapter 7: Conclusions and recommendations

This chapter concludes the study with a presentation of an overview of all the chapters, as well as revisiting the research questions. This chapter also contains the conclusion reached with regard to the comparison made between the literature reviews, the findings of the data gathered in the national skills survey, and the whole-brain futuristic success profile.

1.16 SUMMARY

This chapter offers an introduction and overview of the planned research project. The rationale and contextualisation of the research project are discussed, as well as the purpose of the study, the research questions and research problem statement.

CHAPTER 2

THEORETICAL FRAMEWORK OF THINKING STYLES AND WHOLE-BRAIN THINKING

2.1 INTRODUCTION

Chapter 2 elaborates on the theoretical framework that guides the attempt to discover and interpret the impact of the global key drivers of change on administrative professionals becoming whole-brain thinkers in executing their role effectively. This was done by exploring the work of various researchers' theories of thinking and learning styles and the connection of this on how the whole-brain thinking metaphor equips the administrative professional with the acquisition of the relevant knowledge and skills for the changing world of work.

The first section of this chapter examines the different approaches to the study of styles and the significance of this in business contexts. Subsequent to the study on the skill of whole-brain thinking, the discussions pursued on the approaches and theories of whole-brain human information processing that frame this study, namely, Taggart's whole-brain human information processing theory (Taggart & Valenzi, 1990:149-161; Taggart, Valenzi, Zalka & Lowe, 1997:23-33), Sternberg's theory of thinking styles (Coffield *et al.*, 2004:110-117; Hou & Sobieraj, 2010:29-30) and Kirton's model of cognitive style (Coffield *et al.*, 2004:82-83; Mullany, Tan & Gallupe, 2007:462-466).

In addition to the abovementioned theories, the chapter expounds on the findings of Venter (2011:149) that administrative professionals will continue to need left-brain thinking skills to function effectively. However, such thinking will need to be augmented with right-brain thinking in order to function more effectively in the new world of work.

The largest part of this chapter gives an understanding of whole-brain thinking and learning through an in-depth discussion of Ned Herrmann's Whole Brain[®] Model, a tool to understand the diverse thinking preferences that individuals have. This model forms the conceptual framework of whole-brain thinking for this study. Prior to this discussion, an explanation is given on how MacLean's triune brain theory and Sperry's left brain/right brain theory facilitated Herrmann's Whole Brain[®] Model. The chapter is concluded with a table (Table 2-1), illustrating the similarities and differences of the whole-brain human information processing theories that frame this study.

The chapter commences with a brief introduction to theories on thinking and learning styles from the literature. This discussion provides the context of the study in order to understand the theories underpinning this study, as discussed in paragraphs 2.2.4.1 to 2.2.4.4. The importance of thinking and learning styles, existing theories in the literature and the reason for selecting certain theories of thinking styles for this study are also elaborated upon.

2.2 THEORIES OF THINKING STYLES

2.2.1 Definition, description and significance of styles

Styles of thinking have been defined in various ways and under different theoretical perspectives. Regardless of the variety of definitions and constructs, the term “styles” refers in general to the preferred manner that individuals perceive, think, solve problems, learn, act and relate to others. Thus, thinking styles reflect the form of processing information, rather than the content of activity (Atkin, 2000:1-11; Budijanto, 2013:22-23; Sternberg, 1994:36-37; Van den Broeck, Van der Heyden & Cools, 2003:3-11; Wechsiger, 2009:37-38; Zhang, 2001:621).

The continuum of models concerning the families of learning styles from Coffield *et al.* (2004:9-10) as adapted by Hou and Sobieraj (2010:4-36), will be used to illustrate (Figure 2-1) how the personality- and activity-centred theories on styles (as defined and discussed below) relate to this study. The researcher has supplemented the mentioned continuum of models to exemplify the publishing dates and the theories on styles under discussion in **red**.

2.2.1.1 Definition and characteristics of thinking styles

According to Grigorenko and Sternberg in Zhang (2002:332), Van den Broeck *et al.* (2003:3-11) and Cassidy (2004:419-441), existing models and theories on styles can be classified into three approaches to the study of styles: cognition-, personality- and activity-centred. For the purpose of this study, the researcher will draw on only two of the three approaches, namely the personality- and the activity-centred approaches to determine whether a relationship exists among the different style constructs.

As quoted from the work of Sternberg and Grigorenko (1997:700-710), Zhang (2002:332) and Sternberg, Grigorenko and Zhang (2008:486-502) the personality-centred approach is defined as follows:

- (i) Styles in the **personality-centred** tradition most closely resemble personality traits and styles. In this tradition, thinking styles are measured with typical performance tests (no right or wrong answers), rather than maximal performance tests.

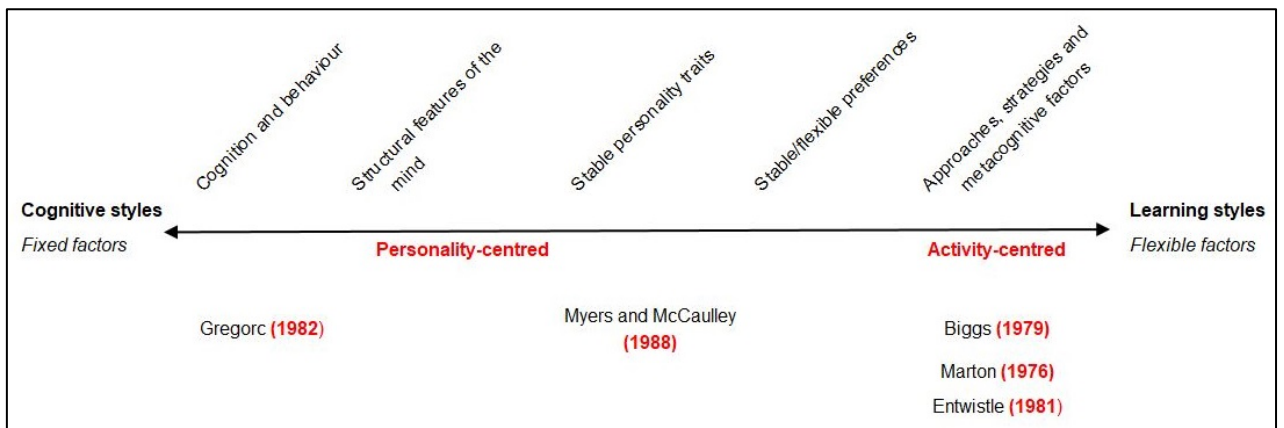


Figure 2-1
A continuum of models: Families of learning styles of Coffield *et al.*
(Hou & Sobieraj, 2010:6)

A model of style in this tradition is best represented by Gregorc's Mind Styles Model, first published in 1982 (Coffield *et al.*, 2004:15). **Gregorc's** four main types of styles are based on a theoretical framework that considers "the cognitive processes involved in the assimilation and integration of information" along two dimensions, namely perceptual qualities and ordering abilities (Cassidy, 2004:429; Coffield *et al.*, 2004:15-19; Hou & Sobieraj, 2010:10; Sternberg & Grigorenko, 1997:700-710).

Another model of style in this tradition, is the work of **Myers** and **McCaulley** who expanded on Jung's theory of types, initiated in 1923 (Zhang, 2000(b):842), with another distinction between judgement (i.e. organising information and drawing conclusions) and perception (i.e. the way a person grasps information). Jung's personality types are based on how a person perceives and forms judgements with information. The theory of types characterises individuals in terms of four bipolar dichotomies representing stable personality types, namely extraversion-introversion, sensing-intuition, thinking-feeling and judging-perceiving (Cassidy, 2004:424; Coffield *et al.*, 2004:50-52; Hou & Sobieraj, 2010:17-19; Sternberg & Grigorenko, 1997:700-701).

Coffield *et al.* (2004:9-10) and Hou and Sobieraj (2010:4-36) classify Gregorc's four main types of styles and Jung's theory of types under the continuum (as illustrated in Figure 2-1) as models belonging to a specific paradigm. This paradigm is based on the theory that thinking and learning styles are framed by genetics and the inheritance of traits. These traits are expressed through the interaction of a person's behaviour and personality. It is improbable that circumstances and training will have an impact on personality-centred styles. This paradigm, therefore, suggests that styles should be worked with, instead of changed.

The scope of this study is not to describe styles that tend to be relatively stable, namely how deep-seated individual differences influence cognitive processing and learning; instead, the intent is to merely demonstrate how the deep-seated individual differences oppose “strategies” and “approaches” that focus on style in relation to various activities, settings and environments (that will be discussed in the next section) and is, therefore, more relevant to this study.

As opposed to styles, (illustrated in Figure 2-1) Coffield *et al.* (2004:9-10) and Hou and Sobieraj (2010:4-36) populated a holistic, active view of approaches and strategies. They emphasise perspectives such as flexible preferences; strategies and approaches that are influenced by context. These approaches and strategies are evident in the work of Marton (1976), Biggs (1979) and Entwistle (1981) (in Coffield *et al.*, 2004:9-10 and Hou & Sobieraj, 2010:4-36).

The researcher will now proceed to define and discuss the second approach, as mentioned before, namely the activity-centred approach, as cited in the work of Sternberg and Grigorenko (1997:700-710) and Zhang (2002:332):

- (ii) The **activity-centred** tradition emphasises the notion of styles as mediators of various forms of activities that tend to arise from some aspects of cognition and personality. Literature in this tradition is represented by similar theories of deep- and surface- learning approaches proposed separately by the theorists Marton, Biggs and Entwistle (Zhang, 2000(a):272).

Learning approaches were initiated by Marton and Säljö (Cano-Garcia & Justicia-Justicia, 1994:241) during a study in 1976 on deep-surface distinction in approaches to learning, by means of the phenomenographic method. The approach by students who experienced text as a collection of discrete units of information that should be memorised to answer anticipated questions, was termed “surface approach”. The approach of those students who treated text as being a structure of meaning, searched for its underlying concerns, its implications and its meaning to themselves, was labelled as the “deep approach” (Biggs, 1999:57-74; Cano-Garcia & Justicia-Justicia, 1994:239-260; Zhang, 2000(a):271-283).

The next tradition, representing a similar theory as that of Marton and Säljö discussed in the previous paragraph, is the learning approaches that were introduced in 1979 by **Biggs** (Biggs, 1999:57-74). While Marton and Säljö suggest that surface learning involves rehearsing materials for accurate recall, Biggs’s definition of surface learning “involves limited learning to those essential facts able to be reproduced through rote learning” (Jones, 2002:13).

Instead of “coding information for meaning” as suggested by Marton and Säljö’s deep learning, Biggs added a third approach, namely “achieving”, that denotes how deep learning involves a real understanding of what is learned in order to **achieve** the integration of the material into the broader context (Cano-Garcia & Justicia-Justicia, 1994:239-260; Saravanamuthu, 2008:138-180; Zhang, 2000(b):846-847).

Another tradition is represented in the work of **Entwistle** introduced in 1981 using a similar approach as Biggs (Jones, 2002:14). He proposes four modes of combined orientations related to approaches to learning, namely an intention for understanding; meaning (deep); with the purpose of reproducing (surface); and achieving and non-academic. With a slightly different emphasis than that of Biggs, Entwistle strengthens the “desire to achieve good marks using the available strategies that are needed to achieve the result” (Jones, 2002:14). The non-academic orientation relates to those aspects of learning associated with a lack of motivation, negative attitudes, disorganised study and a desire not to be a participant in the learning environment (Cano-Garcia & Justicia-Justicia, 1994:239-260; Cassidy, 2004:433-434; Zhang, 2000(b):841-856).

To summarise, one could conclude from the above discussions on the different yet similar constructs of deep and surface learning that surface learners recite and regurgitate material inactively. To the contrary, deep learners engage critically with the material with the aim of understanding and articulating the meaning thereof. Styles in the personality-centred tradition (illustrated in Figure 2-1) are associated with fairly fixed characteristics of a person. Conversely, styles that resemble the activity-centred tradition are regarded as strategies and approaches to learning and coping with situations and tasks and are, therefore, measured in the context of activities (Biggs, 1999:57; Van den Broeck *et al.*, 2003:8; Xie, 2015:63-76; Zhang, Sternberg & Rayner, 2012:14).

Within the context of this study, styles in the activity-centred tradition have been examined since this conforms to the research objective (as mentioned in paragraph 1.3.1(iv) of Chapter 1), namely, to establish how the whole-brain thinking metaphor equips the administrative professional with the acquisition of the relevant knowledge and skills for the changing world of work.

2.2.1.2 *The significance of thinking styles*

The significance of thinking styles emanating from numerous studies, such as those of Zhang (2002:331-335), Edgley in Van den Broeck *et al.* (2003:5), Kadhiravan (2012:179), Budijanto (2013:18-40) and AlGhraibeh (2015:2), are listed below.

These authors state that the awareness of thinking and learning styles:

- (i) provides meaning to people's experiences;
- (ii) contributes to a better understanding of human behaviour, thus improving respect for diversity; furthermore, humans' preferred style of information processing, analysing and utilising information, in turn, improves their learning and less preferred style(s) of information processing;
- (iii) within the work context, assists people to apply a certain thinking style in a particular situation in order to optimise effectiveness and enhance the possibility of increasing outcomes;
- (iv) is influential in the context of recruitment; task and learning performance, internal communication and team composition;
- (v) is conducive to the innovation and creativity that are important to the growth and development of an organisation;
- (vi) enhances people's competence in organisations;
- (vii) provides a unique way of identifying the communication feedback process in an organisation, namely a communication feedback related to an individual's preferred thinking style;
- (viii) can influence attitudes towards the current intensified technological developments (studies have shown that thinking styles make a distinction in the preferences of using self-service technology over personal-in contact services); and
- (ix) contributes to students' academic achievement, learning approaches, cognitive development and social development in the education environment. In the case of educators, knowledge of thinking styles contributes to teaching approaches, interaction styles and teaching behaviours.

2.2.2 Types of theories on styles

There are many style dimensions to be found in the literature. As a consequence, various theories on styles are available since the meaning of these depends mainly on the theorist's term of reference. Coffield *et al.* (2004:1-169), conducted an intensive study on styles of thinking and learning, in which 13 of the 71 most influential models of learning styles identified in the literature were discussed.

These models were grouped into five families, namely constitutionally-based learning styles and preferences; cognitive structure; stable personality type; flexibly stable learning preferences and learning approaches and strategies. Also found in the literature is the work of Cassidy (2004:419-444), who identified and discussed the taxonomy of learning style models along the key dimensions of Curry's Onion Model, Riding and Cheema's Wholist-analytic Dimension and Rayner and Riding's framework of personality-, cognitive- and learning-centred approaches.

From the literature, it is evident that there are various types of theories on thinking styles. In the next section the theories on thinking styles chosen for this study and the reasons for the choices will be discussed.

2.2.3 Decision and the reasons for selected theories

2.2.3.1 Decision in favour of selected theories

In this study, the researcher attempts to discover and interpret the impact of the global key drivers of change on administrative professionals for effective performance in the changing world of work from a whole-brain perspective. Therefore, the following whole-brain human information processing theories were selected to frame this study:

- (i) Herrmann's Whole Brain® Model
- (ii) Taggart's whole-brain human information processing theory
- (iii) Sternberg's theory of thinking styles
- (iv) Kirton's model of cognitive style

2.2.3.2 Reasons for selecting Herrmann's Whole Brain® Model

As mentioned in paragraph 1.5.2 of Chapter 1, the Whole Brain® Model of Ned Herrmann will serve as the conceptual framework for this study to construct a futuristic whole-brain success profile for the administrative professional in the South African context. The reasons for the choices are supported from research literature sources, as follows:

- (i) De Boer *et al.* (2015:57), point out that Herrmann is acknowledged in the literature as being the father of brain dominance technology.
- (ii) Herrmann's research provides a valid (the combined theories are discussed in paragraphs 2.4.3 and 2.4.4) approach towards a theory for understanding how the brain processes information.

He illustrates this through the Four Quadrant Model which presents four modes of thinking and learning, not only two hemispheres. The Four Quadrant Model is based on the whole-brain theory that consists of the following three key concepts (AlGhraibeh, 2015:2; Herrmann, 1995:76-77):

- Thinking styles are featured as neither good or bad, right or wrong;
 - The thinking style shows a preference for mental activity that is quite different from the efficiency of performing that activity; and
 - Thinking styles tend to be constant over time.
- (iii) Application of the model can harness cognitive diversity, such as improving efficiency of teams and individuals, and for better problem solving, decision making, communication, and management (Coffield *et al.*, 2004:78 & 138; Herrmann & Herrmann-Nehdi, 2015:3; Martins, 2015:4).
- (iv) Coffield *et al.* (2004:80-82) found that the model is holistic and has factorial and construct validity when applied in the fields of business and education.
- (v) Moreover, the Whole Brain theory promotes professional development, by encouraging the development of less preferred thinking styles. Consequently, Herrmann believes that thinking style flexibility will support responses to meet particular situational demands (Coffield *et al.*, 2004:78-84) (also refer to paragraph 2.4.4.4 where the skill relating to situational whole-brain functioning is discussed in detail).
- (vi) Coffield *et al.* (2004:84) observed that Herrmann's Whole Brain[®] Model and the Herrmann Brain Dominance Instrument (HBDI)¹⁰ represent one of six recommended models in education and training. Furthermore, Herrmann's whole-brain approach provides evidence that using multiple thinking styles promotes deep learning and enable students to develop to their full potential (Coffield *et al.*, 2004:84; De Boer, Du Toit, Scheepers & Bothma, 2013:27-31).

Since these characteristics of the whole-brain theory mainly encourage whole-brain development, this motivated the researcher to select Herrmann's Whole Brain[®] Model. Whole-brain thinking is not, and should not be, limited to the business world.

¹⁰ The Herrmann Brain Dominance Instrument (HBDI) is an assessment tool developed by Ned Herrmann at the General Electric's Management Development Institute during 1981 that quantifies the degree of a person's thinking preference for each of the thinking preference styles (Herrmann-Nehdi, 2015:17).

The rapid economic progress that is driven by the impact of the revolutionary development of information and communications technologies (see Footnote 2 on page 2 of Chapter 1) and the impact of the future key drivers of change, necessitate that educational and training institutions as well as professionals, revisit their educational systems.

Over and above the success that Ned Herrmann had with the Whole Brain® Model in the business world, researchers such as Coffield *et al.* (2004:1-171) found that the Whole Brain® Model is also most suitable for the teaching and learning environment. Although Herrmann’s Whole Brain® Teaching and Learning Model is not included to frame this study, the researcher will discuss its significance to this study in paragraph 4.3.3.1 of Chapter 4.

The next section encompasses the relationships between different yet similar constructs of whole-brain human information processing theories other than Herrmann’s Whole Brain theory, for instance, Taggart’s whole-brain human information processing, Sternberg’s theory of thinking styles and Kirton’s model of cognitive style. These theories investigate, as does Herrmann’s Whole Brain theory, several dimensions of thinking styles. Considering that Herrmann’s Whole Brain theory will serve as a conceptual framework to construct a futuristic whole-brain success profile for the administrative professional, in-depth discussions of this is presented in the remaining part of this chapter. The next section is limited to the population of the said theory in terms of the continuum of models.

The continuum of models from the families of learning styles of Coffield *et al.* (2004:9), adapted by Hou and Sobieraj (2010:6), as illustrated before in Figure 2-1, was once again used to illustrate how the said theories that frame this study relate to this study (see Figure 2-2).

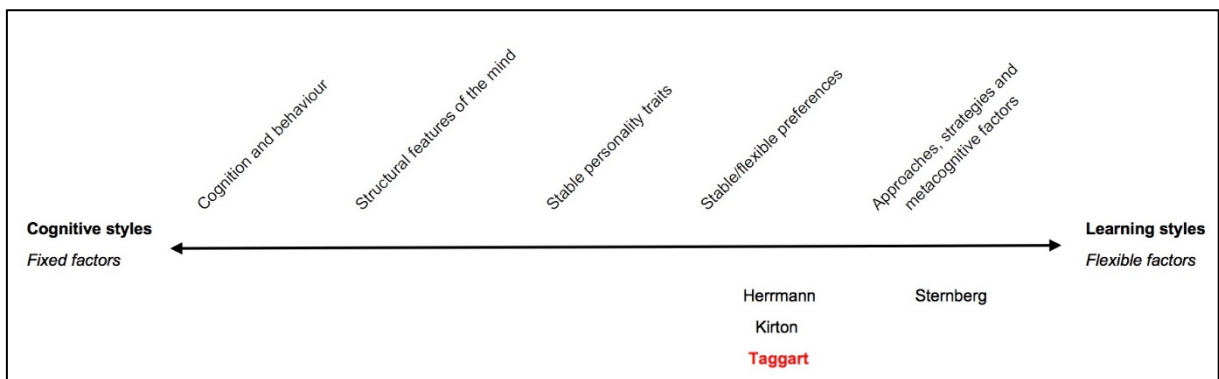


Figure 2-2
A continuum of models: Families of learning styles of Coffield *et al.*
(Coffield *et al.*, 2004:9; Hou & Sobieraj, 2010:6)

To summarise, one could conclude from Figure 2-2 that Coffield *et al.* (2004:9) and Hou and Sobieraj (2010:6) categorised Herrmann's Whole Brain theory and Kirton's model of cognitive style under the continuum as being theories belonging to a particular paradigm. The researcher populated Taggart's whole-brain human information processing theory on the continuum of models, indicated in red. The researcher illuminates in paragraph 2.2.4.2, the reason for her having classified this theory herself. This paradigm is grounded on the theory that, depending on the specific contexts or certain subject matters, individuals could manifest strong and inflexible preferences. To the contrary, individuals could, according to the situation or different areas of knowledge, demonstrate a more flexible preference. On the other end of the continuum, is the family of learning style models, such as Sternberg's theory of thinking styles. These models regard individual learning as being approaches and strategies, accentuating individual and task dynamics. Learning is viewed as the manner that an individual chooses to manage task demands, instead of predisposed cognitive factors without contexts (Coffield *et al.*, 2004:9; Hou & Sobieraj, 2010:6).

2.2.4 Whole-brain human information processing theories

2.2.4.1 Herrmann's Whole Brain theory

Along with the continuum of models proposed by Coffield *et al.* (2004:9), Hou and Sobieraj (2010:6) categorised Herrmann's Whole Brain theory within the median of stable yet flexible learning preferences as displayed in Figure 2-2. The HBDI® (see Footnote 10 on page 36) is regarded as a psychometric inventory that quantifies the degree of a person's mental preferences or thinking styles. Experiments conducted with the electroencephalography device provided supporting data together with the inspiration of Ornstein's hemispherical lateralisation concept in cognitive neuroscience (Herrmann, 1996:7 & 17-18) (also see discussions in paragraphs 2.4.1 and 2.5.1). Styles or assessments based on cognition are considered, according to the continuum of models to be stable personality traits. The HBDI® is, therefore, classified as "stable" learning preferences. As discussed in paragraph 2.4.4.2, the left brain/right brain theory was perceived as an oversimplification of the empirical findings on the hemispherical lateralisation concept. A more flexible metaphorical model emerged, accommodating "whole-brain" thinking by means of a four-quadrant topology composed of "upper-left" to "lower-right", rather than the previously "cerebral" versus "limbic" taxonomy (Coffield *et al.*, 2004:78-85; Hou & Sobieraj, 2010:21-22).

Herrmann's (1996:150-154; 308-313) view has been supported in the work of Coffield *et al.* (2004:78-85) and Hou and Sobieraj (2010:21-220), who acknowledged that flexible preferences, strategies and approaches towards learning styles are more important than a taxonomy of characters.

2.2.4.2 Taggart's whole-brain human information processing theory

The philosophical foundation of Taggart's Human Information Processing metaphor has its premise based on the functional components of the human bio-computer model.¹¹ According to Taggart and Valenzi (1990:149-161), Taggart, Valenzi, Zalka and Lowe (1997:23-33), the three lines of neurophysiological research were aligned with the functional components of the human bio-computer model, namely:

- (i) The three-levels (also referred to as the distinct evolutionary layers) of Paul MacLean's triune brain research on the reptilian, limbic and neo-cortex brain (also see paragraph 2.4.3).
- (ii) The left-right hemispheres theory emanating from the bilateral brain research of Joseph Bogen and Roger Sperry (see discussions in paragraphs 2.4.1 and 2.4.4).
- (iii) The frontal brain research of Aleksandr Luria (Taggart & Valenzi, 1990:156) that accentuates the horizontal division of the neo-cortex into the frontal lobes and posterior lobes.

The information processing modes of the brain are classified as having six divisions, three per hemisphere. This classification can be regarded as a refined model of the Robert Ornstein's hemispherical lateralisation concept (the latter concept also discussed in paragraph 2.4.1) (Kumar, 2014:3772). Taggart (1980:63-78), Carey (1991:343) and Kadhivavan (2012:179-186) explain the six divisions as follows:

- (i) The rational style includes the left frontal (planning), the left hemisphere (logic), and reptilian (ritual).
- (ii) The intuitive style includes the right frontal (vision), the right hemisphere (insight) and limbic (feeling).

¹¹ Quoted from psychoanalyst John Lilly's definition of the "human bio-computer", the following: that each mammalian brain functions as a computer, with properties, programs, and meta-programs partly to be defined and partly to be determined by observation. The human computer contains at least 13 billion active elements and hence is functionally and structurally larger than any artificially built computer of the present era. This human computer has the properties of modern artificial computers of large size, plus additional ones not yet achieved in the non-biological machines. This human computer has stored program properties. Stored meta-program are also present.

The researcher could not find any literature dealing with the population of Taggart's whole-brain human information processing theory on the continuum of models. Therefore, based on the literature found in terms of the alignment between the said theory (also discussed in the last paragraph of 2.2.3.2) with the functional components of the triune brain theory (as discussed in paragraph 2.4.3), Sperry's left brain/right brain theory (as discussed in paragraph 2.4.4) and Ornstein's hemispherical lateralisation (as discussed in paragraph 2.4.1), the researcher populated Taggart's whole-brain human information processing theory on the continuum of models in **red**.

2.2.4.3 Sternberg's theory of thinking styles

Sternberg's theory of mental self-government and model of thinking styles was constructed in 1988 and is grounded on various other comprehensive theories of thinking styles. Sternberg and Wagner's unpublished theory of mental self-government and the Thinking Styles Inventory developed in 1991 built upon the theory of mental self-government (Coffield *et al.*, 2004:110-117). This assessment is a self-report test that is designed to measure the nature of thinking styles relating to culture and demographic factors, individual psychology, learning and education and specific areas of management (Zhang, 2001:621-637). Furthermore, the essence of this theory is that people build their social conceptions of government types on extensions that are related to the classification of cognitive and learning profiles (Hou & Sobieraj, 2010:29-30).

Sternberg (1990:367-368), Sternberg (1994:36-37) and Zhang (2000(b):845) suggested that, depending on the situation or task, a person will adopt the most appropriate preferred thinking style, according to context, experience and social factors. Therefore, Sternberg considers cognitive style to be not fixated and immutable characteristics (Hou & Sobieraj, 2010:29-30). Sternberg's theory of mental self-government yields a profile of whole-brain thinking, well-known in the teaching and learning processes (Sternberg, 1990:367-368; 1994:36-37; Zhang, 2000(b):841-856). According to this theory, "people can be understood in terms of five dimensions of self-government, such as functions; forms; levels; scopes; and learnings of government" (Sternberg & Zhang, 2005:247). The 13 different thinking styles are described as follows: the three functions of governments of the mind outlined in the theory are legislative, executive and judicial styles. The four different forms of self-government in the theory are monarchical, hierarchical, oligarchic and anarchic styles, with global and local styles as the two levels of self-government. The two scopes of self-government are divided into internal and external styles, and two learnings of self-government that of liberal and conservative styles (Coffield *et al.*, 2004:110-118; Sternberg & Zhang, 2005:245-253; Zhang, 2000(b):841-856).

As illuminated above, Sternberg's theory of mental self-government and model of thinking styles are perceived as styles utilising several dimensions of thinking and therefore populated on the continuum of models as strategies and approaches to govern thinking and learning (Coffield *et al.*, 2004:9; Hou & Sobieraj, 2010:29-30).

2.2.4.4 Kirton's model of cognitive style

Kirton argues that cognitive style is related to strategies such as creativity, problem-solving and decision making as well as aspects of personality. He furthermore explains that styles develop early in life and are distinguished from its stability over both time and circumstances. According to Stum (2009:66-68), Kirton developed the Adaption-Innovation theory in 1976. The theory is mainly concerned with cognitive style, and determines how people solve problems (Cassidy, 2004:430; Kumar, 2014:37-70). The premise of the theory is to identify adaptors and innovators on a continuum scale (Friedel & Rudd, 2006:102-104; Von Wittich & Antonakis, 2011:1-12; Wechsler, 2009:37 & 48). He suggests that adaptors tend to be precise and methodical in their approach to problem-solving, while innovators oppose rules and processes that will allow them to produce several ideas. Adaptors use what is given to solve problems by time-honoured techniques. Alternatively, innovators look beyond what is given to solve problems with the aid of innovative technologies. Kirton suggests that, while adaptors prefer to do well within a given paradigm, innovators would rather do things differently, thereby striving to transcend existing paradigms (Mullany, Tan & Gallupe, 2007:462-466; Samuel & Kohun, 2010:29-35).

In a comparison study done by Barclay (2006:3-37), with similar instruments such as the HBDI[®], it was found that the conceptual structure of the HBDI[®] underpins a comparison investigation of the Kirton Adaptation-Innovation Inventory with several measures of creative ability. In addition, Coffield *et al.* (2004:82-83) found that Kirton differentiates between adaptors and innovators, just as Herrmann does between organisers and innovators, including the resemblance seen to Sternberg's hierarchic and anarchic thinking styles, as mentioned in paragraph 2.2.4.3. Kirton's model of cognitive styles are framed by cognitive styles, that is, thinking and learning are influenced by fixed and inherited traits, and styles that are related to several dimensions of learning styles, namely using approaches and strategies to solve problems and decision making. Kirton's model of cognitive style is, therefore, populated within the median of stable, yet flexible, learning preferences.

The discussions on whole-brain human information processing in paragraphs 2.2.4.1 to 2.2.4.4 are of particular interest for this study to illuminate why the acquisition of skills on integrated thinking processing provides individuals with a much broader spectrum of thinking preferences.

The similarities and differences between these whole-brain human information processing theories that frame this study are compared in Table 2-1 at the end of this chapter.

Among the various constructs that guide this study is the “ideal thinking style preference profile” emanating from Venter’s (2011:149) findings (mapped in Figure 1-1 in Chapter 1). Venter (2011:149) investigated the ideal thinking style preference profile of the contemporary administrative professional. The results revealed the necessity for administrative professionals to develop from a predominantly left-brain thinking preference to becoming whole-brain thinkers, incorporating right-brain thinking in executing their role effectively. The contemporary administrative professional will continue to need left-brain thinking skills to function effectively. However, based on the findings in the study, such thinking will need to be augmented by right-brain thinking in order to function effectively in the new world of work (Venter, 2011:149).

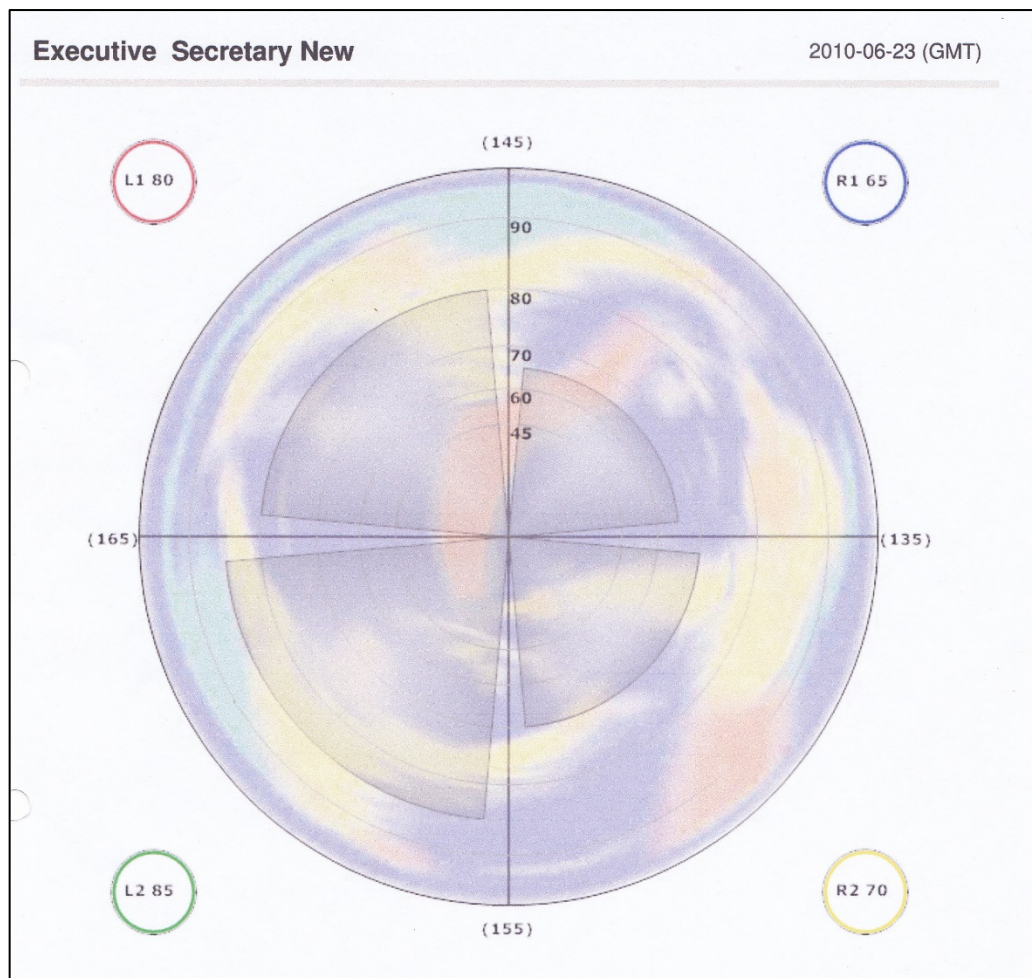


Figure 2-3
Generic thinking style preference profile of an administrative professional
(Venter, 2011:131)

Solutionsfinding¹² used the current work profile of an administrative professional at the Tshwane University of Technology to compile a generic thinking style preference profile (Figure 2-3). The NBI[®] job diagnostic tool¹³ identifies the strengths of the skills needed, based on the work profile in every quadrant, to be an administrative professional.

The next section will elaborate on the main brain structures that provide basic knowledge of the anatomical structure and biological functions of the brain. It will provide a better understanding of functional specialisation and the theories of thinking styles, as discussed in paragraphs 2.3, 2.4 and 2.5.2.

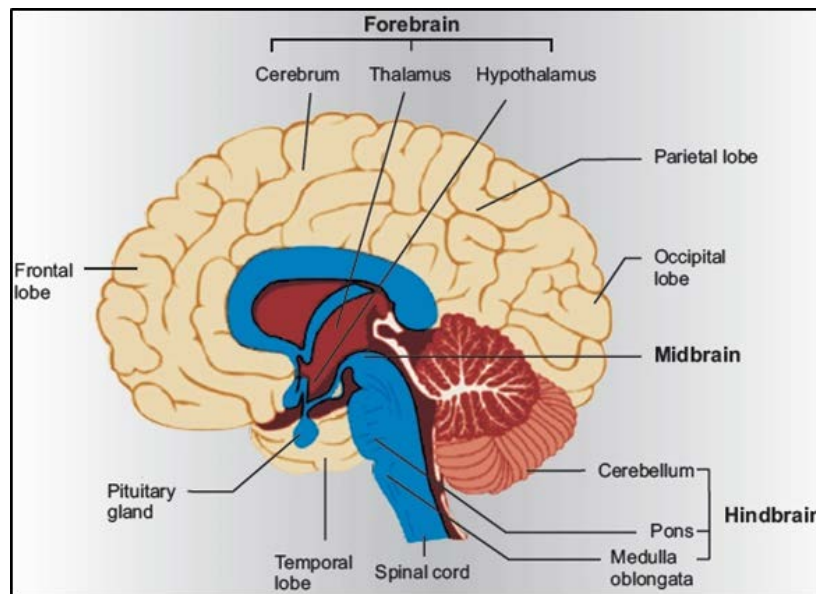


Figure 2-4
Location of the major internal structures of the brain and the main sections of the cerebral cortex
(Adopted from Brain Structure and Function on-line images to illustrate as discussed by Herrmann, 1995:37
<https://www.slideshare.net/naureenkhaliq5/brain-structure-2>)

¹² Solutionsfinding (Pty) Ltd, a company duly formed and registered in South Africa, is part of the Kobus Neethling Group of Companies. It focuses on the sales, distribution and management of products and instruments developed by the Kobus Neethling Group through its own structures and also establishes national and international agencies for the continued third-party distribution and management of Kobus Neethling products and instruments. NBI and NBPP are registered trademarks of the Kobus Neethling Group and Solutionsfinding (Pty) Ltd.

¹³ The NBI[®] job diagnostic tool consisted of a 30-question diagnostic survey that indicates one's personal thinking preferences, skills or styles.

2.3 THE MAIN BRAIN STRUCTURES

An overview of the three main brain structures as illustrated in Figure 2-4, namely, the forebrain, the midbrain and the hindbrain with their functions follows below.

The *forebrain*, also referred to as the prosencephalon, is the largest part of the human brain and consists of the cerebrum and the diencephalon. The cerebrum is the three-quarters pink-grey wrinkled structure that is divided into the left and right hemispheres. The cerebral cortex covers the surface of the cerebrum with a layer of densely packed cell bodies known as grey matter that is 32 mm thick and contains approximately 100 billion neurons. These neurons are cells with fibres that send messages to other brain areas. More than two thirds of the surface of the cerebral cortex is concealed in hundreds of little folds that create the wavy, visible lines on the brain. The second layer of axons underneath connects these neurons, called “white matter fibres”, that co-ordinate autonomic sensory and motor functions. As illustrated in Figure 2-4, the fissures¹⁴ divide the cerebral cortex into four paired lobes, namely the frontal, parietal, occipital and temporal lobes (Carter, 2014:66; Dowling, 1998:6-13, 86, 98; Franks in Stets & Turner, 2006:45-46).

The *frontal lobe* is the largest of the brain lobes. The processes that initiate and are associated with this area allow people to co-ordinate movements. Furthermore, the ability to speak (located in the region called Broca’s area, that is localised near the primary motor cortex and mainly concerned with the articulation and the production of speech as well as grammatical processing) (Dowling, 1998:145; Ratey, 2002:96-97; 207-208), reason, apply cognitive skills, such as problem-solving, decision making, planning, conscious thought, organising and evoke emotional aspects, are all related to the frontal lobe (Franks in Stets & Turner, 2006:45-46; Ratey, 2002:118-119; Rohkamm, 2004:24).

The *parietal lobe* is involved with the senses and interpretation of language such as speech, reading and spelling. The somatosensory cortex provides the ability to interpret sensations from the body, for example, touch. It has also been found that the “where” area of the sensory perception is located in the right parietal lobe and establishes the perception of the spatial and social components of the world (Franks in Stets & Turner, 2006:45-46; Ratey, 2002:82 & 267; Rohkamm, 2004:24).

¹⁴ Large convolutions are referred to as fissures. The deep fissures and crevices of the cerebral cortex allow its 16-square-foot surface to be packed into the skull. Each infold is referred to as a sulcus, and each bulge is a gyrus. Two thirds of the cortical surface are hidden in the folds of the sulci (Carter, 2009:63 & 66).

The *occipital lobe* processes vision, including the recognition and interpretation of shapes and colours. Furthermore, the visual association area gives meaning to what people see and, together with other brain structures, attaches emotional significance to memories (Franks in Stets & Turner, 2006:45-46; Ratey, 2002:161; Rohkamm, 2004:24). The area of Wernicke's language comprehension is found in the *temporal lobe* where sounds and visual stimuli are first processed. Both auditory and motor systems contribute to speech and language. The association in the temporal lobe gives meaning to what humans hear.

Also related to the temporal lobe is short-term memory through its hippocampal formation, and in learned emotional responses through its *amygdala*. For example, freezing is the response to fear that is generated by the central nucleus (Franks in Stets & Turner, 2006:45-46; Dowling, 1998:13 & 146; Ratey, 2002:118 & 161; Rohkamm, 2004:24). Included in the cerebrum are the hippocampus and the amygdala, also known as the telencephalon. The telencephalon covers the *thalamus* and the *hypothalamus*. The limbic system includes the areas of the cerebral cortex and adjacent parts known as the limbic lobe, along with the amygdala, hypothalamus, thalamus, mammillary bodies and other deeper, more central brain structures. The thalamus is the main processing area for sensory information, deriving it from lower in the brainstem and processing it onwards to the cerebral cortex. The hypothalamus (pea size) is the main signaller and transmitter between the nervous system and endocrines that affect bodily reactions to the environment, for example, causing sensations that are felt as emotions, and mediating the fear reaction made by the amygdala (Carter, 2014:60-65, 124; Dowling, 1998:93; Franks in Stets & Turner, 2006:48).

Relatively small in humans, the *midbrain*, also referred to as the mesencephalon, is situated between the hindbrain and forebrain. It has groups of nerve-cell bodies named nuclei, such as the basal ganglia (Dowling, 1998:94-95; Carter, 2014:52-56; Rohkamm, 2004:2). The midbrain acts as the master co-ordinator of all the messages going in and out of the brain to the spinal cord. This region of the brain is involved in the auditory and visual responses, as well as auto function. It co-ordinates simple movements with sensory information (using five senses), contains the reticular formation, manages arousal (controlling wakefulness) and the ability to focus attention (Ratey, 2002:22).

The *hindbrain* (rhombencephalon) is the oldest part the brain and consists of the *pons* and the *medulla oblongata* that is responsible for automatic survival functions such as respiration, heart rhythms, and blood glucose levels (Rohkamm, 2004:2; Carter, 2014:52-56). Hannaford (1995:32) and Ratey (2002:247) state that, among maintaining routine body functions, the reptilian brain also ensures survival with regard to physiological needs, such as food, water, rest and establishing territory, and safety needs, which include clothing, shelter and freedom from physical danger.

Also included in the hindbrain is the *cerebellum* that, although referred to in Latin as the “little brain”, is the largest part of the hindbrain that is connected to the brainstem (Carter, 2014:52-56). The cerebellum’s two hemispheres are concerned with not only motor co-ordination but also the learning of new motor skills and cognitive processes that require precise timing, and which play an important role in Pavlovian learning¹⁵ (Carter, 2014:62-63; Franks in Stets & Turner, 2006:45-46; Milner in Dowling, 2004:95).

Before the concept of thinking style preferences can be discussed, the following section provides an overview on the development of the brain hypothesis.

2.4 FUNCTIONAL SPECIALISATION

2.4.1 Development of the brain hypothesis

Studies over the past decades have revealed that the processes of evolution has constructed the brain in a particular manner, referred to as the “architecture” of the brain (Ornstein & Thompson, 1984:22). The idea of mental dualism has existed since 450 BC, when the Greek physician Hippocrates introduced this notion. Sir Roger Bacon followed in 1268, referring to verbal and non-verbal modes. In the 1500s, Leonardo da Vinci differentiated between brain and mind. Between 1684 and 1844, both Sir Thomas Browne and Arthur Wigan published research reinforcing the duality of the mind (Herrmann, 1995:25-28). The French surgeon Paul Broca is celebrated for his discovery of the speech production centre of the brain located in the ventroposterior region of the frontal lobes (now known as “Broca’s area”). In 1864, he discovered that patients who were suffering from aphasia¹⁶ had damage to the left side of the brain. Victor Horsley observed in 1870 that “we are not single animals, but rather two individuals” (Dowling, 1998:59). The theory of dominance and the hypothesis that one of the two brain halves takes the lead as the dominant hemisphere were introduced by the neurologist John Hughlings-Jackson in 1874 (Herrmann, 1995:25-28). Roger Sperry, along with Joseph Bogen, Philip Vogel and Michael Gazzaniga, expanded on the split-brain surgery in 1962 that led to the more detailed functional specialisation of the cerebral hemispheres. The left brain/right brain theory emerged from these experiments (detailed discussions on this theory follow in paragraph 2.4.4) (Herrmann & Herrmann-Nehdi, 2015:19; Voneida, 1997:315-331).

¹⁵ By conditioning dogs to associate a previously unrelated neutral stimulus, such as a bell, with another stimulus, such as food, Ivan Pavlov proved that a response or behaviour could be predicted with repetitive action, thus known as Pavlovian’s conditioning or learning (Kruger, Smit & Le Roux, 1996:158).

¹⁶ Aphasia is a combination of a speech and language disorder caused by damage to the brain, such as with a stroke (Ratey, 2002:286).

Subsequently, the psychologist Robert Ornstein revealed, with his Ornstein's hemispherical lateralisation¹⁷ concept in 1975, that hemispheric specialisation is identified in normal human beings. The results emanated from experiments in which Robert Ornstein used the electroencephalographic device (EEG) (also see Footnote 5 on page 5 of Chapter 1) to measure electrical brain wave activity that increased researchers' knowledge of duality in the brain (Herrmann, 1995:27-30). Followed shortly in 1976, Henry Mintzberg (Herrmann, 1995:13, 27-30) disclosed that "humans can be smart and dull at the same time" (Herrmann, 1995:27). The latter contributed to Ned Herrmann's "appreciation of the brain and its role in business creativity" (Herrmann, 1995:29).

As mentioned in paragraph 1.5.2 of Chapter 1, the Whole Brain[®] Model of Ned Herrmann served as the conceptual framework to construct a futuristic whole-brain success profile for the administrative professional in the South African context. Before the researcher continues to explain in paragraphs, 2.4.3 and 2.4.4 how the two theories, namely the triune brain theory and the left brain/right brain theory, facilitated the development of Ned Herrmann's Whole Brain[®] Model, the next section will briefly elaborate on recent research findings with regard to brain dominance as a neuromyth.

2.4.2 Brain dominance neuromyths¹⁸

Following a two-year study, neuroscientists led by Jeff Anderson (Medical Xpress, 2013:1-2) from the University of Utah challenged the neuromyth that individuals are either right-brain or left-brain thinkers. Researchers identified specific networks in the left and the right brain that process lateralised functions (see Footnote 17 for an explanation) to discredit the neuromyth. No relationship could be found that the subjects "preferentially use their left-brain network or right-brain network more often" (Medical Xpress, 2013:1). This view has been supported in the work of Howard-Jones (2014:817), adding that it is considered to be a neuromyth that intuitive and creative learners are more right-brain-orientated, while step-by-step sequential, logical and analytical learners are more left-brain-orientated. Atabaki, Dietsch and Sperling (2015:1-4) also agree with the above, but have pointed out that, depending on the nature of the task, some areas in the brain are more active than others, therefore the entire brain is active.

¹⁷ Lateralisation refers to the fact that, except for the pituitary gland and the corpus callosum, different structures are located in each of the two brain hemispheres (Franks, 2006:42-44).

¹⁸ Atabaki *et al.* (2015:1) define a neuromyth as "a misconception based on incorrect interpretations of neuroscientific research".

Neuroscientists concur that certain functions, for example language, occur in the left hemisphere, and attention in the right hemisphere (Medical Xpress, 2013:1-2) (see discussions in paragraph 2.3 and the illustration in Figure 2-6). Expanded research where brain activity in an area of the brain was compared to another area, revealed that “if you have a connection that is strongly left-lateralised, it relates to other strongly lateralised connection only if both sets of connections have a brain region in common” (Nielsen in Medical Xpress, 2013:2). For example, “whilst there was local lateralisation, thus language regions in the left hemisphere and attentional control in the right, there was no evidence to support the idea that this lateralisation formed the basis of a global property of the brain” (Nielsen in Rose, 2014:2).

Only a few studies could be found in the literature that examined the prevalence of neuromyths about brain dominance. What is evident from the above discussion is that it correlates with the notion of Herrmann and Herrmann-Nehdi (2015:19) that the left brain/right brain theory overlooked the notion that the brain is interconnected and functions as a whole. Therefore, this theory is considered to be oversimplified (as explained in the last paragraph of 2.4.4.2). Since literature on neuromyths is limited, and no studies could be found to contradict the premise that individuals have different learning approaches and strategies, it may be premature to draw any conclusion from the findings on neuromyths (see paragraphs 2.2.1.1 and 2.2.4 together with Figure 2-1 and Figure 2-2 for the clarification of the families of learning styles of Coffield *et al.*, 2004).

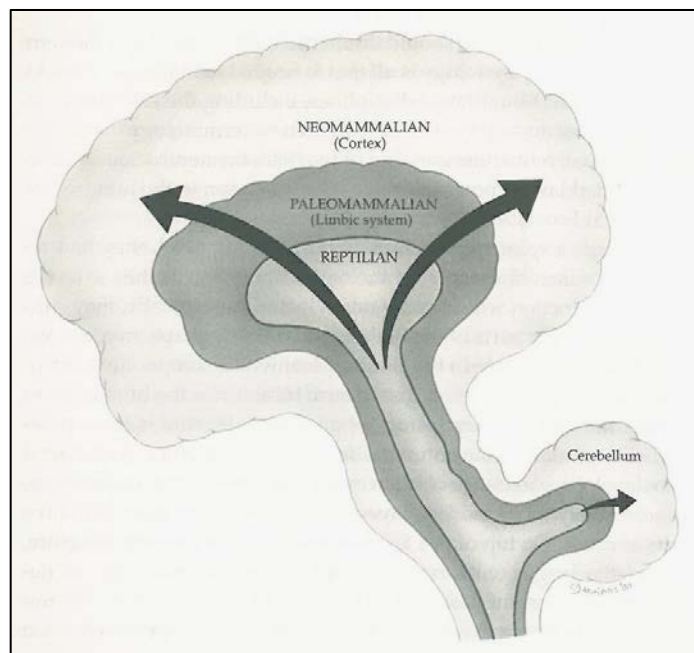


Figure 2-5
The trajectory of evolution
(Ratey, 2001:10)

2.4.3 The triune brain theory

During 1967, Paul MacLean took an evolutionary approach to neurobiology with the triune brain theory. As depicted in Figure 2-5, he proposed that the human brain has three distinct evolutionary parts or layers, described as reptilian, paleomammalian and neomammalian. Holmquist (2010:18) explains the terminology “triune brain” as follows: the meaning of “triune” is three-in-one (tri = three, une = one) to illustrate that the three parts “intermesh and function together”. Although the three brains can operate “somewhat independently”, they cannot function autonomously. Paul MacLean allocated specialised functions of the brain based on these evolutionary developmental patterns (Hannaford, 1995:31-32; Herrmann, 1995:31; Herrmann & Herrmann-Nehdi, 2015:19; Ratey, 2002:10; Taggart & Valenzi, 1990:155). The location and function of the reptilian brain, paleomammalian brain and the neomammalian brain will now be discussed separately to create an understanding on how the triune brain theory facilitated Ned Herrmann’s Whole Brain® Model.

2.4.3.1 The reptilian brain

Hannaford (1995:31-32), Herrmann (1995:31-32) and Dalgleish (2004:582-586) noted that the evolutionarily ancient reptilian brain (also referred to as the primitive brain) looks similar to the brain found in ancient reptiles, including lizards, crocodiles and birds. As discussed in the main brain structures (paragraph 2.3 and illustrated in Figure 2-4), the reptilian brain consists of the brain stem, the pons, the medulla oblongata and the cerebellum. The physiological and safety needs related to the reptilian brain, as discussed in paragraph 2.3 (the hindbrain), gave structure to the pyramidal organisation of motivating factors, described as the theory of “hierarchy of needs”, developed in 1943 by Abraham Maslow. The lower level needs entails the basic biological needs, and the psychological needs for “self-actualisation” as the narrow pinnacle. Berg *et al.* (2000:169-171) and Cleary *et al.* (2009:15) reason that “human behaviour is influenced by an individual’s desire to have his or her needs fulfilled” (Quible, 2005:217). They suggested that managers have to be aware that unfulfilled lower level needs (functions of the reptilian brain and Maslow’s hierarchy of needs) could become barriers to motivating an individual to accomplish a task. The next section, paragraph 2.4.3.2, elaborates on the importance of motivation to fulfil people’s basic needs. Equally important to the physiological and safety needs hosted in the reptilian brain are the primitive emotions such as fear and aggression (Dalgleish, 2004:582-287). Flight and fight primitive emotions are also associated with the reptilian brain (Crawford, 2011:4; Department of the United States Army, s.a.:13-17; Speert, 2012:36). These instinctual impulses to stressful situations in the work environment are, according to Speert (2012:36), psychologically grounded as a result of the complex and fast pace of the new work arena.

The intelligence associated with the neomammalian brain or neocortex as discussed in paragraph 2.4.3.3, can be negatively influenced by the physically lower system during a threatening situation. An example of this is when a person fears that a colleague might challenge his or her point at a meeting, and when it happens, the person defends with aggression (Crawford, 2011:4). In addition, Crawford (2011:1-4) notes that the specialised functions of the reptilian brain have been retained during evolution; however, the size and function of the neomammalian brain (cortex) have increased substantially. It seems, therefore, that it is virtually impossible to change the reptilian brain, though, responses such as fight, flight or freeze can be managed by self-observation (Crawford, 2011:4; Department of the United States Army, s.a.:13-17).

2.4.3.2 *The paleomammalian brain or limbic system*

The paleomammalian brain is wrapped around the reptilian brain (as illustrated in Figure 2-4 and Figure 2-5) and is often referred to as the limbic system or midbrain (Herrmann, 1995:31; Ornstein & Thompson, 1984:27; Ratey, 2002:10). MacLean initially referred to the paleomammalian brain as the visceral brain (Dalglish, 2004:582-587). Humans have this brain in common with lower mammals such as rats, rabbits and horses (Herrmann, 1995:31). In addition, it increases primitive reptilian emotional responses, such as fear and elaborates the social emotions (Dalglish, 2004:582-587). It is, therefore, sometimes referred to as the “emotional brain” (Herrmann, 1995:31, 61). However, when under threat, humans project back to the reptilian brain. Today, people experience emotional responses differently, for example, fear may stem from missed deadlines rather than the ancient survival response, the same type of fear of being eaten by a predator (Ratey, 2002:114). Research studies on the emotional brain have been recorded since 1868. The pioneering work on the main function of the temporal lobe structures in emotion, that influenced and formed the core of MacLean's limbic system, is the Papez-circuit scheme and the Cannon-Bard theory, which were both integrated alternately with the seminal work of Kluver and Bucy, as cited in LeDoux (2000:155-184), Ratey (2002:224-226) and Dalglish (2004:582-587).

The thalamus that is situated between the cerebral cortex and the midbrain, relays sensory information to the brain. The midbrain experiences pleasure and is receptive to successful learning during high levels of self-esteem and motivation. This relates to the idea of emotional intelligence. Paragraphs 4.4.1 and 4.4.2 of Chapter 4 demonstrate the implications of the intensified global competition, technological developments and organisational change on the emotional landscape. Goleman (2006:149) reasons that being a virtuoso in interpersonal skills is the corporate future. This is as a result of the yielding of the rigid managerial hierarchy under the pressures of globalisation and information technology.

2.4.3.3 *The Neomammalian brain or cortex*

The paleomammalian brain and limbic system are covered by the neomammalian brain, consisting of the cerebrum and the prosencephalon (also referred to as the neocortex) (see paragraph 2.3 and Figure 2-5). In Latin, the word “neocortex” literally means “new bark”. Humans have a neocortex in common with higher mammals, such as chimpanzees, dolphins and whales, except for the differentiation that the brains of Homo sapiens are large in relation to both the brain and the body. The neocortex is divided into two hemispheres and is referred to as the brain's thinking cortex or gray matter that is associated with thinking, perceiving, planning and understanding language (Herrmann, 1995:31-32; LeDoux, 2000:155-184; Holmquist, 2010:17; Speert, 2012:6-8; Department of United States Army, s.a.:14-15). According to the triune brain theory, the neocortex seeks novelty, is responsive to information in the external world, invents, creates, writes and calculates (Herrmann, 1995:31-32).

At the onset of the 21st century, humans face a sudden arrival of large quantities of new knowledge. According to Crawford (2011:1-9), information and communications technology (see Footnote 2 on page 2 of Chapter 1 regarding mediums) have outperformed people's ability to use it effectively. Crawford (2011:1-9) further states that the rapidity and quantity of communication are far beyond what humans' brains are designed to process. The learning environment should be void of threats to be receptive to learning. When experiencing threats, humans project back to the limbic system or in worst cases to the reptilian brain. Crawford (2011:1-9) therefore alleges that humans' way of life and work practices have become profoundly out of synchronisation with their neurology and biology. It is quite clear that new sets of thinking and skills are required for this level of discernment. This research study is interspersed with the impact of the revolutionary development of information and communications technologies on the work arena of the administrative professional. It can leave one feeling unfulfilled, ineffective and incapable. Chapter 4 specifically articulates on the effect on the future role and accompanying thinking processes required for possible effectiveness in the future work environment.

The other theory that influenced Herrmann's whole-brain model was Roger Sperry's left brain/right brain theory.

2.4.4 The left brain/right brain theory

Sperry (1968:723-733) revealed that, although a team project, it was mainly Philip Vogel who conducted surgery in 1962 with his neurosurgical patients who experienced advanced attacks of epilepsy. Joseph Bogen assisted him in the surgery. The surgery involved the disconnection of the two cerebral hemispheres¹⁹ in an attempt to contain severe epileptic convulsions. It was during the behavioural testing programme²⁰ executed with a special apparatus on the commissurotomy patients (see Footnote 19) that Roger Sperry, Philip Vogel, Joseph Bogen and Michael Gazzaniga (Gazzaniga, 1998:51-55; Sperry, 1968:723-733) discovered that “everything seen to the left of the vertical meridian through either eye is projected to the right hemisphere and vice versa” (as illustrated in Figure 2-6) (Sperry, 1968:725). These tests also provided clinical evidence that the left hemisphere in the right-handed patients involves processing, cognition and language (speech and writing). It is dominant in linear and analytical thinking and is particularly interpretive and seeks meaning and sensibility. The right hemisphere excels in spatial, visual and emotional tasks and is also perceptual and intuitive (as outlined in Figure 2-6) (Franks in Stets & Turner, 2006:38-60; Gazzaniga, 1998:51-55; Sperry, 1968:723-733).

Mauriello (s.a.:1-3) points out that many models emanated from the split-brain (also referred to as commissurotomy) experiments that spanned over four decades. These experiments contribute to our knowledge that:

- (i) when the two hemispheres are severed, learning takes place independently and does not share information correlatively; and
- (ii) the different hemispheres function differently, and this shows what the roles and responsibilities of each of the two hemispheres are, as are evident in a normal brain.

Further to paragraph 2.4.1, Herrmann (1995:8-10; 1996:11-12) states that researchers such as Roger Sperry, Robert Ornstein, Joseph Bogen and Michael Gazzaniga provided convincing evidence with their experiments on commissurotomy patients that the brain is specialised, and that the differences in specialisation are located in each hemisphere.

¹⁹ The disconnection of the two cerebral hemispheres at the midline section of the cerebral commissures, the entire corpus callosum, and the division of the smaller anterior and hippocampal commissures are known as split-brain surgery or commissurotomy (Sperry, 1968:723).

²⁰ The behavioural testing program, allows for the lateralised testing of the right and left halves of the visual field, separately or together, and the right and left hand and legs (excluding vision) (Sperry, 1968:724).

Thus arose the popularisation of the left brain/right brain theory of information processing in the human brain (Taggart & Robey, 1981:193) that was formed by clinical evidence that the brain is made up of only two specialised hemispheres. Coleman and Zenhausern (1979:1) pointed out that hemispheric dominance is also regarded as a cognitive style²¹ and distinguishes how a person processes information based on the different capabilities of the left and right cerebral hemispheres of the brain.

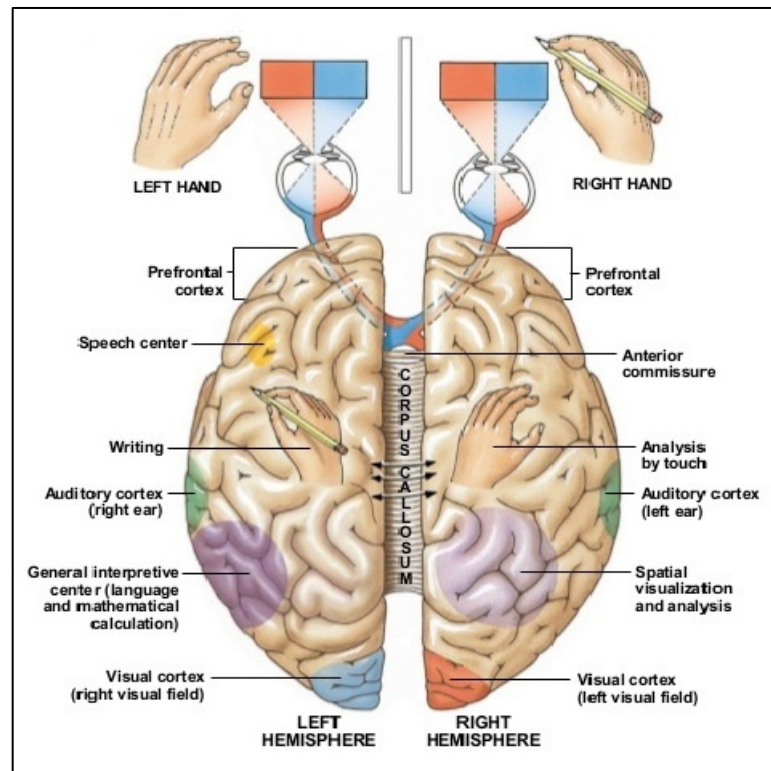


Figure 2-6
Schematic outline of the functional lateralisation evident in behavioural tests of patients with forebrain commissurotomy
(Adopted from ResearchGate on-line images to illustrate Sperry's (1968:728) functional lateralisation
https://www.researchgate.net/figure/Functionalities-of-the-left-hemisphere-I-Brain-versus-those-of-the-right-hemisphere_fig1_279886158)

Carter (2014:8-12) wrote that each hemisphere is mainly responsible for the opposite half of the body and can hold different thoughts and intentions under certain conditions. The left side of the brain controls movement and receives information from the right side of the body, and the right side of the brain controls the left side of the body.

²¹ As quoted from Mullany *et al.* (2007:465): "Cognitive style is a fixed characteristic of an individual's inherent mental perception and processing that dictates the way the individual prefers to solve problems and/or bring about change."

Herrmann and Herrmann-Nehdi (2015:48 & 120) reason that the specialised structures, known as the neocortex, the limbic system and the connectors (also referred to as interconnections), as well as the brain-functioning patterns, namely the situational and iterative functioning, comprise the key aspects of the left brain/right brain theory. The purpose of this discussion is to demonstrate the relation of the specialised structures and the brain-functioning patterns to the left brain/right brain theory.

Figure 2-7 serves as an illustration for both discussions regarding the neocortex (paragraph 2.4.4.1) and limbic system (paragraph 2.4.4.2).

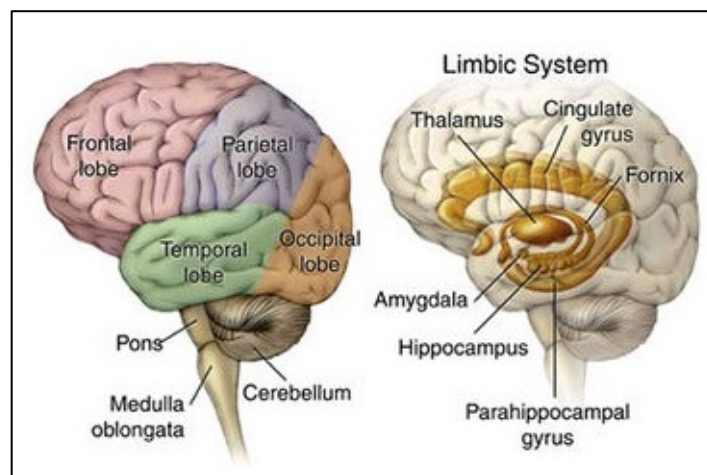


Figure 2-7
Left and right neocortex and limbic system
(Adopted from Introduction to Psychology on-line images to illustrate as discussed by Herrmann, 1995:41

<https://opentextbc.ca/introductiontopsychology/chapter/3-2-our-brains-control-our-thoughts-feelings-and-behavior/>)

2.4.4.1 *The neocortex – left and right*

As illustrated in Figure 2-7 and discussed in paragraph 2.4.3.3, the neocortex (or cerebrum) is divided into two halves, known as the left and right hemispheres, also referred to as the cerebral hemispheres. A sheet of tissue, known as the cerebral cortex or grey matter, covers the surface (Herrmann, 1995:32; Speert, 2012:6-8) and is subject to change while knowledge is acquired, that is, while perceiving and initiating, and transforming information (Van den Broeck *et al.*, 2003:16). For the purpose of this discussion, it is important to know that these functions of the cerebral hemispheres are related to the principle of whole-brain thinking that indicates how the brain works.

2.4.4.2 *The limbic system – left and right*

The two halves of the limbic system are located in the two cerebral hemispheres between the brain stem and the cerebral hemispheres. The most important structures in the limbic system are the medial thalamus, the hypothalamus, the basal ganglia or forebrain, the amygdala and the hippocampus, all connected to the anterior cingulate gyrus, which serves as a mediation brain activity between the brain stem and the cerebral hemispheres (Hannaford, 1995:53; LeDoux, 2000:155-184; Ornstein & Thomson, 1985:28; Ratey, 2002:227). The role and functioning of the limbic system have already been discussed in paragraph 2.4.3.2. As cited in paragraph 2.4.3.2, the paleomammalian brain, which includes the limbic system, is the seat of emotion and “our feeling of connectedness with others” (Gorovitz, Springer, Taggart & Valenzi in Van den Broeck *et al.*, 2003:16; Hermann, 1995:31 & 61).

Herrmann (1995:32-34) and Crawford (2011:2) echo Papez’s notion (as discussed in paragraph 2.4.3.2) that, apart from controlling emotions, the limbic system also contributes to humans’ cognitive processing. For example, activities such as planning, organising, giving structure and taking control are influenced by the left limbic system. Furthermore, the limbic system is actively involved during the learning process with the transferring of incoming information into the memory systems, that is, converting and directing information and transferring information from short-term to long-term memory. Ratey (2002:10, 114, 247-248) and the Department of the United States Army (s.a.:14-15) concur with this concept, affirming that an assessment and comparison take place between present stimuli and previous similar stimuli, adding emotion to certain stimuli. Ratey (2002:10, 114, 247-248) and the Department of the United States Army (s.a.:14-15) further reason that the paleomammalian brain also incorporates high-level thinking functions, such as motivation (as discussed in paragraph 2.4.3.2). They explain that motivation is not regarded as an emotion, but rather the essence of all goal-directed behaviour and, therefore, involves many levels of the brain. Internal and external stimuli are perceived and assessed; for example, an employee wants to develop a skill (internal stimulus) for being rewarded with recognition (external stimulus) adding value to improve customer service.

It is evident from the discussions on the triune brain theory in paragraph 2.4.3 and the left brain/right brain theory in paragraph 2.4.4, that researchers have provided evidence that the brain is indeed specialised at the neuronal level. The development of the brain hypothesis, including the triune brain theory and the left brain/right brain theory, have contributed significantly to researchers’ knowledge of brain functioning.

Herrmann and Herrmann-Nehdi (2015:19) are of the opinion that, although the brain hypothesis was valued at the time, the oversimplification of the left brain/right brain theory overlooked the notion that the brain is interconnected and functions as a whole (Franks in Stets & Turner, 2006:38-60). Levy (1983:68-69) also observes that thinking, logic and reasoning derive from the specialised processes of both hemispheres.

2.4.4.3 Interconnections and mental functioning

The last specialised structure of the left brain/right brain theory is the interconnections in the brain, called “connectors”. The brain is filled with connectors. Connectors are fibres that relay signals or messages from one part of the brain to another. The connectors are the means by which different parts of the brain communicate with one another. Figure 2-8 below serves as an introduction to this section. For the purpose of Herrmann’s Whole Brain® Model, the connectors can be divided into two groups, namely those that serve as links within each of the hemispheres and those that are links between the hemispheres and the two halves of the limbic system.

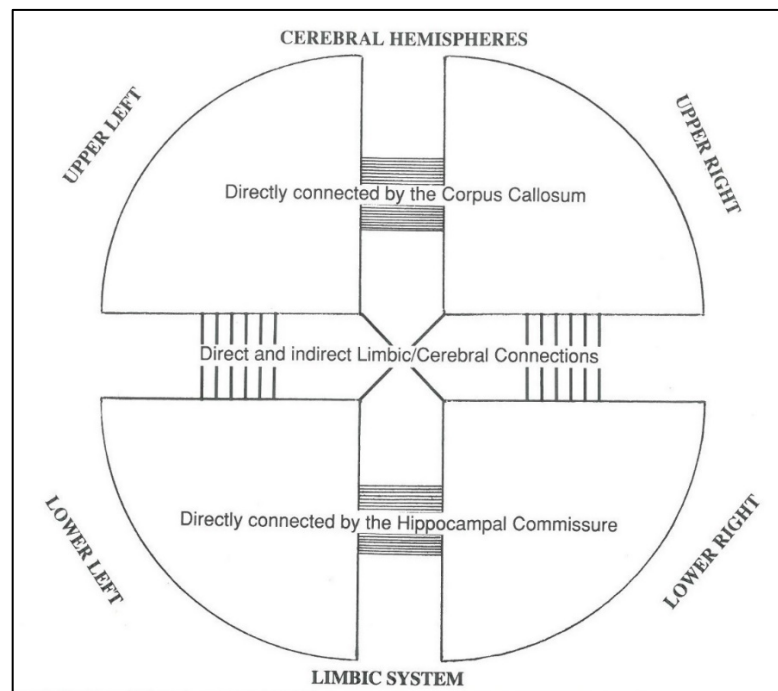


Figure 2-8
The physiological interaction between the left- and right-brain hemispheres
(Herrmann, 1995:412)

Viewed together, “these connectors provide the physiological basis for wholeness in mental functioning” (Herrmann, 1995:35). The connectors found within each of the hemispheres consist of two different kinds, namely projection fibres and association fibres. Projection fibres radiate from the brain stem to each lobe of the two hemispheres. This communication system transmits signals from the body and brain stem to the cortex and back. The association fibres provide a means of communication between the specialised areas found within each brain hemisphere.

They form an intricate communication system that enables each of the hemispheres to integrate its functioning (Herrmann, 1995:35). Connections between the two hemispheres and the two halves of the limbic system are provided by three bundles of axonic fibres. These axonic fibres are called “commissures” and consist of the corpus callosum, the hippocampal commissure and the anterior commissure (Herrmann, 1995:35; Speert, 2012:6-8). Figure 2-9 illustrates where these commissures are situated. These connections provide a large number of “hard wires” that run from neurons in one half of the brain to mirror image neurons in the other half. Consequently, the brain can co-ordinate activities located in parallel areas of each cerebral hemisphere, as well as in each half of the limbic system (Herrmann, 1995:35).

The discussions on the neocortex – left and right (in paragraph 2.4.4.1), the limbic system – left and right (in paragraph 2.4.4.2) and the connectors (in paragraph 2.4.4.3), provide background on how information transfers, collaborates and integrates between the specialised structures of the brain. The next section on the functioning patterns of the brain will demonstrate the relation of the situational and iterative functioning of the brain.

2.4.4.4 *Functioning patterns of the brain*

The two types of brain-functioning patterns that comprise the key aspects of the left brain/right brain theory that were mentioned in paragraph 2.4.4 will now be examined.

(i) *Situational functioning*

Situational functioning means that, when the brain is presented with a situation, the area or areas of the brain that are specialised to perform the task are initiated for action (e.g. the language area is engaged during a conversation), while the areas not involved in the task (e.g. the calculation area) are in a state of rest. This is determined by measuring the electrical activity in the brain, providing evidence that beta waves are emitting (when communicating, as per previous example) when the specific area in the brain is performing the task.

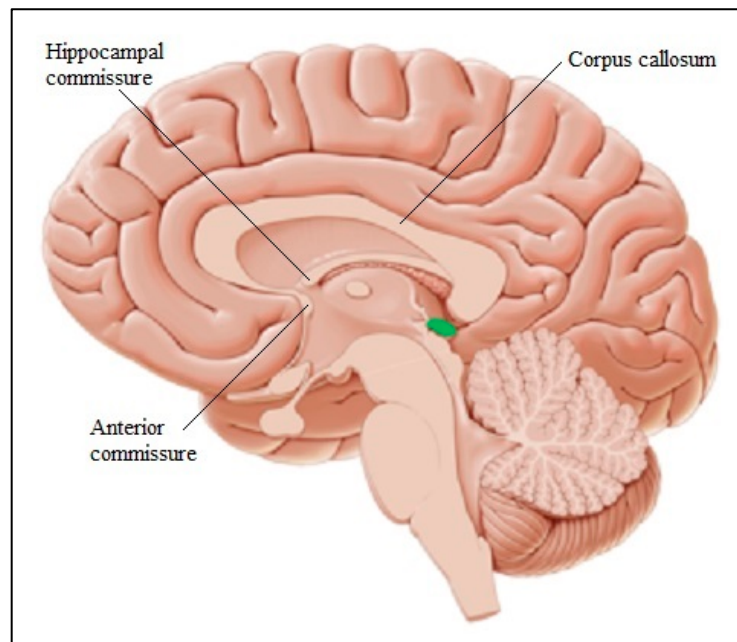


Figure 2-9
The corpus callosum, hippocampal commissure and anterior commissure (also called
commissure of fornix)
(Adopted from Commissural Pathways' anatomy and function on-line images to illustrate as
discussed by Herrmann, 1995:35
<https://www.kenhub.com/en/library/anatomy/commissural-pathways>)

The parts of the brain that are inactive or in a state of rest, send out alpha waves (when calculating, as per the previous example) (Herrmann, 1995:37). Herrmann (1995:38) argues that the area in the brain that is required to perform the task should function without interference. Therefore, those who have the ability to function situationally will be effective. For example, such persons should have the ability to block out movement and sound while attempting to add a column of figures (Herrmann, 1995:38).

The situational functioning discussed in the previous paragraph provides background to the four quadrants of thinking preferences, representing Herrmann's Whole Brain® Model as shown in Figure 2-12 (Herrmann, 1996:15). The next section examines the situational whole-brain functioning, which is more significant for this study.

According to Sternberg (1994:36-37), Dew (1996:91-93) and Herrmann and Herrmann-Nehdi (2015:48, 120, 209), the skill related to situational whole-brain functioning is based on the ability to move from one thinking preference to another when a situation requires. Herrmann discovered during his research on creative thinking that creative thinking is whole-brained. This premise was based on the situational whole-brain functioning (Herrmann & Herrmann-Nehdi, 2015:295-299).

This implies that the advantage of the primary²² thinking preference will remain in a situation; however, it will not limit responses to a situation. The following example demonstrates that by effectively harnessing situational capabilities it can provide a much broader spectrum of thinking preferences: When prompted with problem-solving, left-brain thinking analyses the problem; after analysing the problem, right-brain thinking develops possible solutions. Therefore, left-brain thinking supports planning skills for the implementation of a solution, while right-brain thinking can sell the solution to the organisation or customer.

The above discussion concurs with the notion in this study and is confirmed by Venter (2011:149) that administrative professionals have to become whole-brain thinkers, incorporating right-brain thinking to execute their role effectively. As mentioned in the introduction paragraph of the functioning patterns of the brain (paragraph 2.4.4.4), the brain can also process information iteratively. This will be discussed below.

(ii) Iterative functioning

According to Herrmann (1995:38), iteration involves the back-and-forth movement of impulses between the specialised centres in the brain. It ensures progress when working on a task. The complexity and nature of the task could determine the iterative process that could involve a single back-and-forth movement or a number of back-and-forth movements. Iteration can take place within or between the two hemispheres (Herrmann, 1995:38). The scenario on problem-solving skills in paragraph 4.3.5.13 of Chapter 4 serves as an illustration of how iteration takes place through the corpus callosum that connects the two cerebral hemispheres.

When writing down a problem, the administrative professional will carefully express her words around her conceptual understanding of the problems. The first iterative motion occurs when the signals from the conceptual centre are sent to her language centre, enabling her to put the concept into words and physically write it down. As the administrative professional writes, the iterative process repeats itself many times, translating visual ideas into words, and words into visual ideas. When sharing the solution to the problem with team members, the iterative process allows her to check on the conceptual interpretation of the problem. Listening to the inputs of her team members, the iterative process continues.

²² The term “primary” is used to quantify the degree of a person’s preference for each of the four thinking preferences with the Herman Brain Dominance Instrument® (HBDI)® assessment tool (Herrmann-Nehdi, 2015:41).

The four most important characteristics that help to clarify whole-brain thinking are functional specialisation (as discussed in paragraph 2.4.4), interconnectedness (as discussed in paragraph 2.4.4.3), situational functioning (as discussed in paragraph 2.4.4.4(i)) and iterative functioning (as discussed in paragraph 2.4.4.4(ii)). These characteristics form the basic premise of Herrmann’s Organising Principle, as illustrated in Figure 2-10. The Organising Principle demonstrates how elements of MacLean’s triune brain theory and Sperry’s left brain/right brain theory were combined into a four-quadrant model. The four-quadrant model serves as a metaphor of the brain and an organising principle of the thinking preferences. The interconnected yet specialised mental processing modes, which function together situationally and iteratively, constitute a whole brain in which one or more parts become naturally dominant (Herrmann & Herrmann-Nehdi, 2015:20).

Reference is made in the last paragraph of the section on the limbic system (paragraph 2.4.4.2) to the oversimplification of the left brain/right brain theory. The latter claims that people’s thinking preferences are more connected, preferred and vigorous in a particular physical part of the brain. Paragraph 2.5.2 will elaborate on the activities allocated to the four mental preferences. To the contrary, the Herrmann Organising Principle demonstrates that “thinking requires activation of multiple specialised, complex networks that are shaped by experience and become stronger over time” (Herrmann & Herrmann-Nehdi, 2015:22). It is this premise of the Herrmann Organising Principle that surfaces in the new world of work. Accessing the different thinking styles, situationally and iteratively (see paragraph 2.4.4.4), equips a person to adapt to the current complex, uncertain and rapid work arena (detailed discussions follow in Chapter 4).

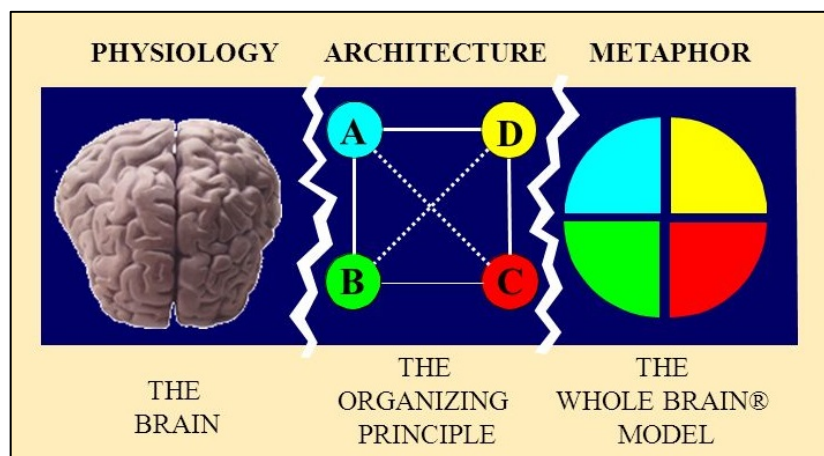


Figure 2-10
Herrmann’s Organising Principle
 (Adapted from Herrmann International on-line slideplayer to illustrate
<https://slideplayer.com/slide/9097618/>
 Herrmann, 1995:413)

Furthermore, Edgley, as cited in Van den Broeck *et al.* (2003:5), Kumar (2014:3771-3772) and Herrmann and Herrmann-Nehdi (2015:170-171) revealed the importance of developing less preferred thinking styles to support growth and adaptation. A metaphoric model emerged from the organising principle, representing whole-brain thinking. Whole-brain thinking displays four mental preferences, known as the “four-quadrant model”, as illustrated in Figure 2-12.

The following section will explain the concept of dominance with regard to thinking preferences or mental preferences, as referred to in the previous paragraph.

2.5 THEORETICAL BACKGROUND ON THE ORIGIN OF THE CONCEPT REGARDING BRAIN DOMINANCE

The second theoretical component of Herrmann’s model is dominance. The two hemispheres of the brain not only function differently but are also physiologically asymmetrical. The left hemisphere has a greater specific gravity, a larger amount of grey matter and a wider occipital lobe. The right hemisphere, on the other hand, is heavier and has a larger internal skull size and a wider frontal lobe. The brain is functionally and structurally asymmetrical, much like humans’ other bilateral organs and appendages. People’s eyes, hands, arms and legs are not equal in physical characteristics. They also differ in what they do and how they are utilised (Herrmann, 1995:15). Although humans begin to develop a preference for one or another of their bilateral body from when they were infants (Herrmann, 1995:16), cultural influences, parenting, teaching and life experiences also have an impact on their natural brain dominance and, therefore, influence all four thinking styles (De Boer & Bothma, 2003:1-6). This asymmetry is mostly pronounced when considering hand dominance. People have a preferred hand that they reach out and hold objects with, and this hand eventually becomes the one that they use for writing. According to Herrmann (1995:16), the majority of people, this will be the right hand which, together with the nerves and muscles on the right side of the body, is controlled by the left side of the brain. When the right hand is used more frequently, it accordingly becomes stronger and will, therefore, be the preferred hand. The left hand is controlled by the right side of the brain. As it is used less, it takes on a secondary, more supportive function when it works with the dominant right hand (Herrmann, 1995:16).

The above analogy on dominance can be applied to the thinking preferences. Herrmann and Herrmann-Nehdi (2015:23) explain that the increased utilisation of a specific thinking preference will become preferred over the other thinking preferences. For example, Venter (2011:43, 59, 74) revealed that the work profile of administrative professionals in the past decade consisted mainly of activities related to left-brain thinking.

Typical skills, such as organising, identifying, determining, accuracy, controlling, evaluating and procedures that were required then, can be categorised as being predominantly related to left-brain thinking preferences. Therefore, administrative professionals who are required to utilise mainly left-brain thinking preferences will increase the utilisation of left-brain thinking and will, therefore, exhibit preference for left-brain thinking instead of right-brain thinking.

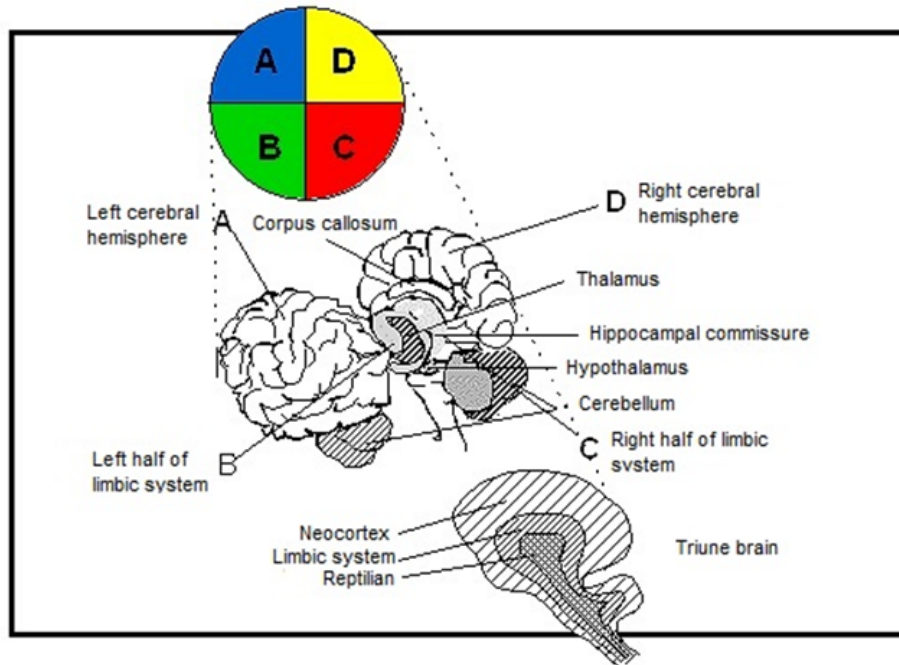


Figure 2-11
The triune brain theory combined with the left brain/right brain theory, which merged into the four-quadrant concept
(Adapted from Thinking Styles – Herrmann’s Creative Brain on-line slide player to illustrate <https://www.slideserve.com/tao/thinking-styles-herrmann-s-creative-brain-playing-the-diversity-game-cognitive-preferences> (Herrmann, 1996:14))

The following section will provide a background on the development of the four-quadrant model representing the whole-thinking brain. Whole-brain thinking serves as an understanding of thinking preferences and is also referred to as brain dominance.

2.5.1 From brain dominance to thinking preference

The relationship of the thinking preferences, as represented in the Whole Brain® Model (as illustrated in Herrmann’s Organising Principle, Figure 2-10 and the combined theories of MacLean and Sperry (Figure 2-11)), can be quantified in the form of the four-quadrant model (as illustrated in Figure 2-12). Robert Ornstein conducted experiments (see second paragraph of 2.4.1) with the EEG on how human thinking works (see Footnote 5 on page 5 of Chapter 1). Herrmann (1996:17-18) found that the cerebral hemispheres electrical activities can be measured with electrodes around the scalp.

However, the limbic system is seated within the two hemispheres, and thus too far underneath the surface to measure its electrical activity. Regardless of these measurement limitations and the pragmatism to conduct the experiments on staff members at General Electric, the results obtained from these experiments were sufficient for Herrmann (1996:17-18) to compile a framework of the thinking style clusters, referred to as the “architecture of the organising principle” (as illustrated in Figure 2-10). This resulted in the emerging of the metaphor, the Whole Brain® Model, together with the development of the Herrmann Brain Dominance Instrument (HBDI)²³ (Herrmann, 1996:18). Herrmann’s Whole Brain® Model displays mental preferences that affect behaviour in the business environment and not abilities or competencies.

The following section will give a brief synopsis of the four thinking styles representing the Whole Brain® Model as illustrated in Figure 2-12.

2.5.2 Understanding the four thinking styles

As illustrated in Figure 2-12, the whole-brain thinking displays four thinking preferences, known as the four-quadrant model. Paragraphs 2.5.2.1 and 2.5.2.2 interpret the activities allocated to the four mental preferences. Thinking preferences occur in patterns or profiles.

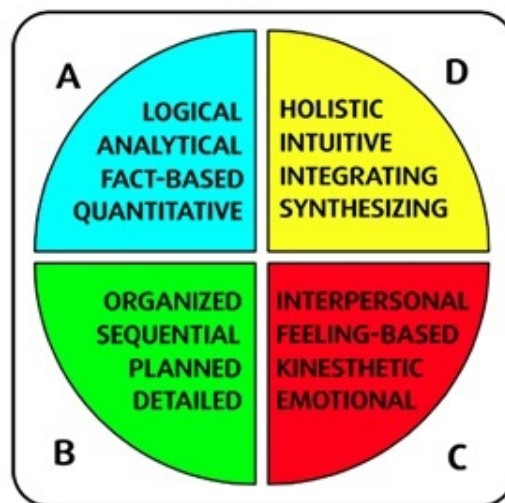


Figure 2-12
Herrmann’s Whole Brain® Model
 (Adapted from Whole-brain thinking – Introduction on-line images to illustrate
<http://www.josephshaffery.com/whole-brain-thinking-introduction/>
 (Herrmann, 1996:15))

²³ The Herrmann Brain Dominance Instrument (HBDI) is an assessment tool developed by Ned Herrmann at the General Electric’s Management Development Institute during 1981 that quantifies the degree of a person’s thinking preference for each of the thinking preference styles (Herrmann, 1996:18)

In addition to the description of the thinking preferences, *inter alia*, A-quadrant or upper left, Herrmann (1995:75-90) also assigned different classifications to the profile categories, such as single dominant,²⁴ double dominant, triple dominant²⁵ and quadruple dominant,²⁶ as is evident in Herrmann's Universe of Thinking Styles (as illustrated in Figure 2-13). The double dominant profile is of more relevance to the study and the purpose thereof will, therefore, be discussed in paragraph 2.5.3. In the discussion below, the activities are allocated to the four thinking profiles.

2.5.2.1 *Left cerebral hemisphere (A-quadrant) and left half of limbic system (B-quadrant)*

A-quadrant people, also known as “theorists” (rational self), prefer activities that involve analysing, dissecting, figuring out, solving problems logically, simplifying the complex and getting facts.

B-quadrant people, also known as “organisers” (safekeeping self), are detailed, sequential, structured and linear (Herrmann, 1996:20-23).

2.5.2.2 *Right half of limbic system (C-quadrant) and right cerebral hemisphere (D-quadrant)*

C-quadrant people, also referred to as the “humanitarians” (feeling self), prefer to consider people and are team-orientated, emotional, supportive and expressive.

D-quadrant people, also known as “innovators” (experimental self), are intuitive, holistic, conceptualising, adventurous and risk taking (Herrmann, 1996:20-23).

The discussion above provided background for understanding the different functions of the brain and the metaphorical representation of an individual's thinking preferences as reflected in the Whole Brain® Model. Herrmann's Universe of Thinking Styles (illustrated in Figure 2-13) reinforces discussions (see Chapters 1 and 4) on how whole-brain thinking equips a person, and provides an invaluable basis for understanding the processes of thinking and learning in the business world.

²⁴ The category “single dominant profile” denotes that a person exhibits one primary (see Footnote 21 on page 53 regarding the explanation of the term ‘primary’) preference, with secondary or tertiary preferences for the other three quadrants (Herrmann, 1995:86).

²⁵ Triple dominant profiles are those persons who have one quadrant that is not primary (Herrmann, 1995:89).

²⁶ Quadruple dominant profiles are those persons who express primary level preferences for each of the four thinking preferences (Herrmann, 1995:89).

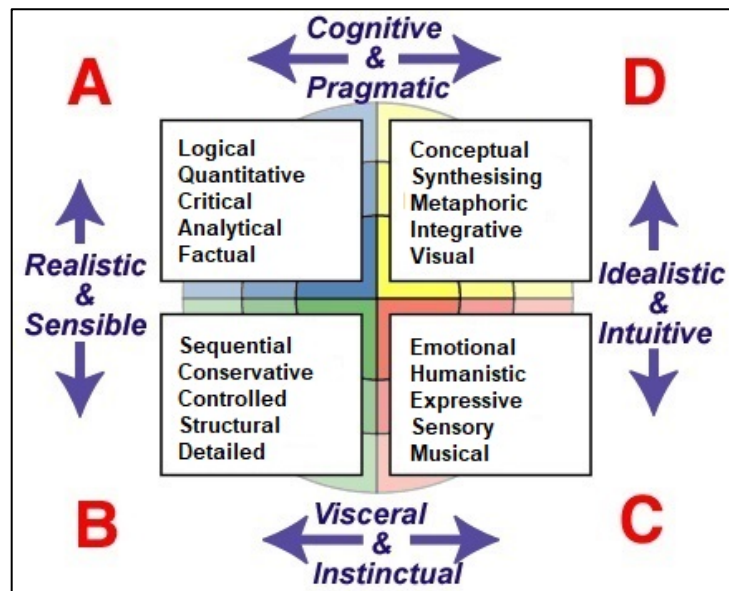


Figure 2-13
 Herrmann's Universe Thinking Styles
 (Adapted from Whole-brain Business Book on-line images to illustrate
http://park17.wakwak.com/~kobakan/contents/0626wholebrain_businessbook_R.html)
 (Herrmann, 1996:23)

2.5.3 Herrmann's universe of thinking styles

Figure 2-13 displays how all four thinking preferences are essential in the business environment and, therefore, constitute the universe of thinking style preferences (Herrmann & Herrmann-Nehdi, 2015:32). The universe of thinking styles (Figure 2-13) is an expanded model of the Whole Brain® Model (Figure 2-12) displaying the four thinking preferences. The interpretation of the universe of thinking styles (as illustrated in Figure 2-13) is explained in the next section. This interpretation follows the details regarding the relation of the functions of the two hemispheres (that is, the left and right neocortex discussed in paragraph 2.4.4.1 and the left and right limbic system discussed in paragraph 2.4.4.2) to that of the principle of whole-brain thinking. Herrmann (1995:87-89) states that double dominant profiles are exerted “in the same hemispheres”; “double dominant – cerebral or limbic” and “double dominant diagonal opposites”.

The following section provides a brief explanation on the different double dominant profiles of the universe of thinking styles (Figure 2-13):

2.5.3.1 *Double dominant within the same hemisphere*

A preference within the same hemisphere can be, for example, either the left cerebral hemisphere (A-quadrant) and the left half of the limbic system (B-quadrant) (also see paragraph 2.5.2.1), or the right half of the limbic system (C-quadrant) and the right cerebral hemisphere (D-quadrant) (also see paragraph 2.5.2.2).

This will strengthen qualities such as realistic and sensible qualities of both A and B and augments the idealistic and intuitive qualities in C and D. Herrmann (1995:87-89) further notes that it is particularly important for double dominants within the same hemispheres to develop an understanding for the other mental processing modes. Without the understanding, the ability to function iteratively will be limited without the understanding of the other mental processing modes. This concurs with the discussion on Herrmann's Organising Principle (at the third and fourth paragraphs of 2.4.4.4(ii)) that, by accessing the different thinking styles, situationally and iteratively, equips a person to adapt to the current complex, uncertain and rapid work arena.

2.5.3.2 *Double dominant – cerebral or limbic*

Preferences in opposing hemispheres are known as double dominant – cerebral or limbic preferences. The advantage of this preference is that the ability of iterative functioning is expanded. Iterative function between the left cerebral hemisphere (A-quadrant) and the right cerebral hemisphere (D-quadrant) accesses both cognitive and pragmatic thinking. Visceral and instinctual thinking takes place when accessing the left half of the limbic system (B-quadrant) and the right half of the limbic system (C-quadrant) (Herrmann, 1995:88).

2.5.3.3 *Double dominance diagonal opposites*

Double dominant diagonal opposites are profiles that have primaries in both the left cerebral hemisphere (A-quadrant) and the right half of the limbic system (C-quadrant), or the left half of the limbic system (B-quadrant) and the right cerebral hemisphere (D-quadrant). Although interconnected, specialised mental processing exists, Herrmann (1995:88-89) points out that physiologically, no direct connection exists in the brain to relate diagonal opposite thinking. Iterative functioning between diagonal opposites first has to access another quadrant or brain structure. The preceding section on Herrmann's Universe Thinking Styles examined the application of iterative functioning between all four thinking preferences in the business environment.

The first half of Chapter 2 expounds on the theory of thinking styles and the concept of whole-brain thinking. The discussion regarding the development of the brain hypothesis gave an overview on mental dualism (paragraph 2.4.1) and how the triune brain theory and the left brain/right brain theory facilitated Ned Herrmann's Whole Brain® Model (from paragraphs 2.4.3 to 2.4.4). Although the triune brain theory could be considered as being an old theory, its role in the 21st century is still important. Reference is made to the impact of emotional blocks when the emphasis is being placed on, *inter alia*, competitiveness, fear of failure, and the attainment of success, creative thinking, problem-solving skills and logical thinking.

The researcher also discusses the significance and the implication of its three distinct evolutionary parts of layers in the new world of work, with specific reference to the work arena of the administrative professional. Paragraph 2.4.4 provides background on the popularisation of the left brain/right brain theory. Discussions continue in paragraphs 2.4.4.1 to 2.4.4.3 to demonstrate how information transfers, collaborates and integrates between the specialised structures, such as the left and right neo-cortex, the left and right limbic system and the interconnections and mental functioning of the brain. This section concludes by illustrating how the four most important characteristics, namely specialisation, interconnectedness, situationality and iteration, formed the basic premise of Herrmann's Organising Principle, and consequently the emerging of the metaphor, the Whole Brain® Model. Paragraph 2.5 expounds on the origin of the concept regarding brain dominance.

Brain dominance and the different functions of the brain and the metaphorical representation of an individual's thinking preferences as reflected in the Whole Brain® Model are interpreted in paragraphs 2.5.1 and 2.5.2. Herrmann's Universe of Thinking Styles (in paragraph 2.5.3) follows the Whole Brain® Model, reinforcing how whole-brain thinking provides an invaluable basis for understanding the processes of thinking in the business world. It is evident from various studies as discussed in paragraphs 4.2 and 4.3 of Chapter 4, that the global and national key drivers of change and transformation, involve a new set of thinking and skills in the business world of the 21st century, and thus comprise thinking of all four quadrants of the Whole Brain® Model (argued in paragraphs 2.4.4.4(i) and (ii)). Following the example in these paragraphs, that effective harnessing of situational capabilities can provide a far broader spectrum of thinking preferences, Herrmann and Herrmann-Nehdi (2015:208-210) reason that the less preferred thinking preferences should be developed to encompass a new set of thinking and skills.

Further to the reasoning, Herrmann and Herrmann-Nehdi (2015:48) found that having access to all four quadrants simultaneously, could provide an optimum response when the circumstances require a given mental function. Harris, Sadowski and Birchman (2005:14-22)

add that individuals have capabilities in each of the four quadrants. “This is the skill of Whole Brain Thinking”, as quoted by Herrmann and Herrmann-Nehdi (2015:48).

2.5.4 Summary of the theoretical framework for this study

The similarities and differences that surfaces from studies of Coffield *et al.* (2004:1-145) and Barclay (2006:2-37) on the theories that frame this study, namely Herrmann’s Whole Brain® Model, Taggart’s whole-brain human information processing theory, Sternberg’s theory of thinking styles and Kirton’s model of cognitive style are illustrated in Table 2-1.

**Table 2-1
Comparison of whole-brain human information processing theories**

CATEGORY	CHARACTERISTICS	THEORIES
Theorists	Rational; logical	Herrmann; Taggart
	Executive; hierarchical; conservative	Sternberg
Organisers	Safe-keeping	Herrmann; Taggart
	Executive; local; conservative; monarchic	Sternberg
Innovators	Experimental; visionary	Herrmann; Kirton; Taggart
	Legislative; global; liberal	Sternberg
Humanitarians (affect)	Feeling self; interpersonal; intuitive	Herrmann; Taggart
	Oligarchic; anarchic; internal; external; liberal; conservative	Sternberg
Conceptualisation	Organisers; innovators; theorists	Herrmann
	Adaptors; innovators	Kirton
	Legislative; executive; judicial	Sternberg
Cognition	Sensing-thinking } Intuition feeling }	Herrmann; Taggart
	Creativity; problem-solving; decision making	Kirton
Style construct	Flexibly stable learning preferences	Herrmann; Kirton; Taggart
	Learning approaches and strategies	Sternberg
Dimensions	Multidimensional: Thirteen different thinking styles described in the theory of mental self-government	Sternberg;
	Six different modes of thinking as designated to the human bio-computer model	Taggart
	Two-dimensional:	

CATEGORY	CHARACTERISTICS	THEORIES
	Triune brain theory and the left brain/right brain theory Adaption-innovation theory	Herrmann; Kirton

CHAPTER 3

INTERNATIONAL AND NATIONAL INVESTIGATION

3.1 INTRODUCTION

This section provides an overview of an investigation conducted by the researcher with associations for administrative professionals to observe an international and national perspective of the current ability of administrative professionals to comply and perform, according to the requirements of the changing world of work.

As part of this investigation, the researcher contacted various international associations for administrative professionals, as indicated below, to determine whether they did a formal skills audit to determine the current gaps in the competencies and capabilities of administrative professionals. The information emanating from this audit is discussed below.

3.2 INTERNATIONAL PERSPECTIVE

3.2.1 Survey participation

The international associations for administrative professionals listed below were identified to participate in the survey:

- (i) De Nederlandse Vereniging van Directiesecretaressen (NVD)
- (ii) European Management Assistants (EUMA)
- (iii) International Association of Administrative Professionals (IAAP)
- (iv) Japan Office Professional Alliance (JOPA)
- (v) The Association of Administrative Assistants (AAA) – Canadian Charter
- (vi) The Association of Administrative Professionals New Zealand Inc. (AAPNZ)
- (vii) The Association of Executive and Administrative Professionals (AEAP)
- (viii) The Australian Institute of Office Professionals (AIOP)
- (ix) The Barbados Association of Office Professionals (BAOP)
- (x) The Caribbean Association of Administrative Professionals (CAAP)
- (xi) The Distinguished Secretaries' Society of Pakistan (DSSP)

- (xii) The Global OA Network
- (xiii) The Indian Association of Secretaries and Administrative Professionals
- (xiv) The Jamaican Association of Secretaries and Administrative Professionals (JASAP)
- (xv) The National Association of Secretaries and Administrative Professionals (NASAP) – Uganda
- (xvi) The Office Professional
- (xvii) The Personal Assistant (PA) Club
- (xviii) The Philippine Association of Secretaries and Administrative Professionals, Inc. (PAS)
- (xix) The ROC Professional Secretary Cum Executives Association (CASAP) – China
- (xx) The Singapore Association of Administrative Professionals (SAAP)
- (xxi) The Sri Lankan Association of Administrative and Professional Secretaries (SLAAPS)

3.2.1.1 *Responses to the survey*

Only the following five associations responded to the e-mail:

- (i) The Indian Association of Secretaries and Administrative Professionals referred the researcher to the IAAP. The assumption can be made that most of the Associations for Administrative Professionals are incorporated as chapters under the IAAP, which is the world's leading professional body for secretaries.
- (ii) The Association of Administrative Professionals New Zealand Inc. (AAPNZ) did not conduct a formal skills audit to determine the current gaps in the competencies and capabilities of administrative professionals. However, Lloyd (2010:64), who is a committee member of the Professional Development Committee of the AAPNZ, addressed the professional development opportunities of administrative professionals in her thesis. The outcomes of some of the aspects that emerged from Lloyd's Master of Education thesis add value to this study and are, accordingly, included.

- (iii) Also included in this study are the findings arising from the study done by Vivienne Kermode and Ethelwyn Lloyd pertaining to the filling of the knowledge gap for administrative professionals undertaking their National Diploma in Business Administration level 5 (2011:2). The Australia New Zealand Standard Classifications of Occupations Classification 5: Clerical-Administrative formed the basis for identifying workplace roles (2010:1). Of the initial 650 AAPNZ members, only 70 of the returned 134 forms had been completed and could add value to the study.

The following is a summary of the feedback that was received from the Associations for Administrative Professionals. The feedback is summarised, according to the critical components for effective and efficient performance (see paragraph 3.2.2), trainers and training organisations (see paragraph 3.2.3) and training needs, skills challenges and opportunities (see paragraph 3.2.4).

3.2.2 Critical components for effective and efficient performance

The Modern Apprenticeship Model entails targeted learning in the workplace (Lloyd, 2010:82). Lloyd (2010:80-97) points out that the modern apprenticeship model originated in addition to the recognition of administrative professionals that required foundational knowledge to be able to perform competently and efficiently. The required foundational knowledge resulted from Lloyd (2010:19-58) and Kermode and Lloyd (2011:9-10 & 39).

(i) The lack of support from managers for professional development

The professional development of administrative professionals is mainly targeted towards training without a professional development plan or goal, and through informal learning opportunities such as conferences and seminars. Thus, limited professional development has a significant impact on the transfer of skills in the workplace and the ability to adapt to the new role and higher levels of responsibility (Kermode & Lloyd, 2011:9-10 & 31; Lloyd, 2010:58).

(ii) The recognition of qualifications

Administrative professionals' have found that formal qualifications are not recognised by employers and are, therefore, considered to be of little value. They consequently assume that their skills are not valued either (Lloyd, 2010:19; Kermode & Lloyd, 2011:39).

(iii) Technical skills are gained through informal learning

Informal learning, such as experiences at conferences, seminars, meetings held by professional associations and in-house-training through communities of practices, provides opportunities where administrative professionals gain technical skills (Lloyd, 2010:84; Kermode & Lloyd, 2011:24).

The low number of relevant formal qualifications held by administrative professionals can be associated with the identified required foundational knowledge (Lloyd, 2010:86). Similar views emerged from a Business and Administration Labour Market Report done by CFA Business Skills @ Work (2012:9) and the Blueprint²⁷ (2001:16-17). According to the study of CFA Business Skills @ Work (2012:9), 74% of administrative and secretarial employees in the United Kingdom have a level two qualification (requirement of a minimum of 37 credits for a diploma). Comparing the latter with the minimum credits of 360 (level six) as set by the South African Qualifications Authority, to obtain a diploma, it can be concluded that a level two does not represent the required level to perform effectively and efficiently. The Blueprint (2001:16-18) reveals that, among other attributes, such as experience, personality and character, performance skills and knowledge are critical components that the contemporary administrative professional should possess to be efficient and effective. Examples of these performance skills are technical, administrative, co-ordination, communication and management skills.

To be able to accomplish the necessary initiatives and decision making needed in the contemporary work environment, the administrative professional should possess knowledge of the industry she is employed in. Having this knowledge will make the administrative professional indispensable as an active team member in contributing to the effectiveness and results of procedures, projects, budgets, events and problem-solving.

²⁷ In the absence of stipulated guidelines for the secretarial profession, Dictum Publishers decided to produce a document, the Blueprint that would provide the necessary guidelines for designations and career advancement perspectives. The Blueprint, therefore, aims to position the secretarial and office administration profession as a profession (PAFSA Profile Web, 2014).

3.2.3 Trainers and training organisations

Lloyd (2010:98-99) and Kermode and Lloyd (2011:23) suggest that industry training organisations and tertiary providers should provide access to single module learning opportunities that are unit standard-based²⁸ to improve the recognition of administrative professionals as contributors to the workplace and with valuable skills, by means of:

- (i) the completion of a higher-level qualification to fill the gaps in knowledge;
- (ii) undertaking workplace recognition of current competency; and
- (iii) undertaking formal and informal online learning through institutes of technology, polytechnics and private training organisations.

This view has been supported in the work of the CFA Business Skills @ Work (2012:9). In addition to the workplace recognition, the CFA Business Skills @ Work findings revealed that the increase in apprenticeship training is due to rising university fees. To support administrative professionals with the improvement of valuable skills, the Blueprint (2001:8) proposes that trainers and training organisations should review their curricula in relation to workplace and office realities and avoid pre-internet-dated textbooks.

3.2.4 Training needs, skills challenges and work opportunities

The results that emerged from various studies illustrate the training needs discussed below.

3.2.4.1 *Human resources processes*

Kermode and Lloyd (2011:24) identified human resources processes as a gap in knowledge.

3.2.4.2 *Supervisory/management skills*

Staff supervision was an area that had been identified as a knowledge gap derived from a study of Kermode and Lloyd (2011:24) and the 2013 IAAP Benchmarking Survey (2013:3). The increasing importance of supervisory skills for administrative professionals can be observed in their evolving tasks. This is owing to the restructuring of workplaces as a result of the impact of technological innovations (also relates to paragraph 3.2.4.8).

²⁸ According to the Education Training Questions and Answers Forum Website (2015:1), “unit standard-based” is defined as follows: “The standard in the NQF system is held in the Unit Standard. A Unit Standard is the smallest unit that can be credited to a learner. Unit Standards can stand alone, but are generally part of a Qualification. A cluster of Unit Standards, including fundamental learning, core learning and elective learning, form a full Qualification.”

The IAAP Benchmarking Survey (2013:3), the OfficeTeam Survey (2012:5) and the CFA Business Skills @ Work (2012:9) concur that, as a result in the reduction of routine work, administrative professionals are able to take on other business functions, such as research, management and policy. Therefore, the majority of the respondents identified management-level training, for example supervisory or management skills (training of co-workers), time management and public speaking or presentation skills, troubleshooting and training co-workers in software applications such as Microsoft Office.

3.2.4.3 *Conflict resolution*

Conflict resolution has been identified as a gap in knowledge (Kermode & Lloyd, 2011:24).

3.2.4.4 *Event/project management*

Kermode and Lloyd (2011:24) and the IAAP (2013:3) have shown that project management is a soft skill in demand.

3.2.4.5 *Research skills*

The CFA Business Skills @ Work (2012:9) and Kermode and Lloyd (2011:24) demonstrate that, owing to the changing nature of administration, research skills have been identified as a gap in knowledge.

3.2.4.6 *Office and financial administration*

According to the CFA Business Skills @ Work (2012:10) labour market report, the skill second most cited as lacking is office administration.

Financial administration was an area identified as a knowledge gap emanating from a study of Kermode and Lloyd (2011:24) and the CFA Business Skills @ Work (2012:11). This view was supported by the IAAP (2013:3), which found that administrative professionals are more involved with decisions in terms of purchases.

3.2.4.7 *Meeting management*

Kermode and Lloyd (2011:24), the IAAP Skills Benchmarking Survey (2013:6) and their Membership Benefits Presentation (2013:3) noted that meeting management and the knowledge of virtual meeting software are soft skills in demand.

3.2.4.8 Computer software applications (social media) and technical skills

Training needs to be effective in computer software applications, for example website or social and media management, technology applications, such as web conferencing and information technology systems or hardware or systems networks emerged from the IAAP Skills Benchmarking Survey (2011:5; 2013:3 & 6) and the OfficeTeam Survey (2012:5). The results from the study of Kermode and Lloyd (2011:24) and the CFA Business Skills @ Work (2012:9-10) support the need for training in technical and practical skills.

3.2.4.9 Communication

CFA Business Skills @ Work (2012:10) identified written and oral communication as being a skill shortage.

3.2.5 Soft skills in demand

The IAAP (2013:3), the CFA Business Skills @ Work (2012:9-10) and OfficeTeam (2012:4 & 9) concur that the knowledge economy has been the origin of several skills challenges and opportunities for administrative professions.

The demand of the following soft skills was identified:

- (i) Interpersonal communications
- (ii) Organisational and time management
- (iii) Customer service, public relations
- (iv) Participation in work teams
- (v) The ability to work independently
- (vi) Problem-solving

3.2.6 New roles and responsibilities

In their 2012 Salary Guide, the OfficeTeam (2012:5), the Skills Benchmarking Survey of the IAAP (2011:2; 2013:2), CFA Business Skills @ Work (2012:8) and the Blueprint (2001:8) observed an increase in work responsibilities and workload as a result of various factors presented below:

- (i) Rapid technology innovations have had an impact on the tasks that are more complicated, demanding and technical.

(ii) The level of workplace autonomy and authority means that management responsibilities have been re-assigned.

(iii) The recession has had specific results, as seen below:

The impact of the recession has sped up structural changes in the labour market, contributing to a decline in administrative support staff members. It is, therefore, expected of administrative professionals to support more than one manager.

This has contributed to challenges administrative professionals face, such as the need to be on par with changing technology; an increased workload; fewer resources and cost reductions to execute responsibilities; balancing careers and family; and corporate downsizing.

(iv) Some companies are in a regular state of transition as business demands fluctuate.

3.2.7 Restructuring workplaces

According to Lloyd (2010:7-9 & 91), the IAAP (2013:5) and the CFA Business Skills @ Work (2012:8-9), technology innovations have prompted a shift in the structure of workplaces.

These changes had an impact on the following:

(i) The value of support roles and titles of occupation (merged and reformed roles).

(ii) Becoming lifelong learners and teachers by means of e-learning.

(iii) Being on par with changing technology.

(iv) Having fewer resources or cost reductions to execute responsibilities.

(v) The balancing of careers and family.

(vi) Corporate downsizing.

(vii) The workforce being directed towards a more knowledge-intensive economy.

(viii) The decreased demand for routine workers as a result of the acquisition of new skills and competencies.

(ix) The re-assignment of management responsibilities owing to the increase in the level of workplace autonomy and authority.

3.2.8 The recruitment forecast

The OfficeTeam (2012:4) and the CFA Business Skills @ Work (2012:9-10) have both shown in a survey that businesses seek the hiring forecasting trends discussed below.

3.2.8.1 *A focus on cost control*

Managers acknowledge that administrative professionals play a role in helping their firms reduce spending. Companies are increasing efficiencies and decreasing excessive costs by hiring administrative professionals with the skills sets to cover multiple job functions.

3.2.8.2 *Emerging difficulty in finding talent*

Businesses experience a challenge in finding skilled administrative professionals. As a result of these challenges, employers are becoming more creative when recruiting, tapping their networks and offering employee referral bonuses.

3.2.8.3 *A time of rebuilding*

The reduced administrative staff levels, as a consequence of the recession, have caused a decrease in day-to-day productivity. Employers seek experienced executive and administrative assistants to fill critical roles.

3.2.8.4 *Healthcare hiring*

Strong overall growth in the healthcare industry, changes to electronic medical records and the effects of healthcare reform are all fuelling the demand for administrative professionals throughout this sector.

3.2.9 Recruiting essential skills and attributes

The OfficeTeam survey (2012:5 & 14) demonstrates that employers seek the specific essential skills and attributes for administrative and office support positions. These are listed below.

3.2.9.1 *Adaptability*

Employers require staff who can adapt to higher volumes of projects as a result of the business environment that is constantly changing. Flexibility and a willingness to let the work description evolve along with the needs of the business is a motivating essential hiring criterion.

3.2.9.2 *Communication skills*

It is essential that administrative professionals should be articulate and refined in their interactions with internal and external customers, both in person and when communicating telephonically. E-mail and social media platforms have evolved as predominant communication tools and, therefore, place an increasing emphasis on writing abilities.

3.2.9.3 *Technical experience*

Not only are administrative professionals who are proficient in using the latest software applications in demand, but also those who can assist and train colleagues. In addition to Microsoft Office skills, candidates with proficiency in using database management software, Microsoft Project and enterprise resource planning software are in strong demand. Businesses also want administrative professionals who can monitor industry activity online and conduct competitive research as needed.

3.2.9.4 *Outside-the-box thinking*

Employers value administrative professionals who regularly exceed performance expectations. They want administrative staff members who can develop creative, resourceful ways of addressing projects and problems.

3.2.9.5 *The right fit*

Preference is given to candidates who will transition seamlessly to a new office environment and new co-workers. Managers often ask applicants to meet with several members of the team as part of the hiring process.

3.2.9.6 *Work history*

The competition for skilled applicants intensifies. Employers are investing more in evaluating applicants, lengthier screening processes, which include panel interviews, and multiple rounds of meetings.

3.3 SUMMARY

It is evident from the above results that emerged from the international investigation, that current gaps in the competencies and capabilities of administrative professionals could be identified. Critical components, such as the modern apprenticeship model, were identified for effective and efficient performance.

To improve the recognition of administrative professionals as contributors to the workplace with valuable skills, it is suggested that industry training organisations and tertiary providers should provide access to single module learning opportunities.

Knowledge gaps in human resources processes, supervisory or management skills, conflict resolution, research skills, office and financial administration, event or project management and meeting management were identified. Training needs in computer software applications and technical skills were proposed. Written and oral communication were noted as a skills shortage.

Furthermore, the knowledge economy necessitates several soft skills, for example interpersonal communications, organisational and time management, customer service and public relations, participation in work teams, and also the ability to work independently in order to cope with increased responsibilities and problem-solving.

Apart from the skills mentioned above, new roles and responsibilities have also been observed as a result of rapid technology innovations, the level of workplace autonomy and authority and the impact of the recession. This impact of the recession prompts a shift in the recruitment of essential skills and attributes. Employers seek administrative professionals with essential skills and attributes, such as adaptability, communication, technical experience, creative thinking and team working.

3.4 NATIONAL PERSPECTIVE

From the six professional associations that were approached, only three responded, as described below.

3.4.1 IAAP: Johannesburg Chapter

The only survey the Johannesburg Chapter at large has done was in August 2011. Between 33 and 50 administrative professionals participated in the survey. Although qualifications such as diplomas are listed, the results do not indicate how many administrative professionals obtained a qualification higher than a diploma. The survey concentrated on work titles, salary packages, geographic location, level of education, attendance at networking events, the most favourite event and preferable topics and speakers for future events. Owing to the fact that the survey did not address skills shortages, it will, therefore, not be taken into consideration.

3.4.2 The Association for Office Professionals of South Africa

The Association for Office Professionals of South Africa (OPSA) confirmed that they did not have any South African research on hand.

3.4.3 The South African Secretaries and Personal Assistants Association

The South African Secretaries and Personal Assistants Association responded that it did not participate in any skills benchmarking.

3.5 SUMMARY

The lack of a national perspective is addressed in this study based on a national skills survey conducted among administrative professionals in the public and the private sectors to determine the current level of knowledge and skills. The results of both of the international and national investigations are combined with the results of the literature review to develop a futuristic whole-brain success profile for the administrative professional. This future success profile will have definite implications for the individual administrative professional, for associations for administrative professionals and for educational institutions. Figure 3-1 reflects the summary of the data-gathering process, namely Phase 1, which illustrates the skills and knowledge gaps that emerged from the international investigation. Herrmann's Whole Brain® Model forms the core of the data-gathering process summary and the futuristic whole-brain success profile. Following the core, are the skills and knowledge gaps as described, according to the mental preferences of Herrmann's Whole Brain® Model. The skills and knowledge gaps emanating from the literature study is discussed in Chapter 4 and forms the next phase of the data-gathering process.

The gaps in knowledge and skills identified and summarised in paragraphs 3.2.2 to 3.2.9 demonstrate that it is very important for administrative professionals to re-assess the skills they need for the rapidly shifting landscape of organisational forms and future work skills requirements. Increased global lifespans, workplace automation, the computational world, new media ecology, new technologies and social media platforms and a globally connected world are the drivers reshaping people's thoughts pertaining to their careers, what constitutes work, and the skills humans will need in order to be productive contributors in future (Global Trends, 2008:1-5).

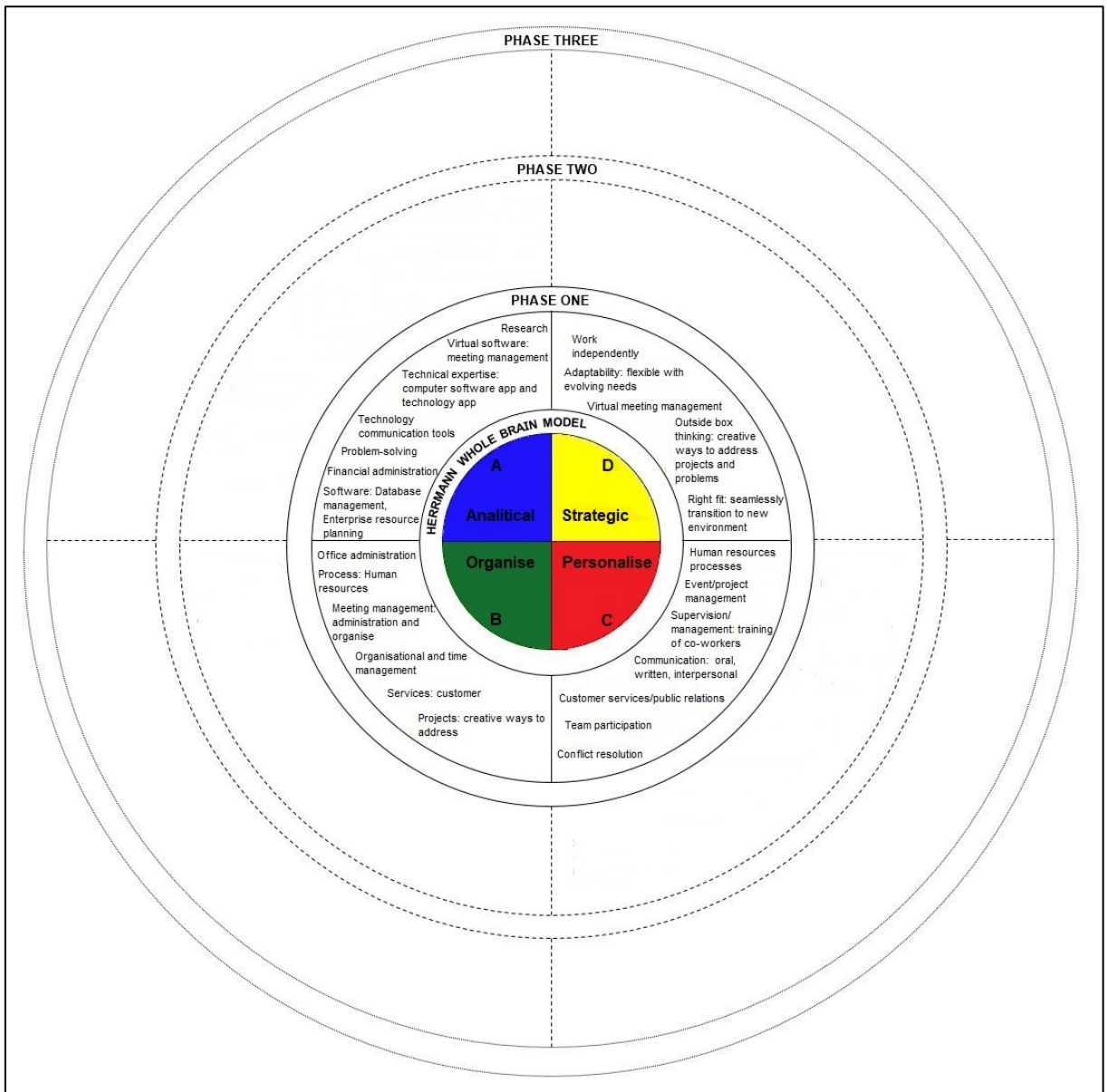


Figure 3-1
Phase 1 of the data-gathering process reflecting the skills and knowledge gaps that emanated from the international investigation

CHAPTER 4

THE NEW WORLD OF WORK AND ITS IMPACT ON ADMINISTRATIVE PROFESSIONALS

4.1 INTRODUCTION

In this chapter, the researcher draws constructs from the literature to conform to the conceptual framework (as discussed in paragraph 1.8 of Chapter 1), namely to examine the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional. More specifically, this research indicates how the administrative professional needs to develop different thinking processes for success in the future world of work. The future global and national key drivers of change and transformation that are discussed in this chapter serve as a guide to examining and understanding the perceived impact of these on the required competencies and capabilities of the administrative professional. This discussion also complies with the research objectives as set out in paragraph 1.3.1 of Chapter 1.

The initial section of this chapter explains the understanding of the world of work. The “Lifelong Learning Skills” (Burton & Shelton, 2014:40-72), the “Future Work Skills for 2020” (Davies *et al.*, 2011:1-13) and the “The Future of Jobs – employment, skills and workforce strategy for the Fourth Industrial Revolution” (World Economic Forum, 2016:3-30; 114-115), as illustrated in Figure 4-1, guide the discussions with regard to the implications of the key drivers of change concerning the future of the business world (see paragraph 4.3.1), education and training institutions (see paragraph 4.3.2) and the individual administrative professional (see paragraph 4.3.4). These will thus serve and be referred to as directives of key drivers of change. The remainder of the chapter illuminates the relation between the skills and knowledge gaps and whole-brain thinking (as discussed in paragraphs 4.3.5.1 to 4.3.5.17).

The chapter is concluded with Figure 4-5, illustrating Phase 2 of the data-gathering process. Phase 2 summarises the gaps in knowledge and the lack of skills emanating from the literature review, according to the mental preferences of Herrmann’s Whole Brain® Model. The skills and knowledge gaps emanating from the national skills survey (as discussed in Chapter 6) are summarised as Phase 3 of the data-gathering process.

4.2 THE NEW WORLD OF WORK

The main aim of this study, as described in paragraph 1.3 of Chapter 1, is to construct a futuristic whole-brain success profile for the administrative professional in the South African context. As a prerequisite, it is important to have a clear futuristic understanding of the world of work in which the administrative professional has to operate.

This section examines and defines the most important characteristics of the new world of work. The various factors that are currently contributing to the rapid significant demographic and economic shifts that are occurring globally, are briefly discussed.

The next section proceeds from the discussions with regard to the evolving of the industrial revolutions (see second paragraph of page 1 and first paragraph on page 2 of Chapter 1). The purpose of this is to examine and define the important characteristics that emerged from the Third and Fourth Industrial Revolutions. Various research articles portray the characteristics of the new world of work, known as the key drivers of change (also referred to as trends). The researcher's goal is to give an understanding of the impact of the industrial revolutions on new knowledge and skills for the administrative professional as stipulated, according to the third research objective discussed in paragraph 1.3 of Chapter 1.

4.2.1 Key drivers of change

The Lifelong Learning Skills that were compiled by Burton and Shelton (2014:36-37), the drivers reshaping how humans think about work, what constitutes work, and the skills people will need to be productive contributors in the future are all reflected in the Future Work Skills for 2020 that were identified by Davies *et al.* (2011:13) (also discussed in Chapter 1, paragraph 1.1). Together with the Future of Jobs – Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution (World Economic Forum, 2016:3-30; 114-115) (mentioned in paragraph 4.2) will serve as directives to establish how relevant the identified gaps in knowledge and lack of current skills are for the future world of work (as discussed in Chapter 3, paragraphs 3.2.4 to 3.2.9). The next section will provide a short background with regard to the directives.

4.2.1.1 The Lifelong Learning Skills

Research by the Secretary's Commission on Achieving Necessary Skills in 1991 identified certain basic workplace skills as being necessary to be successful in the new world of work. Even though these skills were identified years ago, employers today are still seeking administrative professionals in possession of such skills in order to be effective in the new world of work (Burton & Shelton, 2014:40).

The five basic workplace skills, six basic workplace knowledge skills and ten personal qualities required for success in the new world of work are reflected in Figure 4-1. Although Burton and Shelton (2014:41) discussed interpersonal skills separately instead of including these in the lifelong learning skills directives, this aspect remains important lifelong learning skills that contribute to the effectiveness of the basic skills in the workplace (thus technology), to the basic knowledge and skills of the workplace, and to the personal qualities.

However, since interpersonal skills were identified as a lack of skill (as discussed in paragraphs 3.2.4, 3.2.5 and 3.2.9 of Chapter 3) and also because the purpose of this chapter is to examine and define the most important characteristics of the new world of work, the researcher added the interpersonal qualities in red to the directive (as illustrated in Figure 4-1) to emphasise the value thereof, irrespective of the economic sphere.

4.2.1.2 Future Work Skills 2020

Further to the introductory paragraph of this section, namely paragraph 4.2.1, the researcher adopted the key drivers of change framework compiled by Davies *et al.* (2011:13). This framework (as illustrated in Figure 4-1) constitutes the emerging key drivers of change that transform the global society and marketplace and the impact of these on the ability, knowledge and skills for the future workforce. More details of what the drivers and the key skills constitute can be found in the comparison summary (Appendix A, which is included as “additional information” at the end of the study).

4.2.1.3 Future of Jobs – employment, skills and workforce strategy for the 4IR

It is apparent from the literature that it became increasingly difficult to forecast future trends even within ten years, owing to the rapidly shifting landscape (also discussed in Chapter 1). Davies *et al.* (2011:13) forecasted trends in the year 2011 for the next ten years, but Quilligan (2015:1-13), UBS (2016:11-12) and the World Economic Forum (2016:5-6) have since announced that the world is facing the 4IR. The key drivers of change (as illustrated in Figure 4-1) are listed according to priority, thus priority is given to processing power, Big Data and, lastly, to advanced materials or biotechnology. Recent research done by the World Economic Forum (2016:v) revealed that concurrent to the technological revolution “are a set of broader socio-economic, geopolitical and demographic drivers of change, each interacting in multiple directions and intensifying one another” (World Economic Forum, 2016:v). To transition between economies requires a different way of thinking, which has already influenced people’s careers and lives.

The next section serves as an introduction in order to understand the objective (see paragraph 1.3.1 of Chapter 1), namely the impact of the sharing economy on new knowledge and skills for the administrative professional.

Thinking associated with the left-brain has emerged during the progress from a society of farmers focusing on commodity production (Kamel *et al.*, 2008:2; Pink, 2005:24-26) to an alliance of factory workers contributing to the economic output by means of mass mechanical production (Bloem *et al.*, 2014:11; Clark, 2005:5; Howes, 2016:2-3). According to Clark (2005:5) and Howes (2016:2), the industrial economy brought about an unprecedented acceleration in the rapid transformation of innovation, specifically in mechanical innovations. Although innovation is regarded as a predominantly right-brain thinking process (Herrmann, 1995:320 & 425), the industrial economy was dominated by left-brain thinking, for example activities such as quality and productivity, as well as mechanical and technical skills (Herrmann, 1995:420). In addition, Clark (2005:xxii) together with Rowson and McGilchrist (2013:21) argue that industrialisation contributed to the loss of practical skills.

The rise of the digital age (also referred to as the information age) has created the platform for a knowledge-based society also known for their left-brain thinking, similar to the society of farmers and factory workers. Knowledge workers were distinguished for their “ability to acquire and to apply theoretical and analytical knowledge” (Pink, 2005:16). This view has been supported in the work of the OECD (1996:3) and Blankley and Booyens (2010:1). Technological advances increased the tradability of services that incited a shift to a service economy (OECD, 2000:37) with the emphasis on increased productivity and quality for goods and services (Buera & Kaboski, 2012:2 & 5). Activities such as productivity, quality and services are associated with left-brain thinking (Herrmann, 1995:420; Herrmann & Herrmann-Nehdi, 2015:155).

With the emergence of the experience economy, a diverse set of skills came to the fore, with new technologies that engaged customers to provide holistic and long-lasting personal customer experiences, which involve and create emotions, affective memories, sensory, social and spiritual experiences (Ferreira & Teixeira, 2013:1-9; Hosany & Witham, 2010:4; Kamel *et al.*, 2008:2-9; Pine II & Gilmore, 1998:99). Furthermore, these experiences reflect an emotional response to a stimulus created by the delivery of a service (Ferreira & Teixeira, 2013:2-3). According to Herrmann (1995:61), the processing of emotions originates in the limbic system that is controlled by the right brain. Taking into consideration the activities listed at the beginning of this paragraph, it could, therefore, be argued that the experience economy appeals to the limbic system and consequently to the right brain.

Pink (2005:29-30) proposes that the transition within the experience economy to the conceptual age requires the mastering of a new set of skills, such as empathy, creativity and storytelling, which reflects right-brain thinking. This view is also supported in the work of Huitt (2007:6). The emphasis on right-brain thinking continues with the relationship economy. The rise of social media gave brands and consumers a variety of platforms for conversations and connections, thus a different means of communications and social skills (Stanfield & O'Hare, 2013:4).

Thinking associated with whole-brain thinking (Herrmann & Herrmann-Nehdi, 2015:255-259) emerged in recent research by the World Economic Forum (2016:21), which found that an immense skill disruption is expected with the emerging sharing economy (the 4IR). According to their survey, the following skills are anticipated to be in demand by the year 2020: (in order of demand) social, cognitive abilities, technical skills (advanced level of information and communication technology skills), resource management, processing (e.g. active listening, critical thinking, and monitoring self and others), content skills (e.g. active learning, oral expression, reading comprehension, written expression, information, communication and technology literacy), the system skills (e.g. judgement and decision making and system analysis) and complex problem-solving. The White Paper of the UBS (2016:21-22) points out that the success for the workforce of the sharing economy is to go beyond these skills, namely to be flexible and to be able to adapt to change.

4.3 THE IMPACT OF THE KEY DRIVERS OF CHANGE INTO THE FUTURE

The directives as illustrated in Figure 4-1 constitute a framework of the emerging key drivers of change that transform the global society and marketplace and the impact of the key drivers of change on the ability, knowledge and skills for the future workforce. The impact of the emerging key drivers of change has also embraced the young democratic South Africa in the global society. This researcher has focused on the impact of the global key drivers of change in the South African context.

The need to demonstrate a foresight in navigating this rapidly shifting landscape became apparent for businesses, educational institutions and individuals (Davies *et al.*, 2011:13; Silke, 2011:127). The new landscape for each of these role players in society will now be discussed briefly.

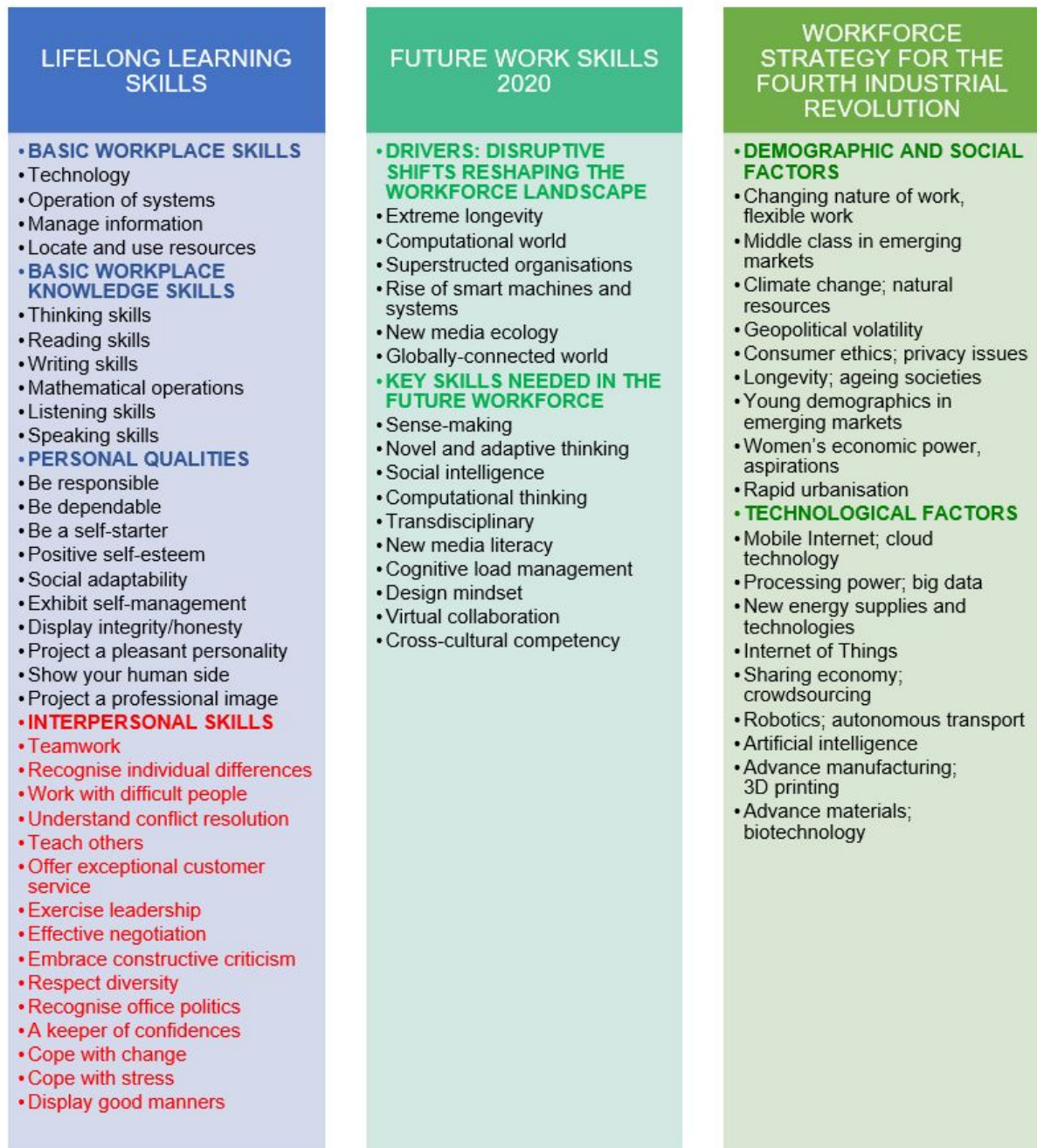


Figure 4-1
Directives of key drivers of change
 (Adapted from Burton & Shelton, 2014:41-70; Davies *et al.*, 2011:13;
 World Economic Forum, 2016:6-7)

4.3.1 Changing workplace environments

Businesses that fail to embrace a broader modality of socio-economic, geopolitical and demographic key drivers of change, will not be able to utilise their most valuable resources and talent in order to compete more effectively in the evolving world of work (Lanfear, 2012:1-7; World Economic Forum, 2016:v). The World Economic Forum (2016:v & 5-6) and Manpower's (2016:9) report on administrative professionals point out that employers have to take a leading role in investing in reskilling their current workforce, to meet the changing skills set in demand.

Further to the directives, as per the Lifelong Learning Skills (Burton & Shelton, 2014:40-72) and the Future Work Skills for 2020 (Davies *et al.*, 2011:13), as discussed and demonstrated in paragraph 4.2 and Figure 4-1, it is expected that the demographic and socio-economic developments of a 4IR will have nearly as strong an impact on business models and organisational structures as technological changes (World Economic Forum, 2016:9). Specific reference is made to organisational drivers of change. These are quoted below from the World Economic Forum Report (2016:10 & 30):

- (i) A transition towards an environmentally sustainable economy and an increased geopolitical volatility.
- (ii) Changing values, and the growing ability of consumers to express these values.
- (iii) The rising role and importance of women in the economy.
- (iv) Longevity and population ageing.
- (v) Changing and flexible work in advanced economies as a result of organisational boundaries that are becoming increasingly blurred. Businesses will increasingly connect and collaborate remotely.

On the home front, the following drivers of change will affect business models in terms of the demographic and socio-economic developments and technological changes of a 4IR (World Economic Forum, 2016:115; Deloitte, 2016:4-5):

- (i) Processing power, Big Data
- (ii) Changing nature of work, flexible work
- (iii) Middle class in emerging markets

Further results emerging from the World Economic Forum (2016:115) survey reveal that South Africa is facing the following perceived barriers in terms of change management and future workforce planning: insufficient understanding of disruptive changes, resource constraints and the fact that the workforce strategy is not aligned to an innovation strategy. According to this report, South Africa is seen as embarking on the following workforce and change management strategies to meet the talent and skills challenges arising from expected business model disruptions: to invest in reskilling current employees, to target female talent and to support mobility and work rotation.

It is evident that economic disruptions in the evolving world of work are a reality. According to research into the significant role that whole-brain thinking plays, leaders of organisations that apply whole-brain thinking, will be more adaptive and resilient towards disruptive events (Herrmann & Herrmann-Nehdi, 2015:254). Therefore, thinking and reflection that facilitate holistic decision making to address the disruptive events will enhance effective and responsive decision making (Herrmann & Herrmann-Nehdi, 2015:251-255), for example analysis of decision in terms of benefits and risks (quadrant A), assessment and evaluation of appropriate risks for organising purposes (quadrant B), considering implications of decisions and communicating with transparency (quadrant C) and reviewing the long-term strategy (quadrant D).

The next section illuminates the impact of changing technologies on educational institutions to cross traditional boundaries in providing administrative professionals with the wide range of attitudes, attributes and behaviours necessary for success and advancement in the new world of work (Caribbean Examinations Council, 2013:1). Although the scope of this study is not about teaching and learning, the next section intends to provide a framework to curriculum practitioners involved in the development and training of administrative professionals (see paragraph 1.3.2 of Chapter 1).

4.3.2 Changing educational and training institutions

The stance of the World Economic Forum (2016:19-20 & 32) is that, with the unprecedented rate at which technological trends are developing, it is essential that educational and training institutions should review the core curriculum content. They furthermore expressed a concern that the current and prospective employees will possibly not be able to achieve the technical, social, and analytical skills that are required for the new cross-functional roles of the 4IR (World Economic Forum, 2016:19-20 & 32). Given the complexity of the change management required, partnerships and collaboration between businesses, industry, government, educational institutions and accreditation providers are essential factors in developing future skills and employment needs. Concurrent with the notion discussed in paragraph 3.2.7 of Chapter 3, for businesses to compete with the global world, lifelong learning among all workforces at all levels, becomes unavoidable (World Economic Forum, 2016:v & 32).

The emergence of an interconnected world demands a different workforce, and it is, therefore, imperative that educators and curriculum practitioners embrace the concept of whole-brain learning for a whole-brain world. The results that emanated from a research study by De Boer, Steyn and Du Toit (2001:185-193) reveals that Herrmann's Whole Brain® Model serves as a valuable principle to guide the design and structuring of tertiary education. A student will develop her or his full potential by utilising whole-brain functioning.

This refers to “promoting and utilising the cognitive modes in all four quadrants of the Whole Brain® Model” (De Boer *et al.*, 2001:193). This view has been supported by Bawaneh, Zain and Saleh (2010:363-372); however, they added that learning styles of people continuously change and could be developed. Therefore, lecturing that underlies Herrmann’s Whole Brain® Model, builds comprehensive skills and increases flexibility and creativity in students. The notion of learning style models will assist administrative professionals to acquire skills over a wide spectrum and to develop and grow in areas of lesser preference by practising applicable mental processes in these cognitive modes (De Boer & Van den Berg, 2001:124).

The results from the studies of Lloyd (2010:98-99), Kermode and Lloyd (2011:23) (see paragraph 3.2.3 of Chapter 3) suggest that industry training organisations and tertiary providers should provide access to single module learning opportunities that are unit standard-based (see Footnote 28 on page 73 of Chapter 3) to improve recognition of administrative professionals as contributors to the workplace and with valuable skills, such as higher-level qualifications to fill the gaps in knowledge, workplace recognition of current competency, formal and informal online learning. This view has been supported in the work of CFA Business Skills @ Work (2012:9) and the Blueprint (2001:8). With the rapid economic progress driven by the impact of the revolutionary development of information and communication technologies (see Footnote 2 on page 2 of Chapter 1), it has become inevitable that educational and training institutions as well as professionals, should revisit their educational systems (Atkin, 2000:3-4; De Boer & Van den Berg, 2001:119-129; Harris, Sadowski & Birchman, 2005:22).

According to Herrmann and Herrmann-Nehdi (2015:162-171), Kumar (2014:3771) and Sternberg (1990:366-371), it became apparent that, in order to achieve the desired outcomes, consideration should be given to the alignment of learning preferences and the mode of delivery. Further to this, Herrmann and Herrmann-Nehdi (2015:168) found that the speed of communication, comprehension and application of learning in the 21st century, prompted a shift towards informal learning, social learning and communities of practice. Today’s learners tailor their experiences, according to their unique learning preferences. Businesses seek individuals with creative skills to maintain a competitive advantage, and to fulfil the different expectations of educational and training institutions (Friedel & Rudd, 2006:102-104).

4.3.3 Whole-brain learning in higher education

De Boer *et al.* (2013:273-281) reason that people’s learning is not only influenced by the preferred way of perceiving and processing information, but as suggested by the Houghton Mifflin College in De Boer *et al.* (2013:277) and Sternberg (1990:366-371), students tend to seek learning activities that meet their preferred thinking styles.

However, research recommends that, for students to expand their repertoire, to adapt and to be prepared for the world of work, they also have to be exposed to their less preferred thinking styles, provoking a shift towards situational whole-brain thinking (Sternberg, 1990:366-371; 1994:36-40) (as discussed in paragraph 2.4.4.4 of Chapter 2).

The following two models demonstrate how whole-brain thinking can equip lecturers and students with an array of possibilities to facilitate quality teaching and learning.

4.3.3.1 *Herrmann's Whole Brain® Teaching and Learning Model*

The Whole Brain® Teaching and Learning Model of Ned Herrmann was part of 13 models of learning styles that were examined by Coffield, Mosely, Hall and Ecclestone (2004:78-85) from the Learning and Skills Research Centre.²⁹ The outcome of the study supported the work of Herrmann and Herrmann-Nehdi (2015:162-171) advising that learning styles matter (as mentioned in the last paragraph of 4.3.2). Coffield *et al.* (2004:78-85) found that Herrmann's model promotes creative thinking and problem-solving and is, therefore, possibly of special significance to education and training. Furthermore, the Learning and Skills Research Centre concluded that the Whole Brain® Model of Herrmann was a valid approach. As displayed in Figure 4-2, Herrmann (1995:220-221) explains that the learning process is divided into the four brain quadrants. These learning processes as described in paragraphs (i) and (ii) below, is according to a study conducted by Harris, Sadowski and Birchman (2005:14-22).

The four brain quadrants are summarised into two categories, as discussed below.

- (i) The structured modes (left brain) referred to as “A and B” (see Figure 2-12 and paragraph 2.5.2 of Chapter 2 for explanation) prefer hard thinking processing, such as to organise information logically, analyse problems and solutions, rational, criteria and logical reasoning, quantitative issues and activities. Also included, are the procedural activities of quadrant B where learning preference is by description, checklists and practice. These learners take comprehensive notes and prefer to apply the learned knowledge. They will attentively read directions, and mental processes such as planned, organised and sequential elements of the learning process are also involved.
- (ii) The unstructured modes (right brain) indicated as “C and D” (see Figure 2-12 and paragraph 2.5.2 of Chapter 2) relate to non-linear and non-verbal thinking, such as visual, conceptual, imaginative, spatial and simultaneous processes.

The quadrant D students display a preference for co-operative learning and group discussions; they prefer pictures and favour open-ended problems. Quadrant C students exhibit soft processing that involves emotional, expressive and interpersonal activities. These learners learn through sensory input, respect others' views and prefer practical learning.

For a lecturer to achieve the desired outcomes of a lecture on management of meetings, the context will consist of a template of an agenda and minutes with detailed step-to-step notes to make provision for the students who have a thinking preference in the structured mode (left brain). Students with a preference for unstructured thinking (right brain) will benefit from role-

²⁹ Frank Coffield, David Moseley, Elaine Hall and Kathryn Ecclestone are from the Learning and Skills Research Centre, which is situated in London and is supported by the Learning Skills Council and the Department for Education and Skills.

playing and visual material, such as a video clip and illustrations of agendas and minutes. The lecturer should also take into consideration that the less preferred thinking preferences of students should be developed to encompass a new set of thinking and skills (as discussed in the summary section of paragraph 2.5.3 of Chapter 2). For the students to be exposed to the skill of whole-brain thinking, they have to change group activities. The example in paragraph 4.3.5.11 underlines how incorporating less preferred thinking skills will promote whole-brain thinking and thus contribute to the success of management of meetings.

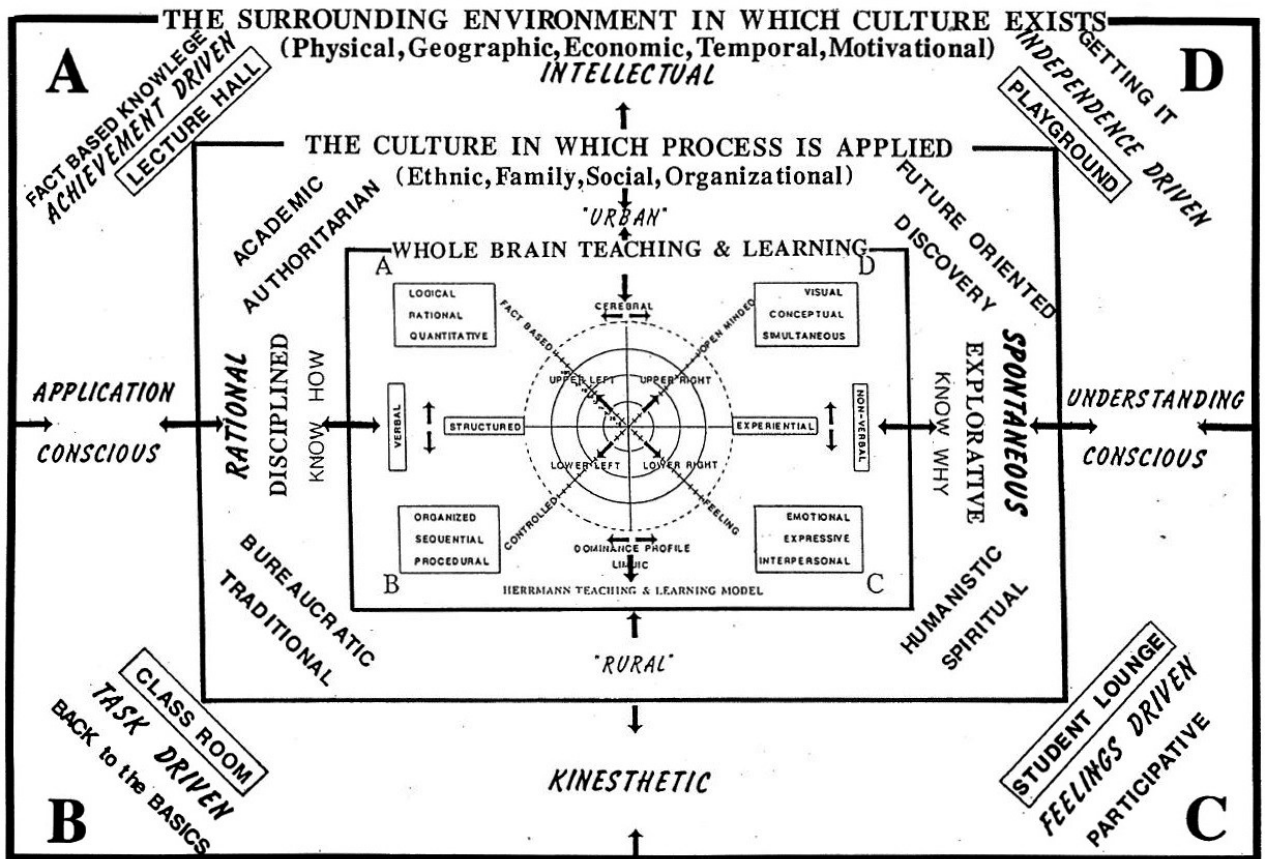


Figure 4-2
Whole Brain® Teaching and Learning Model
(Herrmann, 1995:220-221)

4.3.3.2 **Comprehensive Whole Brain Model[®] for learning and facilitating learning**

De Boer *et al.* (2013:273-281) designed a comprehensive flexible learning style model for learning and facilitating (as illustrated in Figure 4-3). This model is based on Herrmann's Whole Brain[®] Teaching and Learning Model. This adapted flexible tool serves as a model for lecturers in gaining a better understanding of the diversity of thinking and learning preferences, to enhance teaching and facilitate learning and to develop students' least preferred thinking style. Furthermore, this model conforms to the stance of Herrmann's situational functioning pattern of the brain, as discussed in paragraph 2.4.4.4 of Chapter 2.

The model consists of circles within circles and clusters within clusters representing the following:

- (i) The first is the core, with different aspects that motivate and activate students to learn.
- (ii) Following the core, is the **thinking preferences** that describes the different mental preferences when processing information, according to Herrmann's Whole Brain[®] Model (as discussed in paragraph 2.5.2 of Chapter 2), as well as the learning processes, according to Herrmann's Whole Brain[®] Teaching and Learning Model (as discussed in paragraph 4.3.3.1).
- (iii) The next circle of clusters indicates those aspects that students **struggle with** if they have a least preferred thinking style. For example, administrative professional students with a preferred preference for the B-quadrant will have to begin taking risks, not waiting for structured activities, detailed instructions and practical examples.
- (iv) The third circle of clusters emphasises the **expectations of students** within Herrmann's Whole Brain[®] Model. For example, it is necessary to provide administrative professional students who exhibit a strong preference for the B-quadrant with detailed notes and explicit instructions. Lectures to these students have to include step-by-step practical examples to review and repeat regularly. Furthermore, they welcome opportunities to practise newly acquired competencies and to participate in tasks that are well structured and organised.
- (v) The last circle of clusters defines **means to facilitate effective learning** and addresses four questions, namely, what (quadrant A), how (quadrant B), who (quadrant C) and why (quadrant D). For example, lecturers will accommodate and develop B-quadrant thinking in answering the "what", "how", "who" and "why" questions.

Emphasis will be on explicit instructions, checklists, timeframes and worksheets, as well as step-by-step structured tasks with detailed learning material to allow students to study and review at their own pace.

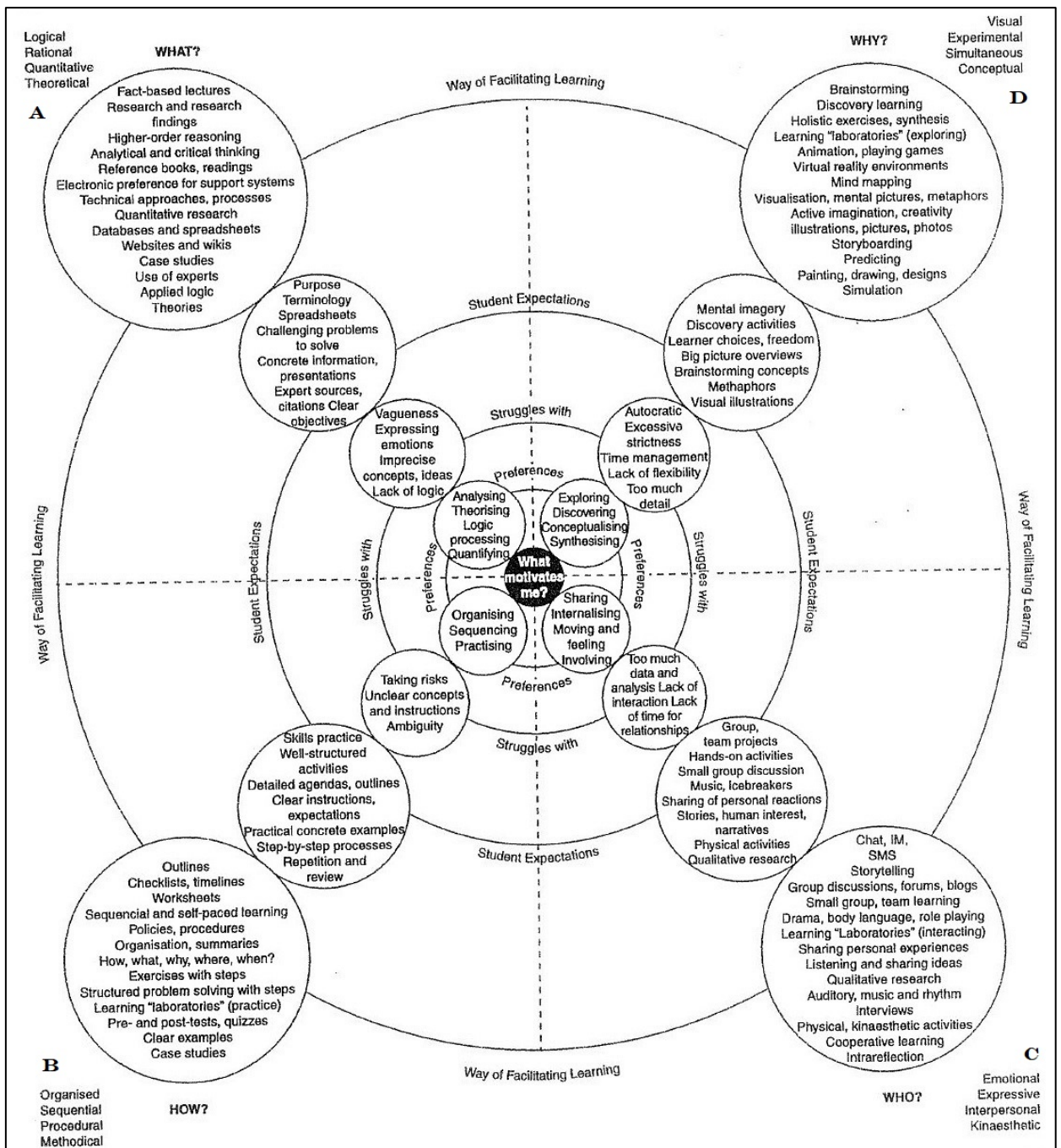


Figure 4-3
Comprehensive flexible Whole Brain Model for learning and facilitating learning
 (De Boer et al., 2013:279)

It is evident from the discussions on whole-brain teaching and learning how the development of the lesser preferred thinking styles can equip students with a much broader spectrum of mental options, thus being able to access situationally any of the thinking styles when the situation warrants it.

Whole-brain teaching and learning will create a learning environment that will motivate and activate students to learn. The practice of whole-brain thinking will provide students with the confidence to continue with whole-brain thinking in their respective professions, referring specifically to the administrative professional profession.

The impact of the rapid shifting landscape on individuals (as discussed in paragraph 4.3) is applied to the administrative professional and discussed below.

4.3.4 Implications on the individual administrative professional

As the role of administrative professionals becomes more diversified, their work profiles are also changing and should be recognised as such by adopting new titles that denote the higher level of responsibility (Burton & Shelton, 2014:14). The organisation and the office where the administrative professional is employed define work titles and descriptions. It is important to recognise the various levels and diverse functions of the administrative professional. The two categories assigned to group administrative professionals are entry-level positions and advanced (second-tier) positions. The latter is defined by the complexity of tasks that the administrative professional has to perform (Burton & Shelton, 2014:14-15; Harcourt, 2001:20-28). The complexity of entry-level and advanced positions differs; therefore, the focus of this study is on the generic abilities of an administrative professional.

The significance of this study lies in its attempt to determine the impact of the global and national key drivers of change and transformation on the future whole-brain success profile for optimal effectiveness of the administrative professional in the future world of work. This section merely serves as an introduction to the discussion on the relation between skills and knowledge gaps and whole-brain thinking that is discussed in the following section (see paragraph 4.3.5 onwards).

Since the world is at the cusp of the 4IR (Sharing economy), limited literature could be found. It is worthwhile to mention that when the World Economic Forum Report refers to the significant decline in office and administration roles. These roles are not sufficiently defined in terms of level of functions, other than lower-level skills. The researcher, therefore, only acknowledges the foresight made with regard to the impact of the 4IR on the administrative professional. A brief overview follows on recent research by the World Economic Forum (2016:11-26) in terms of the impact of the 4IR on office and administration work.

The degree of skills depletion on the administrative profession is immense. Specific reference is made to the impact of artificial intelligence that has decreased the level of employment in office and administration roles. In addition, the negative impact on administrative and routine white-collar office functions also appears in technology trends, such as mobile Internet and cloud technology, Big Data analytics and the Internet of Things. Moreover, factors such as climate change, resource efficiency and flexible workplace are considered to undermine the rationale for maintaining a large workforce in the said roles (World Economic Forum Report, 2016:10-17). In addition to the impacts on office and administration roles, the World Economic Forum (2016:12) also added impacts such as new energy supplies and technologies, consumer ethics and privacy issues, rapid urbanisation and geopolitical volatility. Also refer to the directives as illustrated in Figure 4-1.

According to the World Economic Forum Report (2016:10-17), office and administration functions will become less important in sectors such as basic and infrastructure, energy, financial services and investors, information and communication technology and professional services. Specific reference is made to the role of customer service that will be substituted by mobile Internet technology. Further to these aspects, Burton and Shelton (2014:17) agree that flexible work, as discussed in paragraph 4.3.1, telecommuting, co-working spaces, virtual teams,³⁰ and freelancing and online talent platforms are all on the rise.

On the other hand, the prediction of the World Economic Forum denotes that by 2020 Office and Administration will be among the hardest occupations to recruit. This will probably be due to the perceived declining demand of the field. However, should the current projections relating to the demand be realised for the office and administration employment, as well as the expected acquisition of different core skills, new opportunities in this field might emerge.

In paragraph 4.3.5, the researcher discusses the remaining roles and functions of the administrative professional not mentioned in the above discussion. The current knowledge and skills required by administrative professionals that were determined by an international investigation and research studies, to comply and perform, according to the requirements of the changing world of work, will be compared to the directives illustrated in Figure 4-1 (Burton & Shelton, 2014:40-42, 53-72, 140-168, 470-497; CFA Business Skills @ Work, 2012:9-11; Davies *et al.*, 2011:1-10; IAAP Skills Benchmarking Survey, 2011:24; International Labour Office, 2008:3, 11, 55; Kermode & Lloyd, 2011:9-39; Levy & Hopkins, 2013:44; OfficeTeam Survey, 2012:4-14; 2015:5, 15-21).

³⁰ Virtual teams are teams of people working at different geographic sites who primarily interact electronically and who might meet face to face occasionally.

The researcher will now discuss how the revolutionary development of information and communications technologies has an impact not only on the administrative professional's work environment, but also their future roles and accompanying thinking processes that are the focus of this study.

4.3.5 The relationship between skills and knowledge gaps and whole-brain thinking

The most important gaps in knowledge and skills identified in the literature, as well as how these apply to whole-brain thinking, will now be discussed. The World Economic Forum (2016:52-53) has based its analysis regarding the impact of the 4IR's key drivers of change (as illustrated in Figure 4-1) on the skills set for the future workforce on the Occupational Information Network Content Model, referred to as the Core Work-related Skills (World Economic Forum, 2016:21). The purpose of this study is not to describe the classification of occupational standards. When the researcher refers to the "demand and change in demand of various skills in 2020", specific reference is cited from the Core Work-related Skills Model, which is included in Phase 2 of the data-gathering process (see Figure 4-5).

4.3.5.1 Office administration skills

According to the CFA Business Skills @ Work (2012:10) labour market report, the skill second most cited as lacking is office administration. Financial administration was an area that had been identified as a knowledge gap according to a study of Kermode and Lloyd (2011:24), the CFA Business Skills @ Work (2012:11) and the IAAP (2013:3) (discussed in Chapter 3, paragraph 3.2.4.6).

In addition to these studies and the literature, are the findings of Van Antwerpen (2013:228-229), which note that respondents scored the lowest in the office finance subject component, thus 50%. Furthermore, reference is made to Van Antwerpen (2013:282 & 333) and the IAAP (2015:14 & 17), where both have shown that administrative professionals regard time management as an essential competency in the new world of work. Due to insufficient knowledge about time management, training in this skill is a requirement. According to Burton and Shelton (2014:40), the administrative professional has to be skilful in locating and managing resources that involve, for example, identifying, organising, planning and allocating resources. Examples of resources are time, money, material and facilities and human resource management (including human resources processes). This view has been supported in the work of the World Economic Forum (2016:21-22), adding that a skills demand for resource management is not only currently in demand, but will also be by 2020.

Another office administration skill lacking is the management of information, for example, acquiring, evaluating, organising, maintaining, interpreting and communicating. The administrative professional has to understand how social, organisational, and technological systems work and have to be able to operate effectively within these. This means monitoring and correcting performance, and often improving and designing simple systems. The possession of appropriate technical, vocational or business knowledge and the ability to apply this knowledge in practice, including the planning of tasks, are emphasised in the new world of work.

Although the task or role of office administration can mainly be categorised as a predominantly lower left (B-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective on office administration can be illustrated as follows (see Figure 2-12 and paragraphs 2.5.2.1 and 2.5.2.2 of Chapter 2):

- (i) The upper left thinking processes (A) utilise facts, in this case, **knowledge** (what needs to be known), when analysing **figures or numbers** and learning (what to do) a new computer program to be **effective** by applying the required technical skills (what is needed) when identifying **priorities** (what to do).
- (ii) The upper right thinking processes (D) ask **why** it is important to **design** systems. The answer will provide a holistic understanding.
- (iii) The lower right thinking processes (C) promote **communication** (interpersonal; expressive writing); **human resources management** (helping; service; supporting) and **social** skills (**who** will be involved for teamwork).
- (iv) The lower left thinking processes (B) ask **how** to **organise** and **plan** in order to succeed in office administration.

Incorporating right-brain thinking processes into the execution of office administration will promote **visualisation** and **conceptualisation** thinking processes (D-quadrant) and **humanistic** and **expressive** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:40) and the Future Work Skills (Davies *et al.*, 2011:1) and the Workforce Strategy for the Fourth Industrial Revolution (or Directives of key drivers of change) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.2 *Technical skills in information and communication technology*

A survey conducted by the OfficeTeam (2012:5 & 14) indicates that technical expertise, the ability to apply these technical skills and the training of co-workers, are essential attributes employers are seeking. The need to train administrative professionals in technical and practical skills was one of the skills gaps identified in the following computer software applications: website or social and media management, technology applications, such as web conferencing and information technology systems or hardware or systems networks (IAAP Skills Benchmarking Survey, 2011:5; 2013:3-6; OfficeTeam Survey, 2012:5; Kermod & Lloyd, 2011:24; CFA Business Skills @ Work, 2012:9-10) (paragraphs 3.2.2, 3.2.4.8 and 3.2.9.3).

These can be viewed together with the latest responses derived from the Benchmarking Survey of IAAP (2015:14 & 17), OfficeTeam Survey (2015:5) and Van Antwerpen (2013:221-226). The respondents find it difficult to be on par with information and communication technology. Since the previous Benchmarking Survey of the IAAP (2013:14), skills requirements are lacking in technical skills, namely, software (7.2%) and software adaptor (4%), website design, social media (3.6%), and storage and retrieval of information and file security (6.7%). Van Antwerpen (2013:221-226 & 231) provides evidence that less than half (43.75%) of the respondents participating in a practical computer skills assessment managed to attain the outcomes. She concluded that South African employees in the public sectors are below standard pertaining to practical computer skills.

Various research studies (France, 2012:13 & 185-204; OfficeTeam Survey, 2012:5 & 14; Stulz, Shumack & Fulton-Calkins, 2013:209-221) emphasise that, with the rapid evolving of consumption and production patterns, new demands and technologies have to be met timeously. To survive in the future world of work, administrative professionals should possess and apply the following appropriate technical knowledge. They should:

- (i) have knowledge about how to utilise technology as an important tool to communicate and accomplish other work-related tasks more efficiently and effectively;
- (ii) update social media for their manager, whether it is writing blogs, completing the manager's profiles or writing Twitter updates (become essential in promoting the work that a company does);
- (iii) use Twitter when planning travel and accommodation for their manager (airlines, airports and travel companies have dedicated Twitter feeds to keep passengers up to date with information);
- (iv) share their knowledge and help other people;

- (v) do research on subjects, problems, ideas, training, advice and products;
- (vi) obtain market participation in order to raise awareness of the existence of business services and track what people are saying about their company;
- (vii) find recommended services, trainers and suppliers;
- (viii) promote other content they have created, including webinars, blog posts or podcasts;
- (ix) utilise social media to enhance real-time events (e.g. creating an event page where the details of an event, such as date, time and location, can be listed and invitees can respond; and
- (x) use tools and software such as Eventbrite that can be used to register delegates, and to conduct polls, for example, with SurveyMonkey™, Poll Daddy or Twt Poll (these tools can be used to upload presentations with Slideshare and the presentation can be shared without a projector with Quick Response (QR) Codes.

The Future Work Skills 2020 of Davies *et al.* (2011:4 & 10) and Workforce Strategy for the Fourth Industrial Revolution of the World Economic Forum (2016:21-22) (as illustrated in Figure 4-1) agree that drivers of change, such as the computational world, will have an impact on how people interact with data analyses and presentations as well as the ability to make data-based decisions. These will not only remain an essential skill for the future workforce, but are currently considered as a lacking skill. Equally important is the desired information, communication and technology literacy skill for 2020, that is, to use digital technology, communication tools and networks to access, manage, integrate, evaluate and create information (Anderson & Rainie, 2012:31; World Economic Forum, 2016:22 & 52).

Although technical skills can mainly be categorised as a predominantly upper left (A-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective on the application of information and communication technology can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise **technical** skills (what is needed) to serve as a tool for tasks, *inter alia* **research** to be **effective** (what to do).
- (ii) The upper right thinking processes (D) promote change in order to meet **new** demands and to **create** with technical skills.

- (iii) The lower right thinking processes (C) will establish **who** is involved in applying technical skills, *inter alia* to **train** co-workers in technical skills, the tool to **communicate** – writing Blogs or Twitter updates bearing internal and external stakeholders or clients in mind, **sharing** knowledge with peers and colleagues, **helping** other **people**, and **participating** in business services involving external and internal stakeholders or clients.
- (iv) The lower left thinking processes (B) ask **how** to apply **technical** skills, **how** to apply technical skills for travel **planning** and **accommodation**.

Incorporating right-brain thinking processes in execution technical skills will promote **visualisation**, **imaginative** and **intuitive** (in terms of solutions) thinking processes (D-quadrant) and **humanistic** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (illustrated in Figure 4-1 and Appendix A).

Discussions in the next section consist of interpersonal skills, such as team working, project and event management, supervision of staff, conflict resolution, public relations and customer service or relations.

4.3.5.3 *Team working*

Individuals with social intelligence demonstrate an understanding of the significance of teamwork in the workplace (Albrecht, 2011:3; Stulz *et al.*, 2013:48), by being friendly, adaptable, empathetic and polite in group settings. Teamwork requires of employees to work together co-operatively to contribute to productive working relationships and outcomes, irrespective of gender, race, religion or political persuasion (Burton & Shelton, 2014:53-55; France, 2012:13). The IAAP (2013:3) and the CFA Business Skills @ Work (2012:9-10) also identified the soft skill to participate in work teams (also see paragraph 3.2.5 of Chapter 3) as being essential for success in the new world of work. Relating to teamwork is the notion of virtual teams, denoted by Hoffmann (2011:36 & 138) as the e-workforce. The rise of virtual teams has been found in former literature, for example Anderson and Rainie (2012:32), however it became more significant with the demographic and socio-economic key drivers of change of the 4IR. Businesses prefer a smaller group of core full-time employees with fixed functions, supported by remote colleagues at different geographic sites as external consultants for specific projects who primarily interact electronically, for example by teleconferencing and Skype (also mentioned in paragraph 4.3.1) (World Economic Forum, 2016:6, 9-10). The above skills shortages also manifested in the work of Van Antwerpen (2013:241-242), the follow-up IAAP Benchmarking Survey (2015:11, 14, 17) as well as the OfficeTeam Survey (2015:15, 19, 21).

With the raising of virtual teams, the requirement to interact with virtual team members has increased by 3.4% since 2013 (IAAP, 2015:11), and thus there has been a shortage of virtual team members (OfficeTeam Survey, 2015:15, 19, 21).

Even though the interpersonal skill, such as teamwork, can mainly be categorised as being a predominantly lower right (C-quadrant) thinking process, another two brain quadrants are involved. Therefore, the thinking perspective in terms of teamwork can be illustrated as follows:

- (i) The upper right thinking processes (D) ask **why** is it important to **adapt** to **new** ways of working, such as in a team, including **virtual** teams. Team working allows for multiple solution approaches.
- (ii) The lower right thinking processes (C) promote **sociability** (getting groups to work well together), **understanding** (listening and talking) and **co-operation** (working with people), and **building relationships**.
- (iii) The lower left thinking processes (B) examine **how** to be **productive** in teamwork.

Incorporating right-brain thinking processes in teamwork will promote **imaginative** thinking processes (D-quadrant) and **humanistic** and **intuitive** (in terms of people) thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (see Figure 4-1 and Appendix A).

4.3.5.4 Project and event management

According to Manpower's (2016:8) report on administrative professionals, the expanded role of the administrative professional includes tasks related to functional areas, *inter alia* event management and leading a project team. Given the view of Palo (2016:8) and quoted from the AUT (2015:2 & 5) that "event management is the project management of creating and developing an event", project and event management is considered to be interrelated. In addition, they regard good teamwork as a contributing factor to the success of an event and project. In line with this, Kermode and Lloyd (2011:24) and the IAAP (2013:3) found that project management is a soft skill in demand for administrative professionals (as discussed in paragraph 3.2.4.4 of Chapter 3). Project management as a soft skill in demand and skill shortage is also discussed in the work of Van Antwerpen (2013:241-242), the follow-up IAAP Benchmarking Survey (2015:11, 14, 17) and the OfficeTeam Survey (2015:15, 19, 21). Both Van Antwerpen (2013:242) and the IAAP (2015:11) observed the increased requirements of 3.6% for project management applications since 2013.

Skills lacking in project management have emerged from the finding of the follow-up IAAP Benchmarking Survey (2015:11), as a result of the increase in the execution of project management tasks by 7.7% since 2013. The OfficeTeam Survey (2015:15, 19, 21) has, in addition, also found that there is a lack in the ability to co-ordinate projects.

Even though administrative professionals are not mainly responsible for all the arrangements of a corporate event since it has become a specialised field, they still play an essential role in terms of adding value to the success of the event as a team member (Taylor-Smith, 2014:1) with organising, planning, time management and computer skills (Auckland University of Technology, 2015:2; Laufik, 2015:163; Taylor-Smit, 2014:1). The recent experienced economy (as discussed in paragraph 4.2.1.3), together with key drivers of change, such as new media ecology as described by Davies *et al.* (2011:4), has forever changed the way companies apply communication media to share how events have turned into experiences (Laufik, 2015:162). The new role of the administrative professional in terms of event management rather focuses on the latest computer literacy skills required for sharing these experiences. Reference is made to Cloud-based tools for planning and managing social media to promote events through mobile and video integration (Auckland University of Technology, 2015:1-3; Taylor-Smit,

2014:1). Futurists forecast techniques such as sensory projection, immersive video mapping, holograms and touch screens for the next ten years. Authentic experiences will be beyond the ordinary provision of refreshments provided at corporate events, and will include virtual experiences such as selecting a menu at the touch of one's fingers, and where clients can remotely experience events by means of holograms in the comfort of their own environments (Laufik, 2015:162). Corporate events will more and more frequently involve global attendees (Laufik, 2015:162) and, therefore, require time management skills (Taylor-Smit, 2014:1) related to the different time zones of global attendees.

According to Comninos (2016:1-3), organisations increasingly use project management to meet the demands of high quality products and services in a highly competitive and fast-paced work environment. Assistance provided by the administrative professional include, among others, the recording of the progress of the project and to manage details and reminders on behalf of the team. Project management also involves planning, organising and prioritising skills. The administrative professional should also be competent in recording the minutes of the project team meetings (Berkshire Corporate Training, 2017:1; Comninos, 2016:2). Various computer techniques are required, including specific project management techniques such as Microsoft® Project (Burton & Shelton, 2014:151), word processing, spreadsheets and presentation software (Comninos, 2016:2).

The administrative professional also assists with preparation, reporting and analysis and should, therefore, have a sound knowledge of projects and project management. Above and beyond the “hard skills” and technical skills discussed above, is the dimension of interpersonal skills that contributes to the success of project management. Stober (2013:2) refers to interpersonal skills as being “soft skills”, such as interpersonal communication, negotiation skills and influencing skills. The administrative professional provides support to the entire project team and thus contributes as part of a team (Comnisos, 2016:2).

Although the interpersonal skill of project or event management can mainly be categorised as a predominantly lower right (C-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective on the executing of project or event management can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise **knowledge** and **technology** (what is needed) to serve as a tool for projector event management (what to do).
- (ii) The upper right thinking processes (D) ask **why** is it important to succeed in project or event management? Project or event management requires team working skills and therefore promotes **adaptability** to a different way of work.
- (iii) The lower right thinking processes (C) promote **sociability** (getting groups to work well together), **understanding** (listening and talking) and **co-operation** (working with people) and **building relationships**.
- (iv) The lower left thinking processes (B) inquire **how** to be **productive** in teamwork.

Incorporating right-brain thinking processes in project or event management will promote **imaginative** and **intuitive** (in terms of solutions) thinking processes (D-quadrant) and **humanistic** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills Model (Davies *et al.*, 2011:1) (illustrated in Figure 4-1 and Appendix A).

4.3.5.5 Supervision of co-workers

The increasing importance of supervisory skills for administrative professionals can be observed in their evolving tasks as a result of the restructuring of workplaces, as well as technology innovations and the reduction of routine work (CFA Business Skills @ Work, 2012:9; IAAP Benchmarking Survey, 2013:3; Kermode & Lloyd, 2011:24; OfficeTeam Survey, 2012:5) (also see paragraph 3.2.4.2 of Chapter 3).

Marcus, Joubert and Hoffman (2009:14-16), Thwaites (2016:3) and the World Administrators' Summit (Adminstra, 2017:12) concur with the above, stating that the role of administrative professionals towards co-workers contains a strong management component that is embedded in the dimension of being an orientation trainer of new employees and training, mentoring and development of subordinates. The administrative professional who has developed good interpersonal skills will succeed when opportunities arise to teach and assist others with regard to new techniques, processes, software and equipment (Burton & Shelton, 2014:63). Subsequent to the views of Marcus *et al.* (2009:14-16), the World Economic Forum (2016:22) agrees that the social skill to train and teach peers or colleagues will become a skill which is high in demand by 2020.

An interpersonal skill, such as supervision of staff, is categorised as a predominantly lower right (C-quadrant) thinking process. Thus, the thinking perspective with regard to supervision can be illustrated as follows:

- (i) The lower right thinking processes (C) will establish **who** is involved in applying supervisory skills, such as to **training** co-workers or new employees and **mentoring** subordinates.

Incorporating right-brain thinking processes in the supervision of staff will promote **humanistic** thinking processes (C-quadrant) (interpersonal) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (illustrated in Figure 4-1 and Appendix A).

4.3.5.6 Conflict resolution

Conflict is inevitable during the course of any person's career, due to opposing values, perspectives and opinions. Irrespective of the origin of a conflict situation, people need to learn how to manage conflict, whether between individuals or team members. When managed properly, conflict contributes towards the recognition of differences and opinions, and motivates people to participate in solving problems and increasing group cohesiveness (Burton & Shelton, 2014:62-63; Stroman, Wilson & Wauson, 2014:502-503). The administrative professional of the new world of work should be familiar with techniques to resolve conflict effectively (Burton & Shelton, 2014:62-63; France, 2012:68). To mention only a few examples, there are courses on conflict management on how to handle difficult people, verbal and non-verbal communication, which includes listening skills, team-building skills, assertiveness and emotional intelligence (France, 2012:70-71; Stroman *et al.*, 2014:504-505). Conflict resolution has been identified as a gap in knowledge (Kermode & Lloyd, 2011:24) (also see discussions in paragraph 3.2.4.3 of Chapter 3).

Working in a global world, conflict in the world of work is no longer limited to different personalities, cultural differences, norms and etiquette (France, 2012:44). Poor time management (France, 2012:108) and inadequate communication skills (Stroman *et al.*, 2014:502-503) contribute to conflict situations in the workplace. As discussed in paragraph 4.3.5.9, the rapid development of information and communication technology contributes towards a progressively higher workload and information as well as increasingly shorter timeframes. Administrative professionals experiencing difficulties in managing their time efficiently could experience conflict in their work relationships (France, 2012:108).

Regarding communication conflict, there are instances where conflict is caused by poor communication, for example failure to communicate new policies and programmes (Stroman *et al.*, 2014:503). With regard to electronic communication, Britton (2017:1) asserts that casual and careless e-mails could also promote conflict. According to the report compiled by the Center for Women and Business (2017:1), “today’s workforce is comprised of five distinct generations, each with defining characteristics, values and attitudes shaped by the formative events of their time”. A far different type of conflict is experienced among this wider workforce, referred to as a multi-generational workforce, in an ultra-competitive global economy.

An inter-generational conflict is significant as an increasingly age-differing spectrum of workforce, among them Baby Boomers,³¹ is perceived to block promotion opportunities for the Millennials³² (Taylor, 2013:3). A lack of understanding on the impact of the different multi-generational groups on the success of both teams and their organisations in terms of their generational profiles, namely motivations and values, workplace loyalty, work style and management preferences, contributes towards workplace conflict. Reference has also been made to sources of conflict such as judging work, different communication styles and technology divide (Birkman, 2016:3-12; Center for Women and Business, 2017:4-10). In addition to the above, is the new virtual collaboration opportunities created by the recent advances in computer and telecommunications technology. Among the multi-generational workforce are the virtual teams that face increased potential for conflict that could impede their functioning, whilst interacting in a virtual mode.

³¹ The Baby Boomers were born during 1946 until 1964 and are known as the hardest-working generation since priority was often given to work over personal life. The 2008 recession forced this generation to pursue their careers much later in life than expected.

³² The Millennials were born during 1981 until 1998 and are also known as “Generation Y”. They are considered as the most educated and diverse generation, technically savvy and socially conscious (Center for Women and Business, 2017:1).

This involves limitations in terms of non-transmittable gestures and nonverbal nuances, symbolic content, time management due to different geographic locations, and adapting to the new telecommunication and information technologies required to communicate, interact and enable effective virtual teamwork (Montoya-Weiss, Massey & Song, 2001:1251-1252; Townsend, DeMarie & Hendrickson, 1998:22-23).

Although the interpersonal skill of conflict resolution can mainly be categorised as a predominantly lower right (C-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective to succeed in conflict resolution can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise facts, in this case, **knowledge** (what is to be known) and applying **effective** listening skills (what is needed) when **solving problems or resolving conflict** (what to do).
- (ii) The upper right thinking processes (D) ask **why** is it important to **resolve** this conflict? Allowing all participants to express possible resolution **ideas** will promote effective and efficient work relationships.
- (iii) The lower right thinking processes (C) will establish who is involved in the conflict. **Listening** skills, **expressing** ideas and showing concern for the participants' **feelings** will support **conflict** resolution.

Incorporating right-brain thinking processes into conflict resolution will promote **synthesising** thinking processes (D-quadrant) and **humanistic** and **sensory** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (see Figure 4-1 and Appendix A).

4.3.5.7 *Public relations*

In the new world of work, it became essential for the administrative professional to foster organisational harmony and customer goodwill with bloggers and journalists for potential public relations (France, 2012:199-200). Furthermore, the professional profile of administrative professionals changed to the extent where it could encompass the following:

...the role of representative figure on behalf of the company, employers, colleagues and subordinates; liaison role with internal and external customers; spokesperson on behalf of the company and the employer or line management (Marcus *et al.*, 2009:16).

The demand for the soft skill, public relations was also identified by the IAAP (2013:3) and the CFA Business Skills @ Work (2012:9-10) (paragraph 3.2.5) as being critical for future success. The report by the World Economic Forum (2016:84) observes that an occupation such as Public Relations Professionals will be difficult to recruit by 2020.

Taking the above into consideration, it is clear that the soft skill of public relations as such is not limited to this profession. According to the report of the World Economic Forum (2016:66), not only is the skill of public relations currently in demand, but it is also considered to be a skill requirement by 2020.

Even though the interpersonal skill, namely public relations can mainly be categorised as being a predominantly lower right (C-quadrant) thinking process, another two brain quadrants are involved. Therefore, the thinking perspective in terms of public relations can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise **accurate information** (what is needed) to serve as a tool when **liaising** with internal and external stakeholders (what to do).
- (ii) The lower right thinking processes (C) will establish who is involved in the relationship. **Courtesy, understanding**, showing **concern** for internal and external stakeholders' **needs** will promote public relations.

Incorporating right-brain thinking processes in public relations will promote **humanistic** and **expressive** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.8 Customer service/relations

Silke (2011:149 & 191) states that the consumer in the new world of work is technologically intelligent. Customers can now research all the product choices immediately and, therefore, demand prompt service, irrespective of whether it is delivery service or resolving problems relating to service. Burton and Shelton (2014:63) assert that exceptional customer service includes the willingness to put the needs of customers, clients or co-workers first. Customer service or relations is also identified as one of the soft skills in demand (IAAP, 2013:3; CFA Business Skills @ Work, 2012:9-10) (see paragraph 3.2.5 of Chapter 3).

The Work Economic Forum (2016:17) challenges the view that customer service roles, with specific reference to Office and Administrative work arena, will become obsolete. Mobile internet technology prompts a shift to a different means of maintaining effective customer relationship management and the online monitoring of service quality. Social skills, including service orientation, will be higher in demand across a wide range of occupations, by 2020 (Work Economic Forum, 2016:53). It could, therefore, be assumed that providing services to any extent will not becoming totally obsolete.

Even though the interpersonal skill, namely customer service or relations can mainly be categorised as a predominantly lower right (C-quadrant) thinking process, an additional two brain quadrants are involved. Therefore, the thinking perspective with regard to customer service relations can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise **research** (what to do) with **technology** (what is needed) to serve as a tool for **immediate problem resolving** (what to do) during customer service or relations.
- (ii) The lower right thinking processes (C) promote **customer service or relations** (working with people), **understanding** (listening and talking) customer **needs** and **concerns** and endorsing the display of **courtesy**.

Incorporating right-brain thinking processes in customer service/relations will promote **humanistic** and **expressive** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.9 Organisational and time management skills

In the new world of work, the administrative professional is experiencing the fact that the daily volume of information reaching her desk, has increased exponentially with the advent of information and communication technology. To be effective, administrative professionals should be able to organise their workspace, conduct a time audit, plan and organise assignments, complete their work correctly, avoid procrastination, manage e-mails, streamline tasks, manage large projects and handle time-wasters (Burton & Shelton, 2014:140-168; Seltzer & Bentley, 1999:11; Stulz *et al.*, 2013:70 & 80). In addition, France (2012:87-88) advises administrative professionals to acquire the relevant skills to cope with their multitasking work profile, for example time or task management skills, organisational skills, stress management skills, teamwork skills and delegation skills.

The IAAP (2013:3) and the CFA Business Skills @ Work (2012:9-10) identified organisational and time management as being one of the soft skills in demand (as discussed in paragraph 3.2.5 of Chapter 3). The World Economic Forum (2016:21-22) concurs with these authors that resource management skills, such as time management, including own and that of others, will become a skill in demand by 2020.

Even though the task of organisational and time management can mainly be categorised as a predominantly upper left (A-quadrant) and the lower left (B-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective organisational and time management can be illustrated as follows:

- (i) The upper left thinking processes (A) promote **organisational and time management** (what to know) when it is required to **prioritise** (what to do) **increased** workload to **maximise effectiveness** (what is needed).
- (ii) The upper right thinking processes (D) ask **why** is it important to apply **organisational and time management**? It promotes **simultaneous** (multitasking) activities.
- (iii) The lower right thinking processes (C) promote **teamwork** (getting groups to work well together).
- (iv) The lower left thinking processes (B) ask **how** to **organise and plan resources in sequence** in order to succeed in **organisational and time management**.

Incorporating right-brain thinking processes into the execution of organisational and time management will promote **visualisation** and **conceptualisation** thinking processes (D-quadrant) and **humanistic** and **expressive** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.10 Research skills

Griesel and Parker (2009:10) reported that the ability to find and access information is listed by employers as being a lack of skill. Silke (2011:151 & 152) mentioned that people become much more interactive in their use of technology with the evolvement of research skills. People do research and report back. According to the CFA Business Skills @ Work (2012:9) and Kermode and Lloyd (2011:24), research skills were identified as a gap in knowledge (also discussed in paragraph 3.2.4.5 of Chapter 3) due to the changing nature of administration.

Although research skills can mainly be categorised as a predominantly upper left (A-quadrant) thinking process, another brain quadrant is involved. Therefore, the thinking perspective with regard to research skills can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise **knowledge of technology** (what to know) to serve as a tool to **research** (what to do) **information** (what is needed).
- (ii) The upper right thinking processes (D) ask **why** are **research skills** important? It promotes change to become more interactive with technology.

Incorporating right-brain thinking processes in the execution of research will promote **visualisation** and **conceptualisation** thinking processes (D-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.11 Management of meetings

The administrative professional in the new world of work has to consider new communication and information technologies to reduce the carbon footprint of the company and to promote successful meeting management. There are varieties of technology tools that will enhance the efficiency of minute-taking, for example, Diligent Board Books is a secure way to compile, manage, distribute, view (on a big screen or on members' laptops, iPads or tablets) and archive meeting documents on board portals. Meeting management and the knowledge of virtual meeting software are both soft skills in demand (see discussion in paragraph 3.2.4.7 of Chapter 3) for the administrative professional.

In a follow-up IAAP Benchmarking Survey (2015:11 & 14) it has been reported that the skills regarding management of meetings became more prominent. Specific reference is made to planning and knowledge of virtual or remote software products. Minute-taking is an essential skill that is appreciated by employers. The administrative professional who is proficient in minute-taking, demonstrates listening and interpreting skills to summarise decisions, action points and lengthy discussions. Good, complete and concisely written communication are essential for minutes (France, 2012:174-175; Harcourt, 2001:344).

Subsequent to the above discussion with regard to listening and written communication skills, a related idea emerged from the World Economic Forum Report (2016:22 & 52), and that is that process and content skills are not only currently in demand, but will also be by 2020. Specific reference is made to process skills, such as active listening skills and content skills, such as written expression.

Preparations prior to the meeting are the responsibility of the administrative professional, for example invitations, booking of the venue, budgeting for entertainment, guest speakers and refreshments, compilation and timeous distribution of the agenda and relevant documentation in good time before the meeting (France, 2012:109-119; 162-184; IAAP, 2013:6; IAAP Membership Benefits Presentation, 2013:3; Kermode & Lloyd, 2011:24). Although shorthand, longhand or short-form speedwriting are still in practice, more efficient, different means of minute taking are at the disposal of the administrative professional, for example technology for audio- and video-recording and for sharing files, such as Microsoft Office OneNote and the Livescribe Smartpen, which is a digital smartpen that records everything that is heard and written. Written notes can be reviewed on-screen using the software. Burton and Shelton (2014:15, 470-497) also discuss the management of meetings, as elaborated by France (2012:109-119; 162-184).

Although the task to manage meetings and the knowledge of virtual meeting software can mainly be categorised as a predominantly lower left (B-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective on the management of meetings can be illustrated as follows:

- (i) The upper left thinking processes (A) promote **analytical thinking** (what to know) to ensure **factual minutes** (what to do). The latest **technology** (virtual meeting software) could serve as a tool to enhance meeting management. Knowledge of **finances** (budget) is required (what is needed).
- (ii) The upper right thinking processes (D) ask **why** are **meeting management skills** important? They promote **visual** thinking and incite a shift to the **new** communication and information technology required for **virtual** meetings.
- (iii) The lower right thinking processes (C) will establish **who** is involved in **meeting management**. The proficient administrative professional demonstrates **listening** and **communication** skills in minute-taking.
- (iv) The lower left thinking processes (B) inquire **how to distribute** the agenda and minutes **timeously**, and this entails administration and organising.

Incorporating right-brain thinking processes into meeting management will promote **synthesising** and **conceptualisation** thinking processes (D-quadrant) and **expressive** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.12 *Communication: writing, verbal and interpersonal skills*

Skills development has become a principal driver of productivity growth and competitiveness. The new world of work requires new demands and technologies from the workforce. The ability to convey and articulate knowledge and information in effective and appropriate ways, presenting information to peers, colleagues and stakeholders (Stulz *et al.*, 2013:13, 150-153), understanding and interpreting information such as graphs, seeking new information and language skills are all necessary communication skills (International Labour Office, 2008:3, 11, 55; Seltzer & Bentley, 1999:14).

Interpersonal communication skills will contribute towards enhancing written and oral communication. The effective administrative professional understands the importance of interpersonal communication skills, for example, coping with stress, keeping classified information confidential, respecting diversity, embracing constructive criticism, negotiate effectively, exercising leadership and interacting with people on all levels appropriately offering exceptional customer service (Burton & Shelton, 2014:53-72; France, 2012:13; Prinsloo, 2000:114). The Blueprint (2001:16-18) (see Footnote 27 on page 72 of Chapter 3 regarding the explanation of Blueprint) reveals that performance skills and knowledge, including communication is a critical component that the administrative professional should possess to be efficient and effective in the new world of work (also see paragraph 3.2.2 of Chapter 3).

The CFA Business Skills @ Work (2012:10) the OfficeTeam Survey (2012:5 & 14) and Griesel and Parker (2009:9 & 10) identified written and oral communication as a skill shortage among administrative professionals (as discussed in paragraph 3.2.4.9 of Chapter 3). Quoted from paragraph 3.2.9.2 of Chapter 3, of the OfficeTeam Survey (2012:5 & 14) and supported by the OfficeTeam Survey (2012:5): “It is desired that administrative professionals be articulated and refined in their interactions with internal and external customers, both in person and on the phone. E-mail and social media evolved in the predominant communication tools and therefore places an increasing emphasis on writing abilities.” To convey and “articulate knowledge and information”, “understand and interpret information”, “written communication” and “interpersonal communication skills, such as to negotiate effectively” are not skills limited to the profession of administrative professionals.

In addition to these skills, the World Economic Forum (2016:22) agrees that cognitive abilities (understand and interpret information), content skills (to convey and articulate knowledge and information), reading comprehension (to understand written sentences in work-related documents), and written communication (to communicate effectively in writing as appropriate for the requirements of the audience), and social skills (to negotiate effectively) are not only skills currently in demand, but will become increasingly essential skills by 2020.

The above findings are also supported in the work of Van Antwerpen (2013:282), the follow-up IAAP Benchmarking Survey (2015:17) and the OfficeTeam Survey (2015:5), recording the skills shortages and skills in demand for verbal and written communication.

Communication skills, such as written, oral and interpersonal communication can be categorised as upper left (A-quadrant), upper right (B-quadrant), lower right (C-quadrant) and lower left (B-quadrant) thinking processes. A whole-brain perspective on communication skills can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise knowledge of **technology** (what to know) to serve as a tool to **transmit messages** (what to do) **promptly** (what is needed).
- (ii) The upper right thinking processes (D) ask **why** are **communication skills** important? They promote **diverse** thinking and generating **ideas**, and incite a shift to **new** communication technology.
- (iii) The lower right thinking processes (C) will establish who is involved in the communication (written and oral). Good **interpersonal** communication skills enhance written and oral communication, **interactions** with internal and external **customers** and the **understanding** of their **needs**.

Incorporating right-brain thinking processes into communication skills will promote **synthesising** and **visualisation** thinking processes (D-quadrant) and **expressive** and **humanistic** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.13 Problem-solving skills

Burton and Shelton (2014:15 & 42) and Stulz *et al.* (2013:14-16) assert that problems will always occur in the workplace, irrespective of the effectiveness of the administrative professional. Employers have expressed the opinion that priority should be given to developing thinking skills.

Improving critical-thinking skills will contribute to productive outcomes, for example, to arrive at a decision or develop a viable solution to a problem. The OfficeTeam Survey (2012:4 & 9) and the CFA Business Skills @ Work (2012:9-10) have also identified the demand for the soft skill, problem-solving (see paragraph 3.2.5 of Chapter 3).

Various researchers (International Labour Office, 2008:3 & 55; Lai & Viering, 2012:4; Pillay, Boulton-Lewis & Wilss, 2004:1; Tuohy, Reilly & Hayday, 2006:2) echo the notion that cognitive skills, including critical thinking, non-routine problem-solving and systems thinking, are required. As encapsulated in the syllabus of the Caribbean Examination Council (2013:2), administrative professions who have developed problem-solving skills will be able to function with the minimum supervision in the new world of work (also see paragraph 4.3.5.17).

The World Economic Forum (2016:22 & 24) agrees with the above and anticipates that a higher degree of cognitive abilities, such as problem-solving skills, will become a core skill for the future workforce. The World Economic Forum (2016:24) refers to “problem sensitivity” which is described as “[t]he ability to tell when something is wrong or is likely to go wrong”. This premise could be based on the literature that suggests that people depend on technology, namely the Internet as their external brain, to conduct critical analysis and thinking, and that it will likely retain the capability of deep thinking (Anderson & Rainie, 2012:2 & 12).

An important aspect related to problem-solving is to use one’s emotions and those of others to solve problems productively. Discussions with regard to emotional intelligence, models of emotional intelligence and the applicability of this in the workplace, are presented in detail in paragraph 4.4. Theories of emotional intelligence maintain that individuals who have an enhanced awareness and understanding of their emotional states and the reasons for their emotional reactions to situations are able to use this information to solve problems more effectively. A possible relationship exists between being able to adapt emotions to changing situations and at the same time adapting a perspective on how problems are solved.

This ability fosters the harnessing of different emotions that encourage different approaches to problem-solving, for example being content could facilitate inductive reasoning and creativity (Mayer, Salovey & Caruso in Sternberg, 2000:397; Mayer, Salovey in Cherniss & Goleman, 2001:17-18 & 94). Furthermore, Mayer and Salovey (in Bastian, Burns & Nettelbeck, 2005:1136) reason that emotional intelligence is considered to be an intelligence, since, in order to resolve problems, individuals discriminate and monitor emotions in themselves (intrapersonal) and others. Also related to the notion of solving problems effectively, is the ability to adapt to change (see paragraph 4.3.5.16 regarding adaptability skills) (Cherniss & Goleman, 2001:111).

Even though the skill to solve problems can mainly be categorised as a predominantly upper left (A-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective on problem-solving can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise facts, in this case, **knowledge** (what is known) and apply **critical** and **analytical** thinking skills (what is needed) when **solving problems** (what to do).
- (ii) The upper right thinking processes (D) ask **why** is it important to **solve problems**. Applying problem-solving **strategies**, such as **conceptualising** the key issues, will promote effective and efficient work relationships.
- (iii) The lower right thinking processes (C) will establish **who** is involved with the problem-solving. **Listening** skills, **expressing** ideas and showing concern for participants' **feelings** will support problem-solving.
- (iv) The lower left thinking processes (B) inquire **how** the problem-solving **plan** of action agreed upon could be implemented.

Incorporating right-brain thinking processes into problem-solving will promote **conceptualising** and **synthesising** thinking processes (D-quadrant) and **sensory** and **humanistic** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.14 Commercial awareness (employability) skills

The results that derived from a study by Kermode and Lloyd (2011:24) assert that the administrative professional should transfer knowledge of the industry in which she is employed (as discussed in paragraph 3.2.2 of Chapter 3). Levy and Hopkins (2013:44) agree that there is a lack of transferable skills in the area of commercial awareness.

Pricewaterhouse Coopers (2015:8-10) defines commercial awareness as knowledge of the business world and the trends that drive the sector. To know the strengths, weaknesses, opportunities and threats of one's organisation and to understand the business of one's client are just some of the advantages involved in displaying commercial awareness (Hawksworth, Chan, Tay & Walewski, 2013:1-23).

With regard to the discussion of Kermode and Lloyd (2011:24) and Levy and Hopkins (2013:44) that refer to the lack of knowledge concerning commercial awareness, France (2012:59 & 205) proposes various methods to broaden commercial awareness, for example reading magazines or articles related to one's business arena and career, such as the *Financial Times* and secretarial magazines, reviewing the company's annual report, listening to and watching the local business news on radio or television, and researching and reading content on the Internet, websites of the government and other stakeholders, publications and newsletters. Becoming involved in in-house development – project work, work shadowing, secondment and training – are other ways to broaden one's commercial awareness. There are numerous advantages to displaying commercial awareness. Some examples listed are the understanding of your employers' business (products and services), knowing how the organisation attracts and keeps customers (wants and needs), and ensuring an understanding of the structure of the organisation (strengths, weaknesses, opportunities and threats).

The transferable skill of commercial awareness can be categorised in the upper left (A-quadrant), upper right (D-quadrant), lower right (C-quadrant) and lower left (B-quadrant) thinking process. A whole-brain perspective on commercial awareness can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise knowledge (what to know) to serve as a tool for continuous **improvement** (what to do).
- (ii) The upper right thinking processes (D) ask **why** is **commercial awareness** important? The answer will provide a holistic understanding of the **world** and knowledge of **opportunities** and **ideas**.
- (iii) The lower right thinking processes (C) will establish **who** is involved in **commercial awareness**. The answer will provide an **understanding** of one's own and the customer's or client's needs and business.
- (iv) The lower left thinking processes (B) investigate **how** the **threats** to the organisation could be identified and a plan of action for **continuous** improvement can be developed.

Incorporating right-brain thinking processes in commercial awareness will promote **holistic** and **imaginative** thinking processes (D-quadrant) and **sensory** and **humanistic** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.15 **Outside-the-box or innovative thinking skills**

Outside-the-box thinking can be defined as “creative, resourceful ways of addressing projects and problems” (OfficeTeam Survey, 2012:14). Stulz *et al.* (2013:15) define creativity as “the ability to produce new ideas and to be original and imaginative”. According to the OfficeTeam Survey (2012:14), employers seek administrative professionals with outside-the-box or innovative thinking skills (also see paragraph 3.2.9.4 of Chapter 3). Thinking and working creatively with others in a team involve important skills for the new world of work, since these promote efficiency. Productive team members assist each other and seek possibilities to simplify office operations and procedures for the benefit of all staff members (Burton & Shelton, 2014:141; Stulz *et al.*, 2013:15 & 62). The World Economic Forum (2016:22-23) agrees that cognitive abilities, such as creativity, will increasingly become a core skill requirement by 2020.

Even though the skill to think outside the box, otherwise known as innovation, can mainly be categorised as a predominantly upper right (D-quadrant) thinking process, all four brain quadrants are involved. A whole-brain perspective on outside-the-box or innovative thinking can be illustrated as follows:

- (i) The upper left thinking processes (A) utilise facts, in this case gathering **information** (what to know) motivated by interest, **analysing** those facts (what to do) and, chronological sequencing the facts into **accurate** statements (what is needed).
- (ii) The upper right thinking processes (D) promote the application of an **intuitive** (in terms of solutions) and **conceptual** understanding towards potential solutions and **new** ideas.
- (iii) The lower right thinking processes (C) promote **sensory** response and **integrate** upper right (D) and upper left thinking processes (A) through integration and synergy, to present **ideas**.
- (iv) The lower left thinking processes (B) promote the **planning** approach to objectively review in **detail** the potential idea and **how** it relates to the original statement.

Incorporating right-brain thinking processes in innovative thinking will promote **holistic** and **imaginative** thinking processes (D-quadrant) and **sensory** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

4.3.5.16 *Personal quality skills such as adaptability*

The new world of work seeks employees who are flexible and creative. The focus has become more strategic by embracing a holistic work role approach rather than skills encompassing routine and technical tasks. Teamwork, collaboration and participation are valued. Working conditions will be diffused to anywhere at any time, and contracts will be shorter and project-based (Burke, 2005:25; Prinsloo, 2000:114; Silke, 2011:11). Connected to being socially adept, is the ability of the individual to adapt emotions to changing situations that will foster a different perspective required for effective problem-solving (see paragraph 4.3.5.13 regarding adaptability skills) (Cherniss & Goleman, 2001:111). Schmidt (2018:1) states that the ability to change is very much dependent on the understanding that the future professional role entails continuous learning of new skills. To add value to the organisation, the administrative professional has to tailor her performance and products, contributing to establishing a learning organisation and should therefore positively and quickly adapt to the changing circumstances (Schmidt, 2018:2).

The OfficeTeam Survey (2012:14) revealed that employers seek administrative professionals with adaptability skills. In paragraph 3.2.9.1 of Chapter 3, specific reference is made to adapting to the higher volume of projects as a result of the business environment that is constantly changing. Also discussed is the fact that the flexibility and a willingness to let the task description evolve along with the needs of the business are becoming essential hiring criteria. The skill of adapting to organisational changes has also been reported in the IAAP Benchmarking Survey (2013:23) as being a significant attribute.

Even though the personal quality of adaptability can mainly be categorised as a predominantly upper right (D-quadrant) thinking process, another brain quadrant is involved. Therefore, the thinking perspective with regard to adaptability can be illustrated as follows:

- (i) The upper right-thinking processes (D) promote the application to **adapt** to change and be **flexible, creative** and **holistic** thinking.
- (ii) The lower right-thinking processes (C) promote **teamwork** (adapt to teamwork) and **participation** (relating to others).

Incorporating right-brain thinking processes in adaptability will promote **holistic** and **imaginative** thinking processes (D-quadrant) and **humanistic** thinking processes (C-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (see Figure 4-1 and Appendix A).

4.3.5.17 *The ability to work independently (self-management)*

The ability to work independently to cope with the increased responsibilities was identified as a soft skill in demand by IAAP (2013:3), the CFA Business Skills @ Work (2012:9-10) and Harcourt (2001:20) (see paragraph 3.2.5 of Chapter 3 for discussion).

The results of the OfficeTeam Survey (2012:5) indicate that organisations want administrative professionals who take action when encountering new tasks and problems that need to be addressed without instructions or supervision. This demonstrates an understanding of the managers' thinking and management style (Burton & Shelton, 2014:146-150; Caribbean Examination Council, 2013:2; France, 2012:13; Marcus *et al.*, 2009:15 & 20). In addition there are the reports of Anderson and Gantz (2013:7-8) and Manpower (2016:7), that reveal that working independently is considered to be a future skill requirement as part of this changing employment landscape. To work interdependently is not limited to the administrative professional situated in a physical office. The rise of virtual teams (also discussed in paragraph 4.3.5.3) has brought about a new dimension to work independently. According to Dorr and Kelly (2011:7 & 11), virtual team members are regarded as those who thrive on interdependent work relationships and thinking, since they have a strong tendency to take the initiative.

The personal quality to work **independently** can be categorised as a predominantly upper right (D-quadrant) thinking process only.

- (i) The upper right-thinking processes (D) promote the application to work **independently**.

Incorporating right-brain thinking processes in working independently will promote **visual** thinking processes (D-quadrant) that are interrelated with the Lifelong Learning Skills Model (Burton & Shelton, 2014:41) and the Future Work Skills 2020 Model (Davies *et al.*, 2011:1) (as illustrated in Figure 4-1 and Appendix A).

Discussions preceding from paragraphs 4.3.5.1 to 4.3.5.17 determined the impact of the skills and knowledge gaps that arose from the literature, on the thinking processes of the administrative professional for optimal effectiveness in the future world of work. These skills and knowledge gaps as described, according to the mental preferences of Herrmann's Whole

Brain® Model, will be summarised as Phase 2 of the data-gathering process, as displayed in Figure 4-5.

Subsequent to the notion of effectiveness, to be effective and compete successfully in the future world of work, a new set of skills is required, namely whole-brain thinking. In the context of the next section, emotional intelligence is interpreted as a skill that assists individuals in adjusting and adapting successfully to their environment in a manner that allows them to interpret effectively and manage their emotions and those of others (James, 2014:1-2). A brief discussion follows on the population and importance of emotional intelligence in the future world of work.

4.4 EMOTIONAL INTELLIGENCE

Academia has popularised the notion of emotional and social intelligence due to its positive impact on employee performance (Albrecht, 2011:2-10 & 35; Emmerling & Boyatzis in Njoroge & Yazdanifard, 2014:31; Riggio & Reichard, 2008:179-181). The presence of emotional intelligence models and numerous variations representing different perspectives indicate the importance of emotional intelligence in the workplace (Goleman, 2006:xiii; Mayer, Salovey & Caruso in Sternberg, 2000:396; Salovey & Mayer, 1990:185-205).

The most prominent models of emotional intelligence are the Reuven Bar-On of Peter Salovey and John Mayer, and Daniel Goleman's Emotional Competence Framework (Goleman, 2006:xii; Stys and Brown, 2004:i). Salovey and Mayer (1990:5) conceptualised emotional intelligence as a cognitive ability that integrates intelligence and emotion. The Reuven Bar-On Model defines emotional intelligence as a mixed intelligence model that involves cognitive ability and personality traits and their influence on a person's general well-being. Components such as intrapersonal, interpersonal, adaptability, stress management and general temperament are outlined in this model.

Similar to the Bar-On Model, the mixed intelligence model of Daniel Goleman also consists of cognitive ability and personality traits. However, the Goleman model "integrates an individual's cognitive abilities and personality traits and applies their corresponding effects on performance in the workplace" (Cherniss & Goleman, 2001:22). Goleman's model constructs recognition (such as self-awareness and social awareness) and regulation (such as self-management and relationship management) (Stys & Brown, 2004:4-17). Stys and Brown (2004:23) found that there are theoretical and statistical similarities between the various conceptions of the three distinct models of emotional intelligence.

All of the three models discussed above aim to understand and measure the elements involved in the recognition and regulation of one's own emotions and the emotions of others. The models agree that there are certain key components to emotional intelligence, and there is even some consensus on what those components are. For example, all three models of emotional intelligence identify the awareness (or perception) of emotions and the management of emotions as being key elements in being an emotionally intelligent individual (Stys & Brown, 2004:23).

Goleman's conceptual model of emotional intelligence and corresponding emotional competencies predict personal effectiveness in the workplace (Cherniss & Goleman, 2001:18). The researcher, therefore, adopted Goleman's model and definition of emotional intelligence to substantiate the importance and applicability of emotional intelligence in the workplace. According to Goleman (2006:268), emotional intelligence refers to "the capacity for recognising our own feelings and those in others, for motivating ourselves, for managing emotions well in ourselves and in our relationships". Goleman's (2006:283-284) model presents emotional intelligence as four main constructs, namely self-awareness, social awareness, self-management and relationship management (as illustrated in Figure 4-4). A set of emotional competencies is included within each construct of emotional intelligence. James (2014:1) also concurs with Goleman's notion, as discussed below.

A brief explanation on the emotional intelligence constructs follows below (Bradberry & Greaves, 2009:1-10).

- (i) **Self-awareness** is the ability to recognise (who I am) and understand one's emotions and their effect on others. This self-understanding involves learning where one's emotions are derived from and how to monitor these emotions.
- (ii) Those who excel in **self-management** (what I do) are able to control their emotions and redirect disruptive impulses and adapt to changing circumstances. An individual who is flexible and adapts quickly has emotional intelligence.
- (iii) **Social awareness** includes the ability to recognise, understand, and react to other's emotions and the skill in treating people, according to their emotional reactions (empathy). In addition, James (2014:1) is of opinion that emotionally intelligent individuals in the workplace will communicate well, are empathetic and inspire trust.
- (iv) **Relationship management** entails proficiency in managing relationships and the ability to inspire, influence, and develop others while building rapport. Moreover, James (2014:1) notes that individuals who are calm under pressure, handle stress and defuse conflict, are imbued with emotional intelligence.

Cherniss and Goleman (2001:27-29) propose that the potential to learn practical skills underlying the four emotional intelligence clusters, is determined by one's emotional intelligence. People's potential to apply learned skills and interpret intelligence to workplace capabilities, displays their emotional intelligence. According to Goleman's Emotional Intelligence Framework (as illustrated in Figure 4-4), the demonstration of the competency, for example adaptability and initiative, requires that a person becomes skilled at the fundamental ability of self-management.

Within the last two decades, digital technology has been on the leading edge of the three cycles of economic growth, recession and recovery. The impact of this on emotional intelligence is discussed in the next paragraph.

		Self (Personal Competence)	Other (Social Competence)
Recognition		<p>Self-Awareness</p> <ul style="list-style-type: none"> • Emotional self-awareness • Accurate self-assessment • Self-confidence 	<p>Social Awareness</p> <ul style="list-style-type: none"> • Empathy • Service orientation • Organizational awareness
	Regulation	<p>Self-Management</p> <ul style="list-style-type: none"> • Emotional self-control • Trustworthiness • Conscientiousness • Adaptability • Achievement drive • Initiative (Problem-solving) 	<p>Relationship Management</p> <ul style="list-style-type: none"> • Developing others • Influence • Communication • Conflict management • Visionary leadership • Catalyzing change • Building bonds • Teamwork and collaboration

Figure 4-4
Goleman's Framework of Emotional Intelligence
(Cherniss & Goleman, 2001:28)

4.4.1 Emotional intelligence and the new world of work

Flynn (in Van Jaarsveld, 2014:175) found that, although people in the 21st century are more intellectual than in the previous century, a lack in emotional and social intelligence is observed. People's skills with regard to relationships and communication are not really developed, mainly due to the influence that television and digital technology innovations have had on our lives. The increasing number of hours people spend watching television has a negative impact on their social and emotional skills that eventually reflects in relationships (Van Jaarsveld, 2014:151). Prusak and Cohen (2001:86-93) add that relationships are eroding as a result of interpersonal skills that lack social grace.

Furthermore, Anderson and Rainie (2012:2-34) argue that group effectiveness diminished and became detached from corporate cultures due to the initiation of social media, telecommuting and virtual teams, referred to by Hoffmann (2011:36 & 138) as the “e-workforce”. The research of Anderson and Rainie (2012:19) has shown that “all virtual communications have to be short, visual and entertaining”, resulting in a decline of people’s social intelligence and their ability to communicate verbally. Communication in all work arenas conformed to “on-screen” and “on-line” bite-sized messages.

The lack of interpersonal skills such as emotional and social skills, as discussed above, is also apparent in the results emanating from the skills audit (as discussed in paragraphs 3.2.4 and 3.2.5 of Chapter 3). It would appear that digital technology has had an influence on the lack of interpersonal skills, such as team working, conflict resolution, communication, personal commercial awareness, sociable adaptability and self-management.

In paragraphs 4.3.1 and 4.3.3, the researcher explains how the workplace by 2025 will have undergone tremendous change to transform into the most diverse that the world has ever seen. This transformation will be characterised by multiple generations working together, with different skills and experiences. James (2014:1) asserts that good technical skills and a high intelligence quotient are no longer enough and no indicators of career success. This approach has changed with the raising of the sharing economy, known as the 4IR. As discussed in paragraph 1.1 of Chapter 1 and paragraph 4.2.1.3, the sharing economy places emphasis on sharing experiences through extreme automation and Artificial Intelligence connectivity. The impact of these key drivers of change requires a paradigm shift of a society that is flexible and able to adapt to change.

The current global competitive business environment demonstrates that knowledge and technical skills are important indicators of economic performance, but the employees remain stigmatised as being socially and emotionally inept. This view has been supported in the work of the World Economic Forum (2016:22 & 53), adding that a demand for social skills, such as emotional intelligence, will be higher by 2020. However, studies of organisational performance across all industries are showing that, upon meeting the technical qualifications for professions, the most effective, productive, and adaptable workers have competencies beyond cognitive skills, and thus are more emotionally, rather than technically, competent (Goleman, 2001b:13-26). These emotional competencies, such as self-awareness, conscientiousness, empathy, teamwork and adaptability are learned capabilities. These capabilities are based upon emotional intelligence and are multiplicative, not just additive, to cognitive skills (Goleman, 2001b:13-26).

The discussions in the above section demonstrate the importance of harnessing emotional intelligence and social intelligence in a global multigenerational workplace. In the changing and unstable times evident in the current economic climate, it is imperative to apply cognitive and affective processes that impact on individual and organisational performance in times of change. The lack of interpersonal skills, including emotional intelligence, among administrative professionals (as discussed in paragraphs 3.2.4 and 3.2.9 of Chapter 3) leads to an inability to identify emotions and to use them to their advantage. Administrative professionals developing skills related to emotional intelligence understand and express their emotions as being a necessity to succeed and excel in their occupation.

4.4.2 Emotional intelligence and the brain

As discussed in Chapter 2, paragraph 2.4.4.2 and illustrated in Figure 2-8, the cerebral mode is the cognitive, intellectual part of people's thinking processes and the limbic mode is the structured visceral and emotional part of people's thinking processes (Herrmann, 1995:32-34). Moore, Snider and Luchini (2011:1) established that analytical findings revealed that emotional intelligence variables are related to both left- and right-brained thinking styles. Higgs, McAdam, Clayton and Kimbrell (in Moore *et al.*, 2011:8) conceptually agreed that emotional intelligence awareness and emotional intelligence management could be positively related to the right-brain thinking style. Right-brain thinking individuals are adept at interacting with persons who have a different thinking style. The awareness of the interactions of emotions between people and the ability to manage these interactions, distinguishes right-brain thinkers from left-brain thinkers.

Emotional intensity was parametrically associated with activity in the amygdala, temporoparietal regions and sectors of prefrontal cortex in the memory access period (Daselaar, Rice, Greenberg, Cabeza, LaBar & Rubin, 2008:217-229). These researchers excel in analysing, developing processes and coordinating actions that suggest little awareness of emotions, whether these are their own or those of other people. Left-brain thinkers have little consciousness of how they are communicating and also experience difficulty in managing interactions. Even though predominately left-brain thinkers are associated with having less emotional intelligence awareness and managing emotional intelligence, they can learn to increase or develop their emotional intelligence.

One could conclude that effective and emotional intelligent administrative professionals of the future should acquire and depend more on their social skills and personal interactions (i.e. right-brain thinking style), in addition to their technical and analytical skills (i.e. left-brain thinking style), to adapt successfully to the new world of work.

4.5 SUMMARY

The review of the literature in this chapter indicates that a different way of thinking has been inspired by the rapid global changes. This view has been supported in the work of Venter (2011:150). Venter's (2011:150) research study concluded that administrative professionals will continue to need left-brain thinking to function effectively. However, such thinking will need to be augmented with right-brain thinking in order for the administrative professional to function effectively in the new world of work.

Based on the literature review in this chapter, the global key drivers of change and transformation have a significant impact on the application of the required competencies and capabilities of the administrative professional in the future world of work. The gaps in knowledge and the lack of current skills, as set out in paragraphs 4.3.5.1 to 4.3.5.17, have been related to the four thinking processes of Herrmann's Whole Brain theory[®], as illustrated in Figure 2-11 in Chapter 2.

Subsequent to the data-gathering process summarised and illustrated as Phase 1 (Figure 3-1 of Chapter 3), the skills and knowledge gaps that were noted from the literature are summarised as Phase 2 of the data-gathering process, as exhibited in Figure 4-5 below.

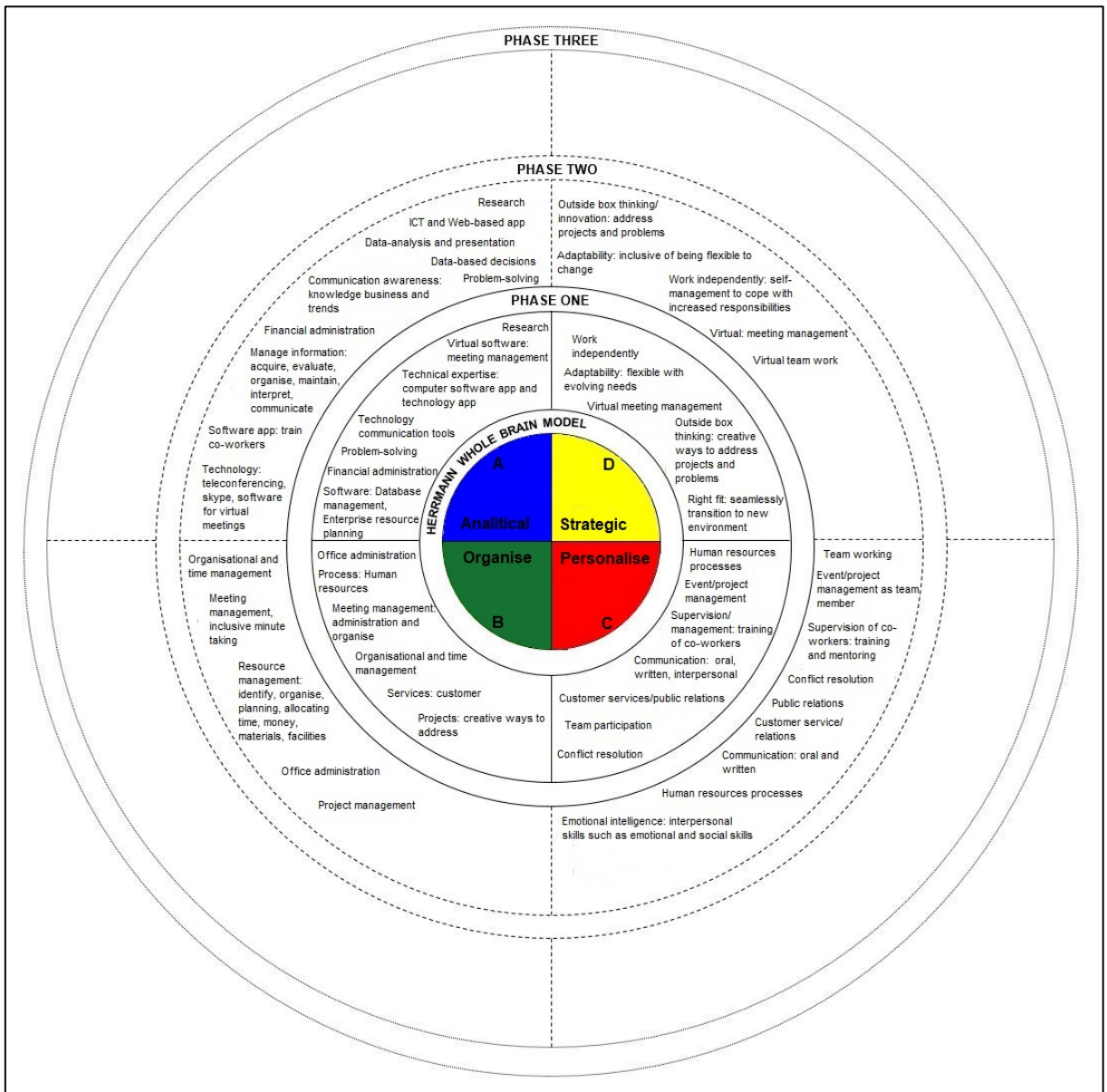


Figure 4-5
Phase 2 of the data-gathering process reflecting the skills and knowledge gaps that emanated from the literature

CHAPTER 5

RESEARCH DESIGN AND METHODOLOGY

5.1 INTRODUCTION

This chapter describes the research design and methods of inquiry of this study. The research problem determines the method of conducting the research study, namely whether a quantitative, qualitative or mix method design should be followed. The overall research approach informs the design and the design determines the nature of the data. Understanding the nature of the data influences the decision about which instruments need to be developed for data collection. This methodology needs to be constantly interrogated for validity and reliability.

5.2 STATEMENT OF PURPOSE

The purpose of this study is stated in Chapter 1, paragraph 1.3. A critical review of this purpose of statement informed the design and implementation of the approach that the researcher has adopted in order to achieve the research purpose.

The aim of this study was to construct a futuristic whole-brain success profile for the administrative professional in the South African context.

The **primary purpose** of the study was to assess the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional. This was done by means of a national skills survey to identify the current level of knowledge and skills of administrative professionals within South African organisations.

A **secondary purpose** was to gather qualitative data by means of semi-structured interviews that would investigate the perspectives of the following stakeholders: an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner.

The qualitative data would provide context to the primary data obtained in the national skills survey. This statement of purpose was accomplished by means of the following specific research objectives.

5.2.1 Specific objectives

The research objectives were:

- (i) to examine in organisations, nationally and internationally, the key drivers of change and transformation and their implications on the whole-brain success profile;
- (ii) to collate the current knowledge and skills requirements for the administrative professional within South African organisations by means of a survey questionnaire;
- (iii) to understand the impact of the sharing economy on new knowledge and skills for the administrative professional;
- (iv) to investigate how the whole-brain thinking metaphor equips the administrative professional with the acquisition of new knowledge and skills; and
- (v) to develop a futuristic whole-brain success profile for the administrative professional in the South African context.

5.2.2 Potential contribution of the study

The potential contribution of the study is that it may:

- (i) conduct a national skills survey for the first time among administrative professionals in the public and the private sectors;
- (ii) construct a futuristic whole-brain success profile for the administrative professionals in the South African context;
- (iii) advise education and training professionals on the content of occupational standards; and
- (iv) provide a framework to curriculum practitioners involved in the development and training of administrative professionals.

5.2.3 Purpose of the study

This mixed methods study addresses the current gap in the literature regarding the current level of knowledge and skills of administrative professionals within South African organisations.

An embedded mixed method design was used, that is, a design in one data set that provides a supportive, secondary role in a study that is based primarily on the other data set.

5.3 RESEARCH QUESTIONS

5.3.1 Main and secondary research question

As described in paragraphs 1.4.1 and 1.4.2 of Chapter 1, the main and secondary research questions was based and formulated according to the statement of purpose of this study.

5.4 PARADIGMATIC PERSPECTIVE

All research needs a foundation for its inquiry, and inquirers need to be aware of the implicit paradigms (worldviews) they bring to their studies. The paradigms are the philosophical foundation of the different methods of conducting research, and behind each study are assumptions the researcher makes about reality, how knowledge is obtained, and the methods of gaining knowledge. The following paradigms exist: postpositivism, constructivism, advocacy, participatory and pragmatism (Creswell & Clark, 2007:21-22). Pragmatism as a paradigm underpin most mixed methods research of which its focus is summarised in Table 5-1.

Table 5-1
Paradigms adapted and modified
(Creswell & Clark, 2007:22)

PRAGMATISM FOCUS	DESCRIPTION	IMPLICATION ON THE STUDY
Consequences of actions:	Results of the research study	Results of national skills survey
Problem-centered:	Primary importance of the question asked rather than methods	The impact of the global and national key drivers of change and transformation on the future whole brain success profile for optimal effectiveness of the thinking processes of the administrative professional in the future world of work
Pluralistic:	Multiple methods of data collection inform the problems under study	Embedded Mixed Method <div style="border: 1px solid black; padding: 2px; display: inline-block;">QUAN(qual)</div>
Real-world practice-orientated:	"What works" in practice	Natural work environment of the administrative professional

The different paradigms have common elements, but take different stances on these elements. They represent different views on (Creswell & Clark, 2007:23):

- (i) the nature of reality, *inter alia* ontology;
- (ii) how researchers gain knowledge of what they know, *inter alia* epistemology;

- (iii) the role values play in research, *inter alia* axiology;
- (iv) the process of research, *inter alia* methodology; and
- (v) the language of research, *inter alia* rhetoric.

The different stances listed above influence how the researcher will conduct and report her inquiries. The pragmatist approach, chosen for this research, and how the elements and paradigms are translated into practice are shown in Table 5-2.

Table 5-2
Common elements of worldviews and implications for practice
(Adapted from Creswell & Clark, 2007:34)

WORLDVIEW ELEMENT	PRAGMATISM	IMPLICATION ON THE STUDY
Ontology What is the nature of reality?	Singular and multiple realities, e.g., researchers test hypotheses and provide multiple perspectives	Quantitative: by means of a national skills survey
		Qualitative: by means of semi-structured interviews
Epistemology	Practicality, e.g., researchers collect data by “what works” to address research question	Quantitative: researcher is independent from that being researched, e.g., anonymous on-line questionnaire
	What is the relationship between the researcher and that being researched?	Qualitative: researcher interacts with that being researched, e.g., visit small number of respondents
Axiology What is the role of values?	Multiple stances, e.g., researchers include both biased and unbiased perspectives	Quantitative: unbiased, e.g., researcher will report facts from evidence gathered
		Qualitative: values and biased, e.g., researcher will adopt both objective and subjective points of view
Methodology What is the process of research?	Combining, e.g., researchers collect both quantitative and qualitative data and mix them	Quantitative: deductive process; develop generalisations leading to prediction, explanation and understanding; accurate and reliable through validity and reliability
		Qualitative: inductive process; context bound – information lead to patterns, theories developed for understanding; accurate and reliable through verification
Rhetoric What is the language of research?	Formal or informal, e.g., researchers may employ both formal and informal styles of writing	Quantitative: formal language based on set definitions (define concepts and variables); impersonal voice
		Qualitative: evolving decisions (understanding, discover, meaning); personal voice

5.5 RESEARCH DESIGN AND METHODS

Research designs are procedures of enquiry on detailed methods of data collection, analysis and interpretation (Creswell & Clark, 2007:32). The research designs used for this study are discussed in the section below.

5.5.1 Mode of inquiry

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a design, it involves philosophical assumptions that guide the direction to collect and analyse qualitative and quantitative data in many phases in the research process (Creswell & Clark, 2007:5; Miller & Brewer, 2003:326; Teddlie & Tashakkori, 2006:12-28). Creswell and Clark (2007:59-67) note the following types of mixed methods designs: the triangulation design, the embedded design, the explanatory design and the exploratory design. The embedded design is a mixed methods design in which one data set provides a supportive, secondary role in a study based primarily on the other data type. This design is particularly useful when a researcher needs to embed a qualitative component within a quantitative design, as in the case of an experimental or correlational design. Although there are different embedded design models, Creswell and Clark (2007:69-70) discuss only two variants, namely the experimental model and the correlational model.

The most suitable model for this study was the correlational model. In order to determine if the two types of data show similar results from different perspectives, the researcher collected qualitative data (semi-structured interviews and literature reviews) as part of the correlational study (national skills survey) to explain how the mechanisms work in the correlational model.

The **primary intent** of this investigation was to address the current gap in the literature regarding the current level of knowledge and skills of administrative professionals within South African organisations. A survey questionnaire was used as a quantitative instrument to achieve the primary purpose of this study, that is, to assess the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional (discussed in paragraph 1.10.3 of Chapter 1).

A **secondary purpose** was to gather qualitative data, by means of semi-structured interviews, that investigated the perspectives of stakeholders, namely: an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner. These five interviews were conducted with stakeholders in the researcher's environment and from the industry. The qualitative data provided context to the primary data obtained in the national skills survey (discussed in paragraph 1.10.3.1 of Chapter 1).

The researcher had a research problem that requires identifying broad trends in a population. The survey design was suited to studying the research problem.

5.5.2 Research sites and sampling

5.5.2.1 *The quantitative sampling procedure*

One of the methods to achieve a research design is to optimise the use of resources and drawing a sample. The sample for completing the survey questionnaire was chosen in such a way that this smaller group of people is representative of the larger group of people from which they were chosen. To select a number of people to participate in a survey does not necessarily ensure an acceptable sample. A researcher is able to use the data regarding the population to generalise if the sample is representative of the greater group. The sample therefore, reflects the characteristics of the group about which the researcher wants to make statements (Creswell & Clark, 2007:112; Rossouw, 2003:107).

The details of the sampling frame that includes the boundaries of the target group, was discussed in paragraph 1.10.2.1 of Chapter 1.

The researcher utilised the database of associations for administrative professionals for sampling purposes.

In nonprobability sampling, the researcher cannot forecast that each element of the population will be represented in the sample. Of the six types of nonprobability sampling, the researcher would "deliberately obtain units of analysis in such a manner that the sample they obtain may be regarded as being representative of the relevant population" (Welman *et al.*, 2012:69).

The criterion for the purposive selection of participants was being a member of an association for administrative professionals.

5.5.2.2 *The qualitative sampling procedure*

In qualitative research, the inquirer purposefully selects individuals and sites that can provide the necessary information. Purposeful sampling means that the researcher intentionally select participants who have experience with the central phenomenon or the key concept being investigated (Creswell & Clark, 2007:112).

For the purposes of the semi-structured interviews, the researcher intentionally selected an education and training professional, a manager, an administrative professional, an academic advisory committee member, a member of an association for administrative professionals, and a curriculum practitioner. All of these participants have experience with the central phenomenon, the current gap in the literature regarding the current level of knowledge and skills of administrative professionals (participants) within South African organisations. The small number of purposeful sampling (to gather qualitative data) provided in-depth views of individuals and the specific contexts in which they hold these views. As indicated in paragraph 1.3 of Chapter 1, these views were obtained by means of semi-structured interviews.

The next section describes the procedure followed to collect the data for the purposes of addressing the research questions as discussed in paragraph 5.3.

5.5.3 Data collection

The data collection procedure needs to fit the type of mixed methods design of the study.

... by using a combination of qualitative and quantitative data-gathering techniques, investigators can clarify subtleties, cross-validate findings, and inform efforts to plan, implement, and evaluate intervention strategies (Creswell & Clark, 2007:33).

The “timing” (order) of collecting the quantitative and qualitative data sets relates more to when the data are analysed and interpreted than to where the data were collected. Timing within a mixed method design is classified as concurrent or sequential. With sequential data collection, the quantitative and qualitative data collections are related to each other and not independent. One builds on the other.

The researcher applied the sequential timing method by collecting, analysing and interpreting the quantitative data obtained from the national skills survey and then subsequently collected, analysed and interpreted the qualitative data emanating from the semi-structured interviews.

5.5.3.1 Collecting qualitative data

The qualitative data collection method for the proposed study built a more detailed understanding of the quantitative results (Blaikie, 2010:204 & 216; Creswell & Plano Clark, 2011:9). The initial phase of the data collection, which involved books, research articles, the Internet and theses, was done by means of:

- (i) a literature review on the impact into the future scenarios of the changing world of work on the administrative professional's application of new knowledge and skills and the impact of skills on the thinking processes and thinking styles preferences of the administrative professional; and
- (ii) data were gathered from an international and national investigation on the current level of knowledge and skills of administrative professionals to comply with and perform, according to the requirements of the future world of work.

The qualitative approaches identified by Denzin and Lincoln (2011:3) are case studies, personal experiences, introspection, life stories, interviews, artefacts, cultural texts and productions, observational, historical, interactional and visual texts.

The ensuing phase of the qualitative data collection was already discussed previously (refer to paragraph 1.10.3.1 of Chapter 1 and paragraph 5.5.2.2).

5.5.3.2 Collecting quantitative data

The quantitative research approach is the intensive study of many features of a number of phenomena in order to build an in-depth understanding of it (Miller & Brewer, 2003:193). The quantitative data collection involves a survey research design as it denotes the investigation of the existence of a relationship between variables (Welman *et al.*, 2012:94).

The quantitative research approach was applied to assess the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional. This was done by means of a survey questionnaire to identify the current level of knowledge and skills of administrative professionals within South African organisations. A survey questionnaire was constructed as a measuring instrument by the researcher and personally administered to the respondents, as this type of data collection method is less time-consuming and less expensive.

The self-constructed survey questionnaire is based on:

- (i) data emanating from the international investigation (as discussed in Chapter 3);
- (ii) futuristic models, such as the Future Work Skills 2020 and Lifelong Learning Skills (both models are illustrated in Figure 4-1 of Chapter 4); and
- (iii) the secondary data analysis (Chapter 3) and literature review (Chapter 4).

Specialised measurements based on scales and indices are applied in the survey questionnaire. Rossouw (2003:14) states that “a scale is used to determine the intensity, direction, level or strength of a variable construct by placing the responses or observations on a continuum”. It is used especially for measuring attitudes and can consist of one or more indicators or items.

Except for the demographic information section of the survey questionnaire and the open-ended questions, the VAS was applied in this survey questionnaire. The VAS is a measuring instrument for subjective characteristics or attitudes that cannot easily be measured directly (Svensson, 2001:47-48). This measuring instrument is a unipolar or bipolar 100 mm continuous (or “analogue”) horizontal scale line that connects two opposing textual anchors with two modifiers, “not at all” and “extremely” (Green & Taylor, 2009:2; Hasson & Arnetz, as cited in Musangu & Kekwaletswe, 2012:1-2). In this study, the survey questionnaire has a series of unipolar questions (Tiplady, 2008:1-6). The scores range from 0 to 10, with the “0” score indicating the “not at all” response and the “10” the “extreme” response. Participants can, therefore, select a number or adjective and then indicate that preference (Couper *et al.*, 2007:227-232).

In the survey questionnaire of this study, the administrative professionals selected the number that best describes their perception of effectiveness with regard to various identified skills. The VAS measurement instrument is known for inclining the possibility of participants to select ratings in the middle of the response scale. This has a significant impact on the quality of data. The responses are calculated, based on the sum total of the scale (Cowley & Youngblood, 2009:1-5; Welman *et al.*, 2012:227-229). The VAS was originally developed as a self-administered survey. The selected choices of participants were captured onto a spreadsheet. A summary of the responses was provided to a statistician to analyse the data by means of statistical computer packages (Couper *et al.*, 2007:227-232).

Figure 5-1 below illustrates textual anchors in VAS.

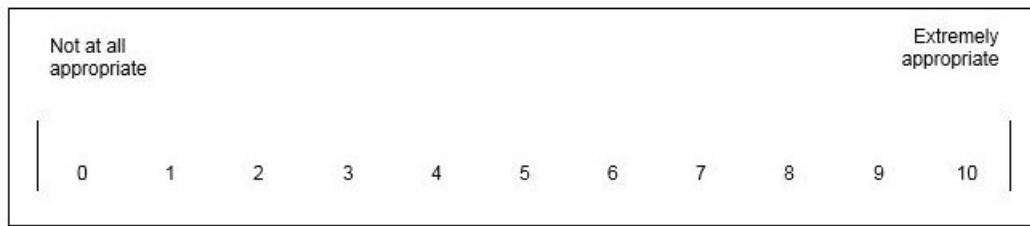


Figure 5-1
Example of unipolar VAS
(Cowley & Youngblood, 2009:2)


As discussed in paragraph 1.3.2(i) of Chapter 1 (data were collected), the skills survey was conducted nationally with administrative professionals in the public and the private sectors. Considering the number of respondents participating in the national skills survey, it would be a time-consuming process to capture the results on a spreadsheet. An investigation by the researcher concerning online assessment survey tools has revealed a number of advantages of online assessment tools. An assessment regarding online survey tools by Marra and Bogue (2006:1-11) showed that one of the benefits of online survey tools is that support is provided for the data collection process. The responses are automatically stored in the provider's database to download when convenient. This eliminates the need for manual data entry.

The researcher decided on SurveyMonkey™ as an online assessment tool for the following reasons:

- (i) The tool offers the VAS, as illustrated in Figure 5-1.
- (ii) The researcher personally funded the utilisation of this online assessment tool.
- (iii) SurveyMonkey™ allows the exporting of data into programs such as a SAS or SPSS (see Footnote 9 on page 23 of Chapter 1) for more complex analysis.
- (iv) It is designed to be easy to use, as illustrated in Figure 5-2.

The online survey was developed to gain geographical and industry coverage and to seek demographic data plus some initial descriptive data to answer the research questions. The survey questionnaire was designed with SurveyMonkey™, an online survey package that is available in the public domain.

*** 1. Office administration, organisational and time management:**
The office environment in 2015 is remarkably different than that of 2000. The technological changes have had a significant impact on efficient governing regarding office administration (daily, weekly and monthly schedule for office functions), organisational and time management (planning, organising and prioritising workload).

Select the number that best describes **how effective** are your: 

	Not effective at all												Extremely effective
	0	1	2	3	4	5	6	7	8	9	10		
Planning skills to meet daily, weekly and monthly objectives?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		

Figure 5-2
Example of VAS on SurveyMonkey™

Only one of the three associations for administrative professionals considered to provide consent to distribute the survey questionnaire to its members. The survey questionnaire was distributed electronically with a hyperlink to the website in e-mails) (see Appendix D). SurveyMonkey™ served as a diagnostic and anonymous tool to assess the questionnaire. The researcher obtained consent from respondents to participate in the survey by means of implied consent. Implied consent occurs when a person freely co-operates in a process without discussion or formal consent. This type of consent also protects the participants' anonymity. Online consent is referred to as implied consent. A statement on the first page of SurveyMonkey™ explained the nature and purpose of the survey. The statement also included an agreement that the participant acknowledge that the statement has been read and understood and therefore agrees to participate in the survey. Agreement to participate could be confirmed by clicking on an icon. It would therefore, not be necessary for the participants to complete and sign an information leaflet and letter of informed consent. As illustrated in Figure 5-3, the data were collected independently and sequential during a three-month period.

According to Welman *et al.* (2012:148-149), it is significant to test survey questionnaires. The pilot study entails administering the instrument on a smaller scale and is used to test logistics and gather information prior to undertaking a more comprehensive study. This is done in order to improve the quality and efficiency of the comprehensive study. In this study, the survey questionnaire was pre-tested with a limited number of respondents from the target population for comprehensibility, and efficiency as a data-capturing tool.

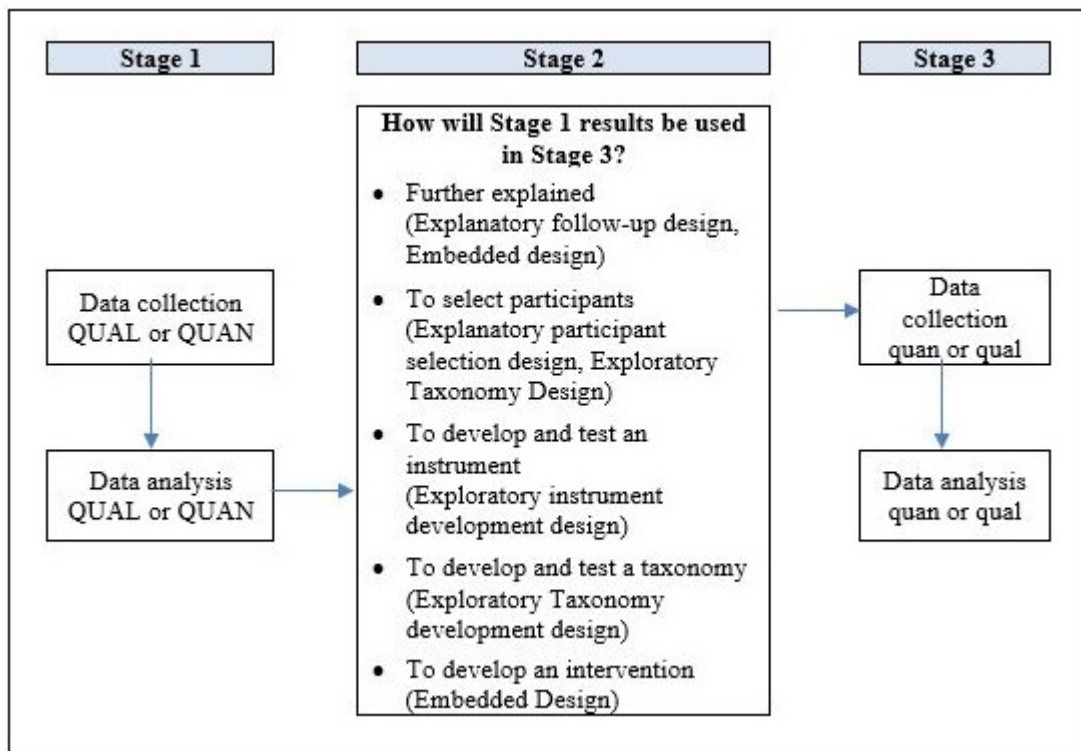


Figure 5-3
Sequential forms of mixed methods data collection
(Creswell & Clark, 2007:122)

Data analysis in mixed methods research consists of analysing the quantitative data using quantitative methods and the qualitative data using qualitative methods. The data are analysed to address the main research question (Creswell & Clark, 2007:128). The procedure that the researcher followed to analyse the data, is described below.

5.5.4 Data analysis

Creswell (2003:190) defines data analysis as follows:

The process of data analysis involves making sense out of text and image data. It involves preparing the data for analysis, conducting different analyses, moving deeper and deeper into understanding the data, representing the data, and making an interpretation of the larger meaning of the data.

The type of data analysis will vary, depending on the type of mix methods used. The procedure of mixed methods data analysis relates to concurrent data analysis (triangulation and embedded designs) and sequential data analysis (explanatory, exploratory and embedded designs) (Creswell, 2003:135-144). As discussed above (paragraph 5.5.3), an embedded mix method design was used in this study with a sequential data collection method.

Figure 5-4 presents a visual example of the sequential data analysis procedures. These procedures of data analysis apply to the embedded designs as supportive data are collected before or after the primary dataset. This procedure was compiled by Creswell and Clark (2007:143) and the selection given synchronises with the exact text, and should thus be regarded as a quotation. Paragraph 5.5.3 presents a detailed explanation of the process through which the data were collected, simplified, organised and interpreted. The paragraphs below explain how the data were analysed, according to a process similar to that of Creswell and Clark (2007:143), as expounded in Figure 5-4, and similar to the data analysis procedure defined by them. The data analysis process of this study was not exactly according the framework of Creswell and Clark, therefore the researcher's references to "a similar process".

The sequential analysis was used to address the main research question, namely, "What is the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional?" (listed in paragraph 1.4 of Chapter 1). In this study, the quantitative data were collected and analysed in the first phase of the research and the qualitative data were collected in the second phase as a follow-up to the quantitative analysis. The most suitable design that was applicable to the latter was the explanatory design and the embedded design. As shown in Figure 5-3, given the quantitative results in Stage 1, the researcher selected the quantitative results as a follow-up in the qualitative phase.

5.5.4.1 *Qualitative data analysis*

The qualitative data derived from steps set out in the data analysis techniques of Creswell and Clark (2007:129), namely to organise and prepare the data, read the data, start to analyse the data in detail, identify subjects and sub-subjects, discuss the subjects and interpret and explain the data.

The researcher followed the same procedure for qualitative data analysis as that which was used for quantitative data analysis that is discussed in the next paragraph, 5.5.4.2. The findings obtained from the semi-structured interviews conducted with an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner provided context to the data obtained from the national skills survey and the literature study.

5.5.4.2 Quantitative data analysis

Detailed discussions on how the quantitative data analysis was conducted was explained in paragraph 1.10.3.2 of Chapter 1 and paragraph 5.5.3.2. These discussions include how the raw data were converted into a form useful for data analysis, throughout to submitting the spreadsheet with the selected choices of participants and the computer software program applied in terms of the analysis. These sections conclude with the description on how the data were presented.

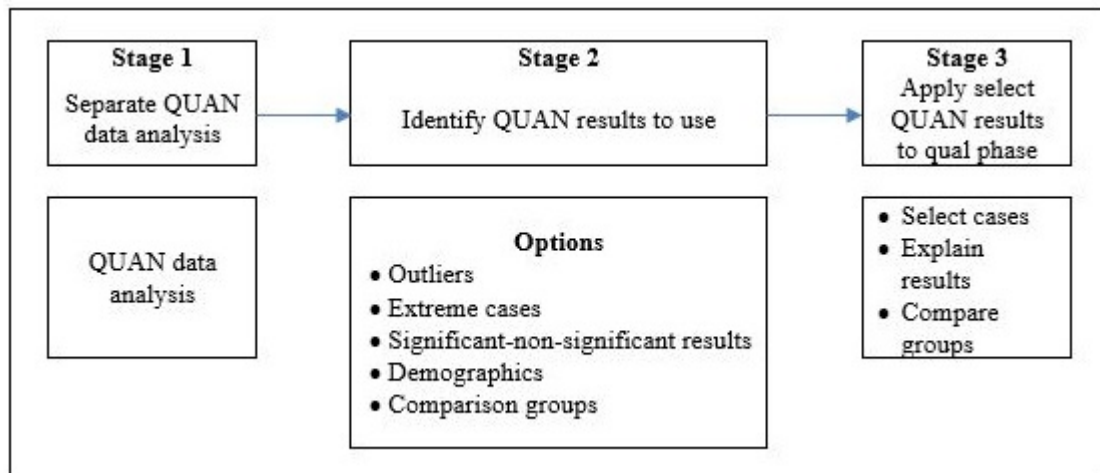


Figure 5-4
Sequential embedded and explanatory design
(Creswell & Clark, 2007:143)

5.5.5 Quality assurance including validity and reliability

5.5.5.1 Validity

Validity differs in qualitative and quantitative research, but in both approaches, it serves the purpose of checking on the quality of the data and the results (Creswell & Clark, 2007:133-146; Joppe in Golafshani, 2003:599). Validity, within a mixed method design means that the researcher can draw meaningful and accurate conclusions from all of the data in the study. The accurate conclusions reinforce the idea of inference quality. It is the accuracy with which researchers draw inductive and deductive conclusions from a study.

As assessment of the validity a statistician assessed the:

- (i) content validity (whether the items or questions are representative of possible items);
- (ii) criterion-related validity (whether the scores relate to some external standard, such as scores on a similar instrument); or

- (iii) construct validity (whether the scores are consistent or measure what they intend to measure).

To enhance the validity in this mixed method study, the potential threats (view Table 5-3) that might arise during data collection and analysis, were taken into consideration.

Table 5-3
Potential threats to the validity of sequential design in mixed methods research
(Creswell & Clark, 2007:148)

SEQUENTIAL DESIGNS (EXPLANATORY, EXPLORATORY, EMBEDDED)	MINIMIZING THE THREAT
Data collection issues	
<ul style="list-style-type: none"> • Selecting the same or different individuals for the qualitative and quantitative data collection 	<ul style="list-style-type: none"> • Select the same individual for an Explanatory Design and different individuals for the Exploratory Design
<ul style="list-style-type: none"> • Using the same sample sizes for the qualitative and quantitative data collection 	<ul style="list-style-type: none"> • Use large sample for quantitative and small sample size for qualitative
<ul style="list-style-type: none"> • Not choosing participants for the follow-up who help explain significant results 	<ul style="list-style-type: none"> • Choose same individuals for the qualitative follow-up and the quantitative first phase
<ul style="list-style-type: none"> • Not designing an instrument with sound psychometric (i.e., validity and reliability) properties 	<ul style="list-style-type: none"> • Use rigorous procedures for developing and validating the new instrument
Data analysis issues	
<ul style="list-style-type: none"> • Choosing weak quantitative results to follow-up on qualitatively 	<ul style="list-style-type: none"> • Choose significant results or strong predictors to follow-up on
<ul style="list-style-type: none"> • Choosing weak qualitative finding to follow-up on quantitatively 	<ul style="list-style-type: none"> • Use major themes as the basis for the quantitative follow-up
<ul style="list-style-type: none"> • Not addressing validity issues 	<ul style="list-style-type: none"> • Address both quantitative and qualitative validity

5.5.5.1 Reliability

Creswell and Clark (2007:133) and Joppe (in Golafshani, 2003:598) define reliability of quantitative research as follows:

The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of the study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

In a current study, researchers need to check for the reliability of scores (through statistical procedures of internal consistency) and any test-retest comparisons. In qualitative research, there is more focus on validity to determine whether the account provided by the researcher and the participants is accurate, can be trusted and is credible.

Validity comes from the analysis of the researcher and from information gleaned from participants and from external reviewers (Creswell & Clark, 2007:134). Reliability plays a minor

role in qualitative research and relates primarily to the reliability of multiple coders on a team to reach agreement on codes for passages in text.

5.6 SUMMARY

In this chapter, the selected paradigmatic perspective, as well as the research design, data collection and data analysis techniques are discussed. In conclusion, the quality assurance and the validity and reliability are described.

In the next chapter, the results of the study are presented and interpreted in relation to the findings of the literature review.

CHAPTER 6

DATA ANALYSIS, FINDINGS AND INTERPRETATION

6.1 INTRODUCTION

Further to the detailed theoretical exposition of the research design and methodology that is outlined in Chapter 5, this chapter presents the findings of the data analysis followed by the interpretation of the findings, conclusions and recommendations in Chapter 7.

An embedded mixed method design guided this study (see paragraph 5.5.4 of Chapter 5) to assess the impact of the global and national key drivers of change and transformation into the future success profile of the administrative professional for optimal effectiveness. To address the research problem (mentioned in the preceding sentence and described in detail in paragraph 1.3 of Chapter 1) and the research questions (formulated in paragraph 1.4 of Chapter 1), quantitative and qualitative approaches were employed in tandem (known as a sequential research strategy) and embedded. In order to achieve the secondary objective of the study, the qualitative data gathered from the semi-structured interviews have been integrated with the data from literature and the quantitative findings collected from a national skills survey, in order to provide contexts in terms of the investigation (discussed in detail in Chapter 5) (Bentahar & Cameron, 2015:5).

The theoretical and conceptual framework (as outlined in paragraphs 1.7 and 1.8 of Chapter 1) serves to inform the chosen mixed method design that supports the overarching philosophy and requirements of the study (Creswell, Klassen, Clark & Smith, 2010:7). The theoretical framework of this study is based on an extensive literature study in Chapters 2 and 4. It became evident that the global and national key drivers of change and transformation involve a new set of thinking and skills in the business world of the 21st century, and thus incorporating the thinking of all four quadrants of the Whole Brain® Model. This Whole Brain® theory was applied to interpret the data derived from the national skills survey (see Appendix D for survey questionnaire) as well as the qualitative data derived from the semi-structured interviews to constitute the current knowledge and skills required by administrative professionals within South African organisations. Grounded in the conceptual framework, are the different constructs (as illustrated in Figure 1-1 in Chapter 1 and discussed in Chapter 4) postulated to reveal the impact of the global and national key drivers of change and transformation on the future success profile of the administrative professional for optimal effectiveness.

Consequently, this chapter presents the findings of this study in accordance with the research aim (as described in paragraph 1.3 of Chapter 1), which was to construct a futuristic whole-brain success profile for the administrative professional in the South African context.

The findings are presented by means of descriptive and inferential statistics, whereas the qualitative content analysis method is employed to present the data of the semi-structured interviews. The chapter commences with a brief summary on how the data were collected in the preliminary investigation. This is followed by presenting the analysis of the pilot testing of the survey instrument and, after this, a descriptive statistical summary of the biographical information (Category A). After that, the data analysis of the current level of knowledge and skills (Category B) of the administrative professionals who participated in the national skills survey is presented, followed by the results of the open-ended questions (Category C). Lastly, the analysis of the qualitative data collected from the semi-structured interviews is presented.

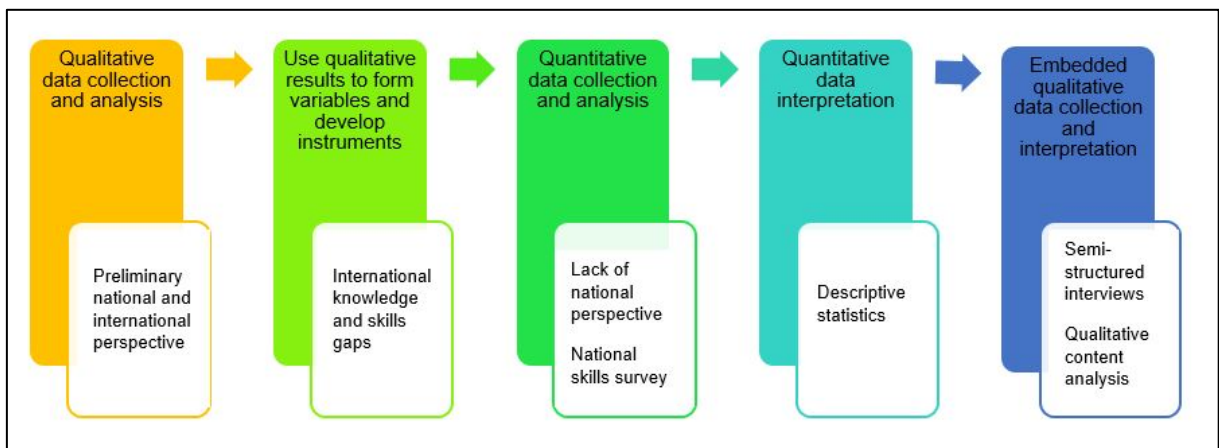


Figure 6-1
Sequential exploratory design to collect data for analysing purposes
(Creswell, 2008:27)

The researcher proceeds with the discussions on the data analysis and findings, by means of the adopted multi-method research design of Creswell (2013:27), as illustrated in Figure 6-1.

6.2 PRELIMINARY INVESTIGATION

Where little is known about the intended investigation, Sekaran (2003:119-120) and Creswell *et al.* (2010:6) suggest an exploration of the qualitative data. This enabled the researcher to better comprehend the problem in order to contribute to the development of an adequate instrument for measurement.

In the initial phase of the study, the researcher conducted an extensive preliminary investigation to obtain an international and national perspective into the current ability of administrative professionals to comply and perform, according to the requirements of the changing world of work. It was found that there is a lack in the literature from a national perspective in terms of the current level of knowledge and skills of administrative professionals within South African organisations (as discussed in Chapters 1 and 3).

Therefore, the researcher decided to investigate the current level of proficiency regarding the knowledge and skills required by administrative professionals within South African organisations to conform to the second objective as described in paragraph 1.3.1 of Chapter 1. The researcher constructed Phase 1 (as illustrated in Figure 3-1 at the end of Chapter 3) of the data-gathering process summarising the knowledge and skills gaps that emerged from the international investigation. This initial phase of the study gave the researcher a better understanding of the phenomenon, namely the lack of existing literature regarding the current level of knowledge and skills of administrative professionals within South African organisations. This initiated propositions that can be assessed in the next phase. Thus, these identified knowledge and skills gaps that were supported by an extensive literature study in Chapter 4 contributed to the development of the quantitative questionnaire for administrative professionals (see Appendix D). The descriptive statistics of these findings are discussed in paragraph 6.4.

6.3 PILOT TEST ANALYSIS

As recommended by Welman *et al.* (2012:148), Rossouw (2003:140) and Sekaran and Bougie (2013:158-159), a pilot study on a small-scale was conducted (also known as a pre-test). The aim of the pilot study was to address logistical matters, such as testing the questions for difficulty of comprehension, the length of the questionnaire – to eliminate the possibility of fatigue, confusing response categories and ambiguous instructions. The initial quality of the questionnaire was analysed and discussed with a statistician at the Tshwane University of Technology. For the purpose of the pilot test, a population with characteristics similar to the targeted group of the main survey was requested to complete the survey questionnaire. From the target population, ten respondents over a wide geographical area were identified by the Chief Executive Officer (CEO) of the professional association, OPSA to complete the survey questionnaire online. Only five of the respondents completed and submitted the survey questionnaire. Two of the submitted copies of the survey questionnaire had to be discarded since they were incomplete and could not add value to the quality and efficiency of the questionnaire. The respondents could access the survey questionnaire by means of a hyperlink, direct the participants to SurveyMonkey™. Since the pilot study was anonymous, respondents could submit any queries to the CEO of the professional association, OPSA. In the pilot study respondents did not indicate any difficulties experienced with the questions, neither with accessing SurveyMonkey™ or the completion of an online assessment. The findings of the quantitative data of the pilot study were included in the main survey data that are discussed in paragraph 6.5.

The next phase of the exploration study entailed the descriptive analysis of the quantitative data (survey questionnaire). The data were collected from a nonprobability sample of the population (as discussed in paragraph 5.5.2.1 of Chapter 5) to test whether the data were in line with the primary purpose of the study. That is, to identify the current level of knowledge and skills of administrative professionals within South African organisations.

6.4 ANALYSIS OF QUANTITATIVE DATA

The researcher collected both quantitative (closed items) and qualitative (open-ended questions) responses from SurveyMonkey™. The data were transferred into an MS Excel spreadsheet to enable the statistician to view each response individually. The data emanating from the open-ended questions (qualitative responses) are discussed together with the data that were obtained in the semi-structured interviews in paragraph 6.5.

In the next section the reliability of the survey questionnaire by means of the internal consistency method is presented. After this, the data obtained from two of the three categories that formed part of the survey questionnaire are discussed as outlined below.

- (i) The descriptive statistics for the single variables in the biographical information (Category A) are provided by means of frequencies and percentages and displayed as tables (Christensen, Burke Johnson & Turner, 2015:397; Sekaran & Bougie, 2013:282-283; Welman *et al.*, 2012:233-234).
- (ii) The descriptive statistics, in this instance the mean value, were obtained from the interval-scaled items of the current knowledge and skills in category B and displayed by means of tables (Christensen *et al.*, 2015:404; Sekaran & Bougie, 2013:292-293; Welman *et al.*, 2012:230).

6.4.1 Internal consistency of the survey questionnaire

In this study, the researcher relied on Cronbach's alpha (α) to estimate the reliability of a scale. Cronbach alpha therefore serves as evidence on how well the scale items are multidimensional or inversely related in terms of the responses of the sample participants (Christensen *et al.*, 2015:155-156; Helms, Henze, Sass & Mifsud, 2006:630-660; Sakaran & Bougie, 2013:228-229; Salkind, 2014:114; Welman *et al.*, 2012:147). As a result, where the Cronbach alpha is less than 0.7 (< 0.7), the items are not reliably testing the internal consistency. The inter-item consistency reliability coefficients of the survey questionnaire were calculated on the ten main categories in category B. This category includes items regarding the participants' current level of knowledge and skills.

It is evident from the data in Table 6-1 that nine of the ten main categories in category B are reliably testing the inter-item consistency, that is, the Cronbach's (α) alpha is > 0.7 . Considering the two items for question 6.3, namely "the development of personal commercial awareness", it is not practical to determine tests for internal consistency for one or two items. The last question of Section B regarding learning and development is discussed after the descriptive statistics in paragraph 6.5.3.10. The responses with regard to the open-ended questions, Section C, are discussed after the presentation of the semi-structured interviews in paragraph 6.7.

Table 6-1
Cronbach's (α) alpha for the sub-scales of the measurement

INSTRUMENT SUB-DIMENSION	CRONBACH'S ALPHA (α)	NUMBER OF ITEMS
Office administration, and organisational and time management	0.8743	4
Information and communication technology	0.8465	5
Internet web-based applications	0.8223	3
Management of meetings	0.9305	5
Communication	0.8958	3
Interpersonal skills:		
Team working, project and event management	0.8635	5
Supervising of staff	0.9199	4
Conflict resolution	0.9259	3
Public relations and customer service/relations	0.9180	3
Thinking skills:		
Problem-solving	0.9047	4
Commercial awareness	0.9114	4
Outside the box/innovation thinking	0.9051	3
Personal qualities:		
Social adaptability	0.9239	5
Self-management	0.8435	4
Emotional intelligence	0.9053	4

6.5 DESCRIPTIVE STATISTICS

6.5.1 The profile of the sample

Following the discussions with regard to the quantitative sampling procedure in paragraph 1.10.2.1 of Chapter 1, this section describes the response rate.

The Association for OPSA published the survey questionnaire for the first time for completion through their Terrific Tuesday newsletter e-mail on 10 November 2015 (view Figure 6-2) to their members in all the provinces for a period of a week. A hyperlink to the survey questionnaire was also posted on the social media channels of the professional association, OPSA.

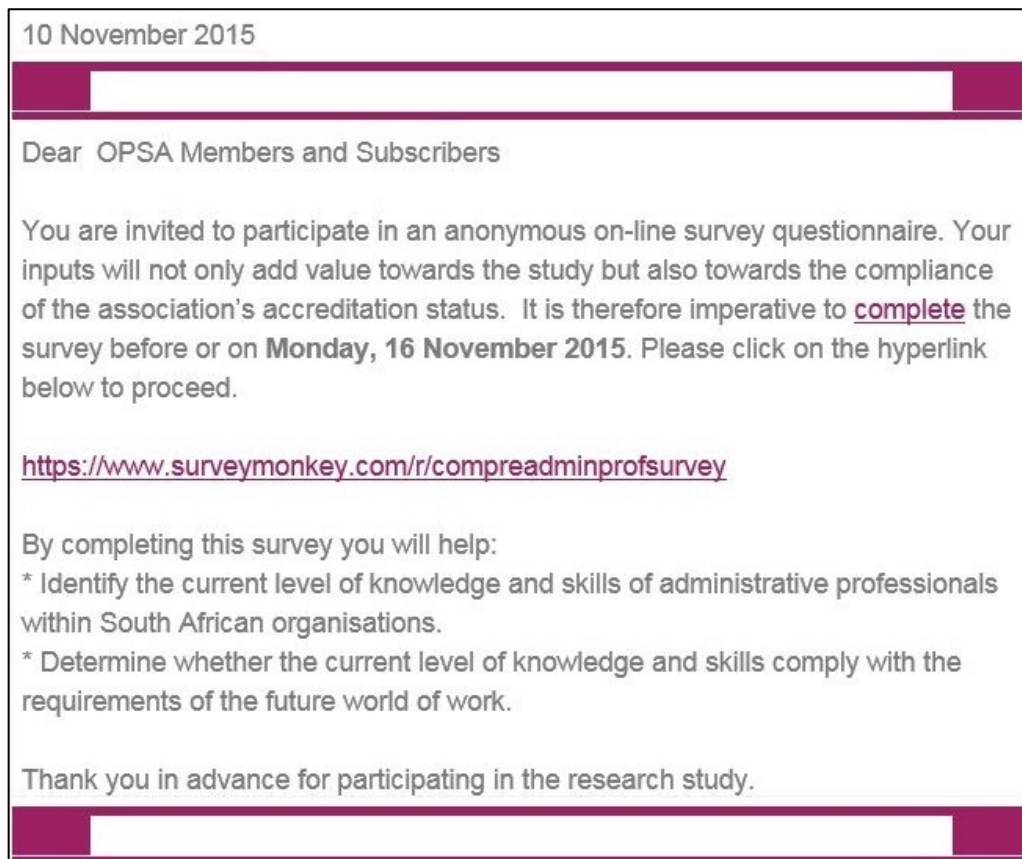


Figure 6-2
Example of invitation on Terrific Tuesday newsletter
(Association for OPSA)

A reminder was distributed via e-mail to the members on 13 November 2015 by means of the Fabulous Friday Newsletter. At the end of this window period, 119 responses were received. Considering that the projected response rate was not met at the end of the initial window period (as discussed in paragraph 1.10.2.1 of Chapter 1), the survey questionnaire was re-distributed for the window periods 2 to 22 February 2016 and 10 to 24 March 2016. These postings were followed-up with reminders on 9 February 2016, 10 March 2016 and 15 March 2016. An additional 100 responses were received, and that added up to a total of 219 responses.

According to Babbie and Mouton (2007:261), the inclusive response rate is considered to be a guide of the representatives of the sample respondents. They denote that a response rate of 50% is regarded as adequate for analysis and reporting, a 60% response rate is good, and 70% is very good. A total of 219 responses were received, instead of the projected sample responses of at least 354 (also see paragraph 1.10.2.1 of Chapter 1). The overall response rate was about 62% of the members of the Association for OPSA who participated in the national skills survey. Since the response rate of 62% falls within the criteria of Babbie and Mouton (2007:261) as a good response rate, the findings are of value for this study.

The next section (paragraph 6.5.2) describes the biographical information of the respondents.

6.5.2 Demographic profile

The descriptive analysis of category A (demographics and general profile) consists of the following aspects: age category, geographical location, the positions of administrative professionals, length of work experience, industry of employment, professional membership, level of education and the formal qualification enrolment status. The data analysis was done by means of frequency distribution to determine how the scores were distributed across all categories (Christensen *et al.*, 2015:397; Privitera, 2016:32; Welman *et al.*, 2012:229). The results are presented as frequency tables to give the number of responses per category together with the percentages. Those who did not respond to the item were excluded from the data analysis.

6.5.2.1 Age category

Table 6-2 shows the age distribution of the sample. Most of the respondents belonged to the category >41 to 50 (43%). This could be an indication that they began their careers towards the end of the 20th century and thus formed part of what is referred to as the knowledge-based society within the service economy. In this economy, an emphasis was placed on increased productivity and quality of goods and services (Buera & Kaboski, s.a.:2 & 5; Kim, 2006:1; OECD, 2000:37). Taking into account that activities focused on increasing productivity and quality control are mostly associated with left-brain thinking (Herrmann, 1995:420; Herrmann & Herrmann-Nehdi, 2015:155), it seems that the majority of the participants were exposed to tasks that require predominantly left-brain thinking.

It is also worthwhile to mention that, in line with the results of this study, Venter (2011:122) and also a Benchmarking Survey by the IAAP (2013:7; 2015:5) found that the median age of administrative professionals is constant at 46. It therefore seems that the profession does not attract young professionals. In addition to this, the IAAP conduct their Benchmarking Surveys every two years among approximately 16,750 members, over a period of a month (IAAP, 2013:1; 2015:1). Specific reference is made to the age category below 40, which declined from 16.6% in 2013 to 11.5% in 2015. This is also confirmed by a study by Van Antwerpen (2013:182) that raises a concern with regard to the low number of entries into the profession of persons below the age of 40.

Table 6-2
Distribution of age groups
(N = 219)

AGE GROUP	FREQUENCY	PERCENTAGE
Under 30	18	8.22
31-40	55	25.11
41-50	95	43.38
51 or above	51	23.29

6.5.2.2 Geographic location

Although members of the Association for OPSA are distributed across all nine provinces of South Africa, the CEO of the professional association confirmed that there is a high concentration of members in Gauteng and the Western Cape. As depicted in Table 6-3, it can be seen that the majority of the respondents (65.89%) are located in the Gauteng province and in the Western Cape (11.68%). Furthermore, in spite of various reminders (as discussed in paragraph 6.5.1), responses from members were not received from all the provinces. Specific reference is made to the Northern Cape with a response rate of zero.

Table 6-3
Geographic location of participants
(N = 214)

GEOGRAPHIC LOCATION	FREQUENCY	PERCENTAGE
Gauteng	141	65.89
Western Cape	25	11.68
KwaZulu-Natal	15	7.01
Eastern Cape	11	5.14
Free State	9	4.21
Mpumalanga	6	2.80
North West	5	2.34
Limpopo	2	0.93
Northern Cape	0	0

6.5.2.3 Positions of administrative professionals

The matter with regard to the impact that the higher level of responsibility has on the titles for administrative professionals, and that employers should consider revising their titles accordingly, has already been discussed in paragraph 1.5.3 of Chapter 1, and paragraph 4.3.4 of Chapter 4, and is therefore related to these findings.

The researcher, therefore, provided the most familiar titles in order to establish the current titles in use by administrative professionals in South Africa. As displayed in Table 6-5, the majority of respondents are employed as personal assistants (25%). An equal number of respondents selected the category “Other” (25%). Table 6-4 reflects only those “Other” titles selected by more than one respondent.

Table 6-4
Other positions of employment
(N = 23)

OTHER POSITIONS OF EMPLOYMENT	NUMBER OF PARTICIPANTS WHO SELECTED THIS CATEGORY
Executive Personal Assistant	7
Executive Assistant	5
Virtual Assistant	3
Office Administrator	2
Contracts Specialist	2
Administration Officer	2
Receptionist	2

Also evident from Table 6-5 is that the title “office co-ordinator” is the least popular (3.77%). Similar to this study, a study by Van Antwerpen (2013:183) found that the most prevalent post titles in South Africa are secretary, executive secretary, personal assistant and office manager. A different scenario emerged in both Benchmarking Surveys of the IAAP (2013:9; 2015:8) where executive assistant was the predominant title. The title, personal assistant is the least preferred and only five respondents recorded their title as “executive assistant”.

In light of the immense impact of revolutionary developments in information and communication technology on the profession, it is thus important that organisations review the names of the administrative professional’s positions to resemble their more diversified roles (also see discussion in paragraph 4.3.3 of Chapter 4). Taking into account the many titles currently in use (as displayed in Table 6-4 and Table 6-5), it is evident that a need exists for a professional body where there are uniform descriptions of positions and where the administrative professional could register accordingly.

Table 6-5
Positions of employment
(N = 212)

POSITIONS OF EMPLOYMENT	FREQUENCY	PERCENTAGE
Other	53	25.00
Personal Assistant	53	25.00
Administrative Assistant	21	9.91
Administrative Professional	21	9.91
Executive Secretary	21	9.91
Secretary	12	5.66
Senior Secretary	12	5.66
Office Manager	11	5.19
Office Co-ordinator	8	3.77

6.5.2.4 Length of work experience

As depicted in Table 6-6 most of the participants (37.26%) have 11 to 20 years of work experience as an administrative professional. This is followed by the category, 21 years and more (28.77%). This could indicate that administrative professionals do not consider the profession as a permanent career. This view has been supported by Van Antwerpen (2013:186), whose findings revealed that, compared to the other groups, there is a decrease in the category of 25 and more years of experience. This could be attributed to the negative impact of the global key drivers of change and transformation that yields a decrease in employment in office and administrative roles (as discussed in paragraph 4.3.4 of Chapter 4). It could therefore be assumed as a result, that administrative professionals already invested in re-skilling to pursue with new opportunities arising from the changing work environment and therefore do not consider the administrative profession to be a lifelong profession. What should be taken into consideration, is the Benchmarking Surveys of the IAAP (2013:9; 2015:8), as well as the discussion in paragraph 6.5.2.1, which indicate that should young professionals not enter and regard the profession as a lifelong career, employers could experience knowledge and skills gaps among administrative professionals.

Table 6-6
Length of current or related work experience
(N = 212)

LENGTH OF WORK EXPERIENCE	FREQUENCY	PERCENTAGE
1-11 months	7	3.30
1-5 years	23	10.85
6-10 years	42	19.81
11-20 years	79	37.26
21 and more years	61	28.77

6.5.2.5 *Industry of employment*

Although the survey was conducted among all administrative professionals in both the public and the private sectors, only the most well-known sectors were listed from which the respondents could choose. As illustrated in Table 6-8 the majority of respondents (21.8%) chose the category “other”. Table 6-7 reflects only those “other” industries selected by more than one respondent.

The second largest represented industry of 14.22% was the education sector, followed by the government sector, 11.85%. The accounting, banking or finance sector only had 22 (10.43%) respondents and the engineering or architecture sector had 15 (5.11%). Categories such as insurance and manufacturing were both represented by 5.69% respondents. Industry sectors with very little representation are as follows: communication (3.79%), legal (3.32%), both construction and transport (2.84%), agricultural and retail or sales (1.9%), advertising, marketing or publications, real estate and personnel/human resources (1.42%), media or publishing and medical (0.95%), and 0.47% from the health sector.

Table 6-7
Other industries of employment
(N = 25)

OTHER INDUSTRIES OF EMPLOYMENT	NUMBER OF PARTICIPANTS WHO SELECTED THIS CATEGORY
Mining and Transport/Mining and Metals Corporate Office	7
Financial Services/Banking/ITS/Finance Industry Sector	5
Water Sector	4
Services Industry Sector	3
Public Sector	2
Municipality (Local Government)	2
Receptionist	2

Table 6-8
Industry of employment
(N = 211)

INDUSTRY OF EMPLOYMENT	FREQUENCY	PERCENTAGE
Other	46	21.80
Education	30	14.22
Government	25	11.85
Accounting	22	10.43
Engineering	15	7.11
Insurance	12	5.69
Manufacturing	12	5.69

INDUSTRY OF EMPLOYMENT	FREQUENCY	PERCENTAGE
Communication	8	3.79
Legal	7	3.32
Construction	6	2.84
Transport	6	2.84
Agricultural	4	1.90
Retail	4	1.90
Advertising	3	1.42
Personnel	3	1.42
Real Estate	3	1.42
Media/Publishing	2	0.95
Medical	2	0.95
Health	1	0.47

6.5.2.6 *Level of education*

It is evident from Table 6-9 that the highest level of qualification of the participants is that of a diploma (40.95%) while 20.48% has no post-school qualification. A study by Van Antwerpen (2013:182-183) revealed similar findings, with fewer than 50% of the respondents whose highest qualification is a diploma. In the IAAP Benchmarking Survey (2013:22; 2015:7), administrative professionals indicated their highest qualification as a bachelor's degree. The literature review revealed the importance of lifelong learning for all workforces at all levels, not only for administrative professionals (see paragraphs 3.2.7 and 4.3.2 of Chapters 3 and 4). However, the above findings as well as the finding that only 24.88% of the respondents are currently enrolled for a formal qualification (discussed in the next paragraph 6.5.2.7), might be strengthening the view that the respondents do not view their profession as being a lifelong career (as discussed in paragraph 6.5.2.4). Furthermore, there could be a lack of support from employers for continuing professional development of administrative professionals and the recognition thereof.

Table 6-9
Highest level of education
(N = 210)

LEVEL OF EDUCATION	FREQUENCY	PERCENTAGE
Other	10	4.76
Grade 12	43	20.48
Certificate	39	18.57
Diploma	86	40.95
Bachelor's Degree	30	14.29
Master's Degree	2	0.95

6.5.2.7 Formal qualification enrolment

As illustrated in Table 6-10, 24.88% of the respondents are currently enrolled for a formal qualification. The implication of the low number of enrolment has already been discussed in paragraph 6.5.2.6.

Table 6-10
Formal qualification enrolment
(N = 209)

FORMAL QUALIFICATION ENROLMENT	FREQUENCY	PERCENTAGE
Enrolled for formal qualification	52	24.88
Enrolment related to current profession	40	19.51
Enrolment not related to current profession	12	5.80
Not enrolled for formal qualification	157	75.12
Selected "not applicable" by those who are not enrolled for a formal qualification	153	74.63

Category A of the questionnaire that sought to obtain the demographical profile of the respondents is summarised below.

In light of the finding that the median age of the participants is 46, and taking into account the low percentage of participants that are younger than 30 years, it seems that within the South African context, the profession does not attract young professionals. Further to this notion, it seems as if administrative professionals do not regard the profession as a permanent career. This premise was based on the average work experience of 16.5 years, and that the highest level of qualification of the participants is that of a diploma. These factors, together with the small number of respondents currently enrolled for a formal qualification, seem to support the view that there is a decrease in administrative professionals in South Africa and a few who regard the profession as being a lifelong career.

The finding that only a small number of current enrolments are related to their current profession might be an indication that they are considering other professions. Furthermore, there is an indication that South Africa is not on par with the descriptions of positions that resemble administrative professionals' more diversified roles. One could conclude from the above, that the lack in interest of the profession as a permanent career, as well as not investing in re-skilling (also referred to as professional development), could impact on future knowledge and skills gaps of administrative professionals in the South African context.

As already discussed in the last paragraph of 6.1 and illustrated in Figure 6-1, the next section reveals the results emanating from category B of the survey questionnaire.

6.5.3 Current knowledge and skills description

The descriptive analysis of the participants' current level of knowledge and skills with regard to the nine main categories as described in paragraphs 4.3.5.1 to 4.4 of Chapter 4, is discussed in the next section, in paragraphs 6.5.3.1 to 6.5.3.9.

As described in paragraph 6.4(ii), the next section presents and interprets the findings of the current level of knowledge and skills emanating from category B of the survey questionnaire. Respondents had to assess their current level of knowledge and skills, according to an 11-point VAS (as discussed in paragraph 5.5.3.2 of Chapter 5), that measures subjective characteristics in accordance with the aim of this study. The VAS is a scale with a continuum with two extreme anchor descriptors, referred to as minimum and maximum. These individual scores were interpreted and are presented by means of a mean value for the nine categories. The rank of order is, therefore, from the highest to the lowest mean value. The gaps in knowledge and skills emanating from these results are summarised as Phase 3 of the data-gathering process (as illustrated in Figure 6-4). To conform to the significance of this study, the data summarised in Phase 3, together with the summaries of Phases 1 and 2 (Figure 3-1 and Figure 4-5), are used to construct a future whole-brain success profile to demonstrate the impact of the global and national key drivers of change for optimal effectiveness of the administrative professional in the future world of work. The proposed future whole-brain success profile is presented at the end of Chapter 7 (Figure 7-1).

6.5.3.1 Summary of all scales

In Table 6-11 below the results of the current level of skills and knowledge are ranked in descending order of the mean score. For the purposes of determining the mean value of the skills gap, all results of skills in the respective categories with a mean value lower than 6 were considered skills gaps. It is noticeable from Table 6-11 that respondents indicated their skills relatively high on the VAS, except in the web-based applications category, that yielded a relatively low value compared to the other categories.

Table 6-11
A summary of the mean values for all the categories

SKILLS CATEGORY	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Emotional intelligence	157	3.25	11.00	9.2935	1.24713
Personal qualities	181	3.75	11.00	9.2868	1.43781
Communication	192	4.00	11.00	9.2500	1.48289
Interpersonal skills	192	4.53	11.00	8.8432	1.32089
Office administration, and organisational and time management	201	4.00	11.00	8.6493	1.41442
Thinking skills	190	3.77	11.00	8.5130	1.43284
Management of meetings	195	1.00	11.00	8.2751	2.08222
Information and communication technology	199	3.60	11.00	8.1731	1.58821
Web-based applications	198	1.00	11.00	5.3190	2.62369
Valid N (list-wise)	157				

In order to understand the summary of all the responses, the different responses of the questions in the sub-sections of the nine categories will now be discussed separately.

6.5.3.2 Emotional intelligence

The category *emotional intelligence* yielded the highest mean value of all nine categories as exhibited in Table 6-11. These unusually high average values for all four items are completely opposed to the literature study (discussed in paragraphs 4.4.1 and 4.4.2 of Chapter 4). Differences in mean values are not limited to those between the ratings of respondents and the literature. There are also differences found within mean values of competencies in categories that encompass emotional intelligence, such as personal qualities, interpersonal and thinking skills.

There seems to be a difference between the mean values of **social awareness** and commercial awareness. On the one hand, they believe that they excel in the ability to recognise and understand the emotions of others (9.37), but on the other hand they evaluate their commercial awareness level that is interrelated to the emotional skill of social awareness, lower, at 8.62 (Table 6-23 and Table 6-25).

The skills namely social adaptability, self-management, innovative thinking and problem-solving depend on the emotional foundation of **self-management** (as discussed in paragraph 4.4 of Chapter 4). A slightly lower mean value is noticeable between the aforementioned competencies and that of the emotional construct, namely self-management (9.23).

The aforementioned refers to the mean value for the ability to harness different emotions that encourage innovative skills (8.27) (Table 6-23 and Table 6-27) to problem-solving (8.59) (see Table 6-23 and Table 6-24) as well as adapting to different situations (8.96), accepting other points of view (8.92) (Table 6-14) and embracing a personal vision and goals for self-improvement (8.96) (Table 6-15).

Contrary to the high means of **relationship management** (9.08) are the lower means for the emotional competencies that underlie relationship management, among others developing others, conflict management and teamwork and collaboration. Development of others that involves sensing co-workers' developmental needs and showing the ability to train them on new techniques, processes, software and equipment, is reflected by a relatively lower mean of 8.60 (Table 6-17 and Table 6-19). The lower mean values for the competencies of conflict management (8.99) (Table 6-17 and Table 6-20), teamwork and collaboration (8.79) (view Table 6-17 and Table 6-18) could demonstrate a lower fundamental ability of relationship management. By taking into consideration the relatively lower mean values, it could be deduced that the concept of emotional intelligence might not be understood that well by the participants.

Table 6-12
Mean values for emotional intelligence

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Self-awareness: understand, aware of own emotions	157	3	11	9.50	1.328
Social awareness: feelings, needs, concerns of others	155	4	11	9.37	1.368
Self-management: own emotions constructively	157	3	11	9.23	1.436
Relationship management: handling emotions to build relationships	157	3	11	9.08	1.542
Valid N (list-wise)	155				

6.5.3.3 *Personal qualities*

It can be observed from Table 6-13 that the mean value for the category *personal qualities* is remarkably high, at 9.28. The mean values for the two sub-categories, namely **social adaptability** and **self-management**, contradict the findings that emerged from the international investigation (as discussed in paragraph 3.2.9.1 of Chapter 3) and the literature study (as discussed in paragraph 4.3.5.16 of Chapter 4).

A conclusion can be drawn that respondents might be uncertain about their skills taking into account the relatively low mean values of related competencies in other categories especially with regard to the following:

- (i) Respondents considered themselves to be extremely proficient at being flexible and willing to compromise (9.13) (Table 6-20), however less able to **accept other's points of view** (8.92) (Table 6-14) that contributes towards conflict resolution.

- (ii) Within the category for social adaptability (Table 6-14), quite lower mean values were observed. Opposed to the extreme ability to **adapt to new organisational structures, procedures and technology** (9.13) is a lesser ability to **manage different situations that involve stress or change** (8.96).

With reference to the two categories, social adaptability (Table 6-14) and teamwork, project and event management (Table 6-18), quite an interesting point of resemblance was found in the mean values for the items in terms of “**viewpoint**”. It seems as if respondents are of opinion that they are less able to accept others’ points of view (8.92). Similarly their perception is that they are less able to express views that are different than those of others (8.40). In both categories, the values are lower than the other items in the relevant categories.

Table 6-13
Summary of all mean values within personal qualities

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Self-management	181	3.75	11.00	9.2868	1.43781
Social adaptability	181	3.33	11.00	9.0571	1.21461
Personal qualities	181	3.75	11.00	9.2868*	1.43781
Valid N (list-wise)	181				

* Overall mean value for both categories within personal qualities

Table 6-14
Mean values for social adaptability

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Being flexible with evolved work description	180	4	11	9.33	1.268
Adapt to new structures, procedures, technology	179	3	11	9.13	1.426
Adapting to increased workload	179	3	11	9.09	1.344
Apply special techniques to different situations	180	3	11	8.96	1.414
Accept other points of view	181	3	11	8.92	1.445
Valid N (list-wise)	175				

Table 6-15
Mean values for self-management skills

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Independently prioritise workflow	181	4	11	9.87	1.152
Understand manager’s thinking, management style	181	1	11	9.30	1.832
Evaluating, monitoring own performance	180	1	11	9.02	1.940

Embrace personal vision, goals for self-improvement	181	1	11	8.96	2.005
Valid N (list-wise)	180				

6.5.3.4 **Communication: written, oral and interpersonal**

For the category of *written, oral and interpersonal communication*, it was rather surprising when observed from Table 6-16 that the mean values for the different questions within this category recorded such exceptionally high means. These findings were in stark contrast to the findings of the international investigation (as discussed in paragraph 3.2.4.9 of Chapter 3) and the literature study (discussed in paragraph 4.3.5.12 of Chapter 4). It appears that respondents may have a distorted view of their written, oral and interpersonal skills.

Table 6-16
Mean values for written, oral and interpersonal communication

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Reading: proofread spelling, grammar, information	192	2	11	9.47	1.531
Written: correct grammar, spelling, punctuation	192	3	11	9.19	1.696
Verbal: speaking, explaining clearly, easily understood	192	1	11	9.09	1.659
Valid N (list-wise)	192				

6.5.3.5 **Interpersonal skills**

Table 6-18 to Table 6-21 exhibit the ratings of the mean values conducted on the four sub-categories of interpersonal skills, namely teamwork, project and event management, supervising of co-workers, conflict resolution, and public relations and customer service or relations. The mean values for each of the four sub-categories are summarised in Table 6-17. It can be observed from all the tables that the mean values are high, with an overall mean of 8.8432 for all four sub-categories. These findings are, therefore, not considered to be in line with other studies and the literature, as discussed in Chapters 3 and 4 (see paragraphs 3.2.4.2 to 3.2.4.4 and 3.2.5 and then from paragraphs 4.3.5.3 to 4.3.5.8) that reveal skills shortages in these categories.

By further examining the data from the four sub-categories (view Table 6-18 to Table 6-21) interesting differences were noted between the lower ranked competencies and related competencies in other categories that were ranked higher. The instances that manifested are discussed below.

Respondents ranked their interaction as a virtual team member higher (8.21) than their competency to utilise Internet phone services (7.43) that is just one requirement to participate as a virtual team member (as discussed in paragraph 6.5.3.9). Respondents also rated their ability to train or mentor co-workers on new techniques, processes, and equipment higher (8.60) than their actual knowledge of, for example, electronic records management (7.92), the use of social networking sites (7.83), utilising Internet phone services (7.43) and using technology for recording minutes (7.61).

Another difference was found between the exceptionally high mean (9.09) of, to speak and explain clearly and can be easily understood (see verbal communication in paragraph 6.5.3.4), as well as the ability to obtain information from clients (9.10) and responses to enquiries (9.25) and, that of their communication and instruction skills when delegating tasks (8.91) and how well respondents can explain the problem during conflict resolution (8.75). Respondents also consider their ability to operate in different cultural settings (9.17) and personality types (9.18) to be higher than fostering and maintain mutual understanding and goodwill between an organisation and its public (8.77), which entails liaising with different personalities and cultures. It could be interpreted that there is a slight incoherence between the responses of the different related competencies, indicating uncertainty among the respondents regarding their level of proficiency.

Table 6-17
Summary of all mean values within interpersonal skills

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Public relations and customer service	190	2.00	11.00	9.0421	1.55006
Conflict resolution	191	3.33	11.00	8.9956	1.39301
Team working, project and event management	192	3.00	11.00	8.7971	1.40700
Supervising of co-workers	192	1.00	11.00	8.6458	1.68228
Interpersonal skills	192	4.53	11.00	8.8432*	1.32089
Valid N (list-wise)	190				

* Overall mean value for all four sub-categories within interpersonal skills

Table 6-18
Mean values for team working, project and event management

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Different personality types	192	4	11	9.18	1.399
Different cultural settings	192	3	11	9.17	1.489
Events co-ordinating skills	192	1	11	9.02	2.043
Express different viewpoint than others	189	1	11	8.40	1.731
Interact as a member of virtual team	191	1	11	8.21	2.147
Valid N (list-wise)	188				

Table 6-19
Mean values for supervising of co-workers

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Communication, instruction skills when delegating tasks	192	1	11	8.91	1.757
Training/mentoring co-workers on new techniques, processes, etc.	192	1	11	8.60	1.944
Expressing patience when delegating tasks	192	1	11	8.58	2.001
Allocating people and other resources to tasks	192	1	11	8.49	1.796
Valid N (list-wise)	192				

Table 6-20
Mean values for conflict resolution

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Compromising skills to resolve situation	191	3	11	9.13	1.449
Listening skills to understand problem	191	3	11	9.11	1.434
Provide explanation on what problem is	190	3	11	8.75	1.600
Valid N (list-wise)	190				

Table 6-21
Mean values for public relations and customer service or relations

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Responses to enquiries from internal, external clients	190	2	11	9.25	1.556
Questioning to obtain information from clients	190	2	11	9.10	1.579
Public relations skills	190	1	11	8.77	1.885
Valid N (list-wise)	190				

6.5.3.6 Office administration, and organisational and time management

In terms of the category for *office administration, and organisational and time management*, the response with the lowest mean value, according to Table 6-22, was **financial administration skills**, with a mean value somewhat lower than those for the other questions in this category.

The high means of these responses are in contrast with the results of other studies and the literature as discussed in Chapters 3 and 4. Specific reference is made to office and financial administration (as discussed in paragraph 3.2.4.6 of Chapter 3), as well as organisational and time management (as discussed in paragraph 3.2.5 of Chapter 3 and paragraphs 4.3.5.1 and 4.3.5.9 of Chapter 4). It therefore seems to be not as low as pointed out in the literature.

Table 6-22
Mean values for office administration category

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Prioritising skills	200	4	11	9.02	1.546
Organising skills	201	4	11	8.96	1.537
Planning skills	201	5	11	8.92	1.489
Financial administration skills	199	1	11	7.70	2.148
Valid N (list-wise)	198				

6.5.3.7 Thinking skills

The mean values for the category of *thinking skills* with regard to problem-solving, commercial awareness, the development of personal commercial awareness and outside-the-box or innovative thinking are summarised in Table 6-23. The detail information regarding the mean values are displayed in Table 6-24 to Table 6-27. Cognisance was also taken that the range of values for this category is limited, between 8.7059 and 8.2745, with an overall high mean value of 8.5130 for all four sub-categories, as reflected in Table 6-23.

As reflected in Table 6-24 to Table 6-27, the high mean values for the different four sub-categories are considered to be in contrast to the skill shortages underpinned by other studies and the literature (as denoted in paragraphs 3.2.2 to 3.2.9.4 of Chapter 3 and 4.3.5.13 to 4.3.5.15 of Chapter 4). Besides the fact that the category for innovative thinking skills yielded the lowest mean of all four sub-categories (8.2745), it was also seen that the lowest mean of all the items in the four sub-categories is within the sub-category innovative thinking skills, that is to **develop creative, resourceful ways of addressing projects and problems** (8.22).

This relatively lower mean value should be taken into account when considering the requirement of being an efficient contributor as a team member in the new world of work (as discussed in 4.3.5.15 of Chapter 4). Somewhat lower than the high means of the public relations and customer service sub-category (9.0421) (Table 6-17 and Table 6-21) are the lower means for competencies within the sub-category, namely **commercial awareness** (8.6217) (as illustrated in Table 6-23 and Table 6-25). To effectively ask clients' questions for information purposes (mean of 9.10) and to effectively respond to enquiries from internal and external clients (mean of 9.25), involve sufficient knowledge about the company's products and services (mean of 8.65) as well as how the workplace and the company's management are structured (mean of 8.87). Differences between sufficient knowledge and that of answering questions or enquiries were observed. In addition, respondents considered themselves to have sufficient knowledge of how their **role fits into the goals of the company** (9.09) (Table 6-26) however, they have less **knowledge of their company's structure, products, services and strengths, weaknesses, opportunities and threats** (8.6217) (Table 6-25). It could be perceived from the above discussions that the respondents might have had a distorted opinion in terms of their proficiency regarding thinking skills.

Table 6-23
Summary of all mean values within thinking skills

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Personal commercial development	187	2.00	11.00	8.7059	1.61449
Commercial awareness	187	1.50	11.00	8.6217	1.56906
Problem-solving	190	3.75	11.00	8.5987	1.51638
Innovative thinking	184	3.00	11.00	8.2745	1.65378
Thinking skills	190	3.77	11.00	8.5130*	1.43284
Valid N (list-wise)	184				

* Overall mean value for all four sub-categories within thinking skills

Table 6-24
Mean values for problem-solving skills

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Proactive approach to troubleshooting/recognising deficiencies	189	1	11	8.74	1.626
Applying creative thinking	190	1	11	8.69	1.685
Analysing, solving business-related problems	190	2	11	8.62	1.676
Analysing, solving technical problems	188	1	11	8.37	1.878
Valid N (list-wise)	188				

Table 6-25
Mean values for commercial awareness

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Knowledge of company's structure	187	1	11	8.87	1.768
Knowledge about company's products, services	187	1	11	8.65	1.739
Knowledge of company's strengths, weaknesses, opportunities and threats	187	1	11	8.56	1.769
Knowledge how external stakeholders/clients perceive your company	187	1	11	8.41	1.786
Valid N (list-wise)	187				

Table 6-26
Mean values for the development of personal commercial awareness

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
How role fits into goals of company	186	2	11	9.09	1.663
Method(s) to improve commercial awareness	187	1	11	8.33	1.911
Valid N (list-wise)	186				

Table 6-27
Mean values for outside-the-box or innovative thinking skills

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Constructively question existing ways of working	184	3	11	8.35	1.752
Relate specific issue to broader picture	181	1	11	8.26	1.737
Develop creative, resourceful ways to address projects, problems	184	3	11	8.22	1.768
Valid N (list-wise)	181				

6.5.3.8 Management of meetings

In the category of *management of meetings*, the item that yielded the lowest mean as displayed in Table 6-28, was using **technology for recording** minutes of a meeting. A possible explanation may relate to the next section (paragraph 6.5.3.9) where it was observed that skills in terms of Internet usage are lower than the other information technology skills. Thus, it is deduced that the lower level of Internet skills could have a negative impact on the use of audio- and video-recordings as well as sharing minute recording points on-line.

Table 6-28
Mean values for management of meetings

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Distributing agenda, minutes, etc., electronically	195	1	11	8.68	2.216
Independently compiling draft agenda	194	1	11	8.56	2.162
Taking forward action points	192	1	11	8.41	2.142
Minute taking	193	1	11	8.28	2.319
Recording using technology	193	1	11	7.61	2.776
Valid N (list-wise)	190				

6.5.3.9 Information and communication technology

The *information and communication technology* category includes a sub-category, namely **web-based applications**. Although the ratings of the Internet web-based applications are displayed separately (Table 6-30), the outcome of the proficiency level of this is incorporated in this section.

Table 6-29 displays the extent to which respondents viewed their proficiency level of **information and communication technology**. A somewhat lower mean value is observed for proficiency levels regarding audio and video Web facilities available on the Internet as well as enquiries made on the Internet regarding subjects, problems, ideas, training and products (referred to as conducting research). As illustrated in Table 6-30, the relatively low mean values for designing or re-designing of web pages and to blog business-related entries, refer to the lack in proficiency levels that exist in this category. This concurs with the literature as discussed in paragraphs 3.2.4.8 and 3.2.9.3 of Chapter 3 and paragraph 4.3.5.2 of Chapter 4, where the skills gaps were identified.

On the other hand, information, communication and technology literacy skills are increasingly evolving as prominent future skills as illustrated in the directives of key drivers of change (Figure 4-1). Administrative professionals should, therefore, possess and be able to apply the latest appropriate knowledge and skills in this regard.

Table 6-29
Mean values for information and communication technology category

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Software applications	198	4	11	9.18	1.372
Mobile devices	199	3	11	8.51	1.678
Electronic records management	199	1	11	7.92	2.126
Social networking sites	199	1	11	7.83	2.213
Internet phone service	198	1	11	7.43	2.593
Valid N (list-wise)	197				

Table 6-30
Mean values for web-based applications category

	N	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Conduct research	198	1	11	7.20	2.943
Blogging	196	1	11	4.58	3.206
Design/re-design Web pages	197	1	11	4.15	3.010
Valid N (list-wise)	195				

6.5.3.10 Preferred way to learn and develop

Respondents were required to rank in order their preferred manner to acquire the skills they need to develop. It is evident from Table 6-31 and Figure 6-3 that online course training is the **least preferred** (20.38%) manner to acquire skills, followed by books, articles, and manuals (17.20%). Table 6-32 and Figure 6-3 show that the most preferred manner to develop skills are the work environment (28%), and training away from the office (19.11%). As reflected in Figure 4-2 (Chapter 4), the most preferred learning development indicates a preference for non-linear, experimental, non-verbal and unstructured modalities (quadrants C and D). The referred modalities are known as visual, conceptual and simultaneous right-brain processes. Respondents prefer informal and social learning that is comprised of emotional, expressive and interpersonal activities. In addition, learning by means of communities of practices (C-quadrant) will allow respondents to better tailor their experiences, according to their learning preferences (Herrmann, 1995:220-221).

Considering the respondents' average age of 46 (as discussed in paragraph 6.5.2.1) and the relatively low mean values for information and communication technology skills concerning the Internet, that involves audio and video web facilities, searching for online training opportunities, as well as the possible reluctance to learn new computer literacy skills (as discussed in paragraph 6.5.3.9), this might explain why online course training was rated as the least preferred manner to acquire skills.

A very interesting observation under the category “least preferred” is that *workshops by administrative forums* are the lowest preference (7%) for learning and development. On the other hand, *training away from the office* is the second most preferred (19.11%) learning and development. It is generally known that administrative forums specialise in training for administrative professionals and are presented by organisations with conference facilities. Also noted is that under the category “most preferred” is that *teamwork* received the lowest preference (3.82%) for learning and development. Teamwork, on the other hand, achieved a high mean value of 8.79 during the self-assessment skills survey (see Table 6-18 in paragraph 6.5.3.5), indicating that respondents perceive that they are good at interacting as team members. The two least preferred methods to acquire skills, namely online course learning that entails reading, and by means of books, articles and manuals could also indicate a low preference for structured learning processes, namely the left-brain hemisphere, referred to as the A- and B-quadrants. According to Herrmann (1995:220-221), structured learners have a preference for learning aids, such as books, articles and manuals.

Table 6-31
Least preferred learning and development preferences

CATEGORY	LEAST PREFERRED	
	FREQUENCY	PERCENTAGE
Online course learning	32	20.38
Books, articles, manuals	27	17.20
Training away from office	21	13.38
Experience obtained in work environment	20	12.74
In-house training workshops	17	10.83
Team learning	15	9.55
Mentoring learning	14	8.92
Workshops by administrative forum	11	7.01

Table 6-32
Most preferred learning and development preferences

CATEGORY	MOST PREFERRED	
	FREQUENCY	PERCENTAGE
Experience obtained in work environment	44	28.03
Training away from office	30	19.11
Books, articles, manuals	24	15.29
Online course learning	16	10.19
Mentoring learning	16	10.19
In-house training workshops	11	7.01
Workshops by Administrative Forum	10	6.37
Team learning	6	3.82

Figure 6-3 below illustrates a summary of Table 6-31 and Table 6-32 of the least and most preferred way by which participants prefer to acquire the skills they need to develop.

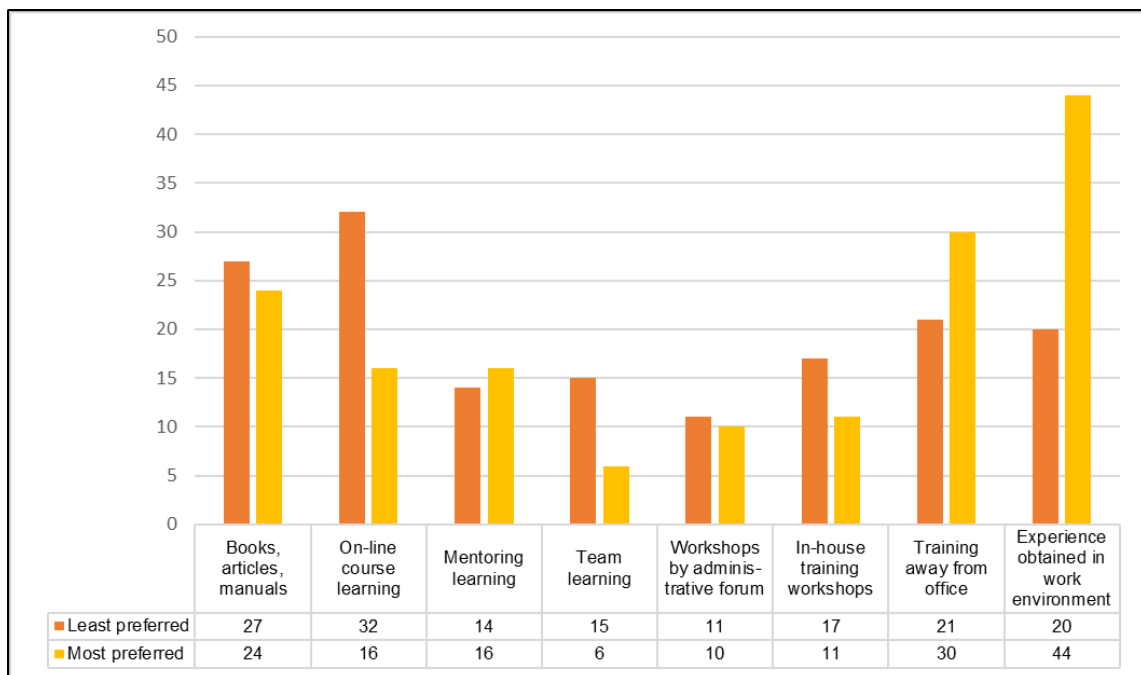


Figure 6-3
Learning and development preferences

6.5.4 Conclusion on descriptive analysis

The quantitative data gathered in terms of the current knowledge and skills from category B of the survey questionnaire are presented and analysed in the previous section, that is, paragraphs 6.5.3.1 to 6.5.3.9. The data that were presented provided evidence and support to the primary purpose of this study, namely to identify the current level of knowledge and skills of administrative professionals within the South African context.

In brief, the national skills survey conducted among administrative professionals in the public and the private sectors determined the current gaps in competencies and capabilities, to comply with the future world of work. Phase 3 of the data-gathering process, as summarised in Figure 6-4, is therefore based on the skills and knowledge gaps that emerged from the findings presented in paragraphs 6.5.3.1 to 6.5.3.9. It is evident that the national perspective obtained from the skills survey is in conflict with the international investigation and the literature study. Overall, it appears that there is no skills shortage in the South African context. Thus, respondents are of the opinion that they are on par in terms of the future skills requirements. The only skill shortages identified were in the category of web-based applications as discussed in paragraph 6.5.3.9 and illustrated in Table 6-30, since the responses recorded an overall low mean value of 5.3190.

Within the category of information and communication technology (Table 6-29) there are skills not necessarily considered to be skills gaps, but ones which could hinder respondents in the future world of work, since these items received lower mean values. These are electronic records management (7.92), social networking sites (7.83), Internet phone services (7.43) and conducting research (7.20). According to the literature, these technology skills are vital skills for the future world of work. It is important to note that the results obtained are a reflection of the respondents' self-assessment of their level of proficiency in these skills categories. A performance-based assessment could have yielded a different result.

The next section of statistical analysis seeks to describe whether possible relationships exist between the variables, as discussed and presented in the above section, namely descriptive statistics (paragraphs 6.5.2 to 6.5.3).

6.6 INFERENCE STATISTICS

6.6.1 Background to significance testing

Inferential statistics are procedures that allow researchers to infer or to generalise observations about a population or sample in terms of the larger population from where they were selected (Knapp, 2017:4; Privitera, 2012:4 & 23; Salkind, 2014:9-10; Sekaran, 2003:394; Welman *et al.*, 2012:236). Thus, the research hypothesis derived from the objective, as described in paragraph 1.3 of Chapter 1, investigates methods referred to as inferential statistics. This is a systematic method of testing a population parameter, using data measured in a sample.

Before the hypothesis could be tested, the research hypothesis had to be transformed into a statistical hypothesis (Privitera, 2016:179; Sekaran & Bougie, 2013:306; Welman *et al.*, 2012:224), that in this instance is as follows:

- (i) **The null hypothesis (H_0):** There is no relationship between the demographic profile of the administrative professionals in South African companies and the current level of knowledge and skills.
- (ii) **The alternate hypothesis (H_1):** There is a significant relationship between the demographic profile of the administrative professionals in South African companies and the current level of knowledge and skills.

There are different methods in testing a hypothesis and the choice is dependent on the number of variables that are examined, for example independent or dependent. The scale of measurement of the variable, the size of the sample and the distribution of variables also influence the choice of the statistical technique (Babbie & Mouton, 2007:476; Sekaran & Bougie, 2013:304). The Kruskal-Wallis test is regarded as a nonparametric test to compare whether the overall difference between two or more independent groups is significantly different (Berkman & Reise, 2012:260; Knapp, 2017:140-146; Privitera, 2012:600; Salkind, 2014:310).

This section therefore aims to determine whether there was a difference in terms of how participants in the various demographic categories, namely the age category, geographical location, positions of employment, length of work experience, industry of employment and level of education, perceived the variables appearing in the statement of purpose, namely their current level of knowledge and skills. The 5% level of significance is used in this study. If the probability value (p) is smaller ($<$) than 0.05, then there is a significant difference between the groups under investigation and the null hypothesis of no difference is rejected. The probability value is therefore reported in brackets, for example ($p = 0.038$).

The researcher will now proceed to discuss the significant differences derived from the statistical analysis.

6.6.2 Statistically significant differences

6.6.2.1 Age group

The comparison between the age groups on their current level of knowledge and skills is noticeable from the ranking scores as illustrated in Table 6-33. A significant relationship could be found between age and office administration, and organisational and time management ($p = 0.038$), information and communication technology ($p = 0.023$) and web-based applications (0.011). In all other instances, no significant relationship could be found between age on the remaining current level of knowledge and skills.

There is a premise that the significant relationship of age to the questions above, could be attributed to the fact that the majority of respondents are employed as personal assistants. It might be that personal assistants are more exposed to the level of knowledge and skills in terms of the mentioned questions. In addition, it is known that the present multi-generation workforce perceives and learns differently (also discussed in paragraphs 4.3.5.6 and 4.4.1 of Chapter 4).

The significant relationship between age and the questions in terms of office administration, and organisational and time management, information and communication technology, and web-based applications could be ascribed to the influence of how the multi-generation workforce perceives learning.

Table 6-33
Relationship between age and items

ITEM DESCRIPTION OF NULL HYPOTHESIS	P-VALUE
The distribution of Office administration, and organisational and time management is the same across categories of age	0.038*
The distribution of information and communication technology is the same across categories of age	0.023*
The distribution of Internet web-based applications is the same across categories of age	0.011*

* Significant at 0.05 error rate

6.6.2.2 *Highest level of education*

It can be deduced from Table 6-34, that no significant relationships could be found between the highest level of education and the current level of knowledge and skills. As described in paragraph 6.5.2.6, the majority of the respondents' highest level of qualification is a diploma. It seems in this instance that the current level of knowledge and skills set is not influenced by the first-level qualification.

Table 6-34
Significant relationship between highest level of education and items

	NULL HYPOTHESIS	TEST	SIGNIFICANCE	DECISION
1.	The distribution of Office administration, and organisational and time management is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.274	Retain the null hypothesis
2.	The distribution of Information and communication technology is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.593	Retain the null hypothesis
3.	The distribution of web-based applications is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.377	Retain the null hypothesis
4.	The distribution of Management of meetings is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.182	Retain the null hypothesis
5.	The distribution of Communication is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.250	Retain the null hypothesis
6.	The distribution of Team working, project and event management is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.576	Retain the null hypothesis

	NULL HYPOTHESIS	TEST	SIGNIFICANCE	DECISION
7.	The distribution of Supervising staff is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.519	Retain the null hypothesis
8.	The distribution of Conflict resolution is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.519	Retain the null hypothesis
9.	The distribution of Public relations and customer service is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.110	Retain the null hypothesis
10.	The distribution of Interpersonal skills is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.367	Retain the null hypothesis
11.	The distribution of Problem-solving is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.568	Retain the null hypothesis
12.	The distribution of Commercial awareness is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.316	Retain the null hypothesis
13.	The distribution of Personal commercial development is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.507	Retain the null hypothesis
14.	The distribution of Innovative thinking is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.374	Retain the null hypothesis
15.	The distribution of Thinking skills is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.506	Retain the null hypothesis
16.	The distribution of Social adaptability is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.220	Retain the null hypothesis
17.	The distribution of Self-management is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.658	Retain the null hypothesis
18.	The distribution of Personal qualities is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.658	Retain the null hypothesis
19.	The distribution of Emotional Intelligence is the same across categories of highest level of education	Independent samples Kruskal-Wallis test	0.622	Retain the null hypothesis

* Asymptotic significances are displayed. The significance level is 0.05.

6.6.2.3 Length of service

Table 6-35 reflects the results that there is a significant relationship detected among the length of service groups and office administration, and organisational and time management ($p = 0.018$). Considering the questions with regard to the remaining current level of knowledge and skills, no significant relationship could be found between the length of service group and these questions.

Given the multi-generation workforce, the only assumption that could be made with regard to the significant relationship described above, is similar to the discussion in paragraph 6.6.2.1. Reference is made in terms of the significant relationship and the influence between length of service and office administration, and organisational and time management.

Table 6-35
Relationship between length of service and items

ITEM DESCRIPTION OF NULL HYPOTHESIS	P-VALUE
The distribution of Office administration, and organisational and time management is the same across categories of tenure	0.018*

* Significant at 0.05 error rate

6.6.3 Conclusion on inferential statistics

Taking into consideration the statistical hypothesis formulated in the introduction paragraph 6.6.1, and the significant differences found, and as outlined in the above section, from paragraphs 6.6.2.1 to 6.6.2.3, the findings revealed that there is a significant relationship between the following:

- (i) **Age** and office administration, and organisational and time management, information and communication technology, and web-based applications; and
- (ii) **Length of service** and office administration, and organisational and time management.

6.7 QUALITATIVE RESULTS

6.7.1 Process of qualitative data analysis

With regard to the sequential explanatory design followed for the data collection, as illustrated in Figure 6-1, the analysis of the qualitative data is presented and described in this section as the last step of the research data that were gathered. Considering the statement of purpose discussed in paragraph 1.3 of Chapter 1, the secondary purpose of this study involves the gathering of qualitative data by means of semi-structured interviews to investigate the perspectives of a small number of stakeholders regarding the required future competencies and capabilities of the administrative professional.

With the preceding in mind, the **qualitative content analysis method** (Sekaran, 2003:409-410; Welman *et al.*, 2012:221-222) was identified as being appropriate for interpreting data in this study (see discussion in paragraph 5.5.4.1 of Chapter 5).

The steps followed in performing the analysis include the following:

- (i) The eight main themes and related sub-themes of the semi-structured interview questionnaire emerged from the survey questionnaire (see Appendix D). A copy of the semi-structured interview questionnaire is included as Appendix E. The themes were guided by the **phenomenon** to be analysed and were posted to the interviewees as follows:

Taking the current and future global and national changes in the work environment into consideration, how do you envisage they will impact on the mindset and skills requirements for the administrative professional in order to remain effective within the next 10 years?

- (ii) As discussed in paragraph 5.5.3.1 of Chapter 5, the ensuing phase of the collection of qualitative data is a sample group. It is known as the second data collection procedure, which studies a small number of respondents and thus weighs less than the primary data collected to be studied (Boyce & Neale, 2006:3; Creswell & Plano Clark, 2011:9 & 121). Individuals were accordingly identified for the semi-structured interviews. Administrative professionals from the industry were identified and invited by the Association for OPSA to participate in the semi-structured interviews. The researcher conducted interviews with two administrative professionals in their respective work environments.

The remainder of the sample group was made up of subjects at the Tshwane University of Technology. These subjects included an education and training professional, a manager and a subject curriculum practitioner. Importantly, a representative of an academic advisory committee was also interviewed.

- (iii) The **recording** of the interviews was done with an audio recording pen and saved on the researcher's personal laptop, from where recordings were listened to and transcribed verbatim. The recorded interviews were transferred to a compact disk.
- (iv) The entire transcribed text was submitted to a specialist to arrange the themes and categories, with the assistance of Atlas.ti™ Version 8, according to codes for co-coding purposes. In qualitative inquiry, **codes** are words or short phrases symbolically assigned in a systematic order to specific units or elements, capturing the essence of field notes and transcripts, by means of classification or **categorisation** (Saldaña, 2009:3). Quoted from Saldaña (2009:8), “[c]oding is thus a method that enables you to organise and group similarly coded data into categories or ‘families’ because they share some characteristic”.

The **frequency code** identifies the distribution of those themes or ideas that occurred commonly or rarely (Saldaña, 2009:49). Concerning the **themes**, these are referred to as constructs or scales on the instrument (Saldaña, 2009:49). The researcher obtained the themes and categories from the national survey questionnaire (see Appendix B) when compiling the semi-structured interview questionnaire.

- (v) The qualitative analysis process of this research study is concluded by the description of thematic relationships and patterns of relevance to the research into a table that guides the discussions in the next section. The most important aspects under the relevant themes are discussed and supported by quotations that are presented in *italics*.

Table 6-36
Summary of frequency distribution and codes

THEME	CATEGORY	CODE	FREQUENCY
Office administration, and organisational and time management	N/A	Technology at your fingertips	9
		Adapting to global changes	8
Information and communication technologies	N/A	Computer skills as a necessity	4
		Global changes and adaptability	4
		The fall of the third party	4
		Collaborative software	2
		Demise of the textbook era	2
		Skilled administrative personnel	2
Management of meetings	N/A	Online collaborative information processing	6
		Automated systems for minutes	5
		Formal agendas as key responsibility	3
		Virtual meetings as the way forward	3
		ICT knowledge of the utmost importance	1
		Minutes as future record-keeping process	1
		Online collaborative tools	1
Oral, written and interpersonal communication to convey and articulate knowledge and information in effective and appropriate ways to meet everyone's needs	N/A	Digital software assistance	6
		Importance of communication skills	3
		Professional oral communication	3
		Technology depersonalises human interaction	3
		Online migration	2
		Administrative professional as first-line contact	1
Interpersonal skills	Teamwork and project and event management	Teamwork as a critical skill	5
		Problem-solving skills	4
		Event management as a critical skill	4
		Interpersonal skills are critical	2
		Responsibility to coordinate between divisions	2
		Teamwork on SharePoint	2
	Supervising staff, which contributes towards improved workflow	Supervising staff to be skilful	4
		Emotional intelligence as a crucial skill for communication purposes	2
		Sharing of information	2
	Managing conflict to promote effective working relationships	Managing conflict online	3
		Professional communication	3
		Office politics as an element of conflict	1
		Power relations as problematic	1

THEME	CATEGORY	CODE	FREQUENCY
Thinking skills	Problem-solving skills to contribute towards productive outcomes	Problem-solving skills	6
		Commercial awareness	5
	Knowledge of commercial awareness	Proper training in commercial awareness	6
		Awareness of working context	2
		Aware of social footprint	1
	Outside-the-box/innovative thinking	Space for innovative thought	4
Teaching innovative thinking		4	
Personal qualities	Socially adept	Personal qualities as a crucial factor for adaptability	7
		Adaptability is crucial for one's career	4
	Independence and self-management	Self-management is essential	5
		Independence is essential	3
Emotional intelligence	N/A	El is crucial for communication processing	7
		Technologies as a barrier for EI	3

6.7.2 Analysis of interviews using themes

Due to the number of references made in the following section to the “Directives of key drivers of change” that consist of the Lifelong Learning Skills (Burton & Shelton, 2014:40), the Future Work Skills 2020 (Davies *et al.*, 2011:13) and the Workforce Strategy for the Fourth Industrial Revolution (World Economic Forum, 2016:5-6), described and illustrated in Chapter 4, specific reference to Figure 4-1 and to Chapter 4 is not repeated. References are limited to specific paragraphs related to Chapter 4.

6.7.2.1 Theme 1: Office administration, and organisational and time management

Table 6-37
Summary of frequency distribution relating to Theme 1

THEME	CATEGORY	CODE	FREQUENCY
Office administration, and organisational and time management	N/A	Technology at your fingertips	9
		Adapting to global changes	8

It is apparent from Table 6-37 that the code related to **technology at your fingertips** refers to the office professional who is able to accomplish much more owing to new technology. This is also evident from some of the responses, such as “*your executive professional has at her/his fingertips much of the support that was provided personally by a human being*”. This response suggests that, with technology becoming so developed, its likelihood of replacing the assistance that was presented by the administrative professional is rife. Therefore, “*a personal assistant is no longer in demand bearing the different level of skills in mind*”. Since “*administration will be a lot more digital ... so all administration tasks can be taken over by certain apps and devices linked to the network*”, it is important that the administrative professional has technology at her fingertips.

Knowledge of the latest technology at hand is significant, considering that *“we are heading into the mobile office ... your office will be where your laptop and access to technology is, for example Wi-Fi and Internet”*. Moreover, the respondent’s opinion that the *paperless office* will also have an impact on the future technology skills indicates, for instance, that *“everything would either be audio or tagged documents on-line, for example SharePoint, then you will be working and submitting on-line, then everybody can track the flow”*.

With the preceding in mind and considering that the role of *“the administrative professional being completely changed from where it is currently ... as technology has replaced much of the skills and services provided previously”*, it allows the executive to be able to do much of the work that was once done by the administrative professional.

This is concurrent in views from the respondents, such as the following:

The traditional support services are obsolete. The office professional is now an extension of the executive of whom she works and provides executive support rather than office management services that were provided traditionally.

Reference in this regard is made in terms of *“planning, organising, prioritising and financial administration skills [being] still vital for the future, however on a different level”*. Thus,

... in the new work environment, an administrative professional works on behalf of the executive, and should therefore look at the executive’s Key Performance Areas (KPA’s) to co-ordinate activities across divisions and/or corporation. The planning and organising that used to happen at a much lower level, has grown exponentially. Genetic skill sets that people had are now a more in-depth exposition to plan, organise and prioritise.

Concurrent with the skills to plan and prioritise, is that of *“time management that becomes critical with the global village we live in”*, as it prompted a shift towards the following: *“I have my goals and this is my delivery time.”* Working in the global village, different time zones have to be taken into consideration to meet submission dates, as commented by a respondent:

... if you are working for a company situated in Australia, and you are based in South Africa, we are looking at flexibility in your ability to manage time zones. Furthermore, you can be an employee of several different companies bearing the different time zones in mind.

Congruent to the above section, is also the code associated with administrative professionals being able to **adapt to changes** within a particular setting, for example:

... you don’t even have to be in a specific office, you can work from home ... you need to change to accept all the national changes, the future global changes.

Regarding a particular view that “*you will never ever be able to communicate or have collaboration with other companies*” should you not be aware of the changing context and structures, the administrative professional of the future have to be willing to familiarise herself with the changes that are occurring. For example, a participant commented as follows:

... collaboration is the future, that is, the global future. So, all the documentation that we are doing, all the meetings that we are doing, all the management of time that we are doing, it's all done via collaboration.

A comment from a respondent that “*the way that we organise the office administration, and organisation and time management is going to be very different*”, suggests that the administrative professional should rather not ignore the global changes in her context since these could have consequences of becoming “out of date”. For example:

... your planning must be more or better in such a sense ... because if you look at the collaboration on ... if you want to set up meetings and do planning, etc., if you do it for, let's say, on SharePoint, that is a collaborating software ... you must co-ordinate with everybody.

Acknowledgement is also given to:

... financial administration that becomes vital in the sense of you are now working on-line, there are matters of risks such as access of systems and, therefore, still need valid financial security tools and also have to be financially savvy.

One would lose the ability to be competitive within the context or work setting. This is inclusive of familiarising oneself with new developing software that could be used within the specific work arena.

This is particularly important for various factors that include time management, planning and organisational management, as reflected in the respondents' comments:

Any professional skill that you need, time management is one of the biggest ones.

Planning is a big thing for the girls, especially for the PAs, you have to plan, you've got to plan ahead, you've got to know what you need, when you need it, how you need it, in order for you to do your job successfully.

What is evident from the above comments in relation to future skills requirements for administrative professionals is that they are consistent with the literature (see office administration, and organisation and time management as discussed in paragraphs 4.3.5.1 and 4.3.5.9). Basically, with accelerated technological developments, managers have more advanced technology at their disposal. Therefore, administrative professionals have to adapt to a changing role and acquire a different skills set that is needed to stay effective in terms of office administration, and organisational and time management.

According to the Lifelong Learning Skills (Burton & Shelton, 2014:40-41), it is imperative that administrative professionals are not only proficient in technical skills, such as the use of technology to locate and make use of new resources in terms of planning and organising (see paragraphs 4.3.5.1 and 4.3.5.9), but also display interpersonal skills, such as being sociable – namely, the ability to adapt to change (paragraph 4.3.5.16). Tied to the preceding, is the directive for Future Work Skills 2020 (Davies *et al.*, 2011:5, 9, 12) (paragraph 4.2.1.2) emphasising adaptability towards a different level of skill and being a participant in a globally connected world. In the context of this study, reference is made to the virtual professional and organisation. Management of time is not only limited in terms of managing resources for efficiency, as discussed in paragraph 4.3.5.9 and according to the basic workplace skills of the Lifelong Learning Skills (Burton & Shelton, 2014:41), but as stated in the Core Work-related Skills (World Economic Forum, 2016:21 & 32 and paragraph 4.2.1.3), time has to be managed to attend re-training opportunities in order to comply with future skills requirements.

6.7.2.2 **Theme 2: Information and communication technology**

Table 6-38
Frequency distribution for information and communication technology

THEME	CATEGORY	CODE	FREQUENCY
Information and communication technologies	N/A	Computer skills as a necessity	4
		Global changes and adaptability	4
		The fall of the third party	4
		Collaborative software	2
		Demise of the textbook era	2
		Skilled administrative personnel	2

The code attributed to **computer skills as a necessity**, as illustrated in Table 6-38, refers to the necessity of an individual to possess information and communication technology skills to be able to develop and grow with the technologies that are developed in order to secure a place in the working context. The respondents acknowledged the aforementioned with comments such as *“remain as a critical skill”*, *“yes crucial”* and *“going to be the most critical one”*. Regarding the development of technology skills, respondents *inter alia* stated that *“current services will become obsolete”* and *“professionals currently in this profession really have to review the way that they have embraced technology in order to work seamlessly with their executive”*.

The code in terms of **global changes and adaptability** refers to an individual having the capacity to adapt to the global changes within information and communication technology systems in order to stay “afloat” of the dynamic changes of software and the implementation thereof, within their working environment. This has a direct effect on their employability as the necessary skills would be inclusive of information and communication technology software for work applications and the retaining thereof.

Views from respondents that supported the above, were recorded as follows:

... need to change globally, you need to accept all the changes, because ... it does impact your mind-set. If you are not changing your mind, and if you don't improve your skills, you will not be able to cope. You will actually not be able to get a job.

... the integration of these technologies ...

... if you don't have technology in place, things falls flat ... because technology evolves so much, ... yes people learn to adapt ... it is not something that just bypasses you.

Another dynamic change prompted by technology development is that of the future virtual office and organisation, as commented by a respondent:

Web-based ... absolutely ... web-based applications which is why I am saying the organisation is going to be different to what it is ... yes it is not going to be a physical organisation, it is going to be a virtual organisation.

The code **fall of the third party**, assigned to this theme refers to the future vision of the administrative professional and that the services they offer would become obsolete. Information and communication technology programs and services would develop to such an extent that administrative professionals would not be necessary needed owing to the development of new or advanced technologies.

The following comments serve to support the preceding statements:

... the use of technology is that the executive's diary and calendar is integrated with his or her administrative professional's diary and calendar. She knows where the executive is at any given time and direct him somewhere else if needs be. Even this function will change over time: clients, colleagues will contact the executive directly and make changes to the diary without a third party.

... what we see when we shift into this 4IR, the so-called soft service middle-men and-women functions are going to disappear.

... another example is the travel agencies; there are a few, but they will disappear since people can make their own flight arrangements on the Internet.

... there is quite a push for virtual assistants ...

The preceding responses concur with the literature in the sense that not only are related technical skills in information and communication technology considered as vital for the future workforce, but administrative professionals also have to keep up with the necessary technological skills and know-how to engage fluently on a cyber level (paragraph 4.3.5.2). According to Burton and Shelton (2014:41), the skill, that is, to use technology efficiently, has and will remain important for administrative professionals to be successful in the workplace and is, therefore, not only considered, but compliant with the Lifelong Learning Skills directive (2014:41).

The above discussion is in accordance with the impact of the key drivers of change, namely the Future Work Skills 2020 and the Workforce Strategy for the Fourth Industrial Revolution directives. Similar to the discussion regarding the fall of the third party, as discussed in Theme 1 of the previous section (paragraph 6.7.2.1), it is anticipated that key drivers of change, such as smart machines and systems, contribute towards replacing certain services and manual tasks previously provided by human beings (Davies *et al.*, 2011:3-4). In accord with this, the World Economic Forum (2016:13) agrees that technological trends, such as the mobile Internet and cloud technology, will have a negative effect on the role of administrative professionals. Furthermore, the ability of individuals to adapt to change owing to the impending technological changes (World Economic Forum, 2016:8) is regarded as a premium skill for the future (Davies *et al.*, 2011:8-9).

A more advanced skills set is required to adapt to the global changes emanating from the computational world and new media ecology. Davies *et al.* (2011:4 & 12) refer to being “adept at utilising new tools to discriminate and filter information” and to “apply new multimedia technologies as communication tools”.

6.7.2.3 Theme 3: Management of meetings

**Table 6-39
Frequency distribution for management of meetings**

Management of meetings	N/A	Online collaborative information processing	6
		Automated systems for minutes	5
		Formal agendas as key responsibility	3
		Virtual meetings as the way forward	3
		ICT knowledge of the utmost importance	1
		Minutes as future record keeping process	1
		Online collaborative tools	1

Table 6-39 reflects the code **online collaborative information processing**, which is considered to be the process of sending minutes, arranging agendas and collaboration on an online platform that would be readily available for any stakeholder involved in the process. Stakeholders would have instant access to information owing to the development of online platforms that would be used in online collaborative processes. An example of this would be that of Microsoft Outlook which would enable a holistic working context if used in a proper manner. Google Forms and SharePoint are other examples used throughout this study where these particular software packages would enable administrative professionals to formulate collaborative agendas for meetings.

The above is reiterated in opinions such as the following:

... you got to save those documents as proof, it needs to be accessible, ... so, your agendas and minutes needs actually kind of catch-up with technology as well...

... it needs to be sort of virtual, ... You actually have to bring your laptop to the meeting, if you are not zooming or Skyping from somewhere...

... there is a way, ... that just by using technology ... Google Forms ... and say to your committee members "this is the form, if you want to add to the agenda, you add to this form", ... to upload to Google Forms ... the agenda is already populated...

... maybe agendas will be a collaborative effort in the future, ... and all you maybe has to do is to transcribe the minutes. In saying that, there is software that can transcribe for you...

... put it in the border of the e-mail as an attachment and it returns to the administrative professional as compiled ... after the meeting copy each individual item that requires action on the "Task request" of MS Outlook and delegate to the respective individuals...

In addition to the above, the code that is related to the **automated systems for minutes** denotes the process of technologies being able to transcribe minutes of meetings into an automated format. These systems eliminate the tedious process of listening to recordings of minutes taken at a meeting and enable the administrative professional to save time on transcribing processes. Programs that allow for this function might include Dragon Scribe for the purpose of automated transcription processes.

Particular views are quoted with regard to automated systems for minutes, namely:

Considering how we change things. With the management of meetings, your typical functions were that a person was sitting at the side taking minutes of the meeting, providing recording to generate the minutes of a meeting.

With new technology, the minutes can be recorded and [it can] generate a report of the recording. This comes in hand with remote meetings as well.

... taking minutes, yes, voice applications that will actually type the minutes from a recording.

... a lot of these typing skills will diminish in the next few years. We wouldn't be focused on fast typing anymore, because voice recordings will actually take over the taking of minutes, and then that [sic] voice recordings will be used and the computer will type it [sic] up.

... management of meetings will be just a little more of editing, not actually taking down the minutes.

The next section explains the codes allocated to **formal agendas as a key responsibility** and **virtual meetings as the way forward**.

The **formulation of agendas** is one of the **key responsibilities** that administrative professionals have to implement. This indicates that administrative professionals still have a key responsibility in the process of arranging, scheduling, collaborating and the execution of meetings. For example:

... the executive cannot keep track of everything, he will be needing a person to inform him what is happening where ...

... all my meetings, I set up ...

... you are going to physically organise an online meeting and co-ordinate schedules on an online platform.

Even though evolving technologies might replace or ease some of the workplace responsibilities (such as automated transcribing programs) of administrative professionals, there are still processes (such as formal agendas) that technologies would not be able to replace, for instance, “[m]inutes are more than a two-dimensional reporting, we want to get the insight into this and this is where the administrative professional has to position herself”, as expressed by a respondent.

Remarks such as “*but, virtual meetings ... is the way forward*” and “*members will cease to travel to meetings and rather have discussions online*” suggest that **virtual meetings** are considered as being **the way forward** in order for personnel to save both time and money on the process of conducting a traditional meeting. This is also inclusive of stakeholders being able to make use of the technologies and to be familiar with the use of the software in the context of scheduling meetings, for example “*you can do it on Skype*” and “*we zoom to Australia ... to America*”.

It can be observed from the above responses and the literature (as discussed in paragraph 4.3.5.11) that evolving technology has an immense impact on the form that meetings will take place, prepared and managed in the future. Although meetings will be on a different platform, considering terms such as “online collaborative”, “automated systems” and “virtual”, the basic workplace skills that serve as directives for the key drivers of change should not be underestimated. In this instance, reference is made to the use of technology to locate and use new resources, to understand how systems work and to manage information, according to the Lifelong Learning Skills of Burton and Shelton (2014:40-42), regardless of whether it is a physical or virtual meeting. Virtual collaboration and a design mind-set are regarded as future key skills, according to the Future Work Skills 2020 of Davies *et al.* (2011:12). Virtual collaboration is considered important in terms of the ability to work productively and be engaged as a team member.

In addition, individuals should display “the ability to represent and develop tasks and work processes for desired outcomes” (Davies *et al.*, 2011:11). Reference is made to new communication and technology tools to promote successful meeting management. Furthermore, notwithstanding that technology tools will be applied as supportive mechanisms to compile agendas and transcribe minutes into and from audio format, administrative professionals should still display knowledge on skills such as reading, writing and listening. Although agendas will be collaboratively compiled on-line, administrative professionals will play a vital role in the reformatting and editing of the language prior to distribution.

Reference to reading comprehension, written expression and active listening as future basic skills is made within the context of the Core Work-related Skills of the World Economic Forum (2016:52).

6.7.2.4 Theme 4: Oral, written and interpersonal communication to convey and articulate knowledge and information in effective and appropriate ways to meet everyone’s needs

Table 6-40
Frequency distribution for oral, written and interpersonal communication

THEME	CATEGORY	CODE	FREQUENCY
Oral, written and interpersonal communication to convey and articulate knowledge and information in effective and appropriate ways to meet everyone's needs	N/A	Digital software assistance	6
		Importance of communication skills	3
		Professional oral communication	3
		Technology depersonalises human interaction	3
		Online migration	2
		Administrative professional as first-line contact	1

Table 6-40 indicates the codes that refer to the use of **digital software** that will **assist** the administrative professional in the work that they pursue, for example “*looking into applications such as ‘Speechnotes’*”, which is described as a “*speech-to-text online notepad*”. With this process comes a sense of easing the hard labour factor of language translation, since “*it will be digitised ... computers will actually handle the communication*”. To overcome the language barrier:

... the language skills are not there ... in terms of oral, and written communication, we will incorporate some applications ... to alleviate the barrier of typing, because with their limited computer skills, they don't get to the typing levels of what we usually had ten years ago.

Time will also be saved in the tedious processes of transcribing certain audio-recorded minutes by an automated system, as portrayed on the Speechnotes Website: “Speechnotes is a powerful speech-enabled online notepad, designed to empower your ideas by implementing a clean and efficient design.”

One key aspect to making use of this particular software is that administrative professionals should be well educated on these digital software packages that are made available, for example:

... we will have to teach them how to talk to the computer ... sit with the microphone and they talk and the computer types ... Yes, it actually learns from your accent ...

The following section elaborates on the three codes that are allocated to the **importance of communication skills, professional oral communication** and **technology that depersonalises human interaction**.

The **importance of communication skills**, which also includes **oral communication**, in the professional administrative context refers to the fact that the administrative professional should possess the appropriate communication abilities. These are inclusive of articulation, language, writing and reading skills and comprehension. The use of professional communication is of the utmost importance in the context of professional administration.

Specific reference is made to an individual who should be able to communicate **professionally** with colleagues and stakeholders, regardless of the communication medium. This also includes being conscious and respectful in communication processes (cultural and interpersonal). The following comments from the respondents support the above view:

... if you don't communicate ... I find that a lot of times when you write, things can get construed wrong ... it can be taken up wrong [sic] ... it's also, when you talk to somebody that they can also take up things wrong ... it is very difficult ... you've got to know how to word things in order to articulate it.

... it is important that you know how to do that and a lot of people don't have that skill. You can actually read through a ... and think ... you've said this completely wrong ... yes, you got to learn that and I think that it is also a trick of the trade. You learn that skill.

... you still have to be professional, whether you are physically face to ace with someone or whether you are online ... you still have to be professional, and that is what are [sic] going to distinguish you from other people and other companies.

So, yes ... oral definitely, I mean, even though you might be working virtually, you still might have to make a phone call. Written ... you have to type an e-mail ... interpersonal communication ... and also taking into consideration cultural differences, global communities ...

... and it is a cultural difference, and if you understand the mapping and where you sit ... everything like that, it just make everything so much better.

Communication also needs to take into account cultural differences, because we are global ... and if you go more technology-based, you are going to open up to global cultural differences and you need to have an understanding of that, if anything else ... yes ... definitely.

It is also evident from Table 6-40 that the code with regard to being **overinvolved with technologies**, for example “*the more we seek technology ... for those who so much relying on technology*”, may have an impact on **human interaction**, for example “*as the body never lies*”. The digital platforms that are used throughout communication processes might degrade simple physical cues that would otherwise be present during communication processes, namely that “*they are losing out on the ability to read the non-verbal cues in human-to-human conversations*”.

Some technologies may even affect some grammatical skills of people, as in the example of textese. Therefore, as much as technologies may have a beneficial space in the working context, it may at the same time degrade people’s physical human interaction and even affect the basic communication skills of people.

With regard to supportive recording, some participants had this to say:

Specific reference is made to Generation X’s inability to communicate properly in English. We have to go back to the spoken language. Textese do [sic] not work in the business setting. We have to work on our verbal and written communication. Human communication needs attention – 80% of miscommunication is all about technology, for example, “... I thought you meant ...”, “... I understood it as ...” When having a face-to-face conversation, our bodies will be congruent towards our words and so diminish miscommunication.

In spite of the future vision that digital software will assist with language translation and the transcription of audio recordings, communication skills, in this instance writing, reading and oral communication skills, remain important knowledge and skills that have to be developed continuously, according to the Lifelong Learning Skills (Burton & Shelton, 2014:41-42). These Lifelong Learning Skills that are reflected in the directives of key drivers correspond with the future Core Work-related Skills, as elaborated on in the World Economic Forum Report (2016:22) as well as in the literature as discussed in paragraph 4.3.5.12.

Additional to the preceding discussion, future communication competencies, such as cognitive abilities, content skills, reading comprehension and written communication, are skills not only currently in demand but which will be significant by 2020. In addition, Davies *et al.* (2012:10) reiterate the importance of key skills such as the “ability to critically assess and develop content for communication” in their directive for Future Work Skills. The literature, as discussed in paragraph 4.4.1, also discloses the impact that technological developments have on human interaction.

6.7.2.5 **Theme 5: Interpersonal skills**

(i) **Teamwork and project and event management**

Table 6-41
Frequency distribution for teamwork and project and event management

THEME	CATEGORY	CODE	FREQUENCY
Interpersonal skills	Teamwork, project and event management	Teamwork as critical skill	5
		Problem-solving skills	4
		Event management as a critical skill	4
		Interpersonal skills are critical	2
		Responsibility to co-ordinate between divisions	2
		Teamwork on SharePoint	2

As is evident in Table 6-41, the code **teamwork as a critical skill** is one of the essential elements that the administrative professional has to possess in her line of work, as expressed by the respondents, for instance:

... but it is important, teamwork is important ...

Now we have to work as a team and there is so much power in a team ... if you can just get it right ... working together as a team and be open to your team mates, understanding the cultural differences of your team mates.

Teamwork ... is important ... because if you don't operate as a team, it can get difficult, you've got to work together to get things done ...

In addition to this, software also tends to lend itself to teamwork and would be used more often in future, as respondent stated:

... let them work on certain versions, sent it out to another team worker ... let them edit it further and in real time, so that they can see the document is open on another computer ... they can't edit it ... versioning and workflow management.

In terms of the code, administrative professionals being able to **solve any problem** that comes their way is significant in comments by the respondents, such as the following:

... problem-solving is a big one ... in any administrator position problem-solving is a very big one. You got to have the neck to solve a problem ... you got to know how to solve those little problems ... little issues, whom to give it to, that type of thing. Yes, it is important to know those things ...

Problem-solving, in particular, is an important skill for the administrative professional to possess within the working environment, as she would need to address the majority of the queries regarding the context of the working environment. This was emphasised by a respondent saying as follows:

... there is a lot of information on the Web, loads of information, but it is not always the right information, believe me. You still need that skill ... you still need it.

In some instances, such as events where there are “... *delegates from all directions in the world ...*”, complex problem-solving is regarded as the decisive skill to have in order to “... *talk to everyone in their time zones, in a language that you both understand and can actually get a decision out of that conversation*”.

Also considered as a **crucial skill** to possess when working in the administrative profession, is the code ascribed to **event management**, taking the following viewpoints into consideration:

... got a whole events division, so, we [administrative professionals] don't really do events, they do it all for us, but you still got to collate, you still got to do a lot of things for them ... yes, it is still important. We do little miniature events here ...

Although computer software is taught, it is crucial that the professional should have a theoretical and practical sense of processes that are involved in event management. For example:

... event management is part of a type of exercises that we bring in, for instance you are planning a big meeting, so they have to plan with the software from the beginning to the end within budget in time.

Congruent to the discussions in paragraphs 6.7.2.1, 6.7.2.2 and 6.7.2.3, regarding administrative professionals that have to adapt to the virtual world of work, the literature in terms of teamwork concentrates more on the rise of virtual teams (discussed in paragraph 4.3.5.3). This notion is echoed in the Future Work Skills for 2020 (Davies *et al.*, 2011:9 & 12) and the Workforce Strategy for the Fourth Industrial Revolution (described in the World Economic Forum Report, 2016:6 & 9-10). Whether a physical or virtual professional, the impact of global changes requires a significant skills set pertaining to a productive team member, *inter alia*, problem-solving skills (Burton & Shelton, 2014:53), and the ability to co-operatively work as a team member with regard to the management of events (Palo, 2016:8; AUT, 2015:2 & 5). Transdisciplinarity,³³ as a future key skill, plays an important role in the ability of multidisciplinary teams to solve problems (Davies *et al.*, 2019:11).

The individualised views that signified that although most of the corporate events are being outsourced, also agreed that the future role of the administrative professional will be expanded in terms of adding value as a team member contributing to the experience of the event. This is in accordance with the literature overview discussed in paragraph 4.3.5.4 of “new media ecology” as a key driver of change (Davies *et al.*, 2011:4) and the Core Work-related Skills (World Economic Forum, 2016:21 & 53).

³³ Davies *et al.* (2019:11) define “transdisciplinarity” as “literacy in and ability to understand concepts across multiple disciplines”.

Related to event management, are skills such as “coordinating with others” and “technology and user experience design”, which are perceived as future skills contributing to performance success (World Economic Forum, 2016:53).

(ii) Supervising co-workers for improved workflow

**Table 6-42
Frequency distribution for supervision of co-workers**

THEME	CATEGORY	CODE	FREQUENCY
Interpersonal skills	Supervising staff that contribute towards an improved workflow	Supervising staff to be skillfull	4
		Emotional intelligence as crucial skill for communication purposes	2
		Sharing of information	2

Particular stances from the responses pertaining to the code that refers to the **supervising staff being skilful**, as reflected in Table 6-42, in the ability to train junior staff in the working context, are as follows:

... to supervise, the different administrators, etc., must be clued-up ... even more so, be clued-up to them how the collaboration software is working.

... the office professional has a big task in actually initiating new members in using the software to that they have their checks and balances in place for document management and workflow management.

They would act as mentors during the process of work in order for the junior staff to learn throughout the process. This is considered to be “a higher-order skill required, especially within an environment where there are multi-divisions”. The essence should rather be to “supervise the workflow”, so that “you will get more out of your team than focusing on the person”.

The above responses with regard to the supervising and training of co-workers correlate with the future skills reflected in the Lifelong Learning Skills of Burton and Shelton (2014:41 & 63) and the Core Work-related Skills of the World Economic Forum (2016:22 & 53), as well as those of the literature review (paragraph 4.3.5.5). Given the impact of the unprecedented rate of change, specifically with regard to information and communication technology, new skills are required that are not necessarily part of the core skills set of today. One such a new skill is “teaching others how to do something” across all occupations (World Economic Forum, 2016:54).

In this instance, the focus is beyond hard skills, and rather inclusive of “soft skills”, such as social skills (World Economic Forum, 2016:20-22). These soft skills are also referred to as interpersonal skills that enhance the personal quality, namely the professional image of the administrative professional when improved (Burton & Shelton, 2014:53-63).

The dynamic corporate world demands that administrative professionals improve their interpersonal skills and social skills to accept new opportunities, such as training co-workers in terms of new techniques, processes and software (Burton & Shelton, 2014:63; World Economic Forum, 2016:22).

(iii) Managing conflict to promote effective and efficient working relationships

Table 6-43
Frequency distribution for conflict management

THEME	CATEGORY	CODE	FREQUENCY
Interpersonal skills	Managing conflict to promote effective working relationships	Managing conflict online	3
		Professional communication	3
		Office politics as an element of conflict	1
		Power relations as problematic	1

The code in Table 6-43 refers to the future of collaboration of staff members, namely that the future might bring on different **online working conflict situations**. People would not be office-bound anymore, which will bring about new challenges when it comes to managing conflict between virtual staff members.

The following responses are cited in this regard:

... the office of the future, you are actually not present anymore ... you are working off-site, to manage the conflict between staff, because you don't actually see them, they are just collaborating with all their work via software.

... I think we will incorporate software that will actually teach them how to create groups of people and only send messages to an entire group and not to send messages or keep away from group message boards and things like that ... not to step on anyone's toes.

... the other thing is, that you can almost avoid conflict if you do your job properly.

Interrelated to online conflict as discussed above, is the code that is associated with possessing the skill of **professional communication**. Administrative professionals should possess professional communication skills in order to convey their messages correctly. A particular viewpoint quoted in this regard is as follows:

Yes, if the office professional is not really conversant in communication, I think it can create a lot of conflict. I can see that there is [sic] different cultures in a workplace and if an office professional cannot really communicate, or if she communicates out of [her] own frame of reference, it can create conflict.

The possibility of conflict arising during the process of miscommunication or with articulation scenarios not being professional for the setting, is significant in expressions such as the following:

... conflict can be verbal, but it can also be your digital communication that creates conflict in the workplace. Your type of tone in an e-mail that is not understood by everybody.

... not everybody is part of effective communication here, but I think software like Skype can really improve communication if everybody has it in the organisation.

... conflict management goes hand in hand with emotional intelligence ... If I can understand and focus on what is wrong, the person who is wrong can actually get off the defence finger pointing and deal with the issue. The Work Economic Forum has also listed people management as important ... so you have to deal with people.

It appears from the above responses that the respondents experience challenges similar to those mentioned in the literature review (paragraph 4.3.5.6), namely that instead of communicative interaction creating and maintaining relationships in the workplace, it instead disrupts workplace interactions. Specific reference is made to online platforms. However, it can be deduced that there seems to be a lack of knowledge in terms of the impact that telecommunications and information technology has on how the different multi-generations perceive working and learning. Virtual collaboration plays a more pivotal role in the structure of organisations, and will, therefore, have a tremendous effect on a much different kind of conflict and the management of it. Considering this, as well as Burton and Shelton’s Lifelong Learning Skills (2014:53-63) as reflected in the future key drivers of change directives, conflict resolution is considered as a lifelong learning interpersonal skill that has to be developed.

(iv) Public relations and customer service or relations

As the responses recorded in terms of public relations and customer service or relations were found to be too scattered, the researcher decided that it would not contribute towards the qualitative data analysis. Therefore, for reference in this instance, refer to the quantitative data analysis as discussed in paragraph 6.5.3.5.

6.7.2.6 Theme 6: Thinking skills

(i) Problem-solving skills to contribute towards productive outcomes

**Table 6-44
Frequency distribution for problem-solving skills**

THEME	CATEGORY	CODE	FREQUENCY
Thinking skills	Problem-solving skills to contribute towards productive outcomes	Problem-solving skills	6

The code ascribed to **problem-solving skills**, as displayed in Table 6-44, refers to administrative professionals having the ability to solve problems in relation to the work done by their executives.

They should be able to recognise problems and be competent to address these problems with executives. Owing to the workload of the executive, the administrative professional should be able to flag these situations in order to make the executive aware of these specific scenarios in order to avoid strenuous work processes for the executive.

The following quotes reiterate the importance of having a skills set that includes problem-solving:

... traditional roles that become obsolete. This is an example where the new niche area would be found. The busy executive is dealing with multiple matters; the administrative professional must be able to recognise a problem. It is a new level of problem-solving: it is more than, for example, why something has not been delivered at a particular time.

Administrative professionals of the future require problem-solving skills to survive the office of the future ... have to have the knack to solve problems, irrelevant of the industry and era ... where people are involved, problems have to be resolved.

Poor communication will not contribute towards solving problems. Since the business world is evolving, there will always be new problems to resolve, especially in terms of technology, as new developments have not existed and you, therefore, cannot anticipate a problem.

... problem-solving skills in the next ten years ... things are evolving ... so, you are always going to have a problem, ... we don't know what the future holds, ... we don't know what technology is going to look like. It might solve one problem, but with that there will come another problem that we never thought of, because the technology has not existed before.

So, I don't think that you will get away from that and with problem-solving, I think it links to creativity. In order to solve your problem, you need to think creatively.

In addition to the above, the code also includes the importance of the teaching and learning aspect to this particular approach that will emphasise problem-solving skills within the working environment. The administrative professional should be able to understand this process theoretically and be able to implement this practically, for example:

... for problem-solving, we give them case studies in scenarios in the examination paper, so they have to solve a real problem to a project from scratch ... they have to create a website for a company ... they need to be able to think ... and we also give them a lot of research papers to be able to answer certain questions and then we also measure it according to time, in what time they actually complete it.

... problem-solving, we want to look into teamwork to actually teach the skill regarding problem-solving ... for example, that your manager is now going overseas, so do everything from point A to point Z ... so do the event planning ... manage his hotel bookings ... and then we want to measure it towards an outcome.

The responses from the above section also relate to the arguments from the literature, as discussed in paragraph 4.3.5.13, and the directives for key drivers of change. The degree of impact that the computational world (Davies *et al.*, 2011:11) has on the future skills set in terms of problem-solving skills requires the application of thinking skills at an advanced level to derive a viable solution for a problem, irrespective of whether it is technical- or business-related (Burton & Shelton, 2014:42 & 125).

Opposed to individual problem-solving skills are those of multidisciplinary teams to resolve multifaceted problems for a more productive outcome. Transdisciplinarity has, therefore, been identified as a future skill requirement since the “ability to understand concepts across multiple disciplines” became important (Davies *et al.*, 2011:11).

For example, for the administrative professional to productively contribute towards team problem-solving, she should also have a good understanding of a discipline such as computer literacy even though she does not specialise in the field of information and communication technology.

(ii) Knowledge of commercial awareness that will add value to the core activities and the operations of the business

**Table 6-45
Frequency distribution for commercial awareness**

THEME	CATEGORY	CODE	FREQUENCY
Thinking skills	Knowledge of commercial awareness	Commercial awareness	5

The code in terms of **commercial awareness**, as reflected in Table 6-45, relates to the administrative professional as being aware of the business context. Although administrative professionals might not have the power to make executive decisions, they should be aware of the context in which they are working in order to have an understanding of the work allocated to them.

The following responses support this statement:

... see how many executives fail in this regard because the administrative professionals do not understand how action or non-action on behalf of the executive has business consequences. Administrative professionals have to know the business and how actions impact on the business.

The administrative professional's ability to understand that commercial awareness entails that each action or decision has a rand value-based impact. It becomes critical on your longevity, the industry, and your longevity in terms of your career. Do I care enough just beyond myself about the existence of this company, or the good that it is doing as a corporate citizen?

There are instances where the company makes an effort to share new developments with regard to the structure, products and services, as is evident in the following response:

... we have roadshows every year ... to introduce the new SWOT [strengths, weaknesses, opportunities and threats] analysis, they explain new levels that has been created ... so, every year and every time there is change, we do this ... it is very important that we know how people see us ... perceive us ... so it is important. We get a call from a customer; when they ask us a question, we (administrative professionals) need to know it. So, it is very important to know that.

The researcher regards commercial awareness and the development of personal commercial awareness as interrelated components and, therefore, decided to discuss the impact of the global changes on the skill requirements for commercial awareness in paragraph 6.7.2.6(iii).

(iii) The development of personal commercial awareness

Table 6-46
Frequency distribution for development of personal commercial awareness

THEME	CATEGORY	CODE	FREQUENCY
Thinking skills	The development of personal commercial awareness	Proper training in commercial awareness	6
		Awareness of working context	2
		Aware of social footprint	1

Development of personal commercial awareness is related to being commercially aware, as discussed in the above section (paragraph 6.7.2.6(ii)). Cited from Table 6-46, is the code pertaining to staff being properly **trained in personal commercial awareness**. It refers to appropriate higher education training processes that students have to acquire in order to be commercially aware. This is inclusive of working through proper theoretical processes as well as the software necessary to implement the work that they will face one day. Respective views are quoted in this regard:

If administrative professionals cannot answer questions because they do not develop their personal awareness, they do not have a place in the company. Except for a proper induction process, each administrative professional should take the responsibility to seek resources to develop commercial awareness.

Specific references have also been made to how the economic situation has an impact on the development of personal commercial awareness:

... we went through a really difficult budget ... financial period ... so they stopped budgets for everything, but I mean, there is so much information on YouTube ... I don't have to go and attend a R10,000.00 course, I can go online and look for that information myself and I did that a lot ... leading up to this transition. I put myself through Unisa for my ... I got two honours degrees ... my second one ...

Development is another means to consider, either “by means of skills” or in the following way:

... so if you can improve your personal commercial awareness by continuous professional development, by being engaged in your workplace, by being curious – the more curious you are about your industry, the world, about business, the more of value you are to your organisation.

Concurrent with the above (paragraphs 6.7.2.6(ii) and (iii)), the literature reveals the impact that administrative professionals have on business success when displaying interest in and knowledge on how business is conducted as well as an understanding of the macro environment. Commercial awareness and the development thereof are not merely reading business magazines and journals, but instead exhibiting a broad awareness of the key drivers of change that influence the business sector. In the context of this study, commercial awareness should rather be viewed as a valuable attribute that requires continuous professional development (Burton & Shelton, 2014:603-604).

The above discussion regarding the influence of the key drivers of change, as well as the literature discussion (paragraph 4.3.4) highlighted the negative impact the key drivers of the 4IR have on the skills set of the administrative professional. Consequently, one of the key drivers of change, as discussed in Chapter 4, namely extreme longevity, denotes the importance of lifelong learning for multiple careers (Davies *et al.*, 2011:3).

(iv) Outside-the-box or innovative thinking as a means to creatively and resourcefully address projects and problems

Table 6-47
Frequency distribution for innovative thinking skills

THEME	CATEGORY	CODE	FREQUENCY
Thinking skills	Outside-the-box/innovative thinking	Space for innovative thought	4
		Teaching innovative thinking	4

Both the codes assigned to **space for innovative thought** and **teaching innovative thinking** are discussed in the section below.

As displayed in Table 6-47, the code **space for innovative thought** is influential on administrative professionals. Having the space to pursue creative thought processes in their working context manifested in respondents' views. A respondent declared that *"if we are in a situation where we are constantly reminded by people how we should do things, etc."* it does not promote innovative thinking. For example:

...it doesn't help me being prepared and I want to introduce this wonderful online "let's all upload agenda items" ... and then your Chair is like "no, I want you to print out all the items for me" ...

[However,] when you are in a situation when you are only doing collaboration, you are not in an office, you are working from home or tele-office, it might happen that you can have better ideas of how to do things, because you are not influenced by the people around you.

Expounding on one respondent's advice that *"the relationship between an executive and administrative professional should be as such, namely trust that it promotes taking initiative to solve a problem"*, will allow administrative professionals the space to have a say in the way they pursue their work. For example:

... to take a decision on behalf of the executive or when to defer the decision making or when to say "look we can't give you an answer right now but we will reply within the next half-an-hour" ...

It therefore promotes creative thinking and skills development to occur. The future requirement of an *"innovative thinking skills set"* was emphasised by a respondent saying:

... the World Economic Forum listed innovative thinking skills as number three on their requirement list for 2020 and beyond, and by 2028 creativity will be at the top of the list. You need to understand that you cannot do business the way it has always been done.

Another example worth quoting is about an improved way to take minutes:

... outside the box helps a lot ... I promise you, talking about the minutes is something that is been very much in my mind on how to do the minutes electronically, the agenda electronically, but in all of this, the organisation also needs to be prepared for the future.

A code that is also present in Table 6-44 is in the context of **teaching and learning**. Specific reference has been made with regard to administrative professionals that should be **taught** the importance of **innovative thought processes**: “... we have a big social responsibility to teach this innovative thinking.” For example to, “again put them in small teams to actually let them think up something that will be productive, and that they can solve”. Moreover, it should be avoided to spoon-feed administrative professionals in the working processes or skills that they need to acquire during their teaching and learning processes. Remarks from respondents that support this idea, are as follows:

... a lot of our students goes [sic] into certain environments where they are being led. It is a few that goes [sic] into a workplace where they will actually be asked to take initiative.

They want to tell them what to do and they expect only that results. They don't want an employee to actually make decisions.

The above responses reveal that although the respondents agree with the literature (discussed in paragraph 4.3.5.15) in that employees at all levels should be encouraged to find new and innovative means to work more effectively, it seems that, on the one hand, administrative professionals seek opportunities for innovative thinking and, on the other hand, executives seek administrative professionals displaying innovative thinking.

Notwithstanding the challenges with regard to innovative thinking in the workplace as discussed above, the Future Work Skills 2020 (Davies *et al.*, 2011:3) consider the impact of the key drivers of change, such as the rise of smart machines and systems to incite a shift towards innovative thinking that will be required to review the content of people's work and work processes. Reference is also made to cross-cultural competency as a future skill in the Future Work Skills 2020 (Davies *et al.*, 2011:9). It is not exclusively limited to cross-cultural competency but also inclusive of diversity as a driver of innovation. Specific reference is made to diverse geographical environments that entail multi-generations, skills, disciplines and thinking skills, as well as contributing as an innovative team member.

In accord with this, the World Economic Forum (2016:52) echoes the importance of creative thinking as a future core skills set, requiring not only the “ability to come up with new ideas but also to develop creative ways to solve a problem”. Taking the challenges that emerged from the responses into account, the World Economic Forum (2016:61) points out that employers have to make a concerted effort to create an environment that will advance innovative thinking among employees.

6.7.2.7 **Theme 7: Personal qualities**

(i) **Willingness and ability to adapt to change, thus being socially adept**

Table 6-48
Frequency distribution for socially adaptability

THEME	CATEGORY	CODE	FREQUENCY
Personal qualities	Socially adept	Personal qualities as crucial factor for adaptability	7
		Adaptability is crucial for career	4

Table 6-48 reflects the code that refers to the **factor** of an administrative professional to possess **personal qualities** that will assist in the **adaptation** of the changing environment. A person should have the initiative to adapt to change and have the personality, the motive and the contextual knowledge to be able to adapt to any change that would occur in the future.

Some of the respondents' comments are listed below:

You need to have a strong personality, you must have a very strong personality to work with people ... outside ... you are not situated at a company, ... you must be diligent, ... she must be awake, she must really be a go-getter to be able to cope in the future office ... so, her mind-set ... older people, older women, etc., they might adapt to this, but still, I think because you don't see people at the office, you feel a little bit lonely, but you need a strong personality, strong type of person to be able to work off-site and do the work.

... you must be able to change. Actually, if you are already in such a situation, the changes is [sic] coming to you, that you don't look for ... you do look for change, but the change is coming to you, so if you don't adapt to all the changes around you, you are staying behind.

This becomes the distinguishing feature of the administrative professional of the future. Technology will replace the bulk of the work and will now look at intuition, where a person is able to look at a situation and judge the dynamics of that situation.

... there is always change ... in any business ... anywhere you go, there will always be change, ... and you know what, take it, adapt with it, pick up the pieces and go on.

So, change is important ... and a lot of people don't like change, they don't adapt easily to change, but I think it is also to do with your mind-set.

From the above responses, it can be observed that respondents realise the importance, as comprised in the key drivers of change directives, of having the ability and willingness to adapt to a varying work environment. Thus, it corresponds with the literature (paragraph 4.3.5.16) regarding the inevitability of the change that the evolution of employment and skills has on the ability of the administrative professional to adapt to new emerging roles beyond the impact of the accelerated technological development to the emerging new roles. Specific reference in this regard is made in paragraphs 4.2.1.3 and 4.4.1, where the importance of adapting socially and emotionally to a global, multi-generational workplace is emphasised. The ability to adapt to change is considered, according to the Lifelong Learning Skills, as an important lifelong personal quality (Burton & Shelton, 2014:41-48).

Future skills that also emerged from the directives, pertaining to being socially adept, are social intelligence, novel and adaptive thinking, cross-cultural competency and virtual collaboration (Davies *et al.*, 2011:8-10). Although considered as completely different skills, these mutual relationships could refer to those individuals who are skilful to assess their environment and emotions and adapt accordingly (Davies *et al.*, 2011:8).

(ii) Working independently, namely to exhibit self-management skills

**Table 6-49
Frequency distribution for self-management**

THEME	CATEGORY	CODE	FREQUENCY
Personal qualities	Independence and self-management	Self-management is key	5
		Independence is key	3

The code ascribed to **self-management as an essential** attribute, as displayed in Table 6-49, relates to the administrative professional being able to manage workload in the working context.

For example, the “*technology to actually manage their diaries, manage their work schedules, manage their leave, manage their everything ... technology can play a big role*”. Another comment about this was made pertaining to the view that “*understand[ing] how your boss is thinking ... [will contribute towards] ... work[ing] as a team*”. This speaks of the term of independence in some sense, in that it would go hand in hand with the processes of independence, which means one being able to manage their work that has been allocated to one, for instance where:

... you have to think on your feet and change ... like you say, change happens. Unfortunately, you try to prioritise your day, but because it happens so fast, things change.

However, one of the respondents expressed the following belief:

... self-management is more about inner work than outer work; for example, do you believe in the skill set that you have? If you believe in your skill set, do you actually add value to the service that you are rendering?

It can be inferred from the section above that the responses also agree with the viewpoints revealed in the literature (see discussion in paragraph 4.3.5.17) as well as with the directives for the key drivers of change. Although the future world of work emphasises teamwork (as discussed in paragraphs 4.3.5.3 and 6.7.2.5(i)), the administrative professional should possess personal qualities such as self-management (also referred to as being able to work independently) to contribute towards the team productively (Burton & Shelton, 2014:49). Specific reference is made towards the ability to work independently as a virtual professional in a virtual team. The independent administrative professional is able to set personal goals and monitor the progress thereof to meet the goals of the team.

The impact that key drivers of change such as superstructured organisations³⁴ have upon the future skills set demand, among other skills, the ability to independently “discriminate and filter information for importance ... [and to] learn new social skills to work” (Davies *et al.*, 2011:12).

The World Economic Forum (2016:52) concurs with the above, confirming that process skills are considered as a future core skills set. It entails “monitoring, assessing your performance to make improvements or take corrective action” (World Economic Forum, 2016:52).

6.7.2.8 Theme 8: Emotional intelligence

**Table 6-50
Frequency distribution for emotional intelligence**

THEME	CATEGORY	CODE	FREQUENCY
Emotional intelligence	N/A	EI is crucial for communication processing	7
		Technologies as a barrier for EI	3

As is evident in Table 6-50, the code relates to the **importance of emotional intelligence** in the working context, as denoted by respondents saying:

... you got to have a little bit of empathy in place ... not everybody is going to come to work in a good mood; you are going to get the people that are very emotional about certain things, and people that aren't. You got to learn to adapt ... you got to learn to adapt to people's emotions ... but it is important to know when somebody is having a bad day ... leave them alone ... get them a cup of coffee ... make them feel better, you know. Step back and see the bigger picture.

The accent was also placed on the importance to manage emotions, since:

... emotional intelligence is that one anchor that you actually need to survive in the next ten years. If you are not emotionally intelligent, you work in a political sensitive environment, you work in a disruptive economy, you have to manage and keep those emotions under the bottle cap.

Situations where administrative professionals are “able to look at the executive and understand the pressures the person is under” or identify “when there is a particular tense period of time in the office”, in terms of meeting deadlines, are indications of emotional intelligence that allows for certain non-verbal cues to be noticed by the administrative professional. This, in return, allows for them to have a better working environment. To be able to read social cues is important in the working context because it is directly based on decision-making processes, in instances such as “not standing at the door when a visitor is walking in to state ‘I need to leave early today’” or “not making an early personal appointment”.

³⁴ “Superstructured organisations” refer to “[s]ocial technologies that drive new forms of production and value creation” (Davies *et al.*, 2011:7).

In addition, respondents feel that “*emotional intelligence should exist in both parties*”. For example:

... the executive at his side should recognise working late hours to meet a deadline and offer that the administrative professional could come in a bit later the next day.

It can be inferred from the above responses that although the respondents are aware of the importance of emotional intelligence in the workplace, similar to what is elaborated upon in the literature (paragraph 4.4), it can be deduced that there seems to be an unconsciousness in terms of the impact digital technology has on interpersonal skills (as discussed in paragraph 4.4.1). This assumption is based on the fact that no mention has been made of the negative impact of technology on people’s social and emotional skills.

Reference in this regard is made towards the future key drivers of change, such as social intelligence as encompassed in the directives of change, which illuminates the impact of artificial intelligence on how people perceive and express emotions in the new world of work. Although robots could display social and emotional intelligence to some social extent, it is, according to the Future Work Skills 2020, only “socially intelligent employees who are able to quickly assess the emotions of those around them and adapt their words, tone and gestures accordingly” (Davies *et al.*, 2011:8). Thus, the disruptive key drivers of change have an impact on the existing skills to such an extent that the World Economic Forum lists emotional intelligence in their Core Work-related Skills (2016:22 & 53) as a future skill in demand.

It is also noted that no reference has been made to the rise of virtual teams and the impact these have upon being emotionally adept. Although the literature (paragraph 4.4.1) mentions that group effectiveness diminished with *inter alia* virtual teams, it seems, according to researchers such as Arfara and Samanta (2016:170 & 175) and Pitts, Wrights and Harkabus (2012:8 & 28) that emotional intelligence in the context of virtual teams is regarded as a significant predictor of team viability and effectiveness. Emotional intelligence should, therefore, be applied to manage emotions to contribute to the cohesion of the group, and more so in the context of virtual teams.

6.7.3 Open-ended questions

It was essential for this study to determine the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional. Therefore, two open-ended questions were included in the survey questionnaire.

The two open-ended questions in Section C of the survey questionnaire (see Appendix D) relate to the secondary research question (as described in paragraph 1.4.2 of Chapter 1), namely,

What are the requirements for the future knowledge and skills set of South African organisations with respect to their future needs?

The respondents had to formulate their responses to the following two questions themselves:

1. *Are there any other skill(s) that you regard as essential skill(s) for future success, that are not mentioned here?*
2. *In which of these do you need development?*

These responses were constructed by using a single text box on SurveyMonkey™ where the respondents' answers could be entered. The raw data were extracted from the MS Excel spreadsheet and are included in Appendix F. The researcher created a second MS Excel spreadsheet (Appendix G) to count the frequencies and calculate the percentages of the frequencies. In instances where respondents used other descriptions or a broad description for skills already appearing on the questionnaire, it was allocated, according to the categories as set out in the questionnaire. For example, "self-motivation" is considered to be a "personal quality", and all "financial skills" were categorised under "Office administration, and organisation and time management". This categorising is indicated in blue after the skill on Appendix G.

According to most of the answers to the first question, as shown in the first column of Appendix G, it would appear that respondents did not understand the question. Alternatively, it might have been that the question was not stated clearly. Reference is made to skills entered that were included in the survey questionnaire instead of "any other skill(s) ... not mentioned here".

This section will begin with a table to provide an overview of responses, followed by discussions in the same order as displayed in Table 6-51.

Table 6-51
Overview of open-ended questions responses

	DESCRIPTION	FREQUENCY	PERCENTAGE
(i)	Responses to open-ended questions:		
	Received	154	70.32
	Not received	65	29.68
(ii)	Responded “no” to additional skill(s), however indicated their required training mentioned in questionnaire	57	37
(iii)	Instead to indicate “yes” or “no” for additional skill, required training was indicated already mentioned in questionnaire	49	32
(iv)	Responded “no” to both questions	22	14.29
(v)	Rejected responses	21	13.64
(vi)	Other skills regarded as essential, not mentioned in questionnaire	19	12.34
(vii)	Responded “no” to additional skill(s), however added required training not mentioned in questionnaire	5	3.25
(viii)	Responded “yes” to additional skill(s), however added their indicated training mentioned in questionnaire	2	1.3
(ix)	Indicated additional skill(s) with “yes”, and added required training not mentioned in questionnaire	2	1.3

(i) The percentages of the frequencies were calculated, based on the number of answers received for this open-ended question that is 154. Therefore, 70.32% of all the respondents (219) who participated in the skills survey completed this question.

(ii) **Responded “no” to additional skill(s), however indicated their required training mentioned in questionnaire**

Further to the remark at the beginning of this section with regard to the misunderstanding or lack of clarity of the question, there were 57 (37%) (see Appendix G) respondents who indicated that there are *no other skill(s)* regarded as essential for future success that were not mentioned in the survey questionnaire. This implies that there should be no answers to the second question. However, respondents listed training needs for skills as it appeared on the survey questionnaire. View Table 6-52 below for example.

Table 6-52
Illustration of misunderstanding of second question

1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
N/A	Internet web-based applications
N/A	N/A
None	Information and communication technology

- (iii) **Instead of indicating “yes” or “no” for additional skill(s), the required training listed by the respondents was already mentioned in the questionnaire**

This is another example of a possible misunderstanding, as mentioned in the above paragraph. In the case of the first question, 49 (32%) (see Appendix G) of the respondents indicated their training requirements mentioned before in the survey questionnaire, instead of “any other skill(s)”, as shown in Table 6-53.

**Table 6-53
Illustration of misunderstanding of first question**

1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
Problem-solving skills, self-motivation skill and financial skills	In the work organisation place
Online courses for new requirements required for Administrators/Officers	Bookkeeping/Finance, Emotional Intelligence, project administration, taking minutes, software that is new on the market, planning
No	Not applicable
Management goals	Management goals

- (iv) **Responded “no” to both questions**

As reflected in Table 6-51, 22 (14.29%) (also see Appendix G) of the respondents indicated that there are neither any other skill(s) that are regarded as essential skill(s) for future success nor any to be developed.

- (v) **Rejected responses**

Typical entries not considered as skills or not relevant to the scope of study were rejected, such as the following:

Consistency	Learning
Learning and development	Photography
International protocol	Passion

Below are examples of other entries also rejected.

In the work organisation place	I needed to increase my knowledge of Social Media, but I took an online course recently and obtained a diploma
Work	This takes years of experiencing and only in-house coaching
Little bit of each	I have worked here for 20 years already

As displayed in Appendix G, a total of 21 (13.64%) entries were rejected.

(vi) **Other skills regarded as essential, not mentioned in questionnaire**

According to the responses in Appendix G, 20 (13%) skills that were not mentioned on the survey questionnaire were regarded as essential skills for future success. Ten of the twenty skills were rejected since they were neither considered as a skill nor regarded as relevant to the scope of the study (also discussed in paragraph (v) above). "Communication practitioner" was included to this category, since it is considered to be a profession and not a skill.

With regard to "Bargaining Council", it is assumed that knowledge of bargaining councils is required and that it is not merely a skill requirement. These are as follows:

Passion	Attention to detail
Photography	Trusting people
Dress for success	Consistency
Professionalism	Communication practitioner
Bargaining Council	International protocol

As displayed in Table 6-54, four of the twenty responses indicated their need for training in "presentation skills" and "leadership skills" as these are considered to be essential skills for future success. Entries for human resources, law, management and public speaking, each received two responses.

In terms of the literature, "presentation skills" is considered to be a future skill requirement, according to the World Economic Forum (2016:21), as discussed in paragraphs 4.3.5.2 and 4.3.5.4 of Chapter 4. Presentation skills were also identified as being a training need, according to the IAAP Benchmarking Survey (2013:3), the OfficeTeam Survey (2012:5) and the CFA Business Skills @ Work (2012:9) (see paragraph 3.2.4.2 of Chapter 3). The need that arose for "leadership skills" could be related to restructuring workplaces, especially in the work arena of the administrative professional, as discussed in paragraph 3.2.4.2 of Chapter 3). The reduction of routine work allows administrative professionals to accept other business tasks. This statement supports the findings of the World Economic Forum (2016:20-27) that a different future skills set is required as a result of the impact that artificial intelligence has had on office and administration roles (see paragraph 4.3.4 of Chapter 4). This future skills set is not limited to evolving tasks, but includes participation on a more senior level and, therefore, requires the deliberate talent development of women in leadership skills (World Economic Forum, 2016:34-35).

**Table 6-54
Additional skills that require training**

ADDITIONAL SKILL	FREQUENCY
Presentation skills	4
Leadership	4
Human resources	2
Management/Management in general	2
Public speaking	2
Law	2
Recruitment and selection	1
Basic management principles	1
Employee relations management	1
Marketing	1

(vii) **Responded “no” to additional skill(s), however added their required training not mentioned in questionnaire**

Table 6-55 reflects the five (3.25%) entries made that are not considered to be skills. According to the survey questionnaire (Appendix D), the section on “learning and development” required respondents to indicate their preferred means on how to acquire the skills needed to develop. Although these entries were included in the calculation, as discussed in the above paragraph (vi), the purpose of this discussion is merely to illustrate how the question was misunderstood. These responses were also included to the entries that were rejected as described in paragraph (v).

**Table 6-55
Responses in terms of skills not mentioned in questionnaire**

Row	1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
37	No	Learning
48	No	Learning and development
98	No	Learning and development
188	No	Learning and development
203	No	Learning and development

(viii) **Responded “yes” to additional skill(s), however added indicated training mentioned in questionnaire**

The skills referred to in the heading, are the single entries for “adaptability” and “social network”, thus 2 (1.3%), as illustrated in Table 6-56.

**Table 6-56
Responses that contradict the first question**

1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
<p>Yes, as a person over 55 years of age – adaptability in this modern world</p> <p>Yes</p>	<p>Social Networking skills</p>

(ix) **Indicated additional skill(s) with “yes”, and added required training not mentioned in questionnaire**

Other than the additional skills discussed in paragraph (vi) above, the two (1.3%) additional skills, namely “marketing” and “basic management principles”, are mentioned here since the respondents specifically began to answer the questions with “yes”. However, these two skills are included in the list as reflected in paragraph (vi).

**Table 6-57
Responses in terms of skills not mentioned on survey questionnaire**

1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
<p>Yes. The ability to market myself is not part of my portfolio or my thinking – this was not in our case of tools in the earlier years. How to do this and remain humble - this sets us apart ... The ability to not market ourselves or our skills – we have been trained over the years to DELIVER ... not market ourselves. Help with this would be appreciated</p> <p>Yes</p>	<p>Marketing of self-confidence in this young market. Course that will put like-minded older individuals together. It is intimidating to be in a class with all under-25-year-olds ...</p> <p>Basic Management Principles for Executive Secretaries</p>

(x) **Training requirements of skills mentioned in questionnaire**

Although Table 6-58 reflect skills listed for training that is not regarded as additional skills (also see discussions in paragraphs (ii) and (iii)), it warrants discussion since it contradicts the findings emanating from the national skills survey, except for skills related to web-based applications as described in paragraph 6.5.3.

Considering all the skills assessed on the questionnaire, training in terms of web-based applications is the most in demand, with a frequency of 37 (24,02%). It seems that the requirement for training in web-based applications correlates with the relatively low mean values (5.3190) received for this category as displayed and discussed in Table 6-11 and paragraph 6.5.3.9. However, contrary to the training requirements as displayed in Table 6-58 for “thinking skills” (19.5%), “office administration, and organisational and time management” (16.88%), and “information and communications technology” (16.23%), are the relatively high mean values received in the national skills survey in the respective categories. Cited from Table 6-11 mean values of 8.5130 for thinking skills, 8.6493 for office administration, and organisational and time management, and 8.1731 for information and communications technology indicating that respondents consider their ability with regard to the said skills to be sufficient.

One can conclude that the training needs listed by respondents as discussed in the previous paragraph derive from the need for additional training, or training at an advanced level, or to improve their skills by means of training.

Table 6-58
Training requirements for skills mentioned in questionnaire

SKILLS ACCORDING TO CATEGORY	FREQUENCY	PERCENTAGE
Web-based applications	37	24.02
Thinking skills:	17	11.03
Problem-solving	3	1.94
Commercial awareness	4	2.59
Personal commercial awareness development	2	1.29
Innovative thinking	4	2.59
Total	30	19.5
Office administration, and organisational and time management	26	16.88
Information and communication technology	25	16.23
Emotional intelligence	21	14
Interpersonal skills:	8	5.19
Teamwork and project management	7	4.54
Supervising of co-workers	2	1.29
Conflict resolution	2	1.29
Total	19	12.33
Personal qualities:	9	5.84
Social adaptability	4	2.59
Self-management	3	1.94
Total	16	10.4

SKILLS ACCORDING TO CATEGORY	FREQUENCY	PERCENTAGE
Management of meetings:	10	6.49
Minute taking	6	3.89
Total	16	10.4
Communication:	6	3.89
Verbal	3	1.94
Written	4	2.59
Total	13	8.44

6.7.3.1 Summary

In summary it can be concluded that, in spite of misinterpretation of the open-ended questions, the findings revealed that respondents identified the need for additional training in terms of “presentation skills” as well as “leadership skills”, as skills regarded as essential skills for future success. These two skills are regarded as essential skills for the future world of work. Moreover, it can be inferred that the need arose for additional training, or training at an advanced level, or for the purposes of improving their current skills.

6.7.4 Conclusion

In section 6.7.2 (6.7.2.1 to 6.7.2.8), the qualitative data gathered by means of semi-structured interviews investigated the perspectives of a small number of stakeholders regarding the required future skills of the administrative professional. To comply with the secondary purpose of the study (as described in paragraph 1.3 of Chapter 1), the responses that were recorded were transcribed and arranged with the assistance of Atlas.ti™ Version 8, according to codes for co-coding purposes. The high frequency codes were considered to be specific values of references for interpretation. The description of thematic relationships and patterns of relevance were presented to provide context to the primary data obtained in the national skills survey.

Taking into account the impact of future skills requirements as reflected in the key drivers of change guidelines (Figure 4-1 of Chapter 4), it can be deduced that future skills requirements did not have a negative impact at national level. Although, according to the results of the national skills survey, there are not significant knowledge and skills gaps (paragraphs 4.3.5.1 to 4.3.5.17 of Chapter 4), it has been found that the mentioned skills continue to be important skills to remain effective within the next ten years. Reference is also made to the literature study and the semi-structured interviews as support (paragraphs 6.7.2.1 to 6.7.2.8).

It can be assumed that, at the rate that technology changes, gaps in skills are most likely to arise, taking the feedback received from the open-ended questions into consideration in terms of the rising need for additional training, or training at an advanced level, or for the purposes of improving their current skills.

Considering the relatively low means (5.3190) (displayed and discussed in Table 6-11 and paragraph 6.5.3.9) for the category web-based applications, as well as the demand for training, thus 24.02% in skills related to web-based applications, it seems that skills in terms of web-based applications are regarded as a gap.

Following Phase 1 of the data-gathering process, summarising the skills and knowledge gaps emanated from an international perspective (as illustrated in Figure 3-1 of Chapter 3), are the skills and knowledge gaps that emerged from the literature. The latter have been captured as Phase 2 of the data-gathering process, as summarised in Figure 4-5 of Chapter 4. Figure 6-4 reflects the summary of the data-gathering process, namely Phase 3, which is based on the skills and knowledge gaps that were identified from the quantitative findings (as presented in the sub-paragraphs of 6.5.3). Also included in Phase 3 are the future skills requirements, which were derived from the semi-structured interviews (described in the sub-paragraphs of 6.7.2).

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This chapter presents a brief overview and summary of the research study. The initial section is a brief review of the preceding six chapters, and then each of the research questions is answered. After this, the researcher discusses the challenges she faced during the study and the limitations of the study as well as its potential contributions. The researcher concludes the chapter with recommendations for practice, for training and development and for future research.

7.2 OVERVIEW OF THE CHAPTERS

7.2.1 Chapter 1: Orientation to the study

In this chapter, the researcher provided an orientation to the scope of the study that entails, among others, discussions on the purpose and the rationale of the study to describe the impact of the global and national key drivers of change and transformation on the future whole-brain success profile of the administrative professional for optimal effectiveness in the future world of work. Reference is made to the main research question, the secondary research questions and the clarification of the key concepts that form the essence of the research study. Following this was a brief literature review and a description of the theoretical framework as well as the conceptual framework of the study. Subsequent to this, was the research process relating to the various research questions that define the research design and methodology in terms of data-gathering methods, validity and reliability. The chapter concluded with the ethical considerations adhered to in this study, key words and chapter outline.

7.2.2 Chapter 2: Theoretical framework of thinking styles and whole-brain thinking

The theoretical framework was conceptualised in Chapter 2 by means of the different theories and approaches towards thinking and learning styles. These guided the attempt to discover and interpret the impact of the global key drivers of change on administrative professionals becoming whole-brain thinkers in executing their role effectively. Discussions focused on the theories that framed this study, namely Herrmann's Whole Brain® Model, Taggart's whole-brain human information processing theory, Sternberg's theory of thinking styles and Kirton's model of cognitive styles. The conclusion of the chapter reinforced how the whole-brain thinking theory provides an invaluable basis for understanding the processes of thinking required in the business world.

7.2.3 Chapter 3: International and national investigation

This chapter presented the results of an investigation conducted by the researcher to obtain an international and national perspective into the current data available pertaining to the existing ability of administrative professionals to comply and perform, according to the requirements of the changing world of work. The investigation that was conducted among the associations for administrative professionals revealed that gaps in competencies and capabilities of administrative professionals, in terms of an international perspective, could be determined. However, of particular interest for this study, was the discovery that, from a national perspective, there was a lack of information pertaining to the current ability of administrative professionals to comply with and perform, according to the requirements of the changing world of work. How this lack of a national perspective would be addressed in this study was explained in the summary of this chapter. A brief explanation was given of how the results of both the international and national investigations will be combined with the literature review conducted in Chapter 4. The results obtained in the international and national investigation was summarised in Figure 3-1, referred to as Phase 1 of the data-gathering process. The futuristic whole-brain success profile that was developed based on the findings of this study is based on three different data-gathering processes or phases. This chapter concluded with the presentation of Phase 1 of the data-gathering process, demonstrating the skills and knowledge gaps that emerged from the international investigation.

7.2.4 Chapter 4: The new world of work and its impact on administrative professionals

The impact of the global and national key drivers of change and transformation on the future success profile of the administrative professional were examined in this chapter. It allowed the researcher to draw from constructs from the literature to conform to the conceptual framework, thus the future success profile for optimal effectiveness of the administrative professional. The directives of the key drivers of change guided the discussions with regard to their future implications on the future of the business world, education and training and training institutions as well as the individual administrative professional. The relationship between the skills and knowledge gaps identified in Chapter 3 and implications with regard to whole-brain thinking were illuminated in the remainder of the chapter. The chapter concluded with Phase 2 of the data-gathering process that summarises the knowledge and skills gaps emanating from the literature review, according to the mental preferences of Hermann's Whole Brain® Model.

7.2.5 Chapter 5: Research design and methodology

This chapter offered an in-depth discussion and explanation of the research process. Emphasis is placed on the description of the paradigmatic perspective, theoretical and conceptual framework, and on the research design and research methodology with regard to the qualitative and quantitative research approaches employed in this study. This research study was embedded in a pragmatism paradigm, and an embedded mixed method mode of enquiry was employed.

As part of the correlational study, the researcher collected qualitative data consisted of semi-structured interviews and quantitative data by means of a national skills survey. This was done in order to see whether the two data types show similar results, but from different perspectives. In addition, a detailed description was provided of the process of data collection and analysis for this study, namely the sequential embedded and explanatory design. Factors such as validity and reliability were also investigated.

7.2.6 Chapter 6: Data analysis, findings and interpretation

This chapter commenced with an overview of the research process. The researcher discussed and presented the results emanated from both the quantitative component of the study, namely the national skills survey, as well as the qualitative component of the study, that is, the semi-structured interviews conducted with a small group of stakeholders. These two sets of data provided the required data for the correlation and summarising of the results. The chapter commenced with a brief overview of the preliminary qualitative data collection and analysis from both an international and national perspective. This was followed by the analysis of the pilot test conducted with the survey instrument. After this, a descriptive statistical summary of the data analysis of the current level of proficiency and effectiveness in the knowledge and skills of the administrative professionals who participated in the skills survey was presented and discussed.

The first section of qualitative data involved the findings which emanated from the semi-structured interviews. The perspectives of a small number of stakeholders were investigated with regard to the impact of the current and future global and national changes in the work environment on the mind-set and skills requirements of the administrative professional, required in order to remain effective within the next five to ten years. The interpretation of the data was done according to the qualitative content analysis method.

The second section of the qualitative data presented and discussed the findings derived from the two open-ended questions in Section C of the survey questionnaire. Respondents had to indicate whether there were any other skills regarded as essential skills for future success that were not mentioned in the survey questionnaire. The chapter concluded with Figure 6-4 that illustrates Phase 3 of the data-gathering process that summarises the skills and knowledge gaps emerged from the national skills survey.

7.3 FINAL CONCLUSIONS

The final conclusions are presented by referring to the problem statement and research aim that guided this study.

7.3.1 Revisiting the formulated research questions

The main research question that directed this study was formulated as follows:

What is the impact of the global and national key drivers of change and transformation on the future success profile for optimal effectiveness of the administrative professional?

In order to be able to solve this problem, five subsidiary questions were formulated to delineate the focus of this research, thus, the future role and accompanying thinking processes of the administrative professional. They were:

- (i) What is the current knowledge and skills set of administrative professionals within South African organisations?
- (ii) What are the requirements for the future knowledge and skills set of South African organisations with respect to their future needs?
- (iii) How can the Whole Brain® Model and theory serve as a useful and valid basis to aid administrative professionals to enhance their competencies and capabilities?
- (iv) How do the managers rate the current ability of administrative professionals to comply and perform, according to the requirements of the changing world of work?

A broad significance for the quantitative component of the study was formulated as follows:

The revolutionary development of information and communications technologies has an impact not only on the administrative professional's work environment, but also on their future roles and accompanying thinking processes.

The **primary purpose** of this study was thus to assess the impact of the global and national key drivers of change and transformation on the future whole-brain success profile of the administrative professional for optimal effectiveness in the world of work.

The researcher, therefore, attempted to answer the research questions from a pragmatism paradigm, since the worldview acknowledges that meaning is made through real-world practices. In this instance it was the natural work environment of the administrative professional. The study was therefore viewed from an epistemological and axiological viewpoint in terms of the quantitative data and an axiological viewpoint in terms of the qualitative data.

7.3.1.1 *What is the current knowledge and skills set of administrative professionals within South African organisations?*

In order to answer this question, a national skills survey was conducted among administrative professionals in the public and the private sectors. The current knowledge and skills set that emerged from the findings of the national skills survey (as presented in paragraphs 6.5.3.1 to 6.5.3.10 of Chapter 6) are summarised and can be observed in Phase 3 of the data-gathering process (as displayed in Figure 6-4 at the end of Chapter 6). Except for the relatively low mean values (5.3190) for web-based applications, the findings for the remaining skills are in contrast with the outcomes derived from the international investigation and the literature study. This is evident from the results presented in paragraphs 6.5.3.2 to 6.5.3.9 of Chapter 6, illustrating the high mean values that range between 8.1731 and 9.2935. However, according to the data presented for web-based applications in paragraph 6.5.3.9 of Chapter 6, the proficiency levels in terms of web-based applications have a relatively low mean value of 5.3190. Proficiency in web-based applications is, therefore, the only clear skills gap that emerged from the survey conducted among administrative professionals. Figure 3-1 in Chapter 3 displays Phase 1 of the data-gathering process. This phase summarised the findings that emanate from the international investigation. The findings of the literature study are summarised and displayed as Phase 2 in Figure 4-5 of Chapter 4.

In view of the above, it could be inferred that administrative professionals in the South African context regard themselves as being currently proficient and effective, considering the high mean values as reflected in the findings.

7.3.1.2 *What are the requirements for the future knowledge and skills set of South African organisations with respect to their future needs?*

Both the perspectives that emerged from the semi-structured interviews (presented in paragraphs 6.7.2.1 to 6.7.2.8 of Chapter 6) as well as the perspectives in response to the open-ended questions (presented in paragraph 6.7.3 of Chapter 6), were integrated with the results derived from the literature and the quantitative findings collected by means of a national skills survey. This provided the context with regard to the requirements for the future knowledge and skills set.

Although it seems that the impact of the global and national key drivers of change and transformation has not negatively affected the current skills and knowledge set of administrative professionals at national level, these skills remain important for the future. Considering the diverse role of administrative professionals, emphasis has been placed on certain skills and knowledge regarded as essential for future success (see Table 7-1). These essential skills conform to the demands of the key directives of change that are transforming the global society and marketplace (as illustrated in Figure 4-1 in Chapter 4). In addition to these perspectives arising from the semi-structured interviews, the responses to the open-ended questions revealed that additional training is required in the fields of presentation and leadership skills in light of its importance for future success.

Further training has also been identified in those skills areas where the respondents currently regard themselves as being effective. Reference is made to all the skills derived from the national skills survey, except for web-based applications as presented in paragraphs 4.3.5.1 to 4.3.5.17 of Chapter 4. It can, therefore be deduced that the need for further training derives from accelerated technological developments that would require additional training, or training at an advanced level, in order to improve their current skills level. This premise was also confirmed by the findings of the semi-structured interviews. For example, the traditional duties of the administrative professional have become obsolete, with a shift towards executive support that entails skills on a more advanced level.

Table 7-1
Future essential skills required for effectiveness

Information, communication and technology literacy	New media ecology	Decision making and judgement
System skills: analysing	Complex problem-solving	Data analysis and presentation
Data-based decisions	Resource management	Time management
Organising	Interpersonal skills, e.g. emotional and social skills	Listening skills
Self-management and others, inclusive of working independently	Communication: convey and articulate knowledge and information	Written expression
Teamwork (office-based and virtual)	Public relations	Train co-workers
Customer service-orientated	Negotiation skills	Think and work creatively
Integrate, evaluate and create information with digital technology	Critical thinking	Adaptability
Flexibility	Mentoring: self and others	Communication: understand and interpret information
Process skills	Emotional Intelligence	

7.3.1.3 *How can the Whole-Brain® Model and theory serve as a useful and valid basis to aid administrative professionals to enhance their competencies and capabilities?*

Of particular interest for this study and as outlined in Chapter 2, individuals are provided with a much broader spectrum of thinking preferences that allows the acquisition of skills through four different integrated thinking processes. The Whole-Brain® Model thus serves as a useful and valid basis to illustrate that potential exists to acquire the required skills for success in the future world of work. As illustrated in the future success profile for the administrative profession (see Figure 7-1), the administrative professional should be able to function in all four of those quadrants. Furthermore, the HBDI could serve as an assessment tool to aid the administrative professional to identify her strengths and development areas in order to perform optimally within the future world of work.

7.3.1.4 *How do the managers rate the current ability of administrative professionals to comply and perform in accordance to the requirements of the changing world of work?*

According to the literature discussed in paragraph 4.3.1 of Chapter 4, the re-skilling of current employees is imperative to meet the talent and skills challenges brought about by expected business model disruptions. This was specifically referred to within the South African context. Although the managers interviewed in this study agreed with the principle of re-skilling, emphasis is placed on interpersonal skills, such as emotional intelligence and adaptability, including social adaptability. Furthermore, global changes will require an advanced level of skills in the management of working relationships, with the focus on virtual relationships, and flexibility with regard to different and longer working hours. With regard to conflict management, specific reference is made to the fact that administrative professionals find it problematic to manage intra-office conflict owing to the unequal power relationship between the executive and support staff members. Additionally, unprofessional conduct with regard to digital communication creates conflict and it seems as if difficulties in managing this new form of communication emerged as a result of a multi-generational workforce.

It is also expected of administrative professionals to be able to engage with senior management on behalf of the executive that is a skill that administrative professionals are not necessarily equipped with currently.

Although the abovementioned interpersonal skills have become more prominent as a result of the directives of change and are essential skills requirements in future, managers underlined that advanced computer skills will remain a critical skill for administrative professionals.

Administrative professionals should, therefore, embrace information and communication technology in order to work seamlessly with their respective line managers.

7.3.2 Summary

The findings of this study that emanated from the abovementioned research questions, can now be summarised by means of the futuristic whole-brain model as illustrated in Figure 7-1. It is evident from Figure 7-1 that the key skills for the future success of the administrative professional involve proficiency to function from all quadrants of the whole-brain model. Of specific importance are the skills “flexibility” and “adapting to change” that, as displayed in Figure 7-1, are categorised in the D-quadrant.

According to Herrmann’s Whole Brain Theory, D-quadrant thinking is considered to be important for administrative professionals since this implies being innovators who are intuitive, holistic, conceptualising, adventurous and risk taking. All these skills are pointed out by the literature as being important for the future success of administrative professionals (as discussed in Chapter 4). Furthermore, opportunities that will arise as a result of technology trends, will be flexible working arrangements, telecommuting, co-working spaces, virtual teams, freelancing and online platforms. These emerging technology trends, namely Mobile Internet, Cloud technology, Big Data analytics and the Internet of Things, will have a significant impact on the administrative professional’s skills set, as evidenced in the data derived from the skills survey (discussed in paragraph 6.5.3.9 of Chapter 6). The need for training regarding web-based applications, along with data presentations, as illustrated in Table 6-58, underlines the impact that technology trends have on future skills requirements. Skills with regard to computer literacy are categorised in quadrant A. This promotes thinking such as what needs to be known (knowledge), when analysing and learning a new computer program to be effective in applying the required technical skills. These skills are highly valued.

The need for training in presentation and leadership skills also emerged as discussed in paragraphs 6.5.3.9 and 6.7.3 of Chapter 6. This need for training in presentations is obvious in view of the emerging skills requirements in data-based analysis and presentations (see Figure 7-1).

The need for leadership skills is related to the new emerging role of the administrative professional, namely the supervision and training of co-workers. Leadership skills are embedded in the dimension of training and mentoring and is categorised as quadrant C. Thinking processes in the lower right C-quadrant promote communication and helping, supporting and social skills.

The contribution of this study is to construct a futuristic whole-brain model, according to functional, essential and emerging skills required for optimal effectiveness of the administrative professional in the future world of work is illustrated in Figure 7-1.

7.4 CHALLENGES AND LIMITATIONS OF THE STUDY

Negotiations with regard to the distribution of the survey questionnaire by the professional association, OPSA, proved a time-consuming process. The researcher distributed the letter of informed consent to the CEOs of three professional associations. Communication was a time-consuming process considering that being a CEO of a professional association is not their primary occupation. Therefore, responses to e-mails were delayed with the result that the period for approving the informed consent had to be extended. This trend was also experienced during the pilot study and the comprehensive survey. The professional association had to send out numerous reminder e-mails, and consequently the window period had to be extended. In view of the fact that the greatest participation in the survey was limited to one province, greater participation in the other eight provinces would have added value to the study.

7.5 RECOMMENDATIONS

7.5.1 Recommendations for practice- or work-based coaching

Taking the number of respondents into consideration who are currently enrolled for a formal qualification (as discussed in paragraph 6.5.2.6 of Chapter 6), the assumption can be made that, with a higher workload administrative professionals might find it difficult to pursue their studies on a part-time base. It is, therefore, advisable to offer credit-bearing short learning programmes or include such short learning programmes as part of qualifications.

7.5.2 Recommendations for curriculum development

Considering the rapid pace of technology development, and that the profession of the administrative professional is mainly skills-based, the current formal training of three years should be reconsidered. By the time the administrative professional enters the workplace, they run the risk that the trained skills are already outdated.

The curriculum should be adapted to allow for shorter modular credit-bearing skills programmes in line with the latest technology trends. This will provide administrative professionals with a more flexible approach to improve their qualifications. Taking into consideration that most South African administrative professionals' highest qualification is a diploma, this recommendation could address the need for improvement in their qualifications. As discussed in Chapter 3, this will align their level of qualifications with the international benchmark, namely to complete a higher-level qualification to fill the gaps in knowledge.

7.5.3 Recommendations for continuous professional development

- (i) The role of administrative professionals has definitely changed over the years, and there is evidence that their role will continue to evolve in the future. To adapt to and manage that change, a variety of avenues are available for professional development, for example through training courses available through their employer, work shadowing, attending webinars or podcasts and attending conferences.
- (ii) Continuous training and development opportunities should be provided by means of short learning programmes and refresher courses to allow administrative professionals to acquire the necessary skills at an advanced level. This will also enable them to function and perform on an advanced level, according to their new, more challenging and diversified roles.
- (iii) Of particular importance is continuous training and development in the areas of advanced web-based applications, emotional intelligence, flexibility, adaptability to change, leadership and presentation skills. These opportunities should make provision for administrative professionals' preferred methods of learning, as indicated in the survey, that is, to obtain experience in their work environment, and to receive training away from the office and by means of books, articles and manuals.
- (iv) In this regard, application of the HBDI can assist administrative professionals to identify their strengths and areas that they need to develop, so that they can select relevant continuous professional development opportunities.
- (v) In addition to their usual responsibilities, administrative professionals are expected to take on a variety of new tasks, and they therefore require continuous professional development in these new tasks, for example Internet research and market analysis, office management, marketing, human resources, finance, event management, support for multiple leaders or executives, making independent decisions up to a specified rand value, holding specific industry experience, leading a project team, and managing the budget.

7.5.4 Recommendations with regard to specific matters

7.5.4.1 *Attracting young professionals*

As revealed by the data discussed under the age category (paragraph 6.5.2.1 of Chapter 6), the majority of respondents belong to the median age of 46, with an average work experience of 16.5 years (paragraph 6.5.2.4 of Chapter 6). A concern has, therefore, arisen from the data of this study and the literature that it appears as if the profession does not attract young professionals.

Recommendations that could improve the attractiveness of the profession to attract more young people include the following:

- (i) Standardisation of work titles providing a career path for administrative professionals. This is a recommendation that could be implemented in partnership with professional associations and training and education institutions. This recommendation could address the concern that work titles and work descriptions of administrative professionals in South African organisations do not resemble their more diversified roles.
- (ii) Consideration could also be given to the establishment of a professional body where administrative professionals could register to gain professional status. Enabling administrative professionals to register against specific categories will also allow them to align their titles with their work profiles resulting in a more uniform description of positions (as discussed in paragraphs 4.3.4 of Chapter 4 and 6.5.2.3 of Chapter 6). It will, furthermore, promote work being done according to a code of conduct.
- (iii) Similar to how employees of the different generations have different ways in how they perceive work and learn (as discussed in paragraphs 4.3.5.6 and 4.4.1 of Chapter 4), are their different values in terms of career paths. Developing career paths, as valued by the different generations, which also address the necessary training and development needs, can also help attract young people to become administrative experts.

7.5.4.2 *Retention of the young administrative professionals*

Options to consider in terms of retaining young administrative professionals are set out below.

- (i) Work enrichment that would mean that administrative professionals are exposed to more challenging tasks, for example, collating and interpreting metrics or statistical data for the purposes of reporting, multi-tasking and presentation storytelling and development, accounting or budget management and design and layout.

These would be key areas for administrative professionals to develop as many of these tasks relate to both in-demand skills and those new tasks which employers are expecting administrative professionals to undertake. As mentioned above, the work description and remuneration packages of administrative professionals should be aligned with their new role and responsibilities within the new world of work.

- (ii) Furthermore, the skills an administrative professional possesses can be transferred to alternative positions within an organisation. For example, a possible career path could involve moving into the position of administrative management, or training and development of administrative professionals.

7.5.5 Recommendations for future research

The following future research is recommended:

- (i) This study was based upon a self-assessment, and it is recommended that additional research be conducted by means of skills assessments to develop more in-depth knowledge regarding the required skills for these professionals.
- (ii) Conduct research to investigate the need and feasibility with regard to the establishment of a professional body.
- (iii) Initiate research in terms of the development of a modular-based curriculum to address the continuously changing needs of administrative professionals.

7.6 CLOSING REMARKS

Figure 7-1 reflects the futuristic whole-brain success profile which shows the knowledge and skills required by administrative professionals for optimal efficiency that were determined during the 3-phase data-gathering process. The future success profile shows the impact of the revolutionary development of information and communication technology on the administrative professional's work arena, future role and accompanying thinking processes. The knowledge and skills required to comply with and perform according to the demands of the changing world of work have been categorised as functional future skills, which constitute the first layer around Herrmann's four quadrants at the core of the future success profile, followed by essential future skills, with emerging future skills in the outer layer.

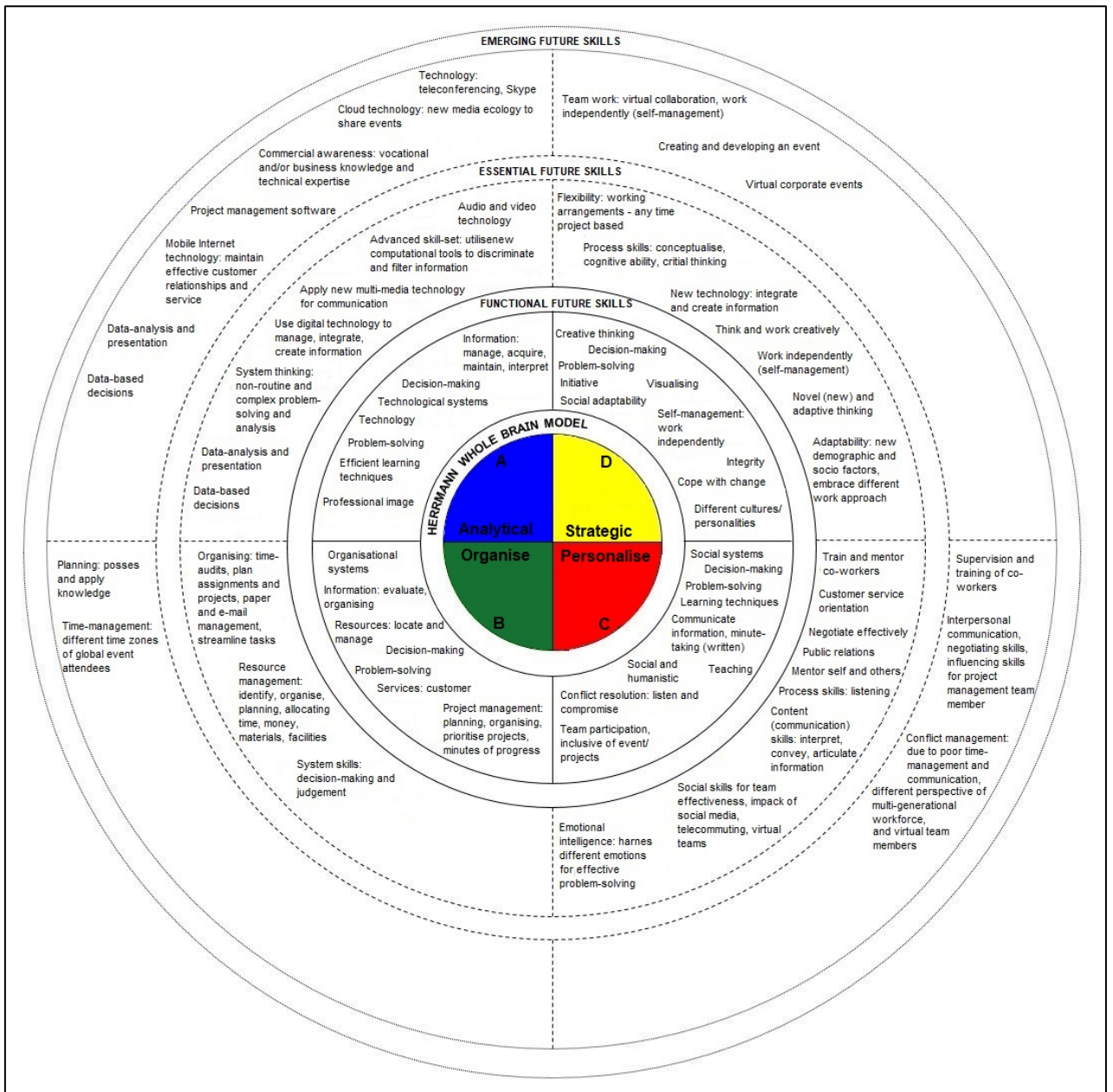


Figure 7-1
Futuristic whole-brain model

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	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
1.	Office administration	Basic workplace knowledge skills: mathematical operations; thinking skills; reading skills; writing skills; listening skills; speaking skills	Key driver: superstructured organisations
		Basic workplace skills: demonstrates effective interpersonal skills; uses technology; understands how systems works; manages information; locates and uses resources	Skills: cross-cultural competency; new media literacy; design mind-set; cognitive load management; virtual collaboration
		Personal qualities: be responsible; be a self-starter; be sociable; exhibit self-management; display integrity/honesty; project a pleasant personality; show human side; project a professional image	Ability: to operate in different cultural settings; to represent and develop tasks and work processes for desired outcomes; to discriminate and filter information for importance, and to understand how to maximise cognitive functioning using a variety of tools and techniques
			Knowledge: that social technologies drive new forms of production and value creation (beyond the basic forms and processes to the creation of new training paradigms and tools)
			Key driver: rise of smart machines and systems
			Skills: critical thinking/sense-making; social intelligence; novel and adaptive thinking
		Ability: to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based	
		Knowledge: workplace automation nudges human workers out of rote (new expectations and standards of performance), repetitive tasks (rethink content and processes of work)	

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2.	Technical skills/information and communication technology	Basic workplace knowledge skills: thinking, reading and writing skills; mathematical operations	Key driver: computational world
		Basic workplace skills: uses technology; manage information; locates and uses resources	Skills: computational thinking; trans- disciplinary; design mind-set
		Personal qualities: be responsible; be a self-starter	Ability: to translate vast amounts of data into abstract concepts and to understand data-based reasoning; literacy in and ability to understand concepts across multiple disciplines; to represent and develop tasks and work processes for desired outcomes
			Knowledge: of data and how to interact, see patterns, take data-based decisions, and use to design desired outcomes
3.	Interpersonal Skills		
3.1	Team working and project management	Basic workplace knowledge skills: thinking, writing, reading, listening and speaking skills	Key driver: superstructured organisations
		Basic workplace skills: demonstrates effective interpersonal skills; uses technology; manage information; locates and uses resources; understand how systems operate	Skills: cross-cultural competency; new-media literacy; virtual collaboration
		Personal qualities: be responsible; be dependable; be a self-starter; develop a positive self-esteem; be sociable; display integrity/honesty; project a professional image; project a pleasant personality	Ability: to operate in different cultural settings; to work productively, drive engagement and demonstrate presence as a member of a virtual team
			Knowledge: that social technologies drive new forms of production and value creation (beyond the basic forms and processes to the creation of new training paradigms and tools)
		Key driver: globally connected world	

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		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
	Team working and project management (continues)		<p>Skills: social intelligence; novel and adaptive thinking; cross-cultural competency; virtual collaboration</p> <p>Ability: to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; to operate in different cultural settings; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based; to work productively, drive engagement, and demonstrate presence as a member of a virtual team</p> <p>Knowledge: that an increased global inter-connectivity (long-term trend toward greater exchanges and integration) puts diversity and adaptability at the center of organisational operations to remain competitive</p>
3.2	Supervising of co-workers	<p>Basic workplace knowledge skills: thinking, listening and speaking skills</p> <p>Basic workplace skills: demonstrate effective interpersonal skills</p> <p>Personal qualities: positive self-esteem; display integrity/honesty; be sociable; project a professional image; project a pleasant personality</p>	<p>Key driver: globally connected world</p> <p>Skills: cross-cultural competency; social intelligence; novel and adaptive thinking; virtual collaboration</p> <p>Ability: to operate in different cultural settings; to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based; to work productively, drive engagement, and demonstrate presence as a member of a virtual team</p>

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			Knowledge: that an increased global interconnectivity (long-term trend toward greater exchanges and integration) puts diversity and adaptability at the center of organisational operations to remain competitive
3.3	Conflict resolution	Basic workplace knowledge skills: thinking, listening and speaking skills	Key driver: globally connected world
		Basic workplace skills: demonstrate effective interpersonal skills	Skills: cross-cultural competency; social intelligence; novel and adaptive thinking; virtual collaboration
		Personal qualities: positive self-esteem; exhibit self-management; show your human side; project a professional image	Ability: to operate in different cultural settings; to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based; to work productively, drive engagement, and demonstrate presence as a member of a virtual team
			Knowledge: that an increased global interconnectivity (long-term trend toward greater exchanges and integration) puts diversity and adaptability at the center of organisational operations to remain competitive
3.4	Public Relations and customer service/relations	Basic workplace knowledge skills: thinking, writing, reading, listening and speaking skills	Key driver: globally connected world
		Basic workplace skills: demonstrate effective interpersonal skills; uses technology; understands how systems operate; locates and uses resources	Skills: cross-cultural competency; social intelligence; novel and adaptive thinking; virtual collaboration

	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
	Public Relations and customer service/relations (continue)	<p>Personal qualities: positive self-esteem; display integrity/honesty; project a pleasant personality; show your human side; project a professional image</p>	<p>Ability: to operate in different cultural settings; to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based; to work productively, drive engagement, and demonstrate presence as a member of a virtual team</p> <p>Knowledge: that an increased global interconnectivity (long-term trend toward greater exchanges and integration) puts diversity and adaptability at the center of organisational operations to remain competitive</p>
4.	Organisation and time management	<p>Basic workplace knowledge skills: thinking skills</p> <p>Basic workplace skills: demonstrate effective interpersonal skills; uses technology; understands how systems operate; manages information; locates and uses resources</p> <p>Personal qualities: exhibit self-management</p>	<p>Key driver: computational world</p> <p>Skills: computational thinking; trans- disciplinaryity; design mind-set; cognitive load management</p> <p>Ability: to translate vast amounts of data into abstract concepts and to understand data-based reasoning; to represent and develop tasks and work processes for desired outcomes to disseminate and filter information for importance, and to understand how to maximise cognitive functioning using a variety of tools and techniques</p> <p>Knowledge: of data and how to interact, see patterns, take data-based decisions, and use to design desired outcomes</p>

	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
5.	Manage Information		
5.1	Conducting research	Basic workplace knowledge skills: thinking, reading and writing skills	Key driver: new media ecology
		Basic workplace skills: uses technology; manages information; locates and uses resources	Skills: computational thinking; new-media literacy; cognitive load management
		Personal qualities: be a self-starter; exhibit self-management	Ability: to translate vast amounts of data into abstract concepts and to understand data-based reasoning to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication to disseminate and filter information for importance, and to understand how to maximise cognitive functioning using a variety of tools and techniques
5.2	Meeting management	Basic workplace knowledge skills: thinking, reading, writing and listening skills	Key driver: new media ecology
		Basic workplace skills: uses technology; manage information; locates and uses resources	Skills: computational thinking; new-media literacy; cognitive load management
		Personal qualities: be a self-starter; project a professional image	Ability: to translate vast amounts of data into abstract concepts and to understand data-based reasoning; to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication to disseminate and filter information for importance, and to understand how to maximise cognitive functioning using a variety of tools and techniques

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		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
	Meeting management (continues)		<p>Knowledge: of new communications tools (new vernacular and language) that require new media literacies beyond text (new demands on attention and cognition)</p> <p>Key driver: globally connected world</p> <p>Skills: cross-cultural competency; social intelligence; novel and adaptive thinking; virtual collaboration</p> <p>Ability: to operate in different cultural settings; to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based; to work productively, drive engagement, and demonstrate presence as a member of a virtual team</p> <p>Knowledge: that an increased global interconnectivity (long-term trend toward greater exchanges and integration) puts diversity and adaptability at the center of organisational operations to remain competitive</p>
5.3	Communication Write, speak and interpersonal	<p>Basic workplace knowledge skills: thinking, reading, writing skills</p> <p>Basic workplace skills: manage information; uses technology</p>	<p>Key driver: extreme longevity</p> <p>Skills: new-media literacy; transdisciplinarity</p>

	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
	Communication Write, speak and interpersonal (continue)	<p>Personal qualities: project a professional image</p>	<p>Ability: to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication</p> <p>Knowledge: individuals to have knowledge to rearrange approach to career – education (lifelong learning)</p> <p>Key driver: superstructured organisations</p> <p>Skills: cross-cultural competency</p> <p>Ability: identify and communicate points of connection (shared goals, priorities, values) that transcend their differences and enable them to build relationships and to work together;</p> <p>Knowledge: that social technologies drive new forms of production and value creation (beyond the basic forms and processes to the creation of new training paradigms and tools)</p>
6.	Thinking skills		
6.1	Problem-solving	<p>Basic workplace knowledge skills: thinking skills; listening skills; speaking skills</p> <p>Basic workplace skills: demonstrate effective interpersonal skills; uses technology; understand how systems operate; locates and uses resources</p> <p>Personal qualities: display integrity/honesty; show human side</p>	<p>Skills: critical thinking/sense-making; novel and adaptive thinking</p> <p>Ability: to determine the deeper meaning or significance of what is being expressed; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based</p> <p>Knowledge: workplace automation nudges human workers out of rote (new expectations and standards of performance), repetitive tasks (rethink content and processes of work)</p> <p>Key driver: new media ecology</p>

	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
	Problem-solving (continue)		<p>Skills: computational thinking; new-media literacy; cognitive load management</p> <p>Ability: to discriminate and filter information for importance, and to understand how to maximise cognitive functioning using a variety of tools and techniques</p> <p>Knowledge: of new communications tools (new vernacular and language) that require new media literacies beyond text (new demands on attention and cognition)</p>
6.2	Commercial awareness	Basic workplace knowledge skills: thinking, reading, writing, listening and speaking skills; mathematical operations	<p>Key driver: extreme longevity</p> <p>Skills: new-media literacy; transdisciplinarity</p>
		Basic workplace skills: demonstrates effective interpersonal skills; uses technology; understands how systems operate; manages information; locates and uses resources	Ability: literacy in and ability to understand concepts across multiple disciplines
		Personal qualities: be a self-starter; develop a positive self-esteem; be sociable; exhibit self-management; display integrity/honesty; project a pleasant personality; project a professional image	Knowledge: Individuals to have knowledge to rearrange approach to career (multiple careers), family life and education (lifelong learning). Organisations to have knowledge to create more diversity and flexibility
			<p>Key driver: globally connected world</p> <p>Skills: cross-cultural competency; social intelligence; novel and adaptive thinking; virtual collaboration</p> <p>Ability: to operate in different cultural settings; to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based; to work productively, drive engagement and demonstrate presence as a member of a virtual team</p>

	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
	Commercial awareness (continue)		Knowledge: that an increased global inter-connectivity (long-term trend toward greater exchanges and integration) puts diversity and adaptability at the center of organisational operations to remain competitive
6.3	Outside-the-box thinking/innovation	Basic workplace knowledge skills: thinking skills	Key driver: superstructured organisations
		Basic workplace skills: locates and uses resources	Skills: design mind-set
		Personal qualities: be a self-starter	
			Ability: to represent and develop tasks and work processes for desired outcomes (become adept at recognising the kind of thinking that different tasks require, and making adjustment to their work environments that enhance their ability to accomplish these tasks)
			Knowledge: social technologies drive new forms of production and value creation (beyond the basic forms and processes to the creation of new training paradigms and tools)
			Key driver: extreme longevity
	Skill: transdisciplinarity		
	Ability: literacy in and ability to understand concepts across multiple disciplines		
	Knowledge: individuals to have knowledge to rearrange approach to career (multiple careers), family life and education (lifelong learning)		

	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
7.	Personal qualities		
7.1	Social adaptability	Basic workplace knowledge skills: thinking skills	Key driver: globally connected world
		Basic workplace skills: demonstrate effective interpersonal skills; uses technology; manages information	Skills: novel and adaptive thinking; social intelligence; cross-cultural competency
		Personal qualities: be sociable; exhibit self-management	Ability: to respond to unique unexpected circumstances of the moment; to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions; to operate in different cultural settings; ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning
			Knowledge: that an increased global inter-connectivity (long-term trend toward greater exchanges and integration) puts diversity and adaptability at the center of organisational operations to remain competitive
			Key driver: new media ecology
			Skills: computational thinking; cognitive load management
		Ability: to discriminate and filter information for importance and to understand how to maximise cognitive functioning using a variety of tools and techniques (new tools to help dealing with information onslaught)	
		Knowledge: of new communications tools (new vernacular and language) that require new media literacies beyond text (new demands on attention and cognition)	

	IDENTIFIED LACK/SEEK/DEMAND/GAP/SHORTAGE SKILLS	FUTURE WORKFORCE MODELS	
		BURTON, S & SHELTON, N: OFFICE PROCEDURES FOR THE 21 ST CENTURY	INSTITUTE FOR THE FUTURE: FUTURE WORK SKILLS 2020
7.2	Self-management (including to work independently)	Basic workplace knowledge skills: thinking, writing, reading, listening and speaking skills	Key driver: extreme longevity Skills: new-media literacy; transdisciplinarity; cognitive load management
		Basic workplace skills: uses technology; understands how systems operate; manages information; locates and uses resources	Ability: to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication
		Personal qualities: be responsible; be dependable; be a self-starter; positive self-esteem; display integrity/honesty; project a professional image	Literacy in and ability to understand concepts across multiple disciplines
			Knowledge: individuals to have knowledge to rearrange approach to career (multiple careers), family life and education (lifelong learning)

Subject: ETHICS FEEDBACK - VENTER, ALETTA JOHANNA 212306383

Dear Researcher

Please find attached the outcome of your submission tabled at the Faculty of Business Research Ethics Committee on the 16 September 2015

4.nn	VENTER, ALETTA JOHANNA 212306383	DTECH OFFICE MANAGEMENT & TECHNOLOGY	APPROVED
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- The submission includes a REC 5 form completed and acceptable for the review.
- Ethical considerations included within the proposal and there is no indication that harm may occur.
- Questionnaire included and appropriate for the level of study.
- Signed consent letter included from OPSA
- Proof of Registration included

INFORMED CONSENT

PROJECT TITLE:

FUTURISTIC WHOLE BRAIN SUCCESS PROFILE FOR THE ADMINISTRATIVE PROFESSIONAL IN A SOUTH AFRICAN CONTEXT

Primary investigator: Ms AJ Venter, M Tech: Office Management and Technology, N Dip: Public Relations Management

Study leader: Dr HH Herbst, PhD, Department of Human Resource Development (HRD), Tshwane University of Technology (TUT), Pretoria

Co-study leader: Prof CG Iwu, D Tech: Human Resource Management; MSc (Industrial and Organisational Psychology); Advanced Diploma (Management); Bachelor of Library Studies (Honors), Cape Peninsula University of Technology (CPUT)

Dear Samantha

The outcome of my preliminary investigation revealed that there is currently a gap in the literature regarding the current level of knowledge and skills of administrative professionals¹ within South African organisations.

I address this letter to you to inquire whether you are willing to provide me with the e-mail addresses of members, granting permission to invite administrative professionals in public and private sectors to participate in an anonymous on-line national survey. The primary purpose of the national survey is to identify the current level of knowledge and skills of administrative professionals within South African organizations. Furthermore, the research sets out to determine whether the current level of knowledge and skills comply with the requirements of the future world of work.

As a post graduate student, I am committed to respect the privacy of your members and responses will be kept confidential. The contact information is intended for the purposes of the research study only and will not be disclosed to third parties. The list of e-mail addresses and research findings will be stored electronically in a password protected folder.

The research is done in fulfilment of the requirements for the doctoral degree in the Department of Office Management and Technology, Cape Peninsula University of Technology (CPUT).

Participation of members are valued as individuals (irrespective of their employer) who identify themselves as being administrative professionals, proud of giving valued feedback. Therefore, the survey questionnaire provides administrative professionals with the opportunity to assess their personal strengths and areas for improvement in their roles as administrative support professionals by applying the whole brain model as a diagnostic tool.

The research findings will also provide you, as an administrative professional association, with:

- A valuable insight of the global and national key drivers of change and transformation on the application of new knowledge and skills of the administrative professional in a South African context; and
- A framework for the development of course material to train administrative professionals.

Your favourable consideration will be deeply appreciated as it will facilitate my ethics clearance application (that will serve at the Research Ethics Committee of the CPUT at the end of July 2015), and greatly contribute towards its success.

The survey questionnaire is attached for your perusal.

IMPLIED CONSENT

I, **Samantha Brown**, CEO hereby grant permission that Ms AJ Venter (student number: 212306383) may utilise the e-mail addresses of members of **OPSA (Association for Office Professionals of South Africa)** for the purpose of distributing questionnaires in accordance with the agreement stipulated above.

Signed at Pretoria on 8 July 2015.

¹ The "administrative professional" is also known as: secretaries; executive secretaries; personal assistants; administrative assistants; office co-ordinators; office managers; office administrators, and office professionals.

IMPLIED CONSENT

PROJECT TITLE:

FUTURISTIC WHOLE BRAIN SUCCESS PROFILE FOR THE ADMINISTRATIVE PROFESSIONAL IN A SOUTH AFRICAN CONTEXT

Primary investigator: Ms AJ Venter, M Tech: Office Management and Technology, N Dip: Public Relations Management

Study leader: Dr HH Herbst, PhD, Department of Human Resource Development (HRD), Tshwane University of Technology (TUT), Pretoria

Co-study leader: Prof CG Iwu, D Tech: Human Resource Management; MSc (Industrial and Organisational Psychology); Advanced Diploma (Management); Bachelor of Library Studies (Honors), Cape Peninsula University of Technology (CPUT)

Dear Research participant

This information leaflet will help you to decide if you would like to participate. Before you agree to take part, you should fully understand what is involved. You should not agree to take part unless you are completely satisfied with all aspects of the study.

You are invited to participate in an anonymous on-line survey with the primary purpose to identify the current level of knowledge and skills of administrative professionals within South African organisations. Furthermore, the research sets out to determine whether the current level of knowledge and skills comply with the requirements of the future world of work.

The research is done in fulfilment of the requirements for the doctoral degree in the Department of Office Management and Technology, Cape Peninsula University of Technology (CPUT).

The **requirement** for the study is to complete the on-line survey questionnaire that will not take you more than 20-30 minutes to complete. The survey questionnaire consist of three categories, namely, Category A that requires biographical information. Category B consists of nine main categories that include questions regarding your current level of knowledge and skills. Category C comprises of two open-end questions.

Your participation are valued as an individual (irrespective of your employer) who identify yourself as being an administrative professional, and who are proud of giving valued feedback. Therefore, the survey questionnaire provides you with the opportunity to assess your personal strengths and areas for improvement in your role as an administrative support professional by applying the whole brain model as a diagnostic tool. The research findings will also provide a framework for the development of course material to train administrative professionals.

There will be no cost involved for you neither will you receive financial remuneration for participating in this study. Your participation in this study is entirely voluntary and anonymous. You have the right to withdraw your participation at any time before finishing the survey questionnaire. Your completed answers will not be recorded.

Your responses will be kept confidential. Your e-mail address and research findings will be stored electronically in a password protected folder. This means that access to your data will be strictly limited to the researcher, the supervisors of the study, the designated examiners (appointed by the CPUT).

The reference number at the beginning of the survey questionnaire provides evidence that the Research Ethics Committee of the CPUT Ethical provided ethical approval for the study.

If you have any questions concerning the study, please contact the primary investigator, Ms Annette Venter, during office hours at +12 382 4334.

Thank you in advance for participating in the research study.

NEXT

CONSENT

I hereby confirm that I have been adequately informed by the researcher about the nature, conduct, benefits and risks of the study. I understand that my participation is voluntary and that I may, at any stage, without prejudice, withdraw my consent and participation in the study. I had sufficient opportunity to ask questions and of my own free will declare myself prepared to participate in the study.

By beginning the survey questionnaire, you acknowledge that you have read and understand the nature, benefits and risks of the study. You also understand that your participation is voluntary and that you may, at any stage, without prejudice, withdraw your consent and participation in the study.

Click **next** (below) to proceed with the survey

Click **exit** (upper right corner should you prefer not to participate)

PREVIOUS

NEXT

CATEGORY A: BIOGRAPHICAL INFORMATION

1. SELECT YOUR AGE GROUP FROM THE LIST OF ANSWER CHOICES:			
<input type="checkbox"/>	Under 30	V1	
<input type="checkbox"/>	31 - 40	V2	
<input type="checkbox"/>	41 - 50	V3	
<input type="checkbox"/>	51 or older	V4	
2. SELECT THE GEOGRAPHIC LOCATION OF YOUR WORK FROM THE DROPDOWN ANSWER CHOICES:			
<input type="checkbox"/>	Eastern Cape	V5	
<input type="checkbox"/>	Free State	V6	
<input type="checkbox"/>	Gauteng	V7	
<input type="checkbox"/>	Kwazulu Natal	V8	
<input type="checkbox"/>	Limpopo	V9	
<input type="checkbox"/>	Mpumalanga	V10	
<input type="checkbox"/>	Northern Cape	V11	
<input type="checkbox"/>	North West	V12	
<input type="checkbox"/>	Western Cape	V13	
3. SELECT THE TITLE OF YOUR CURRENT POSITION FROM THE DROPDOWN ANSWER CHOICES:			
<input type="checkbox"/>	Administrative Assistant	V14	
<input type="checkbox"/>	Administrative Professional	V15	
<input type="checkbox"/>	Executive Secretary	V16	
<input type="checkbox"/>	Office Co-ordinator	V17	
<input type="checkbox"/>	Office Manager	V18	
<input type="checkbox"/>	Personal Assistant	V19	
<input type="checkbox"/>	Secretary	V20	
<input type="checkbox"/>	Senior Secretary	V21	
<input type="checkbox"/>	Other (please specify)	V22	

4. LENGTH OF YOUR CURRENT OR RELATED WORK EXPERIENCE:			
<input type="checkbox"/>	1 – 11 months	V23	
<input type="checkbox"/>	1 – 5 years	V24	
<input type="checkbox"/>	6 – 10 years	V25	
<input type="checkbox"/>	11 – 20 years	V26	
<input type="checkbox"/>	21 and more years	V27	

5. SELECT THE INDUSTRY THAT BEST DESCRIBES YOUR EMPLOYMENT FROM THE DROPDOWN ANSWER CHOICES:			
<input type="checkbox"/>	Accounting/Banking/Finance	V28	
<input type="checkbox"/>	Advertising/Marketing/Publications	V29	
<input type="checkbox"/>	Agricultural	V30	
<input type="checkbox"/>	Communications	V31	
<input type="checkbox"/>	Construction	V32	
<input type="checkbox"/>	Education	V33	
<input type="checkbox"/>	Engineering/Architecture	V34	
<input type="checkbox"/>	Government	V35	
<input type="checkbox"/>	Health	V36	
<input type="checkbox"/>	Insurance	V37	
<input type="checkbox"/>	Legal	V38	
<input type="checkbox"/>	Media/Publishing	V39	
<input type="checkbox"/>	Medical	V40	
<input type="checkbox"/>	Manufacturing	V41	
<input type="checkbox"/>	Real Estate	V42	
<input type="checkbox"/>	Retail/Sales	V43	
<input type="checkbox"/>	Personnel/Human Resources	V44	
<input type="checkbox"/>	Transportation	V45	
<input type="checkbox"/>	Other (please specify)	V46	

6. PROFESSIONAL MEMBERSHIP – SELECT <u>ALL</u> APPLICABLE:			
<input type="checkbox"/>	Association for Office Professionals of South Africa (OPSA)	V47	
<input type="checkbox"/>	Professional Association for Secretaries and Administrative Assistants (PAFSA)	V48	
<input type="checkbox"/>	South African Secretaries and PA's Association (SASPA)	V49	

<input type="checkbox"/>	Not a member of an association	V50	
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7. SELECT YOUR HIGHEST LEVEL OF EDUCATION FROM THE DROPDOWN ANSWER CHOICES:

<input type="checkbox"/>	Grade 12	V51	
<input type="checkbox"/>	Certificate	V52	
<input type="checkbox"/>	Diploma	V53	
<input type="checkbox"/>	Bachelors degree	V54	
<input type="checkbox"/>	Masters degree	V55	
<input type="checkbox"/>	Other (please specify)	V56	

8. FORMAL QUALIFICATION:

8.1. Are you currently enrolled for a formal qualification?

<input type="checkbox"/>	No	V57	
<input type="checkbox"/>	Yes	V58	
	Yes (please specify: certificate; diploma; bachelors degree; masters degree)	V59	

8.2 Does this enrolment relate to your current profession?

<input type="checkbox"/>	Not applicable (should you have selected "no" in question 8.1)	V60	
<input type="checkbox"/>	Yes	V61	
<input type="checkbox"/>	No	V62	
	No (please specify field of study)	V63	

CATEGORY B: OVERALL

Example: Select the number that best describes your current skill

	Not at all effective											Extremely effective
	0	1	2	3	4	5	6	7	8	9	10	
How effective are your planning skills to plan in advance to meet daily, weekly and monthly objectives?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

OFFICE ADMINISTRATION, AND ORGANISATIONAL AND TIME MANAGEMENT:
 The office environment in 2015 is remarkably different than that of 2000. The technological changes have had a significant impact on efficient governing regarding office administration, (daily, weekly and monthly schedule for office functions) and organisational and time management (planning, organising and prioritising workload).

How effective are your **planning** skills to meet daily, weekly and monthly objectives?

Not effective at all		Extremely effective													
<table border="0"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>			0	1	2	3	4	5	6	7	8	9	10	V64	<input type="text"/>
0	1	2	3	4	5	6	7	8	9	10					

How effective are your **organising** skills to introduce systematic methods to streamline processes and procedures that aid in the smooth and efficient performance of tasks?

<table border="0"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>			0	1	2	3	4	5	6	7	8	9	10	V65	<input type="text"/>
0	1	2	3	4	5	6	7	8	9	10					

How effective are your **prioritising** skills with regard to managing workload according to timelines given to complete tasks?

<table border="0"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>			0	1	2	3	4	5	6	7	8	9	10	V66	<input type="text"/>
0	1	2	3	4	5	6	7	8	9	10					

How effective are your **financial administration** skills?

<table border="0"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>			0	1	2	3	4	5	6	7	8	9	10	V67	<input type="text"/>
0	1	2	3	4	5	6	7	8	9	10					

INFORMATION AND COMMUNICATION TECHNOLOGY
 (Computer literacy and proficiency/technical skills)

What is your proficiency level of **software applications** (e.g. MSWord)?

Not proficient at all		Extremely proficient													
<table border="0"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>			0	1	2	3	4	5	6	7	8	9	10	V68	<input type="text"/>
0	1	2	3	4	5	6	7	8	9	10					

What is your proficiency level of **mobile devices** such as Tablet computers (e.g. iPad; Smartphone; Intelligent mobile hotspots (small wireless router); Mobile applications (apps))

<table border="0"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>			0	1	2	3	4	5	6	7	8	9	10	V69	<input type="text"/>
0	1	2	3	4	5	6	7	8	9	10					

What is your proficiency level of **social networking sites** (e.g. LinkedIn; Facebook; Twitter; YouTube)?

0	1	2	3	4	5	6	7	8	9	10
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V70	
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What is your proficiency level of utilising **Internet phone service** (audio, video) to arrange meetings, etc. (e.g. Web meeting; Webinar; Webcast; Voice over internet protocol (VoIP); Skype, etc.)?

0	1	2	3	4	5	6	7	8	9	10
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V71	
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What is your proficiency level of **electronic records management** as file storage (e.g. Cloud; Dropbox; Google Docs; SharePoint; PC Hard drive as file storage)?

0	1	2	3	4	5	6	7	8	9	10
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V72	
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WHAT IS YOUR PROFICIENCY LEVEL OF WEB-BASED APPLICATIONS TO:

Not proficient at all

Extremely proficient

Design/re-design Web pages?

0	1	2	3	4	5	6	7	8	9	10
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V73	
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Blog, post and share business related entries of comments, ideas, and descriptions of events?

0	1	2	3	4	5	6	7	8	9	10
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V74	
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Conduct **research** (enquiring on subjects; problems; ideas; training; products)?

0	1	2	3	4	5	6	7	8	9	10
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V75	
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MANAGEMENT OF MEETINGS:

Not proficient at all

Extremely proficient

How proficient are you in **compiling** an agenda (taking the initiative to independently draft an agenda considering the reason and the objectives of the meeting in mind)?

0	1	2	3	4	5	6	7	8	9	10
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V76	
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How proficient are you in **distributing** the agenda, minutes and support documentation electronically (e-mail; meetings portal on the intranet, e.g. Diligent Board books, SharePoint; meetings portal on social media services, e.g. Dropbox, Google Docs, Slide Share, Microsoft SkyDrive)?

0	1	2	3	4	5	6	7	8	9	10
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V77	
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How proficient are you in using technology for **recording** (a note-book/ laptop computer; Microsoft Office OneNote (audio- and video recording); an audio recording device; digital smartpen, e.g. Livescribe Smartpen (audio recording and write in a Livescribe notebook); Websites, e.g. www.minutes.io (recording action points and sharing with participants)?

0	1	2	3	4	5	6	7	8	9	10
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V78	
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How proficient are you with **taking forward** the action points that are agreed on, allocated and recorded at the meeting?

0	1	2	3	4	5	6	7	8	9	10
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V79	
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How proficient are you with **minute taking** (demonstrating listening, summarising and interpreting skills)?

0	1	2	3	4	5	6	7	8	9	10
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V80	
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COMMUNICATION (oral, written and interpersonal communication to convey and receive messages to meet everyone's needs):

Not efficient at all	Extremely efficient
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How efficient is your **verbal** communication (speaking and explaining clearly and can be easily understood)?

0	1	2	3	4	5	6	7	8	9	10
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V81	
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How efficient is your **written** communication (using appropriate business style writing – demonstrating correct use of grammar, spelling and punctuation in all produced documents)?

0	1	2	3	4	5	6	7	8	9	10
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V82	
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How efficient are your **reading** skills (examining for accuracy and proofread spelling, grammar and information in documents/reports/letters/memos and e-mails)?

0	1	2	3	4	5	6	7	8	9	10
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V83	
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INTERPERSONAL SKILLS:

Such as **team working, project and event management:**

Not well at all	Extremely well
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How well do you operate in different cultural settings with people from diverse backgrounds?

0	1	2	3	4	5	6	7	8	9	10
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V84	
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How well do you operate with different personality types?

0	1	2	3	4	5	6	7	8	9	10
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V85	
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How well do you express a different viewpoint to those of others (disagree)?

0	1	2	3	4	5	6	7	8	9	10
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V86	
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How well do you interact and demonstrate presence as a member of a virtual team? (virtual teams are teams of people working at different geographic sites who primarily interact electronically and who may meet face-to-face occasionally)

0	1	2	3	4	5	6	7	8	9	10
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V87	
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How well do you regard your **events** co-ordinating skills (including logistical requirements, gift bags, determining the budget, catering, invitations, etc.)?

0	1	2	3	4	5	6	7	8	9	10
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V88	
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Such as **supervising of staff**:

Not good at all

Extremely good

How good are you at **allocating** people and other resources to tasks?

0	1	2	3	4	5	6	7	8	9	10
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V89	
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How good are you at **training** or **mentoring** of co-workers (peers) and/or subordinates on new techniques, processes, software and equipment?

0	1	2	3	4	5	6	7	8	9	10
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V90	
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How good are you at expressing **patience** when delegating tasks?

0	1	2	3	4	5	6	7	8	9	10
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V91	
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How good are your **communication and instructions skills** when delegating tasks?

0	1	2	3	4	5	6	7	8	9	10
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V92	
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Such as **conflict resolution**:

Not well at all

Extremely well

How well can you provide an **explanation** on what the problem is?

0	1	2	3	4	5	6	7	8	9	10
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V93	
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How well are your listening skills to understand the problem?

0	1	2	3	4	5	6	7	8	9	10
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V94	
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How well are you at compromising (flexibility and willingness) to resolve the situation?

0	1	2	3	4	5	6	7	8	9	10
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V95	
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Such as **public relations** and **customer service/relations**:

Not effective at all

Extremely effective

How effective is your **public relations skills** (foster and maintain mutual understanding and goodwill between an organisation and its publics)?

0	1	2	3	4	5	6	7	8	9	10
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V96	
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How effective are your **questions** in order to obtain information from clients?

0	1	2	3	4	5	6	7	8	9	10
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V97	
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How effective are your **responses** (courtesy, clarity and accuracy) to enquiries from internal and external clients?

0	1	2	3	4	5	6	7	8	9	10
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V98	
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THINKING SKILLS, such as:

Problem-solving (that includes the contribution to productive outcomes):

Not efficient at all

Extremely efficient

How efficient are you in taking a proactive approach to troubleshooting/recognising deficiencies?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V99	
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How efficient are you in applying creative thinking (e.g. to generate a new idea or alternatives)?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V101	
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How efficient are you in analysing and solving technical problems?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V102	
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How efficient are you in analysing and solving business-related problems?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V103	
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Commercial awareness (that includes how businesses operate and how you can add value to the core activities of the business):

Not sufficient at all

Extremely sufficient

How sufficient is your knowledge about how external stakeholders/clients perceive your company?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V104	
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How sufficient is your knowledge of your company's products and services (the differentiation from competitors)?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V105	
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How sufficient is your knowledge of how workplaces and your company's management are structured?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V106	
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How sufficient is your knowledge of your company's strengths, weaknesses, opportunities and threats?

0	1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	---	----

V107	
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Personal commercial awareness development:

How sufficient is your knowledge of how your role fits into the goals of your company?

Not sufficient at all Extremely sufficient

0 1 2 3 4 5 6 7 8 9 10

V108

How sufficient is your knowledge to select preferred method(s) to improve your commercial awareness (read quality newspapers - especially the business pages; watch relevant TV programmes, for example, the news; read professional journals associated with the sector you are interested in; join a relevant institute or association)

0 1 2 3 4 5 6 7 8 9 10

V109

Outside-the-box/innovative thinking (creative; resourceful ways of addressing projects and problems):

How well can you relate a specific issue to the broader picture?

Not well at all Extremely well

0 1 2 3 4 5 6 7 8 9 10

V110

How well can you develop creative, resourceful ways of addressing projects and problems (weigh up risk, evaluate alternatives and apply evaluation criteria)?

0 1 2 3 4 5 6 7 8 9 10

V111

How well do you constructively question existing ways of working within the organisation and constructively contribute to revise and improve work methods?

0 1 2 3 4 5 6 7 8 9 10

V112

PERSONAL QUALITIES, such as:

Social adaptability (including personal willingness and ability to adapt to change):

How able are you to accept other points of view?

Not able at all Extremely able

0 1 2 3 4 5 6 7 8 9 10

V113

How able are you in adapting to new organisational structures, procedures and technology?

0 1 2 3 4 5 6 7 8 9 10

V114

How able are you to apply special techniques to manage different situations involving stress or change?

0 1 2 3 4 5 6 7 8 9 10

V115

How able are you to adapt to the increased workload as a result of the business environment that is constantly changing?

0 1 2 3 4 5 6 7 8 9 10

V116

How able are you at flexibility and to let your job description evolve along with the changing needs of the business?

0 1 2 3 4 5 6 7 8 9 10

V117

Self-management (including to work independently):

Not well at all

Extremely well

How well are you at acting independently to prioritise your daily workflow?

0 1 2 3 4 5 6 7 8 9 10

V118

How well do you understand your manager's thinking and management style, to make decisions without needing to verify with him/her?

0 1 2 3 4 5 6 7 8 9 10

V119

How well have you embraced having a personal vision and goals for self-improvement?

0 1 2 3 4 5 6 7 8 9 10

V120

How well are you at evaluating and monitoring your own performance?

0 1 2 3 4 5 6 7 8 9 10

V121

EMOTIONAL INTELLIGENCE

(Emotional intelligence is the capacity for recognising your own feelings and those in others, for motivating yourself, for managing emotions adequately in yourself and in your relationships)

Not adequately at all

Extremely adequately

Self-awareness: I understand and am aware of my own emotions and understand what triggers them

0 1 2 3 4 5 6 7 8 9 10

V122

Self-management: I am able to manage my emotions constructively (in such a way that it does not negatively affect my work quality or relationships)

0 1 2 3 4 5 6 7 8 9 10

V123

Social awareness: I am aware of others' feelings, needs and concerns

0 1 2 3 4 5 6 7 8 9 10

V124

Relationship management: I can handle emotions in relationships well, and use these skills to build relationships, lead and influence people

0 1 2 3 4 5 6 7 8 9 10

V125

LEARNING AND DEVELOPMENT

In which way do you prefer to acquire the skills you need to develop? Rank order/prioritise in terms of preference to the following scale: 1 – least preferred; 8 – most preferred

Books, articles or manuals

	V126	
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Online course learning (via Internet; e-Learning)

	V127	
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Mentoring learning

	V128	
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Team learning

	V129	
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Workshops presented by Administrative Forum (internal and external)

	V130	
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In-house training workshops

	V131	
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Training workshops away from office

	V132	
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Experience obtain in work environment

	V133	
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CATEGORY C: OPEN-END QUESTIONS

(Indicate in the grey coloured blocks)

Are there any other skill(s) that you regard as essential skill(s) for future success, that are not mentioned here?

	V134	
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In which of these do you need development?

	V135	
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**QUESTIONNAIRE FOR SEMI-STRUCTURED INTERVIEWS
FUTURISTIC WHOLE BRAIN SUCCESS PROFILE FOR THE
ADMINISTRATIVE PROFESSIONAL IN A SOUTH AFRICAN CONTEXT**

This qualitative survey will provide context to the primary data obtained in the national survey questionnaire.

A. TARGET

The target respondents are an education and training professional, a manager, an academic advisory committee member, a member of an association for administrative professionals and a curriculum practitioner. Four of the five interviews will be conducted in the researcher's environment, thus the Tshwane University of Technology. The interview with a member of an association for administrative professionals will be conducted with an administrative professional from the industry.

B. OBJECTIVE

To develop a futuristic whole brain success profile for the administrative professional in a South African context.

C. LEADING QUESTION

Taking the current and future global and national changes in the work environment into consideration, how do you envisage they will impact on the mindset and skills requirements for the administrative professional in order to remain effective within the next 10 years, with regard to:

- | | |
|--|--|
| 1. Office administration, organisation and time management? | V1 <input style="width: 40px; height: 20px;" type="text"/> |
| 2. Information and communication technology: The use of digital technology, communication tools, networks and Web-based applications to access, manage, integrate, evaluate and create information? | V2 <input style="width: 80px; height: 50px;" type="text"/> |
| 3. Management of meetings? | V3 <input style="width: 40px; height: 20px;" type="text"/> |
| 4. Oral, written and interpersonal communication to convey and articulate knowledge and information in effective and appropriate ways to meet everyone's needs? | V4 <input style="width: 40px; height: 20px;" type="text"/> |
| 5. Interpersonal skills , such as: | |
| 5.1 <u>Team work</u> , project and- event management? | V5 <input style="width: 40px; height: 20px;" type="text"/> |
| 5.2 <u>Supervising staff</u> that contributes towards an improved workflow? | V6 <input style="width: 40px; height: 20px;" type="text"/> |
| 5.3 <u>Managing conflict</u> to promote effective and efficient working relationships? | V7 <input style="width: 40px; height: 20px;" type="text"/> |
| 5.4 Public relations and customer service/relations ? | V8 <input style="width: 40px; height: 20px;" type="text"/> |

6. **Thinking skills**, such as:

6.1 **Problem-solving** skills to contribute towards productive outcomes?

V9	
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6.2 Knowledge of **commercial awareness** that will add value to the core activities and the operations of the business?

V10	
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6.3 The development of **personal commercial awareness**?

V11	
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6.4 **Outside-the-box/innovative thinking** as a means to creatively, resourcefully address projects and problems?

V12	
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7. **Personal qualities**, such as:

7.1 The willingness and ability to adapt to change, thus being **socially adept**.

V13	
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7.2 Working independently, namely to exhibit **self-management** skills?

V14	
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8. **Emotional intelligence** that entails self-awareness, constructively manage own emotions, be adequately aware of others' feelings, needs and concerns, and adequately handle emotion in relationships

V15	
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APPENDIX F

RAW DATA OF OPEN-ENDED QUESTIONS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
Problem-solving skills, self motivation skill and financial skills	In the work organisation place
Online courses for new requirements required for Administrators/Officers	Bookkeeping/Finance, Emotional Intelligence, project administration, taking minutes, software that is new on the market, planning
No	Not applicable
Management goals	Management goals
Human resources	Emotional intelligence
All were mentioned	Emotional intelligence
N/A	Internet web-based applications
N/A	N/A
None	Information and communication technology
Understand the laws of South-Africa in business. Able to converse with overseas clients/colleagues - use of English language	SA laws maybe, especially BBBEE, which is now changing in our environment
Passion	Web-based applications & information & communication technology
No	Emotional Intelligence
No	Internet web-based Applications, Information and communication technology
Internet	Time management
I'm sure there are some - staying abreast and keeping on the "bar" to be one step ahead in a rapidly changing work environment	Staying up to date with new technology, new ways of developing and staying abreast of new methods of operating in a rapidly changing work environment
No well covered	Information and communication technology, web-based applications, conflict resolution, personal qualities, Emotional Intelligence
No	Information and communication
No	None
Management	Management
XX	XX
No	Emotional Intelligence
No	Organisational
Writing skills	Management of meetings, interpersonal skills, Emotional Intelligence
No	Learning
No	None
Technology	Technology
No	N/A
Law - e.g. when to use a tape recorder, what are your rights and when you can say NO	Time management, learning and development
Project management	Web-based applications - above as I don't use it currently
N/A	Interpersonal Skills

RAW DATA OF OPEN-ENDED QUESTIONS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
Creativity, decision making	Creativity
No	Learning and development
Presentation skills	Financial administration
N/A	Thinking skills
None that I can think of	Information and communication technology
None	Financials
No	Web-based applications
No	Probably minute taking
No	No
Skills to be a mother, friend and adviser to all ... as they are like babies when I am not at work!	None
No I am happy that everything has been covered	Public speaking, self worth
None	Internet web-based applications, thinking skills and personal skills
No	Social media
No	Internet web-based applications
No	None
Time Management Skills	Internet web-Based applications, Information and Communication technology
Leadership Skills	Internet web-based applications
Not at the moment	I needed to increase my knowledge of Social Media - but I took an online course recently and obtained a diploma
No	Communications
Change management whether due to restructure or new bosses/staff	Internet web-based applications
Assertiveness	Internet web-based applications, learning and development
Grasping of accounting maths and formulas	Time management
Events coordination	Obtaining further academic qualification by means of further studies
Attention to detail	Emotional Intelligence
Time management	Work
No	None
No	Little bit of each
Communication practitioner and photography	Photography
No	Internet web-based applications
In my particular situation, knowledge of how a university works and knowing about tertiary education and how to deal with students from every walk of life	This takes years of experiencing and only in-house coaching
Management in general	Emotional Intelligence
No	Personal qualities
No	N/A

RAW DATA OF OPEN-ENDED QUESTIONS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
Time Management and Project Management	Project Management
Strategic management skills in relation to the manager/assistant role	Strategic management skills
No	Web-based applications, learning and development
N/A	N/A
Cultural diversity (Knowing how to show respect in other cultures)	Thinking skills, Personal qualities, Emotional Intelligence
Trusting people	Internet web-based application
None	Internet web-based applications
Financial	Information communication
Assertiveness	Assertiveness
Public speaking, Leadership & Emotional Intelligence - although I have done these, Presentations Skills, Dress for Success, Coaching Skills	Like to do a Coaching Course as I will retire in April 2016 and would like to be a Professional Coacher as from 2016. I am also seeking employment in the near future as I have been involved in the Professional Secretarial field since 1971 and love to train Secretaries for the future and would like to be employed by an organisation that would be able to employ me as I would love to impart my knowledge.
Stress management	Self awareness
N/A	N/A
None	Technology, Thinking Skills
Skills acquired through religious education - recognising the difference they make in improving wellness at work	Personal qualities
Forward planning skills	Communication
Leadership Skills	Internet web-Based applications
None	Management of meetings
Organising skills	Presentation skills
Report writing	Blog
No	Information and communication technology
None	Mobile devices, minute taking, confidence
Not that I can think of	Thinking skills
Yes as a person over 55 years of age – adaptability in this modern world. I am introvert by nature – work very hard and have much to offer. The ability to market myself is not part of my portfolio or my thinking - this was not in our case of tools in the earlier years. How to do this and remain humble - this sets us apart ... The ability to not market ourselves or our skills – we have been trained over the years to DELIVER ... not market ourselves. Help with this would be appreciated	Marketing of self-confidence in this young market. Course that will put like-minded older individuals together. It is intimidating to be in a class with all under-25-year-olds . . .
Change management	None
I deal a lot with the Municipal Finance Act but has never got any training to ensure that I am doing the correct thing	Internet web-based applications. Not part of my work, but it will be very interesting to obtain training in that field for future use

RAW DATA OF OPEN-ENDED QUESTIONS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
I think the skills mentioned here covers the broad spectrum of what is required to be a successful Office Professional	Information and communication technology and Internet web-based applications
No all is covered	Office administration, and organisational and time management, Information and communication technology, web-based applications, Interpersonal skills
No	Web-based applications
Financial Analyses/Accounting	Financial analyses/Accounting
No	Not sure
Yes	Social networking skills
No	Web-design
Innovation, recruitment and selection, employee relations management, Bargaining Counsel	Recruitment and selection, bargaining counsel, ER
Typing minutes directly on lap top on computer during the meetings	How to inform managers that secretary and administrative staff need to go on training courses to keep up to date with technology (always no budget)
No	N/A
Analysis, investigative, relationship building	N/A
No	None
No	Thinking skills
Business writing	All
Presentation skill	Information and Communication Technology
No	N/A
Leadership skills	Thinking Skills
No	Not really
No	Personal qualities
Not sure	Office admin
No all mentioned	Financial administration
Personal qualities	Internet web-based
No	Internet web-based
International protocol	Information and communication technology, Internet web-based applications
Emotional intelligence	Emotional intelligence
No	Internet web-based applications, thinking skills
No	Internet web-based applications, thinking skills, communication - written as English is my second language
No	Information and communication technology, Internet web-based applications, Management on meetings, thinking skills
No	Information and communication technology, web-based applications, Management of meetings, Emotional Intelligence
Financial and Human Resource	Both

RAW DATA OF OPEN-ENDED QUESTIONS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
None	Emotional development
To have more patience	Management of meeting – taking minutes, Financial administration – have experience but more knowledge is always important, Further learning and development
No	Office administration, and organisational and time management, Information and communication technology, management of meetings, communication
Consistency, proactive	Conflict resolution
I work for a university which requires special skills of working and understanding the hierarchy of academics	I have worked here for 20 years already
Cannot think of any now	Designing websites, Commercial Awareness
None	Delegating is my weak point
N/A	Everything as no person knows what to do all the time and is constantly learning new ways to deal with situations. Learning never stops, so it is important to know that learning is not a short term but long term and on-going
Cultural Awareness/Adaption	Internet web-based design
No	I would like to improve my skills in the following: Thinking skills, communication (articulation)
Project management	Interpersonal skills
No	Learning and development
Mentorship and coaching skills - to be an effective office manager you need to be able to mentor and coach the junior admin staff	I am no longer in the admin environment but am a consultant and this involves mentoring of young people so I would like to think I need improvement on the thinking and taking initiative skills
No	None
No	Maybe in Emotional Intelligence
No	Thinking skills, Management of meetings
None	Management of meetings
Basic Project Management Skills and Business English skills	Emotional Intelligence - mainly Self awareness and Self Management
N/A	Internet web-based applications
No	Thinking skills, Communication, Information and communication technology and Internet web-based applications
No	Information technology
Communication	Minute taking
Not really no	I am quite fine for now
No	Learning and Development
No	Web-based applications
No, think most of the skills are covered in above summary	Internet web-based applications, interpersonal skills, verbal communication
All covered	I think a summary of all is required at yearly/half-yearly intervals
None	None

RAW DATA OF OPEN-ENDED QUESTIONS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
No	None
-	Emotional intelligence, management of meetings
Payroll courses	Internal audit courses
No	Internet web-based applications
Branding and professionalism	None
No	Office administration, and organisational and time management, thinking skills
No	All, except office administration, and organisational and time management
Yes	Basic Management Principles for Executive Secretaries

FREQUENCIES AND COMMENTS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
Problem-solving skills (1B), self motivation skill (personal quality (1I)) and financial skills (Office Admin (1))	In the work organisation place (rejected)
Online courses for new requirements required for Administrators/Officers (personal commercial (1C))	Bookkeeping/Finance (Office Admin)(2), Emotional Intelligence (1), project administration (1ii), taking minutes (1), software that is new on the market (1), planning (3)
No	Not applicable
Management goals (self-management (1III))	Management goals (duplication)
Human resources (1)	Emotional intelligence (2)
All were mentioned	Emotional intelligence (3)
N/A	Internet web-based applications (1)
N/A	N/A
None	Information and communication technology (2)
Understand the laws of South-Africa in business (1). Able to converse with overseas clients/colleagues - use of English language (1b)	SA laws maybe, especially BBBEE, which is now changing in our environment (duplication)
Passion (rejected)	Web based applications (2) & Information & communication technology (3)
No	Emotional Intelligence (4)
No	Internet web-based Applications (3), Information and communication technology (4)
Internet (ICT)(5)	Time management (Office admin (4))
I'm sure there are some - staying abreast and keeping on the "bar" to be one step ahead in a rapidly changing work environment (Personal commercial awareness development (2C))	Staying up to date with new technology, new ways of developing and staying abreast of new methods of operating in a rapidly changing work environment (duplication)
No well covered	Information and communication technology (6), web-based applications (4), conflict resolution (1iv), personal qualities (2I), Emotional Intelligence (5)
No	Information and communication (7)
No	None
Management (1)	Management (duplication)
XX	XX
No	Emotional Intelligence (6)
No	Organisational (5)
Writing skills (1c)	Management of meetings (1), interpersonal skills (1i), Emotional Intelligence (7)
No	Learning (rejected)
No	None
Technology (8)	Technology (duplication)
No	N/A
Law – e.g. when to use a tape recorder, what are your rights and when you can say NO (2)	Time management (Office Admin)(6), learning and development (rejected)
Project management (2ii)	Web-based applications - above as I don't use it currently (5)

FREQUENCIES AND COMMENTS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
N/A	Interpersonal Skills (2i)
Creativity (1D), decision making (self-management)(2III)	Creativity (duplication)
No	Learning and development (rejected)
Presentation skills (1)	Financial administration (Office Admin)(7)
N/A	Thinking skills (1A)
None that I can think of	Information and communication technology (9)
None	Financials (Office Admin)(8)
No	Web-based applications (6)
No	Probably minute taking (3)
No	No
Skills to be a mother, friend and adviser to all ... as they are like babies when I am not at work! (Emotional Intelligence)(8)	None
No I am happy that everything has been covered	Public speaking (1), self worth (Emotional Intelligence)(9)
None	Internet web-based applications (7), thinking skills (2A) and personal skills (3I)
No	Social media (ICT)(10)
No	Internet web-based applications (8)
No	None
Time Management Skills (9)	Internet web-based applications (9), Information and Communication technology (11)
Leadership Skills (1)	Internet web-based applications (10)
Not at the moment	I needed to increase my knowledge of Social Media - but I took an online course recently and obtained a diploma (rejected)
No	Communications (1a)
Change management (social adaptability)(1II) whether due to restructure or new bosses/staff	Internet web-based applications (11)
Assertiveness (Interpersonal skill)(3i)	Internet web-based applications (12), learning and development (rejected)
Grasping of accounting maths and formulas (Thinking skills – problem-solving)(2B)	Time management (Office Admin)(10)
Events coordination (4ii)	Obtaining further academic qualification by means of further studies (Personal quality - self-management)(3III)
Attention to detail (1)	Emotional Intelligence (10)
Time management (Office Admin)(11)	Work (rejected)
No	None
No	Little bit of each (rejected)
Communication practitioner (rejected) and photography (rejected)	Photography (duplication)
No	Internet web-based applications (13)

FREQUENCIES AND COMMENTS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
In my particular situation, knowledge of how a university works and knowing about tertiary education and how to deal with students from every walk of life (Commercial awareness)(1E)	This takes years of experiencing and only in-house coaching (rejected)
Management in general (2)	Emotional Intelligence (11)
No	Personal qualities (4I)
No	N/A
Time Management (Office Admin)(12) and Project Management (5ii)	Project Management (duplication)
Strategic management skills in relation to the manager/assistant role (Thinking skills - innovation)(2D)	Strategic management skills (duplication)
No	Web-based applications (14), learning and development (rejected)
N/A	N/A
Cultural diversity (Knowing how to show respect in other cultures)(Interpersonal skill)(3i)	Thinking skills (3A), Personal qualities (5I), Emotional Intelligence (12)
Trusting people (1)	Internet web-based application (15)
None	Internet web-based applications (16)
Financial (Office Admin)(13)	Information communication (12)
Assertiveness (Interpersonal skill)(4i)	Assertiveness (duplication)
Public speaking (2), Leadership (2) & Emotional Intelligence - although I have done these (13), Presentations Skills (2), Dress for Success (rejected), Coaching Skills (mentoring skills)	Like to do a Coaching Course as I will retire in April 2016 and would like to be a Professional Coacher as from 2016. I am also seeking employment in the near future as I have been involved in the Professional Secretarial field since 1971 and love to train Secretaries for the future and would like to be employed by an organisation that would be able to employ me as I would love to impart my knowledge.
Stress management (Personal quality - social adapt)(2II)	Self awareness (15)
N/A	N/A
None	Technology (13), Thinking Skills (4A)
Skills acquired through religious education - recognising the difference they make in improving wellness at work (Emotional Intelligence)(13)	Personal qualities (6I)
Forward planning skills (Office Admin)(14)	Communication (3a)
Leadership Skills (3)	Internet web-Based applications (17)
None	Management of meetings (2)
Organising skills (Office Admin)(15)	Presentation skills (3)
Report writing (2c)	Blog (web-based applications)(18)
No	Information and communication technology (14)
None	Mobile devices (ICT)(15), minute taking (4), confidence (Personal quality)(7I)
Not that I can think of	Thinking skills (5A)

FREQUENCIES AND COMMENTS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
Yes, as a person over 55 years of age - adaptability in this modern world. I am introvert by nature - work very hard and have much to offer. The ability to market myself is not part of my portfolio or my thinking - this was not in our case of tools in the earlier years. How to do this and remain humble - this sets us apart The ability to not market ourselves or our skills - we have been trained over the years to DELIVER not market ourselves. Help with this would be appreciated	Marketing of self-confidence in this young market. Course that will put like minded older individuals together. It is intimidating to be in a class with all under 25 year olds . . . (Marketing skills)(1)
Change management (Personal quality - social adapt) (3II)	None
I deal a lot with the Municipal Finance Act but has never got any training to ensure that I am doing the correct thing (Office Admin)(16)	Internet web-based applications (19). Not part of my work, but it will be very interesting to obtain training in that field for future use
I think the skills mentioned here covers the broad spectrum of what is required to be a successful Office Professional	Information and communication technology (16) and Internet web-based applications (20)
No all is covered	Office administration, and organisational and time management (17), Information and communication technology (17), web-based applications (21), Interpersonal skills (5i)
No	Web-based applications (22)
Financial Analyses/Accounting (Office Admin)(18)	Financial Analyses/Accounting (duplication)
No	Not sure
Yes	Social networking skills (18)
No	Web-design (23)
Innovation (3D), recruitment and selection (1), employee relations management (1), Bargaining Counsel (1)	Recruitment and selection, bargaining counsel, ER (duplication)
Typing minutes directly on lap top on computer during the meetings (10)	How to inform managers that secretary and administrative staff need to go on training courses to keep up to date with technology (always no budget)
No	N/A
Analysis (thinking skill)(6A), investigative (Thinking skill - innovation (4D), relationship building (Emotional Intelligence)(14)	N/A
No	None
No	Thinking skills (7A)
Business writing (3c)	All
Presentation skill (4)	Information and Communication Technology (19)
No	N/A
Leadership skills (4)	Thinking Skills (8A)
No	Not really
No	Personal qualities (8I)
Not sure	Office admin (19)
No all mentioned	Financial administration (Office Admin)(20)
Personal qualities (9I)	Internet web-based (24)
No	Internet web-based (25)

FREQUENCIES AND COMMENTS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
International protocol (rejected)	Information and communication technology (20), Internet web-based applications (26)
Emotional intelligence (15)	Emotional Intelligence (duplication)
No	Internet web-based applications (27), thinking skills (9A)
No	Internet web-based applications (28), thinking skills (10A), communication – written as English is my second language (4c)
No	Information and communication technology (21), Internet web-based applications (29), Management on meetings (3), thinking skills (11A)
No	Information and communication technology (22), web-based applications (30), Management of meetings (4), Emotional Intelligence (16)
Financial (Office Admin)(21) and Human Resource (2)	Both (duplication)
None	Emotional Development (17)
To have more patience (Emotional Intelligence)(18)	Management of meeting (5) – taking minutes (2), Financial administration – have experience but more knowledge is always important (Office Admin)(22), Further learning and development (rejected)
No	Office administration, organisational and time management (23), Information and communication technology (23), management of meetings (6), communication (4a)
Consistency (rejected), proactive (Thinking skill – problem-solving)(3B)	Conflict resolution (2iv)
I work for a university which requires special skills of working and understanding the hierarchy of academics (Thinking skills - commercial awareness)(2E)	I have worked here for 20 years already (rejected)
Cannot think of any now	Designing websites (31), Commercial Awareness (3E)
None	Delegating is my weak point (Interpersonal skill - supervising)(1iii)
N/A	Everything as no person knows what to do all the time and is constantly learning new ways to deal with situations. Learning never stops, so it is important to know that learning is not a short term but long term and on-going (rejected)
Cultural Awareness (Interpersonal skill)(6i)/Adaption (Personal quality - social adapt)(4II)	Internet web-based design (32)
No	I would like to improve my skills in the following: Thinking skills (12A), communication (articulation)(4b)
Project management (6ii)	Interpersonal skills (7i)
No	Learning and development (rejected)
Mentorship (Interpersonal skill - supervising of co-workers)(2iii) and coaching skills – to be an effective office manager you need to be able to mentor and coach the junior admin staff	I am no longer in the admin environment but am a consultant and this involves mentoring of young people so I would like to think I need improvement on the thinking (13A) and taking initiative skills (Thinking skills)(14A)
No	None

FREQUENCIES AND COMMENTS	
1. Are there any other skill(s) that you regard as essential skill(s) for future success, not mentioned here?	2. In which of these do you need development?
No	Maybe in Emotional Intelligence (19)
No	Thinking skills (15), Management of meetings (7)
None	Management of meetings (8)
Basic Project Management Skills (7ii) and Business English skills (5a)	Emotional Intelligence - mainly Self awareness and Self Management (20)
N/A	Internet web-based applications (33)
No	Thinking skills (16), Communication (6a), Information and communication technology (24) and Internet web-based application (34)
No	Information technology (25)
Communication (7a)	Minute Taking (5)
Not really no	I am quite fine for now
No	Learning and Development (rejected)
No	Web-based applications (35)
No, think most of the skills are covered in above summary	Internet web-based applications (36), interpersonal skills (8i), verbal communication (5b)
All covered	I think a summary of all is required at yearly/half-yearly intervals (rejected)
None	None
No	None
-	Emotional intelligence (21), management of meetings (9)
Payroll courses (Office Admin)(24)	Internal Audit courses (Office admin)(25)
No	Internet web-based applications (37)
Branding (Thinking skills - commercial awareness)(4E) and professionalism (9)	None
No	Office administration, and organisational and time management (26), thinking skills (17)
No	All except office administration, and organisational and time management (rejected)
Yes	Basic Management Principles for Executive Secretaries (1)