

Exploring the perceptions of knowledge transfer and skills retention of baby boomers within South African mining organisations

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- The references followed the prescribed format of the Publication Manual (7th edition) of the American Psychological Association (APA). This practice corresponds with the policy requiring that all scientific documents must employ the APA style as from January 1999, as stipulated by the Program in Industrial Psychology of the North-West University (Potchefstroom Campus).
- The study is submitted by using the structure of a research article. The formatting guidelines as set out by the *South African Journal of Industrial Psychology (SAJIP)* was used. Construction of tables was followed in accordance with SAJIP guidelines.
- Each chapter of this mini-dissertation has its own reference list.

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DECLARATION BY RESEARCHER

I, Arné Grobbelaar, hereby declare that “Exploring the perceptions of knowledge transfer and skills retention of baby boomers within South African mining organisations” is my own work and that the views and opinions expressed in this study are those of the author and relevant literature references as shown in the references.

I further declare that the content of this research will not be submitted for any other qualification at any other tertiary institution.

A handwritten signature in black ink, appearing to read 'Arne Grobbelaar', is written over a faint, light-colored rectangular stamp or watermark.

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DECLARATION BY LANGUAGE EDITOR



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SUMMARY

Title: Exploring the perceptions of knowledge transfer and skill retention of baby boomers within South African mining organisations

Keywords: Baby boomers, knowledge transfer, skill retention, knowledge transfer strategies, skill retention strategies, South African mining organisations

In the business environment of the twenty first century, knowledge can be a key differentiator for organisations. Furthermore, organisations who have employees with industry- and organisation specific skills are able to gain a competitive advantage in their markets. By retaining knowledge and skills within the organisation can ensure that organisations develop and grow their knowledge and skills pool by means of accumulation. With the baby boomer cohort starting to enter into retirement, organisations are face with the risk of losing valuable knowledge and skills if not transferred and retained properly. Considering the important role knowledge transfer and skill retention can play in the current business environment it is important to identify how organisations perceive knowledge transfer and skill retention and to determine whether they are aware of the impact it can have on the organisation if the valuable knowledge and skills are lost.

The objective of this research was to gain insight into the perceptions South African mining organisations have concerning knowledge transfer and skill retention of baby boomers. The research further aimed to identify strategies to assist organisations in their knowledge transfer and skill retention efforts. This research study made use of a qualitative research design based on the social constructivism paradigm. The researcher followed a qualitative descriptive approach making use of both purposive sampling and convenience sampling. Data was gathered from managers in South African mining organisations ($N=16$). The data was gathered by means of qualitative surveys, using the *QuestionPro* platform and analysed by implementing the steps of thematic analysis.

The results indicated that all participants regard knowledge transfer and skill retention of baby boomers as important, however further results indicate that not all organisations have adequate knowledge transfer and skill retention strategies in place. This research study

highlights the negative effects of poor knowledge transfer and skill retention strategies as perceived by mining managers. This study also discusses the recommended strategies for effective knowledge transfer and skill retention of baby boomers as identified by participants.

Recommendations were made for future research and practice.

OPSOMMING

Titel: ‘n Onderzoek na die persepsies oor kennisoordrag en vaardigheidretensie van *baby boomers* binne Suid-Afrikaanse mynorganisasies

Sleutelwoorde: *Baby boomers*, kennisoordrag, vaardigheidretensie, kennisoordrag-strategieë, vaardigheidretensie-strategieë, Suid-Afrikaanse mynorganisasies

In die besigheids-omgewing van die een-en-twintigste eeu kan kennis en vaardighede organisasies laat uitstaan en hulle van hul mededingers onderskei. Verder, organisasies wat werknemers het wat oor industrie- en organisatoriese vaardighede beskik, is meer bekwaam om kompeterende voordeel in hul markte te verkry. Die retensie van kennis en vaardighede binne organisasies kan verseker dat die organisasies ontwikkel en hul kennis- en vaardigheidspoel groei deur middel van toename daarin. Met die *baby boomer*-generasie wat besig is om aftrede te nader, loop organisasies die risiko om waardevolle kennis en vaardighede te verloor indien dit nie behoorlik oorgedra en behou word nie. Met inagneming van die belangrike rol wat kennisoordrag en vaardigheidretensie in die huidige besigheidsomgewing kan speel, is dit belangrik om vas te stel hoe organisasies die belangrikheid van kennisoordrag en vaardigheidretensie waarneem, om te bepaal of hulle bewus is van die impak wat dit op die organisasie kan hê as hierdie waardevolle kennis en vaardighede verlore sou gaan.

Die doel van hierdie navorsing was om insig te verkry rakende die persepsies van Suid-Afrikaanse mynorganisasies aangaande kennisoordrag en vaardigheidretensie van *baby boomers*. Die huidige navorsingstudie het verder ten doel gehad om strategieë te identifiseer om organisasies by te staan in hulle kennisoordrag en vaardigheidretensie pogings. Hierdie navorsingstudie het gebruik gemaak van ‘n kwalitatiewe navorsingsontwerp gebaseer op die sosiale konstruktivisme paradigma. Die navorser het ‘n kwalitatiewe beskrywende benadering gevolg en het gebruik gemaak van beide doelbewuste en gerieflikheidsteekproef-tegnieke. Data is onder bestuurders in Suid-Afrikaanse mynorganisasies ($N=16$) ingesamel. Die data-insameling het deur middel van kwalitatiewe vraelyste geskied deur gebruik te maak van die *QuestionPro*-platform en is daarna geanaliseer deur die stappe van tematiese analise te implementeer.

Die resultate van hierdie studie het aangetoon dat alle deelnemers van die huidige studie kennisoordrag en vaardigheidretensie as belangrik beskou, alhoewel die resultate verder aangetoon het dat nie alle organisasies voldoende kennisoordrag- en vaardigheidretensie-strategieë ingestel het nie. Die studie lig die negatiewe effekte van swak kennisoordrag- en vaardigheidretensie-strategieë soos dit deur mynbestuurders ervaar word, duidelik uit. Die studie bespreek ook verder voorgestelde strategieë vir effektiewe kennisoordrag en vaardigheidretensie van *baby boomers* soos geïdentifiseer deur deelnemers van die studie.

Aanbevelings is gemaak vir toekomstige navorsing en die praktyk.

CHAPTER 1

INTRODUCTION

INTRODUCTION

This mini-dissertation focused on exploring the perceptions of knowledge transfer and skills retention of baby boomers in South African mining organisations. The first chapter introduces the problem statement and provides an outline of the research objectives as well as the research design followed in this study. Finally a division of chapters is presented.

1.1 Problem statement

South Africa is considered an international leader in the mining industry, renowned for not only its rich mineral resources, but also its significant contribution to world production and reserves (Smit et al., 2016). The mining industry has assisted South Africa in shaping its economy to a large degree, contributing more than any other industry (FSE, 2018). An article published by the Federation for a Sustainable Environment (2018) stated that the mining industry assisted in turning a mainly pastoral economy into an industrial economy, it assisted with attraction of large amounts of foreign investment, and it also facilitated the establishment of universities, stock markets, and other modern institutions. According to the annual report of the Minerals Council of South Africa (2019) the mining sector contributed R356 billion to the South African economy in 2018, comprising 7.3% of GDP, making it apparent that the mining industry is a key role-player in the South African economy.

The Minerals Council of South Africa (2019) mentions that providing training and skills to the employees of the mining sector and retaining these skills is crucial to the long-term success of the mining industry. In 2017 the mining industry spent R126 billion on salaries and created a total of 460 000 jobs (Minerals Council of South Africa, 2019). According to Botha and Rasool (2011) South Africa is experiencing a tremendous shortage of skilled workers. Schultz and Grimm (2008) point out that a major challenge for the mining industry has been talent and skills shortage, causing a struggle to meet production needs. Brown and Galli-Debicella (2009) stated that the younger generation of employees entering the mining industry do not possess the same quality knowledge and skills as the older, retiring employees. Currently there are four generations active in the workforce (King et al., 2019) and with the baby boomer generation being the first generation of these four to reach retirement age it is vital to capture their unique knowledge and skills before they exit the

workplace. Considering the current shortage of skilled workers in South Africa it is important to identify how to transfer and retain valuable skills and knowledge in the mining industry due to its large contribution to GDP in South Africa as mentioned above. From the information provided it becomes evident that knowledge transfer and skill retention of baby boomers can play a crucial role in the mining industry; hence the focus of the current research study.

The baby boomer generation comprises individuals that were born between the years 1946 and 1964 (Pruchno, 2012). Al-Asfour and Lettau (2014) describe this generation as individuals of loyalty, self-sufficiency, honesty and achievers of their own career goals. Helyer and Lee (2012) highlight the importance of baby boomers in an organisation as they are arguably the most well-rounded employees to offer talent, respect and loyalty to their employers. An article published by Retire KZN (2016) revealed that the South African population comprises 13.5% baby boomers. This translates to 7.1 million people out of the 54 million population. According to Statistics SA (2018) the quarterly labour force survey for Quarter 4 indicated that the South African baby boomer cohort has a 49% labour force participation rate. Friedberg (2018) states that the first part of this generation is entering into retirement. Pennell (2010) explained that the knowledge base and characteristics of the baby boomer cohort is more extensive, which makes it difficult to refill the gap in leadership and managerial positions left by retiring employees. Cekada (2012) further indicated that baby boomers also hold the majority of management positions in the workforce. This suggests that organisations are faced with the task of developing and implementing adequate knowledge transfer systems within the organisation with a view to prevent organisational brain drain in management and leadership positions. The term *brain drain* is described as the departure of a large quantity of employees that possess advanced technical skills (Varma & Kapur, 2013).

According to Richards (2018), succession planning can assist organisations to prevent brain drain. Succession planning is a process which aims to ensure business continuity through assisting the successor of a role to develop the necessary skills to be successful in that role (Isabella, 2021; Kreissl, 2018). Klein and Salk (2013) defines succession planning as the implementation of methods within the organisation that promotes continued operations and mitigates the risk of loss in productivity due to retirement or workplace resignations. One of the key benefits of implementing succession planning initiatives is that organisations are better able to transfer knowledge and skills (Facione, 2016). Succession planning also assist

organisations in avoiding transition shortcomings when employees are promoted, ultimately leading to business growth and success (Bees, 2015). The consequences of not having succession planning strategies in place can be detrimental to organisations. According to Ali and Mehreen (2018), the absence of succession planning can create a narrowing effect on an organisation's talent pipeline. By not having succession planning in place, organisations are forced to take a reactive and impulsive approach when they lose key knowledge and skills, leading to inaccurate and ineffective succession planning (Lowen & Chisoro, 2016). This ultimately leads to an increase in competency gaps which damages the organisations growth efforts.

Dinur (2011) mentioned that the baby boomer generation possesses a wide range of tacit knowledge. Dinur (2011) described tacit knowledge as implicit and intangible knowledge that is strongly attached to people and which is difficult to transfer in written or recorded methods. By retaining tacit knowledge, organisations not only increase organisational communication and effectivity but also differentiate themselves from the rest of the market leading to a competitive advantage (Oragui, 2020). The majority of the baby boomer cohort's knowledge and skills are not in written or recorded form (Kuyken, 2012). Appelbaum et al., (2012) suggested that younger generation employees do not offer the same high-quality tacit skills as do baby boomer employees. The baby boomer generation also possesses incredible accumulated knowledge and expertise and are highly skilled employees (Madison & Bockanic, 2014). This is problematic seeing that the baby boomer cohort has a 45% labour force participation rate in South Africa (STATSA, 2018). As a result of this phenomenon organisations of the twenty-first century are thus faced with the challenge of finding ways in which they can effectively transfer this generation's knowledge.

For the purpose of this study the researcher utilised definitions of knowledge transfer that also included knowledge retention, seeing that it is the main aim of knowledge transfer. Various definitions exist throughout the literature. However, all cover the same core concept. According to Key et al. (n.d.) knowledge transfer is a strategy employed to recognise, obtain and preserve knowledge, skills, information and relationships that are crucial to the present and future performance of the organisation. Burmeister and Rooney (2015) defined knowledge transfer as management processes that are created and implemented with the aim of retaining the valuable accumulated organisational knowledge of older workers before they enter into retirement. Seeing that this study will focus more specifically on the knowledge

transfer of pre-retirement employees, Massingham's (2014) definition of knowledge transfer is deemed important as it relates to the timing of the knowledge retention process. Massingham (2014) defined knowledge transfer as being a process implemented in organisations with the purpose of capturing knowledge from experienced and knowledgeable staff before they retire. From the literature it is thus clear that the core concept of knowledge transfer is to preserve valuable knowledge and skills of pre-retirement workers before they leave the organisation, which is aimed at maintaining organisational efficiency.

Moyo (2015) stated that a person's contribution to the organisation is determined by the value of his or her information and knowledge which they provide to the organisation, rather than simply by their location on the organisational hierarchy. Hence with this statement it can be concluded that employers should attempt to preserve such important knowledge within the organisation as it can be a valuable asset. Moyo (2015) maintained that knowledge transfer forms the basis of competitive advantage for organisations. Røvik (2017) confirmed this by stating that knowledge transfer is crucial to organisations of the twenty-first century as markets have become more knowledge-driven than ever before. Grant (1996) stated that holding knowledge or knowledge itself does not provide a competitive advantage to organisations, but rather proficient use of such knowledge, for example effective use of knowledge or integrating knowledge with existing knowledge so as to innovate. An organisation's loss of such tacit skills and specialised knowledge could result in a loss of customers and operational failures (Kim & McLean, 2012). Massingham (2005) indicated that the loss of knowledge has a direct impact on the ability of the organisation to perform tasks; this is due to the loss of experience, expertise or practical knowledge. An article published by Deloitte (2008) further mentioned that the cost of replacing the knowledge of a departing employee can cost the organisation up to one and a half times the annual salary of the departing employee. From these statements it becomes clear that it is vital for organisations to understand not only how to transfer and retain knowledge but also how to effectively utilise knowledge to stay competitive in their markets.

Boitnott (2016) states that baby boomers will not only take away their knowledge but also their skills as they start to exit the working environment. The Meriam-Webster online dictionary (n.d.) describes skills as the learned power to perform a task competently. Mothupi (2014) defines skills in the organisational context as having the knowledge, work experience and competence to perform job tasks as required from the employee. Mothupi (2014) defined

skill retention as the ability of an organisation to attract, develop and retain a group of independent and skilled employees within the organisation. Phaladi (2011) added that various organisations are faced with the crisis in their workforce demographics of highly skilled and experienced employees who are retiring from the workplace. The situation gives cause for further concern as there is a shortage of skilled younger employees who can replace the more experienced older employees when they retire (Makhubela & Ngoepe, 2018).

As touched on above, key skills and expertise are not limited to only those in executive positions; such key skills and expertise can be found among older employees in any organisational position (Morar & Yoong, 2015). Niewiadomska (2012) explained that baby boomers offer a unique set of professional skills which is accumulated through years of job experience and that these soft skills can enhance the human capital of employees and improve the overall value of an organisation's workforce. Morar and Yoong (2015) further stated that the key skills of older employees can contribute to organisational success. Baby boomers can provide different perspectives based on their experience (Scates, 2017). It is therefore important to retain such skills in the organisation to ensure that those expertise, training and years of experience do not go to waste for the organisation.

The loss of skills compromises the organisation's ability to effectively communicate, collaborate and solve problems (Feffer, 2016). If skills are not retained it can lead to individuals wasting time searching for information or assistance on how to perform certain tasks, which may lead to failure to complete important job tasks (Huntington, 2017). Organisations lacking effective tools, strategies and resources to retain the skills of retiring employees will face both the risk of continuity and the financial burdens for recreating and restoring long-developed skills otherwise lost (Facione, 2016). Chugh (2013) explained that employee skills should be retained in the form of policies or organisational structures to ensure that the organisation does not lose valuable "organisational memory" (skills that have been acquired through years of experience) which can differentiate them from their competitors. Chugh (2013) suggests implementing policies that encourage employees to document the relevant skills needed for various tasks in the form of reports or manuals. Mentoring and coaching initiatives can also be included in organisational policies to ensure that skills are shared within an organisation (Chugh, 2013). Beazley et al. (2002) argued that skill retention from older and retiring employees can become a fundamental element of guaranteeing continued organisational success. However, this success can only be guaranteed

when the skills that needed to be transferred are displayed by those employees who had to obtain the new skills (Farr, 2012). This transfer of skills can be achieved by implementing strategies to transfer and retain knowledge and skills of retiring employees (Morar & Yoong, 2015).

According to a corporate handout by the Institute of Nuclear Power Operations (2008) knowledge transfer and skill retention is the process by means of which an organisation ensures that crucial knowledge and skills that have been acquired through years of experience are preserved. Liebowitz (2011) is of meaning that knowledge transfer and skill retention strategies not only allow organisations to identify the knowledge and skills that are at risk but also assist in retaining the identified knowledge and skills within the organisation. Organisations can develop retention strategies to decrease recruiting investment, increase ROI, and ensure a smooth transfer of skills and knowledge to the next generation of employees (Corwin, 2015). The INPO (2008) identified the following benefits of successful knowledge transfer and skill retention strategies:

- The organisation does not run the risk of losing important knowledge and skills when personnel leave.
- Certain unique and/or expert knowledge of some employees can be made readily available to others when needed or necessary, making employees independent of the availability of experts.
- By eliminating the trial-and-error phase of knowledge acquisition, organisational productivity and efficiency can be maintained and improved.

The INPO (2008) report identified the following retention strategies that have proven success in the past: (i) cross-training and rotational assignments; (ii) coaching and mentoring; (iii) storytelling; (iv) apprenticeships, and job shadowing; and (v) simulations and walk-throughs. These strategies are supported by Liebowitz (2011) who states that job rotation; mentoring; job shadowing and storytelling are effective strategies for retention. Morar and Yoong (2015) developed a different retention strategy in the form of a stage model consisting of three stages. In the first stage the organisation identifies the knowledge and skills that should be retained as well as from where it originates. In the second stage the organisation will assess and prioritise the knowledge and skills; the organisation must assess the importance of the knowledge and skills as well as the consequences if they lose this knowledge and skills. The

third and final stage of the model is capturing and retaining. In this stage the organisation needs to identify how they will capture the knowledge and skills; also, where they will store the information once they have documented the process. According to the model used by Hajric (2018), the following steps can be followed to ensure an effective knowledge and skill retention strategy: (1) Understand your risk factor. This can be evaluating the average age of your workforce, reviewing the effectiveness of mentoring initiatives etc.; (2) Identify knowledge and skills that are critical and focus on those.; and (3) Formulate a strategy using the knowledge and skills retention pillars as identified by Liebowitz (2011). These pillars are (i) Reward and recognition management; (ii) Bi-directional knowledge flow; and (iii) Personalisation and codification.

Meyer et al. (2016) suggested mentoring or coaching as a good initiative to support skills transfers and ensure organisational skill retention. There are numerous strategies that organisations can implement to transfer knowledge and retain skills. However, it is unknown whether organisations actually implement above-mentioned strategies. This study will therefore investigate skill retention and knowledge transfer strategies suitable for a South African context.

Baby boomers have pioneered, influenced and cultivated the operational, environmental and technological aspects of the world of work; more than any other generation have (Kiyonaga, 2004; Kuyken, 2012; Schoch, 2012). It is thus important for organisations to explore the losses employers may face as the baby boomer cohort migrate from the labour market, to understand and determine the type of skills, values and knowledge to capture, as well as which work environment is required for transferring knowledge (Chien-Hsing et al., 2010). The researcher's initial expectations regarding knowledge transfer and skill retention was that a type of good practice approach would exist which organisations can follow as a guideline for effective knowledge retention. However, after having studied the literature it became evident that this was not the case. One size probably does not fit all when creating a knowledge transfer strategy (Liebowitz, 2009), and the answer will have to come from within your organisation (DeLong, 2004). With regard to skill retention, Harvey (2012) pointed out the fact that it is difficult to find examples of proven generic strategies that are successful for skill retention. Burmeister and Deller (2016) claimed that the nature of the knowledge and skill retention process is not yet fully understood; thus there is a need for additional research. The aim of this study was to discover the perceptions South African mining organisations

have of knowledge transfer and skill retention – specifically of baby boomers. This study aimed to discover the strategies employed by South African mining organisations to preserve knowledge and skills within the organisation.

1.2 Research questions

Based on the above-mentioned problem statement the following research questions arose:

- How are baby boomers, knowledge transfer and skill retention conceptualised according to the literature?
- What is the perception among South African mining organisations regarding knowledge transfer and skill retention of baby boomers?
- What is the influence of poor knowledge transfer and skill retention on South African mining organisations?
- What strategies are being utilised by South African mining organisations to ensure effective knowledge transfer and skill retention of baby boomers?
- What recommendations can be made by South African mining organisations to effectively transfer knowledge and retain skills of baby boomers?
- What recommendations can be made for future research and practice?

1.3 Expected contribution of study

For the organisation

The study aimed to identify how South African mining organisations perceive the importance of knowledge transfer and skill retention of baby boomers. It also elaborated on the effects of poor knowledge transfer and skill retention strategies within organisations. This will assist mining organisations in South Africa to understand the negative impact poor knowledge transfer and skill retention strategies can have on the success and future success of the organisation. Furthermore, the study also explored recommendations made by mining managers to transfer knowledge and retain skills of baby boomers more effectively. Organisations can study these recommendations and implement those relevant to their

organisational context to ensure that they remain up to date with best practices for transferring knowledge and retaining skills.

For the individual

The present research study aimed to create awareness amongst individuals regarding the importance of transferring knowledge and retaining skills of baby boomers. It further emphasised the effects of poor knowledge transfer and skill retention strategies. This information therefore assisted individuals to understand why it is important to comply with the organisation's knowledge transfer and skill retention strategies. By participating in this study mining managers had the opportunity to reflect on their current strategies for knowledge transfer and skill retention and identify areas of improvement.

For the literature

The research study adds to the literature of knowledge transfer and skill retention, specifically focusing on that of baby boomers. The present study not only highlights the effects of poor knowledge transfer and skill retention strategies but also emphasise the strategies that participants perceive to be effective in a South African mining context. The study therefore contributes specifically to the South African knowledge transfer and skill retention literature. The research study also aimed to assist South African Industrial Psychologist to understand knowledge transfer strategies, the effects of such strategies as well as the challenges of these strategies as experienced within mining organisations in South Africa.

1.4 Research objectives

The research objectives were divided into general objectives and specific objectives.

1.4.1 General objectives

The general objectives of this study were to obtain a better understanding of the perceptions South African mining organisations have regarding knowledge transfer and skill retention of baby boomers. Also, the study aimed to explore the strategies South African organisations

apply to transfer the knowledge and retain the skills of baby boomers within their organisations.

14.2 Specific objectives

- To conceptualise baby boomers, knowledge transfer and skill retention according to the literature.
- To explore the perception among South African mining organisations regarding knowledge transfer and skill retention of baby boomers.
- To explore how poor knowledge transfer and skill retention influence South African mining organisations.
- To explore strategies that are utilised by South African mining organisations to transfer knowledge and retain skills of baby boomers.
- To explore what recommendations can be made by South African mining organisations to effectively transfer knowledge and retain skills of baby boomers.
- To make recommendations for future research and practice.

1.5 Research design

1.5.1 Research approach

This study was explorative and descriptive in nature; thus a qualitative research method was used. Manning and Kunkel (2014) states that qualitative research has the power of changing people's perceptions about how they experience a certain phenomenon. In addition to this, qualitative research also provides rich data by allowing respondents to express their views on a matter (Creswell, 2009). The purpose of qualitative studies is usually to gain an in-depth understanding of a phenomenon rather than quantity of understanding (Henning et al., 2004). By using a qualitative research approach, the researcher was able to gain an understanding of how South African mining organisations perceive the phenomenon of knowledge transfer and skill retention of baby boomers as well as the strategies employed in order to accomplish this outcome.

This research study also made use of the social constructivism paradigm. The social constructivism paradigm states that reality should be interpreted through the meaning participants attach to their own life or world (Fouché & Schurink, 2011). In addition to this, Wahyuni (2012) stated that individuals with backgrounds that differ from their own unique experiences and assumptions contribute to the continuous construction of reality through social interaction. This paradigm was suitable for gaining an understanding of the participants' different views on knowledge transfer and skill retention and the related strategies that are used by South African mining organisations in this regard.

1.5.2 Research strategy

Seeing that the objective of this study was to investigate the perceptions of participants with regard to knowledge transfer and skill retention, and the strategies thereof, the researcher followed a qualitative descriptive research strategy. This type of strategy focuses on gaining information from participants regarding their experiences of a phenomenon that is not well-understood (Kim, et al, 2017). One of the premises of the qualitative descriptive strategy is that numerous subjective interpretations of reality exist among research participants (Bradshaw et al., 2017). This type of strategy was therefore applicable to the current research study since the goal of this study was to determine the different perceptions that exist within South African mining organisations regarding the phenomena *knowledge transfer* and *skill retention* of baby boomers.

1.6 Research method

In this section the researcher discussed the literature review, research setting, entrée and researcher roles. The researcher also elaborated on the research participants and sampling, data collection method as well as the recording of data. Finally, the researcher discussed the data analysis, strategies that are to be employed to ensure data quality and integrity and also reporting of findings.

1.6.1 Literature review

In order to extensively research the perceptions regarding knowledge transfer and skill retention, a comprehensive literature review was conducted. The literature review included

relevant articles pertaining to knowledge transfer and skill retention and the strategies used by organisations in order to achieve this. The databases that were used included Google Scholar, Ebsco host, Emerald, ProQues and Sage. The key words that were used during literature searches entailed the following: Baby boomers, Boomer brain drain, knowledge transfer, skill retention, knowledge transfer strategies and skill retention strategies. The following journals were studied due to the relevance thereof to the topic of knowledge transfer and skill retention of baby boomers: *International Journal of Qualitative Methods*, *The South African Journal for Industrial Psychology (SAJIP)*, *Journal of Behavioral & Applied Management*, *Strategic Management Journal* as well as *Journal of Knowledge Management*.

1.6.2 Research setting

In this research study, numerous mining organisations within South Africa were approached. Participants that were included within this study were managers or employees who are in senior positions within these mining organisations. The researcher made use of written online interviews for collecting data for this study. Another way of describing this type of data collection is qualitative surveys which was conducted via QuestionPro. This method increased the ease of conducting the interview and thus made the process more convenient for all participants. The online interview allowed the research participant to answer the interview questions from the location of his/her choice and scheduling a formal face to face interview was not necessary, thereby promoting accessibility. It took approximately thirty minutes for the participants to complete the interview questions.

1.6.3 Entrée and establishing researcher roles

At first the researcher submitted the research proposal to the Economic and Management Sciences Research and Ethics Committee (EMS-REC) of the specific higher education institute. After the researcher had received permission he started contacting prospective organisations to find a spokesperson. The goal was to find a manager or director in the organisation who had the authority to give permission to conduct this study at his/her organisation. The researcher then aimed to find gatekeepers within the organisations who would assist in gaining access to participants. The researcher acted out various roles throughout the study. The researcher's first role was that of a planner. The study was planned

and structured in detail. Planning was essential, from writing the research proposal to managing the deadlines and planning the collection of data. The researcher identified organisations within which the data collection process could take place. The researcher fulfilled the role of data collector when requesting participants to complete the qualitative survey via QuestionPro. Furthermore, the researcher also fulfilled the role of data analyser. Lastly, the researcher acted as the report writer for this study. The researcher compiled the final report and provided and explained the results of the study. Throughout the entire research process, the researcher made his best effort to remain objective.

1.6.4 Research participants and sampling

In this study the researcher made use of both purposive sampling and convenience sampling. According to Bryman (2016) a convenience sample is used by the researcher purely on the grounds of its accessibility. The researcher approached organisations in which participants are accessible and available to participate. Quinlan et al. (2015) state that the use of purposive sampling calls for the researcher to make a judgement call regarding the type of participants he/she wants to include in the sample. This judgement call refers to the type of attributes or characteristics that the participants must possess for the researcher to explore in depth what he/she wished to study. Participants should have adhered to the following criteria in order to participate within this research study: 1) The participants had to be either in management or in a senior position within a South African mining organisation; 2) The participants had to be proficient in at least English in order to successfully complete the qualitative survey via QuestionPro; and 3) By completing the online interviews, participants provided informed consent to participate in this research study and they therefore consented to the researcher using the collected data for research purposes. Participants that met the required characteristics and were willing to participate in the study were used. The sample comprised ($N=16$) employees who are active in the South African labour market. The sample was governed by data saturation which was reached at $N=16$. Qualitative researchers often measure the efficiency of their sample on the basis of data saturation (Rossouw, 2017). There are no generic steps to achieve data saturation as every study is unique. Fusch and Ness (2015) argued that data saturation is achieved when data is rich and thick and not merely when the researcher's resources are depleted. Therefore the researcher took the necessary steps to achieve rich data, with the aim of achieving data saturation.

1.6.5 Data collection method

This study gathered data by means of written online interviews in the form of a qualitative survey. This method allows the researcher to create a research questionnaire, which was available to the respondents online in such a manner that they can fill it out (Sowa et al., 2015). This allowed the researcher to ask a fixed set of questions to the participants but also allowed them the freedom to elaborate on certain questions which could provide the researcher with deeper insight and a better understanding of how the participant perceives knowledge transfer and skill retention of baby boomers within the workplace. There are numerous advantages of using this method of data collection. These advantages include a reduction in the amount of time needed for research, it ensures exceptional control over the data collection process, lowers costs for conducting the study as travelling expenses are minimised, and ease of access of respondents as geographical problems are eliminated (Sowa et al., 2015).

The interview questions that were asked within the qualitative questionnaire were as follows:

- *Do you perceive knowledge transfer and skill retention to be important within your organisation? Please provide explanations for your answer.*
- *What is the influence of poor knowledge transfer and skill retention of baby boomers within your organisation? Please provide a detailed answer.*
- *What strategies are being implemented within your organisation to transfer the knowledge and retain the skills of baby boomers within your organisation? Please provide a detailed answer.*
- *What recommendations can you make to transfer knowledge and retain skills of baby boomers within your organisation more effectively? Please provide a detailed answer.*

Although the above-mentioned questions acted as the framework for the interview, the participants had the option to elaborate on their answers which granted the researcher the opportunity of gaining a more comprehensive picture of the participants' experiences and perceptions. The qualitative survey also included biographical information such as age, ethnicity, gender, language etc. to allow the researcher to describe the population group. This data was not utilised to compare groups or to make inferences about the data.

1.6.6 Recording of data

The QuestionPro platform allowed the researcher to create his/her own questionnaire and send it to participants via the communication platform of the participants' choice (email, text message, etc.). Within this study the researcher chose to use emails (QuestionPro, 2017). The participants' answers were captured by QuestionPro (QuestionPro, 2017). The participants' responses on the QuestionPro online platform were captured on a Microsoft Excel spreadsheet for data analysis. The data gathered from the study will be stored for a five-year period before it is deleted. The interviewer locked the Excel spreadsheet with a password to ensure the safekeeping of the data. The computer on which the Excel spreadsheet was saved was also password protected. Only the researcher and the researcher's supervisor had access to the Excel spreadsheet.

1.6.7 Data analysis

Thematic analysis was used to analyse the data of this study. Braun and Clarke (2006) defined thematic analysis as the process of identifying and extracting recurring themes from a data set. The steps to be taken in the thematic analysis process in this current research were those identified by Braun and Clarke (2006). These steps are:

Step 1: Familiarising yourself with the data.

The researcher read through the transcripts as a whole and made notes on his first impressions. The researcher thereafter carefully read the transcripts one by one to ensure that he fully understood the content of the data.

Step 2: Generating initial codes.

This step required the researcher to label words, phrases and sentences from the transcripts. Löfgren (2013) stated that these labels can be about actions, activities, opinions, concepts or whatever the researcher might find relevant. This process is referred to as coding. Coding is done by highlighting different patterns in different colours or by making notes in text. The researcher had identified and labelled interesting data patterns which later formed the basis for themes.

Step 3: Searching for themes.

The researcher then worked through all the codes created in the previous step. The researcher created new codes by combining two or more codes with the aim of identifying themes. Many of the initial codes that were formed were dropped in order to create themes. The researcher started to consider the relationship between codes and themes.

Step 4: Reviewing themes.

In this step the researcher refined the identified themes and considered whether certain themes needed to be removed on grounds of insufficient supporting data. The researcher further collapsed some themes into one theme. It proved helpful to the researcher to break down certain themes into separate themes during this step. The researcher ensured that it is possible to distinguish between the different themes.

Step 5: Defining and naming themes.

The researcher defined each theme individually by identifying essential content of each theme as well as what aspects of the data were captured by the themes. It was important for the researcher to indicate how the theme fitted in with the story that was being told by the data.

Step 6: Producing the report.

In this step the researcher conducted a final analysis of the themes and data and started writing the research report. The researcher described the themes and how they are connected. The researcher must use a neutral voice when interpreting the results (Löfgren, 2013). The report can be interpreted in light of, for example, results from similar previous studies or in the light of theories or concepts from the researcher's field of study.

1.6.8 Strategies employed to ensure data quality and integrity

Anney (2014) wrote about how important high-quality and trustworthy data is for qualitative research. The researcher followed the criteria necessary for ensuring data quality and trustworthiness as proposed by Anney (2014) and Guba (1981):

Transferability

Transferability refers to the extent to which the results of a qualitative study can be transferred and applied to various different contexts with altered respondents (Bitsch, 2005; Tobin & Begley, 2004). The researcher obtained the original testimonies or responses of the respondents and also provided an extensive description of the research setting and data to assist the reader to grasp a realistic picture of the study in the hope that he/she found the study relatable to his/her own experience of the phenomenon. Tracy (2010) maintained that it will make the transferability much more realistic.

Dependability

Bitsch (2005) defined dependability as “the stability of findings over time” (p. 86). Shenton (2004) stated that it is important for the study to yield similar results if it is to be repeated by a different researcher with a similar sample in the same or similar context while using the same research methods. The researcher had therefore ensured that the entire research process was thoroughly documented in order for other researchers to replicate the study. In addition to this, the researcher also used a co-coder and intensely focused on the coding and re-coding of the data with a view to achieve dependable results as recommended by Ary et al. (2010).

Confirmability

Confirmability is focused on ensuring that the data and interpretations of the research results are not fabricated or derived from the imagination of the researcher (Tobin & Begley, 2004). Confirmability can be achieved by keeping a record in which the researcher can report on all events that had occurred during the research study (Koch, 2006). The researcher also ensured confirmability by achieving traceability of the study. This can be achieved by leaving an audit trail of his/her practical doings (Anney, 2014).

Credibility

Credibility is better known as the internal validity of a qualitative study, indicating that the study measures exactly what it intends to measure (Shenton, 2004). The researcher ensured credibility by encouraging participants to be honest and by getting them motivated to participate in the study. By providing participants with the choice to decline participation in the study ensured that all participants were motivated to participate which made it easier to achieve truthfulness of results. The researcher also consulted his study supervisor for feedback and structure with the aim of providing a high-quality research study.

1.6.9 Reporting

The aim of qualitative research is to report on the main findings of the study. The researcher employed a qualitative writing style and provided sufficient evidence to support the findings (O'Brien et al., 2014). The findings were reported by indicating the themes and sub-themes as identified by the researcher. The researcher also provided direct quotes in order to support the themes and sub-themes that were identified.

1.6.10 Ethical considerations

Firstly, the researcher only commenced with the study after the approval of the research study by the Economic and Management Sciences Research Ethics Committee (EMS-REC). The researcher also obtained informed consent from the South African mining organisations before commencing with this study. All participants were sent an <http://link> via email. If participants wished to take part in this research study they could click on the link and were then directed to the QuestionPro qualitative survey. On the QuestionPro online platform participants were informed that participation was voluntary and that they could withdraw at any time. Participants were also informed that all information collected via QuestionPro would be treated in the strictest confidentiality and no personal information or the information of their employing organisation would be made known. Should the participants request feedback, the researcher or his supervisor will email a summarised report to the participants only after the research report has been examined.

1.7 Chapter division

This mini-dissertation consists of three chapters:

Chapter 1: Introduction

Chapter 2: Research article

Chapter 3: Conclusions, limitations, and recommendations

1.8 Chapter summary

In this chapter, the problem statement and the research objectives were discussed. Additionally, the research method was explained, followed by a brief overview of the chapters that follow.

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CHAPTER 2

RESEARCH ARTICLE

EXPLORING THE PERCEPTIONS OF KNOWLEDGE TRANSFER AND SKILLS RETENTION OF BABY BOOMERS WITHIN SOUTH AFRICAN MINING ORGANISATIONS

Orientation: Organisations are faced with a situation in which baby boomer employees are starting to exit the workplace. In a knowledge-driven economy it is vital for organisations to transfer the knowledge and retain the skills of baby boomers before they leave the organisation. By making use of knowledge transfer and skill retention strategies organisations can prevent knowledge loss and build on existing knowledge and skills to innovate and remain relevant in their current market.

Research purpose: The general objective of this study is to gain a better understanding of the perceptions South African mining organisations have concerning knowledge transfer and skill retention of baby boomers. Also, the study aims to explore the strategies South African organisations apply to transfer the knowledge and retain the skills of baby boomers within the organisation.

Motivation for the study: Throughout literature baby boomers are identified as the employees with the most tacit and explicit knowledge. With the retirement of baby boomers approaching, it is important to capture this valuable knowledge and skills of baby boomers to ensure that organisations can advance and capitalise on the knowledge and skills already present within the organisation. This study holds the potential of creating awareness among South African mining organisations of the importance of effective knowledge transfer and skill retention strategies. It can also urge organisations to rethink the way in which they are currently transferring knowledge and retaining skills.

Research approach, design and method: This study followed a qualitative research approach, along with a social constructivism paradigm. The study applied a combination of both purposive sampling and convenience sampling. The sample ($N=16$) consisted of managers within South African mining organisations. Qualitative Surveys via the *QuestionPro* platform were used to collect data. The researcher made use of thematic analysis to process the data.

Main findings: Participants of this research study indicated that they are aware of the importance of knowledge transfer and skill retention of baby boomers within their organisations. Considering this, many participants indicated that they do not have any knowledge transfer or skill retention strategies in place, while others were of opinion that the

current strategies in their organisations are not adequately transferring knowledge and retaining skills. Participants of the present study provided insight into the effects of poor knowledge transfer and skill retention strategies on the organisation. Participants suggested that various strategies should be implemented to transfer the knowledge and retain the skills of baby boomers.

Practical implications: When organisations become aware of the importance of effectively transferring knowledge and retaining skills of baby boomers, they will be motivated to adjust their strategies (or implement new strategies) to retain these essential skills and knowledge of baby boomers within their organisation so as to improve the organisation's effectiveness, leading to an increase in overall profitability and growth.

Contribution/value-add: The research study will provide a qualitative view on and insights into the perceptions of managers in South African mining organisations concerning knowledge transfer and skill retention of baby boomers. By participating in the study, organisations may feel more motivated to adjust current strategies to more effectively transfer knowledge and retain skills within their organisations. If organisations are able to successfully retain the knowledge and skills of baby boomers within the organisation, it can assist inexperienced employees to become competent in their job roles more quickly, leading to the sustainability and growth of the organisation.

Keywords: Baby boomers, knowledge transfer, skill retention, knowledge transfer strategies, skill retention strategies, South African mining organisations

INTRODUCTION

According to the International Council for Mining & Metals (ICMM) (2018) South Africa was ranked in the top 25% globally when looking at the mining contribution Index. The mining contribution index (MCI) measures the importance of mining to the economy of a country. When looking at countries that are ranked on their production value of metallic mineral and coal, South Africa ranked 6th globally (ICMM, 2018). Furthermore, Department for Statistics South Africa (2019) found that the mining sector has been the strongest performing industry for the last three years. According to the Department of Trade and Industry of South Africa (2020) South Africa's mining industry is considered to be the fifth largest when taking into consideration GDP, and that the industry accounts for 25% of the country's exports. In South Africa, the mining industry contributes more than R300 billion to

GDP and directly employs over 450 000 people, making it an economic anchor for most communities around the country (Goodman et al., 2019). The above-mentioned information is indicative of the reality that the mining industry is a solid foundation for South Africa's economy.

The mining industry is experiencing a generational change and is concerned about the retirement of skilled employees (Diaz, 2019). Diaz (2019) further explains that the mining industry is facing an urgent need to find experienced skilled workers due to the migration of these skilled retiring employees. The mining sector should focus on the retention of critical skills and professionals if they wish to drive the sustainability of this industry (Lane et al., 2015). Lane et al. (2015) explain that although graduate programs allow for younger talent to enter the mining sector, they still lack hands-on experience and this leads to a reduction in output and quality, while increasing the costs of overheads. By having adequate knowledge transfer and skill retention systems in place will be beneficial to both younger and older employees in the sector, as this will allow younger employees to achieve their goals of learning more from the industry in which they employed as well as allow older employees to achieve their goals of sharing their experiences and accumulated knowledge (Burmeister & Hirschi, 2019). Burmeister and Hirschi (2019) also state that by having knowledge transfer systems in place, employees feel encouraged to stay with the organisation for longer. The foregoing information emphasises the important role knowledge transfer and skill retention of baby boomers can play in the mining sector. Hence it was the focus of this research study.

The full retirement of the baby boomer cohort is approaching, and as a result organisations have identified the retention of this generation's valuable knowledge as an urgent need (Burmeister & Deller, 2016). The baby boomer cohort has accumulated a vast amount of knowledge and has successfully adapted to the rapidly changing workforce over the years, more so than any other generation currently in the workplace (Boston College, 2013). Boomers value diversification of skills, aiming to acquire more skills than are necessary for their job or position, and as a result boomers possess a wide variety of skills to offer to organisations (Coy, 2019). The boomer cohort holds a variety of critical skills which have been developed through years of experience (Corwin, 2015). Sandborn and Prabhakar (2015) mention that a loss in critical skills (skills that have been acquired through hands-on experience) can lead to poor business performance, resulting in a loss of customers and a reduction in productivity, ultimately leading to a loss in output. Adding to this, critical skills

is the most difficult skills to replace in organisations; a problem that will have no short-term solutions (Sandborn & Prabhakar, 2015). When generations leave the workforce they take with them this accumulated knowledge (Sumbal et al., 2015). If knowledge is permanently lost, organisations will become less efficient, less profitable, and remaining employees can become frustrated with struggling on projects and the delay in work (Davis, 2018). In an era where information is easily accessible, accumulated knowledge and experience plays an important role; this can be used to provide organisations with an advantage over their competitors (Garå, 2016). For organisations to sustain their intellectual capability, sustain their credibility and positive reputation, as well as improve their prospects of organisational growth and gain competitive advantage, they must ensure that they retain years of accumulated organisational skills (Ngoma, 2016).

The latest labour force quarterly report indicates that 45% of the baby boomer cohort is still economically active (STATSA, 2020). This indicates not only that a large amount of experience and knowledge is still available, but also that there is a large amount of knowledge and experience to be lost if not transferred effectively and timeously. From this it can be inferred that organisations should focus on keeping this experience and accumulated knowledge within the company with a view to prevent an organisational brain drain. Older employees possess a wealth of knowledge and skills which they can transfer (Sumbal et al., 2015). In addition to this, Eisenberg (2019) mentions that baby boomers do not wish to retire just yet, but rather take up mentoring roles in the organisation to transfer their skills and knowledge to potential successors. Organisations should thus put strategies in place to transfer the skills and knowledge of older employees before they exit the workplace. The overarching aim of this study was to obtain a better understanding of the perceptions South African mining organisations have concerning knowledge transfer and skill retention of baby boomers. Additionally, the study endeavoured to explore the strategies South African organisations utilise to transfer the knowledge and retain the skills of baby boomers within the organisation.

Research purpose and objectives

The overarching objective of this research was to better understand the perceptions South African mining organisations have concerning knowledge transfer and skill retention of baby boomers. Additionally, the study aimed to look into the different strategies that South African

organisations utilise to transfer the knowledge and retain the skills of baby boomers within the organisation. Considering this purpose and overarching objective, the following specific objectives were posed:

- To conceptualise baby boomers, knowledge transfer and skill retention according to the literature.
- To explore the perception among South African mining organisations regarding knowledge transfer and skill retention of baby boomers.
- To explore how poor knowledge transfer and skill retention influence South African mining organisations.
- To explore strategies that are utilised by South African mining organisations to transfer knowledge and retain skills of baby boomers.
- To explore what recommendations can be made by South African mining organisations to effectively transfer knowledge and retain skills of baby boomers.
- To make recommendations for future research and practice.

Literature review

Conceptualisation of generations and baby boomers

Kicheva (2017) states that a generation is characterised by two main factors: Birth years and events at that time. Employees from the baby boomer generation are those born between the years 1946 to 1964 (Jiří, 2016). Generations display different characteristics and workstyles in the workplace (Benson & Brown, 2011). This is supported by Yusoff and Kian (2013) who state that every generation brings its own unique set of skills, values, and characteristics to the workplace. Jiří (2016) further explains that the baby boomer generation values loyalty and involvement, they adhere to a high level of work ethic and they always strive to deliver quality. Baby boomers in the workplace can be characterised as being goal-centric, competitive, team-players and having immense work ethic (Pappas, 2016). Boomers are valuable employees as they bring great enthusiasm to the organisation, they are dedicated and is the most independent generation of all (Kothapalli & Thiruchanuru, 2018).

Baby Boomers are crucial assets to organisations as they possess a vast number of valuable experiences and have a good understanding of how the business works since they have been in the working environment longer than younger generations (Sumbal et al., 2015). The knowledge and skills held by these baby boomers are mostly tacit, and this tacit knowledge and their skills make up two thirds of organisational knowledge and skills (Haradhan, 2017). The term *tacit knowledge and skills* refers to knowledge and skills related to specific know-how and know-why as well as high-level expertise that have been develop throughout the years (Phelps et al., 2012), It is argued by Kothapalli and Thiruchanuru (2018) that baby boomers are not retiring due to the following two reasons: they wish to assist the younger employees in the workplace and also because their levels of enthusiasm are high. Organisations should thus use this additional career time and enthusiastic mind-set that baby boomers are offering before it is too late. This information highlights that there is still great value that baby boomers have to offer to organisations, making them a valuable resource in today's work environment. Organisations should ensure that they implement the necessary knowledge transfer and skill retention strategies to take advantage of these valuable resources before the baby boomer cohort retires.

Knowledge transfer

Organisational knowledge is defined by Bratianu (2015) as a conceptual construct which represents the combined individual knowledge fields throughout the organisation. Organisational knowledge is the aggregate experience and knowledge of all employees within the organisation, which provides business value to the organisation (Hajric, 2019). When employees leave the organisation, it is not only the loss of an individual but also the loss of valuable knowledge (Peña, 2013). An employee departing from an organisation represents increments of organisational knowledge flowing out of the organisation (Kumar & Ganesh, 2011). Perrott (2007) defines *knowledge loss* as the departure of knowledge, be it intentional or unintentional, that has been accumulated over the years from learning and experience. Hajric (2019) defines *knowledge loss* as the unplanned loss of valuable and relevant organisational knowledge that was expected to stay within the organisation. When an organisation loses knowledge by failing to share it, it not only creates a culture of distrust but also disallows innovation in the organisation (Černe et al., 2014). Boyes (2020) states that if knowledge is not shared it can increase turnover in an organisation, promote neuroticism among employees, diminish team creativity and create bottlenecks in the organisation.

From the information above, it becomes clear that the loss of knowledge can have a negative impact on organisations; hence preventing this loss of knowledge should become a priority to organisations. Oppenlaender et al. (2018) state that applying knowledge transfer strategies and systems is an effective way of retaining knowledge and preventing knowledge loss in the organisation. Shah and Hussin (2018) identified job rotation, cross-functional training and mentoring as effective strategies to avoid losing valuable knowledge and skills in the organisation. Mentoring and coaching programmes have also been shown to be effective strategies to transfer knowledge and skills within organisations (Meyer & Mabaso, 2012). Mohamad Hassan et al. (2017), mentions that the social values and organisational culture has a major impact on how employees will adopt knowledge and skill retention strategies. It is therefore important that organisations not only implement strategies but also analyse and understand how to implement these strategies in line with the organisational culture.

Applying knowledge transfer as a strategy with a view to gain and sustain competitive advantage in organisations has grown in popularity. However, many organisations still struggle to effectively implement these strategies before the departure of valuable employees (Rajalo & Vadi, 2017). In most situations, organisations take a reactive approach to knowledge transfer by only starting to implement knowledge transfer strategies once they are aware of an employee leaving (Rajalo & Vadi, 2017). If organisations are able to fully understand how to effectively and proactively utilise knowledge transfer strategies they can design effective strategies to respond to market uncertainties (Du & Wang, 2019). By implementing effective knowledge transfer strategies, organisations allow themselves the opportunity of innovating, and as a result respond more swiftly to a fast-paced business environment (Sandhawalia & Dalcher, 2011).

Skill retention

Skills can be defined as a set of capabilities which assist employees in planning, prioritizing and achieving work-related goals (Doyle, 2019). Duszynski (2020) defines skills as abilities that allow employees to stay focused on a variety of tasks, and to utilise their time, energy, and mental capacity more effectively in order to achieve a desired outcome. Skills are defined in the Cambridge Dictionary as “an ability to do an activity or job well, especially because you have practised it” (Skills, n.d.).

When losing skilled employees, organisations are faced with the risk of a loss in customers, ineffective resource management as well as a loss in productivity (Amo, 2019). The organisation's bottom-line is directly affected by the loss of skilled workers as this can lead to loss in productivity and increased cost when retraining new employees (Reddy, 2020). Losing skilled employees can negatively impact the continuity of an organisation (Urbancová & Linhartová, 2011). Son (2016) points out that, losing skilled workers can lead to a decrease in innovation within a company as well as decrease the momentum of the organisation's natural growth.

For organisations to run as efficiently as possible without interruptions it requires a dependable group of employees with the relevant skills (Sandborn & Prabhakar, 2015). Skilled employees can save the organisation money and time by using their experience to anticipate and avoid mistakes (Ogunjimi, 2017). This can be achieved by implementing skill retention strategies to ensure that skills remain within the organisation (Lauby, 2017).

Skill retention is defined by Flesher (2016) as a critical organisational initiative which ensures that the experience and accumulated skills of employees remain within the organisation, should employees decide to leave the business. Baguma et al. (2014) define skill retention as the implementation of processes that maintains, and not loses, knowledge that is vital to organisational success. Organisations invest a great deal of time and money in their employees and by implementing effective skill retention strategies, organisations can prevent a loss in their investment (Frenz, 2017). From the literature it becomes clear that skill retention can play an important role in promoting sustainability within the organisation.

RESEARCH DESIGN

The research design includes the research approach, research strategy and research method, which are all discussed below.

Research approach

A qualitative research approach was used to explore and describe the perceptions concerning knowledge transfer and skill retention of baby boomers. Qualitative research methods can be

used to explain the experience, perceptions, and meaning participants hold concerning a certain phenomenon (Hammarberg et al., 2016). In addition to this, Aspers and Corte (2019) state that qualitative research is a method by means of which to interpret a phenomenon in terms of the meaning people attach to it. The researcher was able to gain insight into how mining organisations in South Africa perceive knowledge transfer and skill retention of baby boomers, by following a qualitative research approach.

The social constructivism paradigm was utilised in this research study. According to the social constructivist paradigm, knowledge and understanding of a subject is created by the interactions of individuals within a society (Andrews, 2012). Bozkurt (2017) explains that the social constructivism paradigm is a process of mental construction by means of which individuals continuously add new information to the understanding of a subject. Furthermore, Galbin (2014) contends that diversity in people, such as language, culture, education etc. also contributes to the continuous creation and understanding of reality. Applying this paradigm was thus appropriate for this study as it explored how knowledge transfer and skills are perceived and experienced in organisations, based on the direct experiences of the participants.

Research strategy

A qualitative descriptive research strategy was applied by the researcher. A *qualitative descriptive research strategy* is used to gain insight from participants concerning their first-hand experience of a phenomenon that is poorly understood (Nassaji, 2015). Qualitative descriptive strategies allow the researcher to understand various perspectives and experiences of participants concerning a specific phenomenon (Lambert & Lambert, 2012). This research strategy was therefore appropriate, since the aim of the study was to gain insight into the various perceptions of baby boomers that exist within the South African mining industry concerning the phenomena *knowledge transfer* and *skill retention*.

Research method

In the following section the researcher elaborates on the research setting, entrée and researcher roles. Furthermore, the research participants and sampling, data collection method and recording of data are discussed. Lastly, the researcher discusses the data analysis,

strategies that were employed to ensure data quality and integrity as well as the reporting of findings.

Research setting

During this research study various mining organisations within South Africa were contacted. Participants of the study consisted of managers or employees who fulfilled senior positions within the mining organisation. To collect data, the researcher made use of written online interviews. This type of data collection can also be described as qualitative surveys which were conducted via QuestionPro. This method allowed for flexibility in completing the interview and made the process more convenient for the participants. By applying this method participants were able to answer the interview questions from the location that best suited each one, making the scheduling of a formal time and location for a face-to-face interview unnecessary. The duration of completion of the qualitative survey was approximately thirty minutes.

Entrée and establishing researcher roles

Firstly, the researcher submitted the research proposal to the Economics and Management Sciences Research and Ethics Committee (EMS-REC) of the specific higher education institute. Once the researcher had received permission, he started contacting potential mining organisations to find a spokesperson. The aim was to find a manager or senior in the organisation who had the authority to give consent to conduct the research at his/her organisation. Once the researcher had received permission to conduct the research at the relevant organisations, he sought to identify gatekeepers within the organisation who could assist in gaining access to participants.

Throughout the study, the researcher filled various roles. The first role of the researcher during this study was that of planner. The research study was planned and well-structured. Planning was crucial to the study; from writing the proposal to managing deadlines and planning on how to collect data. Organisations in which the data collection process could take place were identified by the researcher. The researcher also acted the role of data collector when requesting participants to complete the qualitative survey via the QuestionPro platform. In addition to this, the researcher also fulfilled the role of data analyser. Lastly, the researcher

filled the role of report writer for this study. The final report was compiled by the researcher, whereby he provided and explained the results of the study. During all stages of the research process, the researcher made every possible effort to remain objective.

Research participants and sampling

For the purpose of this study the researcher used both purposive sampling and convenience sampling. Convenience sampling is a sampling method by means of which the participants of a research study is selected on the basis of them being easily accessible to the researcher (Etikan, Musa, & Alkassim, 2016). The researcher identified and engaged with organisations in which the participants were easily accessible and willing to participate. Purposive sampling requires the researcher to use his/her judgement to select individuals who fit a certain profile or meet specific criteria and to then include them in the sample (Foley, 2018). To participate in the research study, participants should have met the following criteria: 1) The participant must have been in management or occupy a senior position within a South African mining organisation; 2) In order to successfully complete the qualitative survey on the QuestionPro platform the participant must had to be proficient in English; 3) The participants had to provide informed consent to participate in the research study and to give the researcher permission to use the collected data for research purposes. The participants who met the afore-mentioned requirements and were willing to participate in the study were included in the research study. The sample consisted of ($N=16$) individuals who were actively contributing to the South African labour market. The sample of this research study was governed by data saturation. Data saturation refers to repetition in collected data or the lack of any new information coming from the collected data, signalling to the researcher that data collection may cease so as to avoid redundancy (Faulkner & Trotter, 2017). Data saturation is often used as a criterion in qualitative research to ensure and prove that data is rich in nature (Tay, 2014). The researcher achieved rich data through data saturation. Table 1 below describes the sample population.

Table 1

Characteristics of participants (N=16).

Item	Category	Frequency (f)	Percentage (%)
Age	18-30	4	25%
	31-45	6	38%
	46-60	5	32%
	61-75	1	6 %
Ethnicity	White	14	88%
	Indian	1	6 %
	Coloured	1	6%
Gender	Male	15	94%
	Female	1	6 %
Language	Afrikaans	10	63%
	English	6	37%
Years within current organisation	1-5	7	44%
	6-15	6	38%
	16-25	0	0%
	26-35	2	12%
	36-45	1	6%

The participants were dispersed evenly when considering age groups, with 25% of participants being between ages 18 and 30 years, 38% between the ages 31 and 45 years, 32% between ages 46 and 60 years and 6% of participants fell in the age bracket of 61 to 75 years. The majority of participants were male (94%). Furthermore, when considering ethnicity, the research participants were mainly white (88%), with Indian (6%) and coloured (6%) participants being in the minority. The home languages of participants in this research study were Afrikaans (63%) and English (37%). The majority of participants had less than 20 years of service within their current organisation (44% and 38%).

Data collection method

This study collected data by means of written online interviews using qualitative survey. *Qualitative research surveys* afford researchers the opportunity of structuring their questions in advance and posing fixed questions with the aim of gaining insight into a phenomenon (Clark, 2019). This method enabled the researcher to create his research questionnaire in advance and make it available online for the participants to fill it out at a time convenient to them. The respondents were able to answer the research questions whilst having granted the opportunity of elaborating on their answers, providing the researcher with more insight into how participants perceived knowledge transfer and skill retention of baby boomers within the work context. Qualitative surveys have several advantages, such as a reduction in cost, increased flexibility as participants can complete the survey at a time convenient to them and it eliminates automatic responses from participants and encourages them to reflect on the question.

The interview questions posed in the qualitative questionnaire were as follows:

- Do you perceive knowledge transfer and skill retention to be important within your organisation? Please provide explanations for your answer.
- What is the influence of poor knowledge transfer and skill retention of baby boomers within your organisation? Please provide a detailed answer.
- What strategies are being implemented within your organisation to transfer the knowledge and retain the skills of baby boomers within your organisation? Please provide a detailed answer.
- What recommendations can you make to transfer knowledge and retain skills of baby boomers within your organisation more effectively? Please provide a detailed answer.

The questions above acted as the framework for the interview. However, the participants were afforded the opportunity of elaborating on their answers. This enabled the researcher to fully understand how participants experience and perceive knowledge transfer and skill retention of baby boomers within their organisations. Although the qualitative survey included a biographical information section asking about the age, race, gender, language etc.

of participants, this information was not used to compare groups or make inferences about the data but rather to describe the population group.

Recording of data

By using the QuestionPro platform the researcher was able to create his own questionnaire and send it to participants via their preferred communication method. The researcher chose to use emails for this research study. The answers of participants were captured by the QuestionPro platform and later transferred to a Microsoft Excel spreadsheet by the researcher in order to analyse the data. The gathered data will be stored for a period of five years before being deleted.

The Excel spreadsheet was locked by the interviewer and password protected to ensure the safekeeping of data. The Excel spreadsheet was saved on a computer which is also password protected, ensuring the safekeeping of data. Only the researcher and his supervisor had access to the Excel spreadsheet.

Data analysis

The data of this research study was analysed by using thematic analysis. *Thematic analysis* is a method of identifying and analysing repeated themes from a data set (Nowell et al., 2017). The steps used for thematic analysis were those of Braun and Clarke (2006). The steps were as set out below:

Step 1: Familiarising your data

In order to ensure that the researcher fully understood the content of the data, he first read through the transcripts as a whole and made notes of his initial thoughts and impressions. Thereafter he read through the transcripts individually.

Step 2: Generating initial codes

This step required the researcher to identify interesting occurrences from the transcripts and to label it. A *code* is a brief description of what has been said in the interview. Mortensen

(2020) describes codes as a description of one's data, rather than an interpretation thereof. This section can have multiple codes focusing on various contents (such as opinions, concepts, actions etc.) depending on the type of data that the researcher finds relevant (Mortensen, 2020). Coding was done by highlighting repeating patterns in the data. Different patterns were highlighted with different colours. In addition to this, notes were made in text explaining the highlighted patterns. From this process the researcher was able to identify and label interesting patterns in the data which later formed the basis of the research themes.

Step 3: Searching for themes

After reviewing all the codes that were created in the previous step, the researcher started to group the different codes into potential themes. During this step, the researcher therefore analysed the codes from the previous step and considered how the codes may combine to form overarching themes. Here the researcher also decided that themes are sufficient and did therefore not employ the use of sub-themes.

Step 4: Reviewing themes

During this step, the researcher refined the identified themes and removed some of the initial themes on grounds of unsatisfactory or insufficient supporting data. The researcher ensured that the data to support each theme cohered in a meaningful manner. The researcher also ensured that there were distinct differences between the themes.

Step 5: Defining and naming themes

Each theme was defined by the researcher individually by identifying important content of each theme as well as the aspects covered by the data captured by the themes. The researcher placed high priority on ensuring that he indicated how each theme fitted in with the story that was being displayed by the data.

Step 6: Producing the report

In this final step the researcher conducted an analysis of the themes and data one final time before starting to write the research report. In the report the researcher described each theme

and explained how the themes are connected. The researcher made every possible effort to remain neutral while interpreting the results.

Strategies employed to ensure data quality and integrity

When conducting research, it is important to ensure that the data is of high quality and is trustworthy (Moreno, 2017). The researcher followed the steps provided by Lincoln and Guba (1985) to ensure data reliability and quality. These steps are discussed below.

Transferability

Lewis and Ritchie (2003) state that transferability of data is achieved when the findings of the research study can be applied to various different contexts and still remain relevant. In order to achieve transferability, the researcher obtained the original responses of the participants and also elaborated extensively on the research setting and data in an attempt to assist the reader to gain a holistic and realistic understanding of the research study. By doing so, the researcher hoped that the reader will find the study relatable to his/her own experience of the phenomenon.

Dependability

Dependability refers to the reliability of the findings. Dependability is achieved if the research produces the same or similar results when conducted in similar settings using the same research methods (Schurink et al., 2011). The researcher thoroughly documented the entire research process in an attempt to ensure that other researchers can replicate the study, thus achieving dependability of the findings. In addition to this, the researcher made use of a co-coder and focused immensely on the coding and recoding of the data as this can increase the likelihood of achieving dependable results, as stated by Elliot (2018).

Confirmability

Confirmability is focused on ensuring that the researcher remains objective throughout the study and that the research results are not contrived (Kawulich & Holland, 2012). To ensure confirmability the researcher kept record of all events that occurred during the research

process. The researcher also ensured that findings reflected the experiences and perceptions of the participants and not those of the researcher. The researcher remained neutral throughout the study in order to achieve confirmability.

Credibility

Credibility refers to the validity of the research findings, meaning that the study measured exactly what it aimed to measure (Tracy 2013). Furthermore, credibility of findings implies that the results are credible and trustworthy (Lietz & Zayas, 2010). The researcher emphasised that participation in the research study was voluntary and as such ensured that those who did participate in the study were motivated to participate; thus making it easier to obtain truthful responses and results. The researcher had emphasised the importance of honesty in responses to participants. The researcher's supervisor also assisted him with feedback and structure in order to ensure a high-quality research study.

Reporting

The researcher made use of a qualitative reporting style and ensured that sufficient evidence was provided to support the findings. The responses from participants were divided into different relevant themes. The researcher used themes, sub themes and quotes to support his findings. The researcher also provided a conclusion section to discuss the extent to which the research objectives were met.

Ethical considerations

Only after approval of the research had been obtained from the Economic and Management Sciences Research Ethics Committee (EMS-REC), the researcher started with the research study. The researcher ensured that he had received informed consent from the South African mining organisations prior to commencing with the study. The researcher highlighted that no personal information or information pertaining to the organisation will be made known and that all data will remain confidential. Participants of the study received an <http://link> which directed them to the qualitative survey via email. It was made clear by the researcher that participation in this research study takes place on a voluntary basis. If participants wished to participate in the study they could click on the <http://link> provided to them and it directed

them to the qualitative survey on the QuestionPro platform. Once participants were on the QuestionPro platform they were informed that participation is on a voluntary basis and that are able to withdraw at any time. Lastly, the researcher made it clear to participants that, should they request feedback, the researcher or his supervisor will email a summarised report to the respondents after the research report has been examined.

FINDINGS

The findings of this research study are reported in table format. A combination of categories, themes and quotations were used to support the findings of this study. Four categories were identified from the collected data, namely: Importance of knowledge transfer and skills retention of baby boomers within the organisation; Influence of poor knowledge transfer and skills retention on the organisation; Strategies implemented in organisations to transfer knowledge and retain skills; and Recommendations to effectively transfer knowledge and retain skills in organisations

Category 1: Importance of knowledge transfer and skills retention of baby boomers within the organisation

Managers in mining organisations were asked whether they deem knowledge transfer and skill retention of baby boomers to be important in the mining industry, and to also explain why they regard it as being important or not important. All participants had indicated the importance of knowledge transfer and skills retention by referring to the impact it can have on the organisation itself.

Table 2

Importance of knowledge transfer and skills retention of baby boomers within the organisation

Theme	Response / quote
Competitive advantage	<i>“Yes, mining industry is competitive by nature. Knowledge is our key asset. Retention of this is key to maintain market dominance.” (Participant 1).</i> <i>“...organisations are becoming increasingly dependent on the tacit knowledge contained within the organisation to ensure its competitiveness. It is crucial for a company to ensure that the tacit knowledge is kept within the company.” (Participant 13).</i>
Ensure sustainability and growth of company	<i>“Yes, as it has a direct impact on the sustainability of the organisation.” (Participant 11).</i> <i>“Yes, many people learn on the job and as such, the skills that are transferred will assist the organisation to survive and grow.” (Participant 16)</i>
Retain valuable skills and knowledge within the company	<i>“...Employees being forced to retire, also poses the risk of losing skill and knowledge within an organisation. In most situations, retirees are still in the position to carry on with their jobs but due to their age are forced to retire. In the mining industry this is often the case and valuable skill and knowledge is lost.” (Participant 8).</i> <i>“Yes, knowledge transfer and skill retention is important to ensure that the company does not lose any corporate memory once baby boomers leave the organisation.” (Participant 10).</i>
Transfer of knowledge to younger generation	<i>“Skill transfer is crucial, as it provides the foundation for young and new learners in any field in terms of practical and theoretical knowledge” (Participant 3).</i> <i>“...The knowledge and practical experience gained in the industry, together with the academic qualifications cannot be taken away from a person, but can be transferred to the next generation by means of training and communication...” (Participant 8).</i>

All the participants of this study emphasised the importance of knowledge transfer and skill retention, especially within the mining industry. The mining managers mentioned the following reasons for the importance of knowledge transfer and skills retention:

Competitive advantage: The results of the study indicated that knowledge transfer and skills retention is important as it adds value to an organisation and as such the organisation is able to gain an advantage over their competitors.

Ensure sustainability and growth of company: Participants mentioned that the retention of knowledge and skills in the organisation can add stability to the overall operations of the organisation; thus making it easier to promote sustainability. By achieving sustainability, it will be easier for organisations to implement growth initiatives.

Retain valuable skills and knowledge within the company: From the data it is clear that the mining industry is a knowledge- driven industry. As such organisations should prioritise the retention of knowledge and skills to stay relevant. Participants stated that knowledge transfer and skill retention is a great strategy to keep valuable knowledge and skills within the organisation.

Transfer of knowledge to younger generation: Participants were of the opinion that although younger employees have good academic qualifications, they lack industry knowledge and skills. Knowledge transfer and skill retention initiatives is a good opportunity for younger employees to attain this specialised industry knowledge and skills.

Category 2: Influence of poor knowledge transfer and skills retention on the organisation

Managers in the mining industry were asked about the influence of poor knowledge transfer and skill retention in their organisations. All participants of the study mentioned the influences they have observed within their organisation, and explained how poor knowledge transfer and skill retention strategies have negative impacts on the organisation.

Table 3

Influence of poor knowledge transfer and skills retention on the organisation

Theme	Response / quote
High turnover	<i>"Frustration - High employee turnover. People feel that they are not empowered so they leave" (Participant 2).</i> <i>"... newer employees do not last long in the positions due to not being able to handle the pressure of production and challenges faced within the industry and organisation..." (Participant 8).</i>
Incompetent employees	<i>A knowledge gap within the generation, will leave us with an era of incompetent employees. This era will have a ripple effect on the next generation and create a "snowball effect". (Participant 1).</i> <i>"Not much knowledge is shared which often leaves new employees in the dark and poor habits are adopted." (Participant 15).</i> <i>Knowledge gaps, the need to outsource specialist skills, waste of time and effort to get specialists up to speed before they add value..." (Participant 7).</i> <i>Senior managers lack the knowhow and willingness to make decisions" (Participant 5).</i>
Increased cost	<i>"Poor knowledge transfer and skill retention could lead to extremely high training related costs, which could be avoided if baby boomers transferred their knowledge to their juniors..." (Participant 10).</i> <i>"...Taking into account the value of the knowledge and skills developed by Baby Boomers in terms of the business operations and its core processes, should this knowledge not be transferred it would leave the organisation with a disadvantage. There will be a major knowledge and skills gap, which will not be easy to rebuild and expensive to acquire." (Participant 13).</i>
Loss of valuable knowledge and skills	<i>"It places the company at risk and valuable knowledge, experience and skill is lost if skills are not retained and knowledge is not transferred onto the new generation..." (Participant 8).</i> <i>"Many of the older managers have come through the ranks and therefore have a solid knowledge base. If this knowledge is not transferred many years of experience is lost. If the knowledge and skills remain with the baby boomers it will be lost when they retire or move on." (Participant 16).</i>
Negative impact on succession	<i>"Without the knowledge transfer the work might not be done</i>

planning

correctly. And the people working for you need to be set up to take over from you after you leave.” (Participant 9).

“Keeping knowledge and experience to yourself results in poor succession planning and future on the company” (Participant 14).

All the participants mentioned that poor knowledge transfer and skill retention has negative influences for the organisation. The following reasons were provided for the influence being negative in nature:

High turnover: Participants mentioned that poor knowledge transfer and skill retention strategies has a direct impact on employee retention and most often leads to an increase in turnover. If knowledge is not properly transferred and skills are poorly retained in an organisation, successors may never gain crucial knowledge held by departing employees, and as a result may struggle to fulfil their job role. Florentine (2019) argues that this misalignment or lack of adequate knowledge is one of the main drivers of employee turnover, leading to increased costs for the organisation and additional loss of knowledge.

Incompetent employees: According to the research results, poor knowledge transfer and skill retention lead to the organisation creating a talent pool of incompetent employees. This incompetence occurs due to the fact that employees lack years of experience which cannot be self-taught. Participants further mentioned that when organisations have poor knowledge transfer and skill retention strategies in place, knowledge- and skill gaps exist in not only management and senior positions but also in the learning and development of younger employees. This has a knock-on effect causing the creation of an incompetent workforce.

Increase in cost: According to participants of this research study, poor knowledge transfer and skill retention strategies lead to an increase in costs for organisations. These costs can be direct, such as outsourcing certain tasks to external consults or continuously investing in training, or these costs can be indirect, such as loss in productivity/ production time leading to loss in profits.

Loss of valuable knowledge and skills: The research results indicate that poor knowledge transfer and skill retention strategies can cause a loss of valuable knowledge in skills in the

organisation. This loss of valuable knowledge and skills can have an impact on organisational efficiency (Postolache, 2019); thus having an impact on the organisations' bottom-line.

Negative impact on succession planning: Participants were of the opinion that poor knowledge transfer and skill retention strategies can cause successors of a role to be incompetent as they do not possess the necessary skills and knowledge. This can harm the future success of the organisation.

Category 3: Strategies currently in place in organisations to transfer knowledge and retain skills.

Participants of this research study were asked about the knowledge transfer and skills retention strategies implemented by their organisations. Various strategies were identified from the different organisations. However, some organisations reported to have no strategies in place. The results are provided in the table below.

Table 4

Strategies currently in place in participants' organisations to transfer knowledge and retain skills.

Theme	Response / quote
Mentoring and coaching	<i>"Our organisation have created one position where an old knowledgeable manager is used only for coaching and skills transfer. That on its own can never be enough" (Participant 6).</i> <i>"Coaching and mentorship programmes, technical-skills training, and check-in's" (Participant 10).</i>
On-the-job training	<i>"Yes on-the-job training and mentorship..." (Participant 12).</i> <i>"On-the-job training and mentorship." (Participant 2).</i>
Personal development plans	<i>"Detailed CDP's are been done on each individual working for me. In this it is a process to discuss with them their aspirations in the future and how the company can assist them on getting there" (Participant 9).</i> <i>"I am not sure of any direct strategies, but the organisation promotes and enforces knowledge sharing forums and CoPs." (Participant 13).</i>

Sharing of knowledge	<i>"I am not sure of any direct strategies, but the organisation promotes and enforces knowledge sharing forums..." (Participant 13).</i> <i>"... mentorship as well as sharing experience" (Participant 12).</i>
Technical-skill training	<i>"At this stage we do not have any formal knowledge transfer program in place other than mentorship programs and skills training." (Participant 11).</i> <i>"We currently have excellent training facilities and courses. One of which is called an "EIT" (Engineers in Training) programme. It is to encourage a continuous pipeline of competent engineers for the future. Within this programme, the student will be extensively coached by expert mentors and receive technical training..."(Participant 1).</i>
Working in teams	<i>"Creating situations where the workforce is made up of teams of experienced employees and novices working together which forces them to relay skills and knowledge. (Participant 8).</i> <i>"... Flattening of structures to all allow for open conversations and engagement for transfer of knowledge in a team environment." (Participant 7).</i>
None	<i>"Not much to be honest. We learn and develop skills by the cliché saying - 'sink or swim'" (Participant 14).</i> <i>"None unfortunately" (Participant 5).</i>

Mentoring and coaching: Managers in the mining industry that participated in this study mentioned that their organisations make use of mentoring and coaching initiatives to transfer knowledge and retain skills. Mentoring and coaching refers to the process by means of which an experienced employee shares their knowledge and experiences with younger or less experienced employees to empower them in their careers (Emma, 2019).

On-the-job training: Participants in the research study mentioned that their organisations utilise on-the-job training methods to transfer knowledge and retain skills. Wormley (2019) maintains that on-the-job training is an effective method of training employees and maintaining productivity.

Personal development plans: Personal development plans were mentioned as a knowledge transfer and skill retention strategy for some participants in the research study. Employees are

expected by their organisations to share their knowledge with others as part of their own development.

Sharing of knowledge: Informal sharing of knowledge is also used by organisations where employees learn from one another, in an unstructured manner.

Technical-skills training: Organisations in the mining industry also provide employees with technical-skills training where the knowledge and skills of experienced employees are transferred to younger and less experienced employees.

Working in teams: Another knowledge transfer and skill retention strategy employed by mining organisations is teamwork. By pairing novice employees with experienced employees in work teams, a learning situation is created in which less experienced employees can attain first-hand knowledge and experience from more experienced employees.

None: A small portion of the research participants had reported that there is no knowledge transfer or skill retention strategy in their organisation.

Category 4: Recommendations to effectively transfer knowledge and retain skills

Participants of the research study were asked what recommendations they can make to effectively transfer the knowledge and retain the skills of baby boomers within their organisations.

Table 5

Recommendations to effectively transfer knowledge and retain skills

Theme	Response / quote
Formal knowledge transfer document	<i>"...Provide manuals and documentations from previous experience." (Participant 15).</i> <i>"Identify critical skills in a register with an index of criticality, ease of replacement and ensure actions plans are in place to ensure succession planning. Enforce discipline for information and data filing. Ensure that there is a dynamic knowledge transfer document for the role with reference to critical information." (Participant 7).</i>
On-the-job training	<i>"Although most organisations retain knowledge in the form of documents, such as training materials, they should rather focus on skills development and on-hand education. All departments within the organisation should be enforced to institute training where skills development is the main focus in order to achieve their objectives. Management and role players should always become involved and support the knowledge-retention initiatives within the organisation..." (Participant 8).</i> <i>"Provide workshops and discussions, training for on the job specific areas..." (Participant 15).</i>
Structured mentorship program	<i>"My personal opinion would be to have a mentor with more precise responsibilities towards the learners. This mentor will be responsible for creating realistic expectations. Also, to have a personal relationship with the learners to manage these expectations..." (Participant 1).</i> <i>"To identify the baby boomers in the organisation and enrol them into a formal program which is aimed at sharing and transferring their knowledge and skills." (Participant 11).</i>
Structured mentorship programme should form part of performance appraisal	<i>"...In the more technical fields, knowledge and skill sharing should be a measured deliverable in performance contracts ..." (Participant 13).</i> <i>"Make mentorship part of the annual balance score cards witch influence remuneration increases and bonuses." (Participant 12).</i>

The following strategies were recommended by managers in order to effectively transfer the knowledge and retain the skills of baby boomers within the organisation:

Formal knowledge transfer document: Participants suggested that organisations should take a structured approach towards transferring knowledge and retaining skills of baby boomers by creating documents where baby boomers document their knowledge in a central location. These documents will then be made accessible to other employees.

On-the-job training: On-the-job training was suggested by participants as they were of the opinion that first-hand experience is more valuable than documents and formal training.

Structured mentorship program: Managers in the mining industry recommended that organisations implement a structured mentoring program where baby boomers are expected to share their knowledge in a formal process.

Structured Mentorship programme should form part of performance appraisal: Knowledge transfer and skills retention should be promoted by creating a structured mentorship program and linking it to extrinsic rewards (such as bonuses and increase in remuneration). By linking mentorship programs to performance appraisals employees are held accountable for the mentoring process and forced to be intentional with their participation in the mentoring process.

DISCUSSION

Outline of the finding

The *first* objective of this research study was to conceptualise baby boomers', knowledge transfer and skills retention according to literature. The term *baby boomer* is used to describe the generation post world war 2 (Sinclair, 2018). Individuals who were born between the years 1946 and 1964 are classified as baby boomers (Barnier, 2020). Kane (2019) describes baby boomers as being goal-oriented, work-centric and competitive by nature, making them valuable employees for organisations.

Cook (2018) describes *knowledge transfer* as being a process by means of which important organisational knowledge is passed on from one person (the incumbent) to another person

(the successor), to preserve that valuable knowledge within the organisation. Knowledge transfer is used in organisations to share valuable information across different business units in order to achieve the sustainability of the business and increase the efficiency of the organisation (Brown, 2019). Guidero (2017) defines *skill retention* as a process by means of which employees transfer crucial skills to other employees with the aim of retaining valuable skills in the organisation. Effective skill retention strategies enable the organisation to adapt easily to change and remain competitive in their business environment (Rogers, 2020).

The *second objective* of this study was to determine the perceptions South African mining organisations hold concerning knowledge transfer and skills retention of baby boomers. All managers in the mining industry who had participated in this research study were of the opinion that the knowledge transfer and skill retention of baby boomers is important for gaining competitive advantage, ensuring sustainability and growth of the company, retaining valuable skills and knowledge within the company, and transferring knowledge to younger generations.

As mentioned above, transferring the knowledge and retaining the skills of baby boomers can provide organisations with a competitive advantage over their competitors. This competitive advantage stems from the organisation's ability to reuse problem solving approaches, make faster decisions and use existing knowledge and improve on it which in effect stimulates innovation (Postolache, 2017). Managers also pointed out that transferring knowledge and retaining skills of baby boomers is important, as it can assist with the growth and sustainability of the organisation. Sustainability refers to making decisions and taking action in the organisation with the long-term in mind (Barry, 2018). Spiliakos (2018) states that sustainability not only assists organisations in their growth efforts but can also drive the success of the organisation.

Another theme that stood out from the research results is that effective knowledge transfer and skill retention strategies are crucial in transferring knowledge to younger generations. Knowledge transfer has been found to increase the ability of individuals to create knowledge and generate ideas (Brčić & Mihelič, 2018). The ability of employees to create knowledge and generate ideas is necessary for business improvement (Kylliäinen, 2019). By having younger generations acquire the relevant industry knowledge and building on that knowledge,

the organisation creates a talent pool of future employees who will be able to generate ideas and improve business outcomes.

From the research results it is clear that transferring knowledge and retaining skills of baby boomers can provide mining organisations with many benefits. It is important to note that these benefits do not only have a positive effect on the organisation's current bottom-line (such as competitive advantage), but also have a positive effect on the organisation's future outputs and growth (such as the benefit of sustainability and growth of the organisation and transferring knowledge to younger employees).

The *third objective* of this research study was to determine the influence of poor knowledge transfer and skill retention of baby boomers on South African mining organisations. All participants indicated that poor knowledge transfer and skill retention strategies influence the organisation negatively as it leads to high employee turnover; incompetent employees; increases in costs; loss of valuable knowledge and skills; and it can have a negative impact on succession planning of the organisation. As mentioned, poor knowledge transfer and skill retention leads to incompetent employees and managers. An *incompetent employee* is defined as an employee who does not possess the required skillset for a specific job (Wang, 2019). Amo (2019) aptly points out that employees who do not possess adequate knowledge will struggle to contribute to the organisation. This inability to contribute is expanded on by Massingham (2018) who states that a loss in knowledge leads to lower productivity levels as employees struggle to complete tasks and that it can also lead to customer mistrust since incompetent employees struggle to meet deadlines. These negative effects resulting from knowledge loss can therefore be seen as directly impacting the organisational outputs and bottom-line.

The costs identified by participants of this research study were associated with direct costs of training, costs associated with employees being off the job to attend training and also costs of outsourcing jobs to external consultants. These observations from participants are supported by Alexander (2017) who contends that it takes organisations eight to twelve weeks to replace lost knowledge from departing employees, resulting in decreased productivity and increased costs to the organisation.

Participating mining managers were of the opinion that a lack of effective knowledge transfer and skill retention strategies leads to the organisation experiencing knowledge and skill gaps. *Knowledge gaps* are defined as a difference between the knowledge an employee is required to have for the job and the knowledge they actually possess (Isakow, 2019). Andriotis (2018) defines a *skills gap* as a deficiency in an employee's performance due to the lack of the necessary skills. Robinson (2018) highlighted that when employees depart from organisations and their knowledge and skills are not sufficiently transferred, the organisation creates knowledge gaps. These knowledge gaps not only impact the organisation's performance negatively but also increase organisational costs (Robinson, 2018).

The influence of poor knowledge and skills transfer strategies, as identified by South African mining managers, is in line with what literature has found. It is clear from the information above that a lack of knowledge transfer and skill retention strategies will lead to negative impacts on the organisation.

The *fourth objective* of the research study was to identify the strategies that are being utilised by South African mining organisations to ensure effective knowledge transfer and skills retention of baby boomers. Participants mentioned that their organisations make use of mentoring and coaching programs, on-the-job training, personal development plans, sharing of knowledge, technical training, working in teams, and some participants reported that no strategies are being implemented in their organisation.

The majority of participants reported that their organisation makes use of mentoring and coaching programs to transfer knowledge and retain skills of baby boomers. This strategy is also prevalent throughout the literature and can be seen as one of the most popular strategies for transferring knowledge and retaining skills of baby boomers. The reason mentoring and coaching strategies are so effective in transferring knowledge and retaining skills of baby boomers is that it appeals to the pride they take in their work and careers (Thielfoldt, 2014). Thielfoldt (2014) further explains that baby boomers feel appreciated when placed in coaching or mentoring roles as they feel that others recognise their commitment to the organisation.

Participants also stated that their organisations make use of teamwork to transfer knowledge. These teams comprise younger employees and more experienced employees, creating an

opportunity for inexperienced employees to gain first-hand knowledge. Hajric (2019) highlights that the act of collaborating in teams is an effective way for inexperienced employees to acquire important knowledge and skills. Fox (2018) mentions that by working in such multi-generational teams, less experienced employees not only acquire practical knowledge and skills, but they are simultaneously enabled to bridge the generational gaps in the organisation.

Another strategy participating mining managers implement in the organisations is providing employees with technical-skills training. During these technical training sessions, older and more experienced employees will either lead the session or provide insights during the session to assist younger and inexperienced employees in attaining the required knowledge. By having experienced employees facilitate training events or workshops, the organisation enables their employees to implement the business strategy more effectively (Magalhães, 2015).

The findings from the fourth objective suggest that mining organisations in South Africa are aware of the importance of knowledge transfer and skills retention of baby boomers due to the fact that the majority of participants indicated that their organisation has strategies in place to transfer knowledge and retain skills within the organisation. According to the literature, the participating organisations who do not have such strategies in place will in future likely be negatively impacted.

The *fifth objective* of this study was to establish what recommendations can be made by South African mining organisations to effectively transfer knowledge and retain skills of baby boomers. Participants recommended that their organisations make use of formal knowledge transfer documents, on-the-job training, structured mentorship programs as well as structured mentorship programmes which form part of the performance appraisals of employees.

As mentioned above, participants suggested that a formal knowledge transfer document should be put in place. Although formal knowledge transfer documents are a viable strategy, for it to be an effective strategy, organisations should ensure that they communicate to employees that such documents exist within the organisation and also that it is easily accessible to employees (Magalhães, 2015). Hanrahan (2018) supports the idea that

knowledge transfer documents should exist in organisations if they wish to transfer knowledge and retain skills within the business effectively. Knowledge and skills cannot be transferred if it only exists in someone's head, it should be documented and accessible to other employees (Hanrahan, 2018). By making use of formal knowledge transfer documents employees can save time by easily accessing information which they require for specific tasks, increasing the organisation's productivity.

On-the-job training was also strongly suggested by participants in this research study. On-the-job training allows employees to see the typical environment in which they have to apply specific knowledge and skills (Spacey, 2018). For on-the-job training to be effective, certain criteria need to be established, such as what should be learned, the methods that will be used to transfer the relevant skills and knowledge as well as the amount of time to be spent on training employees (Spacey, 2018). By having on-the-job training strategies available to employees, they are actively learning new skills and acquiring new knowledge without much time being taken away from their working hours. It is for this reason that on-the-job training can be an effective strategy for organisations seeking to transfer knowledge and retain skills, but still not decrease employees' productivity.

Participants also suggested making use of a structured mentorship programme. A structured mentoring program is a program that follows a certain framework to increase effectiveness of the mentoring process (Padhi, 2019). Hanrahan (2018) states that in order for mentoring initiatives to be successful, it should be structured and hold both the mentor and mentee accountable. More than 70% of the participants who have reported that their organisation makes use of mentoring and coaching recommended a structured mentoring program. This indicates that informal mentoring and coaching strategies are not as effective and as easily managed. These results suggest that organisations should move away from traditional informal mentoring strategies and rather implement structured mentoring programs.

Some participants reported that their organisations have no knowledge transfer strategies in place, even though it has been identified in the second objective as being important. A lack of knowledge transfer and skills retention strategies can lead to organisational brain drain (Young, 2020). Cagle (2019) defines *brain drain* as the loss of vital skills and knowledge within organisations. Organisational brain drain can have negative effects on the organisation's culture, morale and productivity (Young, 2020).

The *sixth objective* of this study was to make recommendations for future research and practice. This objective will be discussed under the heading ‘Limitations and recommendations’.

Practical implications

This research study holds the potential of increasing awareness among South African mining organisations with regard to the importance of knowledge transfer and skills retention of baby boomers. It can highlight, to mining organisations in South Africa, how managers are currently perceiving and experiencing knowledge transfer and skills retention in the organisation. This can enable organisations to adjust their strategies to ensure they accommodate and assist these managers and retain as much knowledge as possible within the organisation so as to increase efficiency of day-to-day operations. By participating in this research study participants were afforded the opportunity of reflecting on the current knowledge transfer and skills retention strategies implemented in their organisations and the effectiveness or non-effectiveness of those strategies. Adjusting the current strategies implemented by these mining organisations can potentially lead to increased skills retention and a decrease in knowledge loss, benefiting the organisation in the long term. If organisations are able to retain knowledge and skills within the business it can lead to a decrease in training costs and an increase in time spent on the job, leading to increased productivity. These effects will impact the bottom-line of the organisation and assist with the overall sustainability of the business. This study could also assist managers in the South African mining industry in realising the importance and urgency of transferring knowledge and retaining skills of baby boomers within their organisations.

Limitations and recommendations

Although this research study has provided some valuable insights, certain limitations did exist and should therefore be taken into consideration. The first limitation can be found in the sample size of the research study. The research study consisted only of the views of 16 managers ($N=16$) in the mining Industry of South Africa. Although they provided valuable insights, it is still too small a sample size to generalise their views to the larger South African context. Secondly, the qualitative survey was only presented to participants in English. Although participants were proficient in English, they may have been more comfortable to

answer the qualitative survey in their home language. Another limitation of this research study was that although qualitative surveys increased the accessibility of participants, it disallowed the researcher to probe further on certain responses. The participants also made use of abbreviations and organisation-specific terminology which were at times unfamiliar to the researcher, and he could not ask for clarity as he would in a traditional interview. Lastly, the data were collected during the time of a global pandemic and organisations were restructuring in order to survive. This could have made participants weary to answer questions truthfully as they were concerned about their future in the organisation.

For future research it is recommended to increase the sample size so as to gather more information concerning the knowledge transfer and skills retention of baby boomers in South African mining industries. It is also recommended that future research grants participants the opportunity of answering the questionnaire in their home language, Researchers should therefore create multiple translated versions of the questionnaire to provide this option to future participants. This will enable them to better express themselves and lead to the collection of richer data. Furthermore, it is also advisable to make use of traditional face-to-face interviews to be able to apply probing techniques and collect more data. Interviews will also allow future researchers to analyse non-verbal cues as well as to ask for more information, should participants use unfamiliar terminology and/or abbreviations.

Recommendations can also be made for practice. Organisations can use the findings of this research study to not only understand the importance of knowledge transfer and skills retention of baby boomers in their organisations but also to identify the typical strategies that will allow successful knowledge transfer and skills retention. Managers should communicate the importance of knowledge transfer and skills retention of baby boomers throughout the organisation and make an active effort to implement the suggested strategies of this research study to ensure that their organisations do not lose valuable knowledge. Organisations should invite managers in their organisation to be open about the challenges they are faced with when attempting to transfer knowledge and retain skills of baby boomers. In addition to this, organisations should implement policies or processes that address knowledge transfer and skill retention where they can regularly track the progress and outputs of these strategies (in the form of weekly, monthly, or quarterly reports). This transparency of the process not only increases the effectiveness of the organisation's knowledge transfer and skills retention strategies but also allows the organisation to intervene before it is too late when obstacles or

problems with these strategies arise. This will grant the organisation the opportunity of adjusting their strategies to be more successful, increase their productivity and as a result increase profitability.

Conclusion

In conclusion, the results of this research study indicated that participants are aware of the importance of knowledge transfer and skills retention of baby boomers. The results however also indicate that there are still some organisations who do not have strategies in place for transferring knowledge and retaining skills of baby boomers, despite them understanding the importance thereof. The majority of participants recommended strategies than different from those already implemented by their organisations, indicating that the current strategies of their organisations are ineffective.

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CHAPTER 3

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

This chapter elaborates on the findings of the research study as discussed in chapter 2. The conclusion addresses the specific and general objectives of the research study. Furthermore, this chapter discusses the limitations of the research study and makes recommendations for future research and practice.

3.1 Conclusion

To conceptualise baby boomers, knowledge transfer, and skill retention according to the literature

The term *baby boomer* is used to identify a specific generation. Baby Boomers are individuals born in the year-bracket 1946 to 1964 (Fry, 2020). Baby boomers are regarded as the hardest working generation and most committed to their jobs (Tama, 2017). Ghawi (2018) further characterises baby boomers as being competitive, hardworking and loyal employees. According to Schwabel (2017) individuals from this cohort are identified by their employers as loyal and as possessing strong leadership abilities. Building their careers and being seen as an expert by their colleagues is important to these baby boomers (Ghawi, 2018).

Knowledge can be defined as having acquired information and skills on a certain subject through experience and/or education (Bolisani & Bratianu, 2018). Joseph (2019) points out that knowledge contributes to the organisation's success in various ways and that the absence of critical knowledge can be detrimental to the organisation. Due to the importance of knowledge it is vital to identify ways in which organisations can retain knowledge. Kandadi (2018) states that applying knowledge transfer strategies is the most effective manner in which organisations can ensure they retain knowledge in their organisations. *Knowledge transfer* can be defined as the process by means of which different business units exchange and receive knowledge (McCarthy et al., 2019). Milagres and Burcharth (2019) explained that knowledge transfer can be seen as a complex process implemented in organisations where employees purposefully learn from one another with the aim of retaining valuable organisational knowledge.

Skills are defined as abilities one has to do something well or to achieve a certain task by using inherent personality traits or using the experience one has gained in that field or similar fields (Richmond, 2020). An organisation's success is not determined by the number of intelligent employees it employs but rather by the value of the skills that employees possess (Beqiri, 2017). Anderson (2020) defines *skill retention* as a process implemented by organisations to ensure that critical skills remain within the organisation to maintain productivity, regulate organisational costs and protect the organisation's brand. With a view to ensure organisations remain competitive in their markets they can implement skill retention strategies to retain valuable skills accumulated throughout the years (Mngomezulu et al., 2015). Skill retention refers to strategies that organisations can implement to ensure that the experience and skills of their current workforce do not leave the organisation (Mukerjee, 2020).

From the literature it becomes evident that baby boomers are valuable employees and as such, the transfer of their knowledge and retention of their skills can positively impact the organisation. The responsibility lies on organisations to implement effective knowledge transfer and skills retention strategies so as to ensure organisational prosperity.

To explore the perception among South African mining organisations regarding knowledge transfer and skill retention of baby boomers

The findings of this research study indicate that all participants shared similar views regarding knowledge transfer and skill retention of baby boomers in their organisation. This is supported by the fact that 100% of research participants indicated that knowledge transfer and skill retention of baby boomers are extremely important. Although participants were in agreement regarding the importance of knowledge transfer and skill retention of baby boomers in their organisations, their motivations differed. The various reasons why knowledge transfer and skill retention of baby boomers are important to participants were: To gain competitive advantage, ensure sustainability and growth of the company, retain valuable skills and knowledge within the company, and transfer knowledge to younger generations.

As mentioned above, retaining the skills and knowledge provides the organisation with a competitive advantage. Mankin (2017) maintains that knowledge transfer strategies can provide competitive advantage for organisations by breaking down silo's that exist in the

organisation. Bentens (2019) adds to the above by stating that retaining skills is crucial for organisations to maintain competitive advantage in the twenty-first century workplace.

Participants were of the opinion that knowledge transfer and skills retention of baby boomers is important as it can contribute to the sustainability and growth of the organisation. Knowledge transfer is crucial to the sustainability of organisations as it allows employees to reiterate previous knowledge and be innovative when dealing with knowledge within the organisation; thus making the organisation more relevant in their current context (Alzubi, 2018). Flesher (2016) states and adds to the above that skill retention strategies are a critical resource in organisations to ensure the growth and sustainability of the business as it enables employees to apply themselves to present and future challenges by leveraging skills acquired in the past.

Transferring knowledge to younger and inexperienced employees is essential and the main objective of knowledge transfer and skill retention strategies. Kothapalli and Thiruchanuru (2018) argue that baby boomers are not retiring, since they wish to assist the younger employees in the workplace in gaining experience and knowledge. Burmeister et al. (2020), contend that younger employees feel empowered and more committed to the organisation when knowledge is transferred to them. It is thus important for organisations to transfer knowledge and skills to younger employees as this will contribute to the organisation's future success.

The perceptions mining managers have regarding the knowledge transfer and skill retention of baby boomers within their organisations indicates that they are aware of the importance of retaining the knowledge and skills of baby boomers within the organisation.

To explore the influence of poor knowledge transfer and skill retention on South African mining organisations

All participants of this research study were of the opinion that poor knowledge transfer and skill retention strategies have a negative effect on organisations. This is in line with literature, as Schmitt et al. (2020) indicate that poor knowledge transfer in organisations leads to the deterioration of employee productivity, and quality of organisational outputs. Fournier (2020) states that by not retaining skills effectively, organisations will not be able to fulfil customer

needs, leading to short- and long-term damages for the organisation. The negative effects of poor knowledge transfer and skill retention strategies identified by participants of this research study were: high employee turnover; incompetent employees; increases in costs; knowledge and skills gaps; loss of valuable knowledge and skills; managerial incompetence and negative impact on succession planning of the organisation.

As mentioned in the previous paragraph, poor knowledge transfer and skill retention leads to incompetent employees and managers. Incompetent employees can be a result of a lack of experience and knowledge (DaSilva, 2018). Incompetent employees have a ripple effect on the business as they do not contribute to their team, department and organisation, causing a loss in productivity for the organisation (Tranter, 2018). Participants of the study were of the opinion that poor knowledge transfer and skills retention leads to an increase in organisational costs. The costs identified by participants were both the cost of constantly retraining employees as well and the cost of outsourcing work to external consultants. By having in place effective knowledge transfer and skill retention strategies, organisations do not only save on the cost of training employees but also on the time spent by employees rectifying poor-quality work and struggling to solve problems while they actually should have been busy on the job (Massingham et al., 2018). The views of participants in this research study is validated by Mueller (2020) who mentions that it takes eight to twelve weeks to replace a knowledgeable worker and then a month more before this replacement reaches a productive working level. This time lost is a loss in productivity and consequently, a loss in profitability.

Participants indicated that poor knowledge transfer and skill retention strategies can result in knowledge and skill gaps within the organisation. Organisations are faced with a paradox where they face knowledge and skill gaps due to poor knowledge transfer and skill retention strategies (Gillespie & Fuchs, 2012) and the solution to eliminating knowledge and skill gaps is by applying effective knowledge transfer and skill retention strategies (Dale, 2017). Day (2019) maintains that, knowledge and skill gaps impact various aspects of the business, making it increasingly difficult to keep employees engaged while still functioning at an efficient level to achieve organisational goals.

The effects of poor knowledge transfer and skill retention strategies identified by the research participants is aligned with the literature. From the perceptions of mining managers and the

literature alike it transpires that poor knowledge transfer and skill retention strategies can have a detrimental effect on organisational continuity.

To explore the strategies that are being utilised by South African mining organisations to ensure effective knowledge transfer and skill retention of baby boomers

The literature suggests that there are various means of transferring transfer knowledge and retaining skills within an organisation. This became evident as participants from different mining organisations indicated the strategies that are currently being employed to transfer knowledge and retain skills within their respective organisations. The strategies participants mentioned in this study are mentoring and coaching programs, on-the-job training, personal development plans, sharing of knowledge, technical training, working in teams, and in some organisations, participants indicated that no strategies are in place to transfer knowledge or retain skills within their organisation.

Gibbons (2017) defines *mentoring* as a process by means of which individuals share knowledge and experience aimed at developing those involved, while the success of the process is measured through gained knowledge and increased skills. Coaching can be described as a process by means of which an individual meets with an experienced and skilled colleague, referred to as a coach, on a regular basis, to clarify goals, discuss areas of skill improvement, and focus on developing the individual. Cronin (2019) further states that mentoring is an effective strategy for transferring knowledge and retaining that knowledge within the organisation. Coaching enables organisations to develop and retain employees within the organisation; thus ensuring that knowledge and skills remain within the organisation (Cameron, 2014).

Some participants indicated that their organisation utilises working in teams to transfer knowledge and retain skills. These teams are made up of younger or inexperienced employees as well as experienced employees to allow inexperienced employees to gain first-hand knowledge and learn how to apply the necessary skills practically in the work context. This is supported by Ghobadi and D'ambra (2012) who mention that working in a team setting is a brilliant way for employees to learn from one another and to ensure that knowledge and skills do not leave the organisation. Ghafoor and Zhang (2017) maintain that that transferring knowledge and skills through teamwork is an effective strategy. However,

the team dynamics should be of such a nature that it fosters a positive culture of knowledge- and skill-sharing.

Technical skills training was also indicated as a knowledge transfer and skill retention strategy in some of the mining organisations by participants of this study. Mining managers elaborated on the process of these technical skills training sessions in their organisations and explained that these training sessions are typically facilitated by more experienced employees with the aim of transferring their skills and knowledge to the attendees. These training sessions can assist the organisation in retaining vital skills and knowledge. Pappas (2018), however, contends that these strategies can only be effective if organisations equip the training facilitators with the necessary resources to effectively conduct the training session. The knowledge transfer model created by Piktialis and Greenes (2008) highlights that formal training is an effective method for transferring knowledge to younger inexperienced employees. When training is conducted to retain skills within the organisation, training sessions are one of the most effective strategies for transferring skills to younger generations, as emphasised by Lim (2015).

Some participants of the present research study reported that their organisations do not have any strategies in place to transfer knowledge and retain skills. These organisations are faced with the risk of losing valuable knowledge and skills when baby boomers leave the organisation. This is supported by Corwin (2015), who warns that organisations who do not have knowledge transfer and skill retention strategies in place will suffer from knowledge and skills loss in their organisations. The only way to prevent brain drain within organisations is by implementing and supporting knowledge transfer strategies within the organisation (Cancialosi, 2014).

By having in place knowledge transfer and skill retention strategies, it can be suggested that mining organisations then are aware of the importance of retaining knowledge and skills to some extent. The strategies that are being implemented by organisations are aligned with those suggested by literature. Although this is a good starting point, it should not be seen as a final solution to the risk of losing knowledge and skills, as organisations should also apply these strategies to their unique environment and culture.

To explore recommendations made by South African mining organisations to effectively transfer knowledge and retain the skills of baby boomers

Participants of the present research study provided recommendations to increase the effectiveness of knowledge transfer and skill retention within their organisation. The following strategies were recommended: organisations should make use of formal knowledge-transfer documents, on-the-job training, structured mentorship programs as well as well-structured mentorship programmes which form part of performance appraisals of employees.

It was recommended by participants that organisations have a formal knowledge transfer document or central location where knowledge can be saved and accessed. By having the experienced employees document their experiences and knowledge and making it accessible to other employees, the organisation can prevent knowledge and skill loss. One of the most effective tools to ensure that knowledge does not leave the organisation is by applying knowledge transfer strategies through which employee knowledge is constantly shared and catalogued in a central location in the organisation. This location can be on knowledge service-ware platforms, the organisations cloud storage, hard drives etc. (Sabio, 2017). Literature therefore supports the notion that having formal knowledge documentation in place can assist in the knowledge and skills transfer process. However, it is important to provide participants with clarity regarding these documents, such as how to access them and how to use them. This is supported by Tham (2017), who states that formal knowledge transfer documents are an effective strategy, but that it is important for organisations to provide in-depth instructions and detail when documenting the knowledge to avoid confusion.

On-the-job training was also recommended by most participants as a strategy for transferring knowledge and retain skills within the organisation. On-the-job training refers to a process by means of which organisations train employees during their typical working hours and in their typical work setting (Kelly, 2015). When conducting on-the-job training it is important to assign more experienced employees to supervise or facilitate the training to avoid costly mistakes and ensure on-the-job training is effective (Skentelbery, 2018). on-the-job training is an effective technique for transferring knowledge, retaining skills and preventing brain drain within organisations (Kennedy, 2018). Throughout the literature it is highlighted that

on-the-job training can be used as a method to effectively transfer knowledge and retain skills within an organisation.

Mining managers who participated in this research study also recommended that their organisations implement structured mentoring programs. Hairon et al. (2019) define a *structured mentoring program* as a process by means of which a mentor and mentee set up clear outcomes which they wish to achieve as well as the path to achieving these outcomes. Downie, (2015) maintain that structured mentorship programs are essential for transferring knowledge and skills of experienced employees. Trees (2016) elaborates on this by pointing out that structured mentorship programs are a key strategy in the knowledge and skills transfer process. When considering structured mentoring as a knowledge transfer and skills retention approach it is important for organisations to find the right balance between structure and restricting participation in the mentoring process.

To make recommendations for future research and practice

This will be addressed under the heading 3.3 *Recommendations*

3.2 Limitations

Although the research provided good insights into the perception mining managers have regarding the knowledge transfer and skill retention of baby boomers, some limitations were identified in this research study.

The first limitation identified is that of the sample size. The research study consisted of 16 managers within the mining industry ($N=16$). Although the data received from these 16 managers were rich and meaningful, it is still too small a sample size to generalise the results to the broader South African context. In addition to the sample size, a further concern was the demographic representation of research participants. The majority of the sample group were white (88%) males (94%). This is not a true representation of the diversity found within the South African workforce and as such it is not possible to generalise the results for the entire South African population.

A second limitation that was identified in the present study was that of language. The qualitative survey was available to be answered in English only and with the majority of the sample population being Afrikaans (63%), this could have caused participants to struggle with expressing themselves as clearly as they possibly could. MacIntire (2014) supports this by stating that language barriers can prevent people from fully expressing themselves when needed. Although Afrikaans participants were able to answer the questionnaire in English, it may have impacted their ability or willingness to elaborate on their answers.

Another possible limitation of this research study was the use of qualitative surveys as data collection method. This method promoted the accessibility of participants. However, it also presented certain challenges to the researcher. One of the challenges presented by the use of qualitative surveys is that the researcher was not able to probe further after participants had provided a response to questions. In addition to this, the researcher also found that some participants made use of industry- and organisation-specific abbreviations and terminology which was difficult to understand. Due to the nature of qualitative surveys the researcher was not able to ask for clarity on these abbreviations and terminologies as he would have been able to in a face-to-face interview setting.

Finally, the researcher collected data during a global pandemic. South Africa had undergone severe economic strain as a result of this and numerous organisations were restructuring and downsizing. This could have caused participants to hesitate to answer truthfully as they could have feared that this information could become known to their employers. In addition to the economic aspect of the pandemic, participants could also have been in a different state of mind as a large amount of change occurred in organisations during the pandemic, causing them to reason differently than would usually have been the case.

3.3 Recommendations

Recommendations can be made for organisations and for future research

3.3.1 Recommendations for the organisation

The results from the present study indicated the possible negative effects of having in place poor knowledge transfer and skill retention strategies within the organisation. Organisations

can utilise these results in conjunction with the results of similar studies to gain insight into the detrimental impact of poor knowledge transfer and skill retention strategies on the growth and success of the organisation. Organisations should communicate this impact to all employees of the organisation and can allocate individuals or departments to continuously review the existing knowledge transfer and skill retention strategies to ensure that it is implemented properly and also that it is up to date with best practice.

The majority of research participants made recommendations regarding strategies for transferring knowledge and retain skills, which differed from the current strategies employed by their organisations. This highlights that organisations should be attentive to the needs and challenges with which employees are faced when designing and implementing strategies. Organisations should therefore conduct an investigation to determine whether their current knowledge transfer and skill retention strategies address the problems employees are facing with regarding this phenomenon and whether the current strategies are making knowledge transfer and skill retention easy for employees or are only frustrating them. These investigations can be conducted bi-annually to ensure that they continuously identify and address new arising challenges and obstacles to knowledge transfer and skill retention. By creating or adjusting knowledge transfer and skill retention strategies to fit the needs of managers and that address organisation-specific obstacles, organisations will be able to receive better buy-in from all employees to implement the knowledge transfer and skill retention strategies.

Furthermore, organisations can use the results of the present research study to create awareness in the organisation regarding the importance of knowledge transfer and skill retention strategies. This awareness can be created by means of training days, workshops or through the organisation's learning management system (LMS). During this training employees should not only learn about the importance of knowledge transfer and skill retention but also be informed about the process and strategies followed within the organisation to effectively transfer knowledge and retain skills. Once employees are aware of the impact of losing valuable organisational knowledge and skills, they are more likely to participate in the implementation of the knowledge transfer and skill retention strategies of the organisation.

Organisations can implement policies where new employees have to receive mentorship or coaching for their first 90 days with the company or within a new position. This will assist employees in settling in in their new role more easily and they can be exposed to important skills and knowledge from the start. In addition to this, employees should be required to provide this mentoring and coaching to inexperienced employees once they reach a certain job level.

Lastly, organisations can allocate certain days or hours for different knowledge transfer strategies, for example employees should have been exposed to a minimum of 20 days on-the-job training per annum, should have received mentorship for 80 days per annum, and have attended skills training for 10 days per annum. By experiencing such a set structure, employees feel empowered to participate in knowledge transfer and skill retention strategies.

3.3.2 Recommendations for future research

Various recommendations can be made for future research. A larger sample size with wider diversity should be obtained in order to gain a true representation of the South African context. As the majority of the research participants were white males, it will be valuable to include all races and genders in future studies regarding the perceptions of knowledge transfer and skill retention of baby boomers. The researcher should also broaden the sample size in future research so as to enable a generalisation of results.

Furthermore, it is recommended to supply participants with questionnaires that are written in their home language. This study had 63% of participants who completed the questionnaire in a language different from their preferred/home language. By providing participants with options regarding the language in which they wish to answer the questionnaire, they will be able to express themselves more clearly and it will increase the comfortability of the data gathering process for participants. The researcher can also consider making use of traditional interviews to collect data. By conducting face-to-face interviews, the researcher will be able to probe further on statements as well as ask participants to explain certain abbreviations or terminologies. When using qualitative surveys, the researcher loses these advantages afforded by face-to-face interviews.

Another recommendation for future research is to possibly conduct a quantitative research study. As the focus of this research study was primarily based on perceptions and first-hand experiences of participants it can be valuable to investigate the relationship between poor knowledge transfer and skill retention strategies on the one hand and organisational productivity, sustainability and success on the other. A quantitative view will provide mining managers and organisations with an objective, scientifically sound indication of the impact of poor knowledge transfer and skill retention strategies on the organisation.

Lastly, the present research study was conducted during a global pandemic, leading to organisations restructuring. Participants were weary of answering the qualitative research surveys as they were afraid that the information gathered would be made known to their employers, despite the clear indication on the consent form stating that it is confidential and anonymous. It is thus recommended that the study be conducted when participants are more at ease, in order to gather more reliable and truthful information.

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